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A Study on the Semantic Differences of Emojis

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Abstract: This paper takes the folded-hands emoji (🙏), the grinning-with-teeth emoji (😬), the red heart emoji (❤), and the smiling face emoji (☺) as research objects, and examines the semantic differences and pragmatic functions of emojis in digital communication. The study is based on the enTenTen21 English web corpus in Sketch Engine, the position frequency, sentiment analysis, and trend data of Emojiall, and qualitative examples from public Twitter posts. The study finds that the four types of emojis each have core meanings, but in context they all exhibit polysemy and metaphorical extension to varying degrees: the folded-hands emoji extends from religious prayer to requests and thanks, the grinning-with-teeth emoji highlights intense happiness, the red heart emoji focuses on affection and positive evaluation, and the smiling face emoji expresses a mild and friendly social attitude. Emojiall data show that all four types of emojis are mainly used at the end of sentences, with positive sentiment dominant, but there is a gradient in emotional purity. This paper introduces Peirce's triadic sign theory, semantic polysemy and metaphorical mapping, speech act theory, politeness theory, and relevance theory, emphasizing that cross-cultural differences should not be simply equated with national differences, but should be understood within multiple layers including language, religious tradition, platform culture, and user groups. This paper does not construct an emoji sense disambiguation model, but it can provide a semantic–pragmatic descriptive reference for the emoji meaning prediction and disambiguation task proposed by Shardlow.

Keywords: Emoji; Semantic difference; Pragmatic function; Corpus linguistics; Cross-cultural pragmatics

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1. Introduction

In digital communication, emojis have become an important component of private messages, social media interaction, and online public discussion. They not only convey facial expressions and emotions, but also undertake functions such as meaning expression, tone adjustment, and maintenance of social relationships [1]. The same emoji may trigger different interpretations in different contexts; for example, "fire" can refer to actual fire, but can also indicate heat or attractiveness. This polysemy makes emojis an important research object in semantics and pragmatics.

Existing research has mostly focused on the emotional functions, usage frequency, and cross-platform

distribution of emojis, but there is still a lack of detailed discussion of the semantic differences, metaphorical extension, and cross-cultural pragmatic conditions of specific symbolic emojis [2–5]. This paper takes the folded-hands emoji, the grinning-with-teeth emoji, the red heart emoji, and the smiling face emoji as entry points, and with the help of Sketch Engine and Emojiall, examines their usage trends, collocational relations, and emotional tendencies. This paper attempts to answer three questions: first, what are the differences among the four types of emojis in core meaning, extended meaning, and metaphorical extension; second, how are their collocations and pragmatic functions reflected in the corpus; third, how do factors such as language, religion, platform, and user group influence their understanding and use.

2. Literature review and theoretical framework

Emojis were initially called emoticons, using keyboard punctuation marks to form facial expressions, and were used to clarify intention, express emotion, and improve communication efficiency in ambiguous contexts [6]. The word "emoji" originated from Japanese, meaning picture characters, and was standardized by the Unicode Consortium, enabling cross-platform use [7]. Existing definitions hold that emojis are visual symbols used in computer-mediated communication to convey emotions, ideas, and reactions, and can represent not only facial expressions but also animals, activities, and gestures [2, 8]. Research has also found that emojis have functional equivalence with facial expressions and can effectively convey emotion and reduce ambiguity [4]; Fricke et al. further pointed out that visually similar facial expressions also have meaningful semantic differences, indicating that emojis are conventionalized signals rather than merely pictures of faces [5].

The research object of this paper, emojis, is not a symbol in Peirce's strict sense, but refers to commonly used emojis that have relatively strong conventionality in communication, can carry non-literal meaning, and can undergo semantic extension in context. They possess both iconicity and symbolicity, relying on visual form as well as cultural convention and contextual inference. According to Peirce's triadic sign theory, the grinning-with-teeth emoji has obvious iconicity because its visual form resembles a human smile; the red heart emoji has both indexical and symbolic features, pointing to an emotional state while also conventionally expressing affection; the folded-hands emoji is closer to a symbol in religious culture, and its meaning comes from commonly agreed prayer, blessing, and piety. For this reason, visual similarity of emojis does not equal semantic identity. This definition helps distinguish this paper from "emoji sentiment analysis" in the general sense, and also helps form a dialogue with the emoji sense disambiguation research of Shardlow et al. [9].

