*Original Paper*

# A Study on the Bilingual Memes Compensation Mechanism in the "TikTok Refugees" Phenomenon on Xiaohongshu Empowered by Artificial Intelligence

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*Abstract*

*On January 17, 2025, the U.S. Supreme Court ruled on the bill that mandates TikTok to "sell or be banned" ordering ByteDance, TikTok's parent company, to complete the sale by January 19, 2025. Failure to do so would result in a nationwide ban of TikTok in the United States. This decision led a large number of TikTok users to migrate to Xiaohongshu, giving rise to the distinctive "TikTok Refugee" phenomenon. Bilingual memes on Xiaohongshu have since sparked heated discussions among internet users. Using AI-driven content analysis tools such as Doubao and Kimi, this study systematically examines the semantic compensation mechanism of visual symbols for textual annotations in such memes. The findings reveal that in cross-cultural communication, pure textual annotations often suffer from meaning loss due to cultural and semantic differences. In contrast, visual symbols can provide semantic compensation for textual annotations through strategies such as context reconstruction, effectively improving the consistency of meaning in cross-cultural contexts and breaking down barriers to cross-cultural communication.*

*Keywords*

*compensation mechanism, AI-driven content analysis, memes, Xiaohongshu*

## 1. Introduction

The internet has enabled interactive data communication at the Web 2.0 level (Gündüz, 2017; Calude, 2024), giving rise to the concept of social media. Against this backdrop, human experience has become more visual than ever before, and the demand for interaction among people through images has continued to grow. The term meme was first coined and popularized by Richard Dawkins (Dawkins,

2006). Internet memes, often referred to simply as "memes" in Chinese contexts, constitute a witty, multimodal, and digital internet language produced, shared, imitated, and modified by internet users (Shifman, 2013). Rooted in Dawkins' foundational conception of memes as "units of cultural transmission", contemporary scholarship has repositioned memes as multimodal, user-driven artifacts that spread ideas through adaptation and the sharing of cultural resonance (Shifman, 2013).

Memes generally serve as humorous representations of certain products or concepts; they can spread in their original form or spawn user-created derivatives (Buchel, 2012). Carried by intuitive images and concise textual annotations, memes possess strong visual impact, emotional appeal, and information dissemination power (Lin, 2019; Peng, 2019; Wang & Gu, 2023).

The rise of Xiaohongshu has facilitated the spread of memes, making them a central medium for individuals to conduct self-representation, express values, and claim group belonging. The influx of TikTok users onto the Xiaohongshu platform has further fostered the development of memes characterized by bilingual annotations plus visual symbols, providing unique research material for cross-cultural communication.

## 2. Related Studies

### 2.1 Multimodal Analysis of Social Media

Halliday (1978) coined the term "Semiotic Resources", which provides a signal perspective based on the relationships between modes. Van Leeuwen's (2005) concept of semiotic resources includes not only overt forms of communication such as language, gestures, visuals, and music, but also covert forms such as food, clothing, and ordinary objects with cultural value and significance. Since people's communication no longer relies on a single sign system (Li & Han, 2025a), the analysis of these sign systems is no longer confined to a single analytical model. Multimodal analysis involves combining two aspects or two modes in the process of text analysis to obtain meaning. These two modes include verbal mode and visual mode, which can be used to convey the intended information, meaning, representation of perspectives, and the significance of the displayed visual images. Therefore, the multimodal analysis method is regarded as the most effective approach to analyzing the meanings conveyed by memes or visual images (Gumilang & Juanda. 2018).

With the rapid development of social media, social media discourse has become a new focus of multimodal discourse research (Li, Feng, & Deng, 2024). Social media semiotics has attracted the attention of scholars. As a subfield of semiotics, social media semiotics studies how people create meaning in specific social and cultural contexts and seeks to interpret meaning-making as a social practice. To generate a variety of texts and meanings in various situational environments and culturally significant activity contexts, social media semiotics also draws on semiotic practices specific to cultures and communities. Therefore, multimodal texts on social media, such as posts on social media platforms like Facebook, WhatsApp, and Instagram, are the main focus of social media semiotics research (Hasyim & Arafah, 2023).