From the perspective of semantics, emojis can be distinguished in terms of core meaning, extended meaning, polysemy, and metaphorical mapping. The core meaning of the folded-hands emoji is religious prayer, extended to request, thanks, and blessing; the core meaning of the grinning-with-teeth emoji is happiness and excitement, with few extended meanings; the core meaning of the red heart emoji is love and affection, and its polysemy mainly unfolds within the scope of emotional preference; the core meaning of the smiling face emoji is mildness, friendliness, and good mood, and its emotional intensity is weaker than that of the grinning-with-teeth emoji. The polysemy of emojis is not arbitrary, but is jointly constrained by context, collocation, and cultural convention. Li and Yang discussed the pragmatic functions of emojis from a corpus perspective, showing that the meaning of emojis needs to be examined in real interaction [10].

From the perspective of pragmatics, emojis can perform speech acts such as requesting, thanking, greeting, and blessing [11]. Politeness theory helps explain how the smiling face emoji and the red heart emoji

maintain positive face, and how the folded-hands emoji mitigates the face threat of requests [12]. Relevance theory explains that emojis provide weak communicative cues, and recipients need to infer the speaker's intention in context [13]. The extension of the folded-hands emoji from prayer to request and thanks precisely reflects this pragmatic transfer: prayer itself is a wish act, and thanks is a response to a favor; when it is used in daily requests, the pious gesture is borrowed to express sincerity and reduce the offense that a request may bring.

Cross-cultural pragmatic research cannot simply divide culture by country. This paper prefers to distinguish layered factors such as language community, religious tradition, platform culture, and user group. In addition, Shardlow et al. constructed a corpus for emoji meaning prediction and disambiguation, emphasizing that one emoji can correspond to multiple meanings [9]. This paper does not train a disambiguation model, but through collocation analysis and pragmatic description, provides interpretable semantic–pragmatic dimensions for the emoji disambiguation task.

3. Research questions

Based on the above background, this paper proposes the following research questions. First, what are the core meanings, extended meanings, and metaphorical extensions of the folded-hands emoji (🙏), the grinning-with-teeth emoji (😀), the red heart emoji (❤), and the smiling face emoji (🙂) in the corpus, and are there systematic differences among them. Second, how do the collocations, emotional intensity, and pragmatic functions of these emojis reflect their semantic differences, especially how the folded-hands emoji extends from religious prayer to daily requests and thanks. Third, how do factors such as language community, religious tradition, platform culture, and user group influence the understanding and use of emojis. The study answers the above questions with corpus evidence and theoretical explanation.

4. Research methods

This paper adopts an exploratory design combining corpus-driven analysis and qualitative pragmatic analysis. The research objects are the folded-hands emoji (🙏), the grinning-with-teeth emoji (😀), the red heart emoji (❤), and the smiling face emoji (🙂). The study is based on the enTenTen21 English web corpus in Sketch Engine, combined with the position frequency, sentiment analysis, trend chart, and word co-occurrence data in Emojiall, and through manual reading of examples, it summarizes the core meanings, extended meanings, metaphorical extensions, and pragmatic functions of the four types of emojis.

The study uses two main tools. First, Sketch Engine. This tool is a mature corpus query and analysis platform that supports frequency statistics, distribution analysis, and collocation research [14]. The corpus used in this paper is English Web 2021 (enTenTen21), with a corpus size of 52,268,286,493 tokens. Specific operations include: taking the four types of emojis as query items, retrieving their Number of hits, Number of hits per million tokens, Percent of the whole corpus, and Distribution of hits in the corpus in Concordance; extracting examples and observing collocations and co-occurrence contexts. Second, Emojiall. This website provides position frequency, sentiment analysis, trend chart, and word co-occurrence information for emojis. This paper uses its four modules: Emoji Position and Frequency, Emoji Sentiment Analysis, Trend Chart, and Relation of emojis and words, with data based on the English label.

In the experimental operation, the Unicode characters of the four types of emojis were used as query

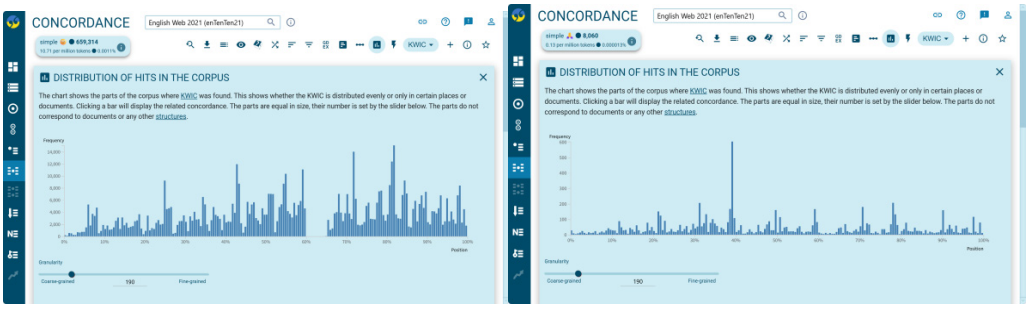
items in Sketch Engine, and simple queries were executed respectively to record the number of hits, hits per million tokens, percentage of the whole corpus, and distribution chart. Emojiall data are based on the English label, recording the position frequency of the four types of emojis from sentence head to sentence end, the proportions of positive/neutral/negative sentiment, and the popularity trend from 2021 to 2025. Word co-occurrence information is taken from the Relation of emojis and words results in Emojiall and is used to assist in judging semantic tendencies. The examples come from English public Twitter posts retrieved by Sketch Engine; @ usernames have been replaced with @user, and URLs are retained in the form of URL.

The analysis proceeds in the following steps. First, frequency and distribution analysis. In Sketch Engine, record the number of hits, hits per million tokens, and the percentage of the four types of emojis, and observe whether their distribution charts are uniform and whether there are obvious peaks. Second, perform position and sentiment analysis. Use the position frequency chart in Emojiall to judge the distribution tendency of emojis at the sentence head, middle, and end; use the sentiment analysis chart to record the proportions of positive, neutral, and negative sentiment; and use the trend chart to observe popularity changes. Third, semantic and pragmatic analysis. Combine the Concordance examples in Sketch Engine, the co-occurrence words and trend chart in Emojiall, and classify the core meaning, extended meaning, metaphorical extension, and pragmatic function of each emoji. Pragmatic classification refers to speech act theory, politeness theory, and relevance theory, and examines whether emojis are used for requesting, thanking, blessing, greeting, expressing happiness, expressing affection, or maintaining politeness [11–13]. Fourth, triangulation. Compare the frequency and distribution results of Sketch Engine, the position and sentiment results of Emojiall, and manual example reading with one another, retain consistent evidence, and mark conflicts and ambiguities.

5. Research results

5.1. Overall results

Figure 1 presents the retrieval result details of the four types of emojis in Sketch Engine. In the enTenTen21 corpus, the usage frequencies of the four types of emojis differ significantly. **Table 1** shows the basic information of the four types of emojis according to their frequency of occurrence in the corpus. The smiling face emoji has the highest frequency, followed by the red heart emoji, the folded-hands emoji, and the grinning-with-teeth emoji in descending order. From the distribution charts, the occurrence of the four types of emojis in the corpus is uneven, and the peaks of the four types of emojis are all different. These peaks indicate that the use of emojis is greatly influenced by specific documents or topics, rather than being evenly distributed.