*2.2 Multimodal Analysis of Memes*

In the era of rapid internet development, memes are deeply loved by young people due to their unique expression methods and wide dissemination. Memes reflect their emotions and mentality and serve as a means to observe social phenomena and cultural trends (Zhang, 2025). As part of internet popular culture, memes have gradually penetrated into the daily lives of teenagers, to a certain extent affecting their ideological concepts and social behaviors (Mielczarek, 2024). Memes reflect the thinking modes and language styles of modern young people, becoming an important way for them to express themselves and vent their emotions on social networks (Zhang, 2025). In-depth analysis of memes on social media has found that young people like to use satirical, hateful, and suicidal memes. Scholars have carried out typological classification and special research on memes, focusing on the semiotic mechanisms and social implications of specific types of memes. For example, Lestari (2018) studied the types of satire used in memes on Instagram and their satirical meanings; black humorous suicidal memes have also become a common phenomenon on social media platforms, and Chen et al. (2025) conducted in-depth research on suicidal memes to explore their role in emotional catharsis. Studies have found that contemporary young people are facing multiple social pressures such as academic and workplace stress, and they often use the humorous effect of memes to symbolically transform repressed negative emotions.

## 3. Quantitative Verification of the Semantic Compensation of Memes

This study focuses on the semantic compensation mechanism of visual symbols for textual annotations in memes. The core hypothesis of the study is that, affected by cultural and semantic differences, when pure textual annotations lead to meaning loss, the intervention of visual symbols can make up for the missing meaning and improve the meaning congruence in cross-cultural contexts. The verification of this compensation effect needs to be based on quantitative analysis, that is, constructing a meme corpus containing indicators of meaning congruence, and conducting a comparative study on the cultural consistency of textual annotations and the effect of meaning reconstruction after image intervention. This research framework can reveal the cross-cultural operation mechanism of memes as a unique sign system—namely, bridging the cultural and semantic gap of linguistic symbols through the concrete signifying function of visual symbols—and also provide a theoretical basis for the optimization of cross-cultural functions of social platforms.

*3.1 Research Samples*

This study selected 50 typical Chinese-English bilingual memes under the "TikTok Refugee" topic on Xiaohongshu as analysis samples.

The criteria for sample selection are as follows:

a.    Having clear bilingual annotations (Chinese-English comparison) to highlight the bilingual characteristics;

b.    Containing prominent visual symbol elements;

c.     Time range: from January 13 to April 13, 2025;

d.     Selecting 50 memes that are the main images of posts with more than 1,000 likes and 500 comments.

After selecting the research samples, with the help of AI, so as to comprehensively and systematically present the semantic compensation rules of Chinese-English bilingual memes.

*3.2 Research Steps*

a.     Using Kimi Intelligent analysis tool to separately analyze the cultural background, values and other factors involved in the bilingual annotations of the memes. At the same time, trace the internet meme culture reflected in the annotations. Through this step, a cultural reference system for memes was established to provide a theoretical basis for subsequent semantic evaluation.

b.     Based on the cultural reference system established in Step a, conduct a cross-cultural semantic consistency score for the Chinese and English pure text annotations of the memes with the use of Doubao. A 5-point Likert scale was used for scoring, where 1 point indicates extremely low consistency, 3 points indicate moderate consistency, and 5 points indicate high consistency.

c.     After completing the scoring of pure text annotations, incorporate the nonverbal symbols in the memes into the evaluation system, and score the overall matching degree of the memes after adding visual symbols according to the same scoring system.

d.     Draw a bar chart (see Table 1) to intuitively present the comparative differences between the scores of pure text annotations and the matching degree of memes after adding visual symbols. Combined with the statistical test results, verify the semantic compensation effect of nonverbal symbols in cross-cultural meme communication.

e.     Calculate the average semantic consistency of pure text, as well as the average consistency after integrating non-verbal symbols.

AVERAGE (Plain Text Consistency) = 2.904

AVERAGE (Comprehensive Matching) = 4.27
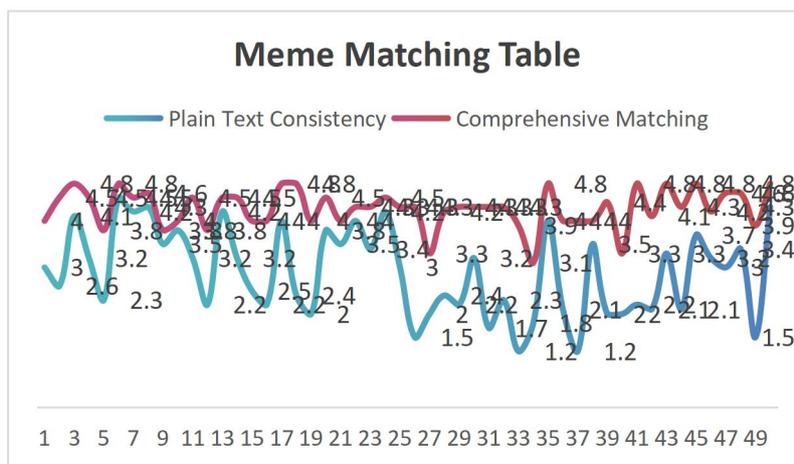


**Table 1. Line Chart of Cross-Cultural Semantic Consistency of Pure Text Annotations and Memes with Visual Symbols Added**

*3.3 Data Analysis*

This study adopted a 5-point Likert scale as the scoring standard (1 point = extremely low consistency, 5 points = high consistency). By conducting semantic consistency scoring on the pure text annotations of 50 samples, the average matching degree of pure text annotations in cross-cultural contexts was calculated to be only 2.904 points, which was significantly lower than the theoretical midpoint of 3 points on the scale. The research data verified the hypothesis that there are semantic differences between Chinese and English pure text annotations in cross-cultural contexts. Especially when involving cultural memes (such as "Zhen" [the imperial pronoun "I"] and "report to the central government"), due to the imbalance between Chinese and English cultural symbol systems, the phenomenon of meaning loss is likely to occur.

To further verify the core hypothesis that nonverbal symbols can make up for meaning loss and improve meaning congruence, this study further incorporated image symbols as annotation tools. Through a comparative study, it was found that the average score of the comprehensive matching degree of memes containing image symbols increased to 4.27 points, which was significantly higher than the average score of pure text annotations. This research result indicates that the intervention of visual symbols constructs an effective meaning compensation mechanism. This confirms that visual symbols can make up for the meaning loss in text translation through their intuitiveness that crosses language barriers, thereby significantly improving the congruence of cross-cultural communication under specific visual strategies. The following section will deeply analyze the specific strategies of visual symbols in making up for the semantic loss of textual annotations.

## 4. The Semantic Compensation Mechanism of Memes

*4.1 Visual Translation of Cultural Contexts by Film and Television IP Images*

Using background images from TV dramas familiar to both domestic and overseas netizens in memes can supplement and correct the semantic meaning of text, facilitating accurate understanding in cross-cultural communication. The background image of this meme is a screenshot from the Chinese costume palace drama The Legend of Zhen Huan. According to the collation of overseas data by Xiaohongshu blogger "How Foreigners See It", The Legend of Zhen Huan, as a representative work of Chinese cultural export, has gained wide recognition on international platforms. According to his statistics, as of September 2024, the global cumulative views of The Legend of Zhen Huan have reached 11.58 billion. On the overseas video streaming platform IMDb, the original version of The Legend of Zhen Huan has a rating of 8.4, and the American version has a rating of 8.7. This fully indicates that the character images and plot settings in The Legend of Zhen Huan have broken through cultural barriers, becoming a shared visual cognitive symbol among Chinese and foreign users, and laying a solid foundation for the cross-cultural semantic transmission of memes.

Netizens added the text "Are you new here? Why have I never seen you before?" on the basis of this background image. On the surface, this sentence is an interrogative sentence, but in fact, it is a kind of

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teasing from Chinese netizens to foreign users, not a real inquiry. Understanding this meme needs to be based on the TV drama The Legend of Zhen Huan. If foreign users only interpret the meme at the textual level, they are likely to mistakenly think that Chinese netizens are asking whether they are new users of Xiaohongshu. However, the actual situation is that Chinese netizens intend to tease, not to seek an accurate answer. Therefore, simple textual annotations tend to make users ignore the implicit teasing intention in the Chinese context, leading to the loss of cross-cultural semantics.

However, the intervention of nonverbal symbols has effectively bridged this semantic gap. In the background image, the emperor rests his chin with one hand, raises the corner of his mouth slightly, and his eyes carry the scrutiny of a superior and the inquiry about the "newcomer". Through the concrete portrayal of facial expressions, this visual symbol not only restores the contextual scene of the lines but also endows the textual annotations with an emotional tone of "teasing rather than questioning". When users receive the multimodal symbol of "textual annotations + image", the facial expressions and gestures of the characters in the picture will guide them to go beyond the surface of the language and understand that the real intention of this expression is an interesting interaction with new users, rather than a serious factual inquiry. In this process, visual symbols have realized the compensation and correction of pure textual semantics through the strategy of context reconstruction, demonstrating the unique effectiveness of multimodal symbol collaboration in cross-cultural communication.