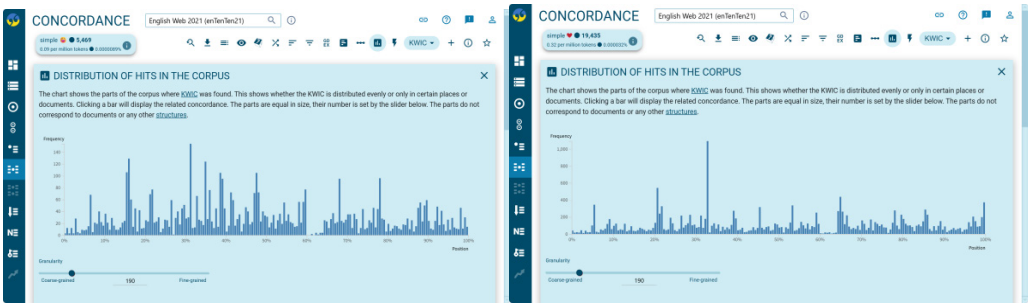


Figure 1. Retrieval results of the four types of emojis in Sketch Engine

Table 1. Details of the retrieval results of the four types of emojis in Sketch Engine

Rank	Emoji	Number of hits	Hits per million tokens	Percent of whole corpus	Distribution peak position	Peak value
1	Smiling face emoji	659,314	10.71	0.0011%	approx. 80%	approx. 14,000
2	Red heart emoji	19,435	0.32	0.000032%	approx. 33%	approx. 1,000
3	Folded-hands emoji	8,060	0.13	0.000013%	approx. 38%	approx. 600
4	Grinning-with-teeth emoji	5,469	0.09	0.0000089%	approx. 30%	approx. 140

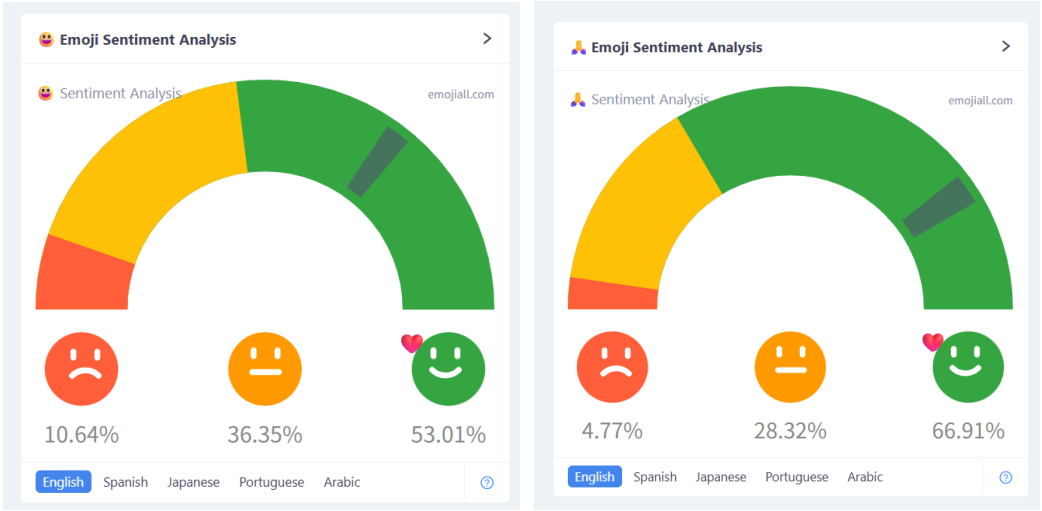
Figure 2 presents the position frequency of the four types of emojis in Emojiall. Under the English label, all four types of emojis show an obvious sentence-final preference: the frequency at the sentence head is the lowest, and the frequency increases closer to the sentence end, reaching the highest value at the sentence end. This trend is highly consistent across the four emojis, indicating that in the English online context, these emojis are usually placed at the end of sentences, functioning to conclude, supplement tone, or express attitude.





Figure 2. Position frequency distribution of the four types of emojis in Emojiall

Figure 3 presents the sentiment analysis results of the four types of emojis in Emojiall. All four types of emojis are dominated by positive sentiment, but the neutral and negative proportions differ. The smiling face emoji has 89.21% positive sentiment, 9.13% neutral, and 1.66% negative; the red heart emoji has 89.03% positive, 10.16% neutral, and 0.82% negative; the folded-hands emoji has 66.91% positive, 28.32% neutral, and 4.77% negative; and the grinning-with-teeth emoji has 53.01% positive, 36.35% neutral, and 10.64% negative. It can be seen that the smiling face emoji and the red heart emoji have the strongest positive tendency, the folded-hands emoji has a relatively high neutral proportion, and the grinning-with-teeth emoji has the relatively highest negative and neutral proportions.



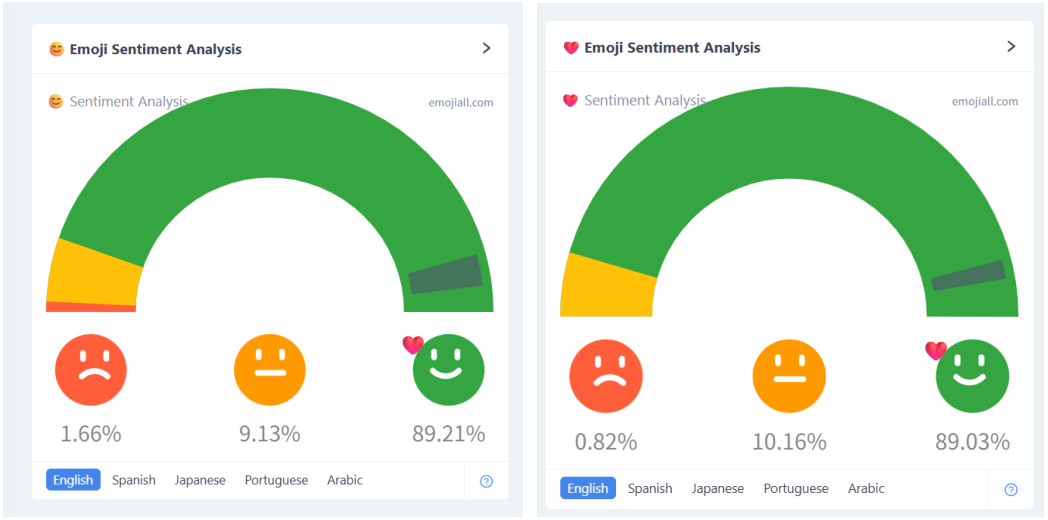


Figure 3. Sentiment analysis results of the four types of emojis in Emojiall

Figure 4 presents the popularity trends of the four types of emojis in Emojiall. The popularity of the four types of emojis from 2021 to 2025 generally shows an upward or fluctuating upward trend. The folded-hands emoji rises from about 20 in 2021 to close to 100 in 2025; the red heart emoji rises from about 30 to close to 100; the smiling face emoji reaches a peak in 2022 and then fluctuates, remaining at a relatively high level in 2025; and the grinning-with-teeth emoji shows an obvious peak in 2025. This indicates that the usage activity of these emojis in English online communication in recent years has continued to increase.