**Figure 1. Screenshot from the Chinese Costume Palace The Legend of Zhen Huan**

*4.2 Synesthetic Transmission of Cross-Cultural Emotions Through Universal Symbols*

In the online context, "You see, you're getting anxious again" in Figure 2 is a common colloquial expression, usually with a tone of teasing, rhetorical questioning, or mild reproach. It is mostly used among friends and acquaintances; when the other party becomes irritable over trivial matters, people will use this sentence to tease them, which implies the meaning of "don't get upset so easily". The English annotation "You see, it's urgent again" is an expression in the English context, which literally means "You see, it has become urgent again". It is mainly used to emphasize that something or a certain situation has fallen into an urgent state again, which may be just an objective description of the current situation, or may imply dissatisfaction and helplessness with the frequent occurrence of urgent situations.

The background image of this meme is a cat, behind which hides an interesting history of cross-platform cultural interaction. When TikTok users migrated to the Xiaohongshu platform, many

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Chinese netizens who love small animals took the opportunity to joke, saying that Xiaohongshu required "submitting photos of your cat as a 'cat tax' to check in"—that is, the "cat tax" meme. Therefore, many foreign netizens successively posted photos of their cats to pay the "cat tax", making the cat element soar in popularity in the cross-cultural social interaction field.

The cat in the picture has round, big eyes, and its eyes show a faint sense of confusion and innocence. This expression, which combines innocence and healing power, dissolves the original "reproachful" tone into gentle teasing. Netizens from different cultural backgrounds do not need to deeply interpret the contextual differences behind the text; they can accurately capture the core of the relaxed and humorous atmosphere only through the cat's expression, realizing the resonant transmission of cross-cultural emotions.



**Figure 2. "You see, it's Urgent Again"**

*4.3 Character Trait-Driven Semantic Enhancement Mechanism*

The Internet hot word originates from the cute copywriting, which is an imitation of the tone of the animal's speech, and the original meaning is "real or fake". Originally, the word was used to express doubts and surprises, but with the spread and evolution of the Internet, it can now be used not only to express doubts and surprises, but also to be sarcastic and ridicule, and even to express crazy and weird emotions. And the English note "Really?", although the tone of rhetorical questions is retained, it is difficult to convey the complex emotional layers, especially the subtle feelings of sarcasm.

In the image is a pink beaver named Loopy, a character in the TV cartoon Pororo, the Little Penguin produced by Iconis Entertainment in South Korea. As a visual vehicle for emotional expression, the multifaceted personality of this character becomes the core engine of semantic enhancement. Loopy is sensitive and shy, but also very mischievous. She is both nervous and worried about the reckless behavior of the protagonist Pororo, and she also exudes complex emotions of envy for his freedom and ease; There is both a kind and shy side, and occasionally teasing others. This three-dimensional image of "social phobia and mischievous coexistence" accurately captures the subtle psychology of contemporary young people in social interaction: they are eager to interact sincerely, but they also

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instinctively resist excessive socialization. The result is an emotional resonance for users across cultures. In Fig. 3, Loopy's eyes widened and his mouth slightly open in surprise are similar to those of "Really?". The doubts conveyed are highly compatible, and its own personality characteristics add a ridiculous and weird emotional color to this meme. The meme package can convey richer and more vivid emotions in online social networking, which effectively makes up for the shortcomings of the semantic communication of pure text.



**Figure 3. Loopy**

## 5. Conclusion

Taking the unique "TikTok Refugee" phenomenon—where TikTok users migrate to Xiaohongshu—as the entry point, this study conducts an in-depth analysis of the semantic compensation mechanism of visual symbols for textual annotations in memes. The study finds that in cross-cultural communication scenarios, pure textual annotations are prone to meaning loss due to differences between Chinese and English cultural symbol systems, while visual symbols can improve the meaning congruence in cross-cultural contexts through strategies such as the synesthetic transmission of cross-cultural emotions via universal symbols. Essentially, this phenomenon is a microcosm of the collision between globalization and localization. The direct expression in Western individualistic culture (e.g., the English annotation "Are you new here?") and the metaphorical habits in the Chinese collectivist context (e.g., the borrowing of the imperial power symbol "emperor") achieve meaning reconciliation through the visual translation of image symbols. This symbolic interaction is neither a one-way cultural export nor a simple semantic compromise, but a process in which different cultural subjects jointly construct a third culture through multimodal symbols in the digital space. For instance, the combination of film and television screenshots from The Legend of Zhen Huan and Chinese-English teasing texts not only retains Chinese palace culture elements but also lowers the threshold of cross-cultural understanding through visual narration, reflecting the transformation of cultural differences from conflict points to dialogue points.

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