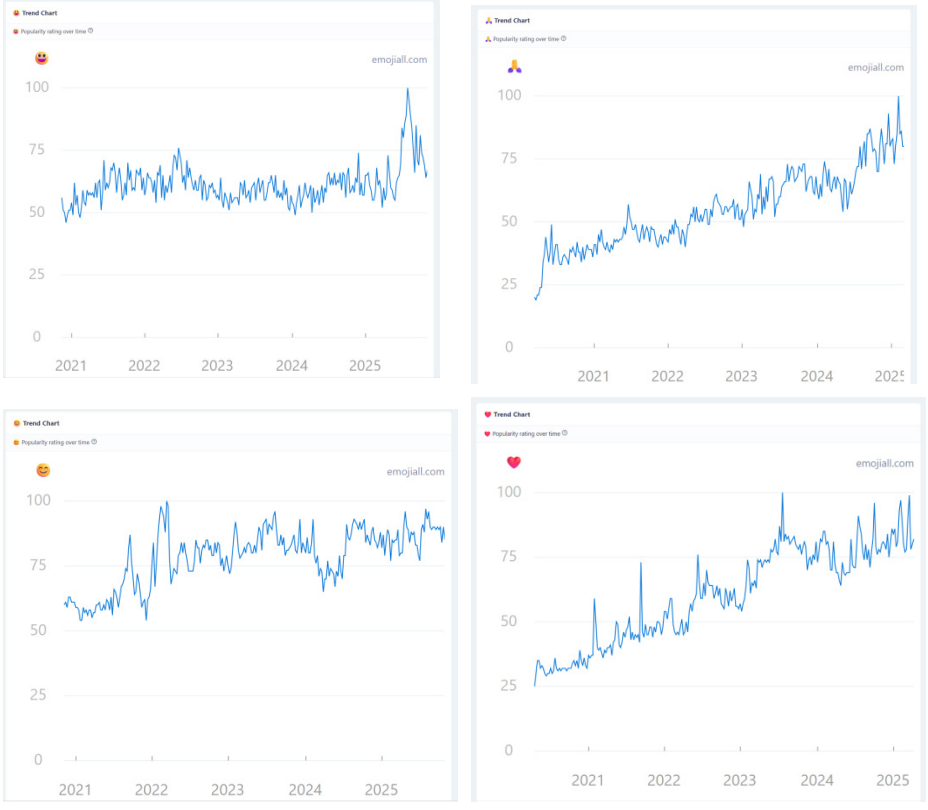


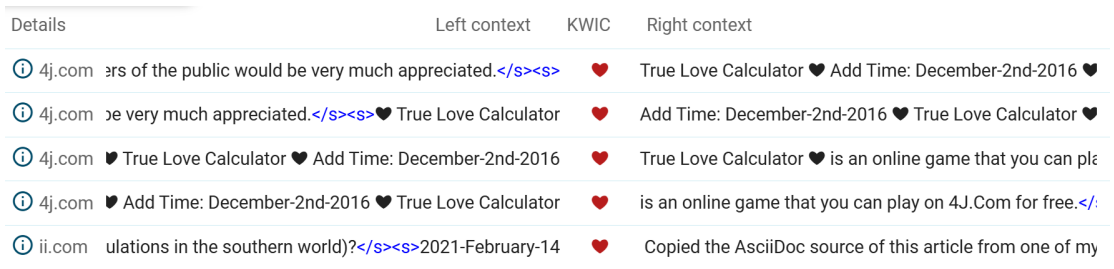
Figure 4. Popularity trends of the four types of emojis in Emojiall from 2021 to 2025

5.2. Semantic differences

Figure 5 shows the first five examples of the four types of emojis retrieved in Sketch Engine. From the perspective of core meaning, the four types of emojis each have their own emphasis. The core meaning of the folded-hands emoji is prayer, request, and thanks at the religious or spiritual level. In the corpus, it often co-occurs with hope, amen, pray, and bless; for example, "Hope everything goes smoothly" with this emoji expresses a prayer emotion. Its meaning is not limited to religion, and in some online contexts it can be extended to asking for help or expressing thanks. The core meaning of the grinning-with-teeth emoji is happiness, joy, and excitement; its meaning is direct and usually triggered by specific events; for example, "I had so much fun today" with this emoji highlights positive emotion, and it has few extended meanings. The core meaning of the red heart emoji is love, affection, and passion; its polysemy mainly unfolds within the scope of emotional preference and positive evaluation, and the range of semantic variation is not large. The core meaning of the smiling face emoji is mild, friendly, and stable positive emotion; for example, "Nice to meet you" with this emoji reflects politeness and friendliness, and its emotional intensity is weaker than that of the grinning-with-teeth emoji.

From the perspective of semantic emphasis, the folded-hands emoji emphasizes inner piety, respect, and expectation for a certain result; whether it is religious prayer or a daily request, it carries a psychological appeal for blessing or help. The grinning-with-teeth emoji highlights the intense happiness and excitement brought by specific events or situations, emphasizing the current state of high spirits. The red heart emoji focuses on love and affection, emphasizing the emotional connection and positive evaluation between people, and between people and things. The smiling face emoji focuses on conveying a peaceful and friendly social atmosphere; it is an implicit expression of positive emotion and is often used in daily social interaction to show goodwill.

From the perspective of metaphorical extension, the folded-hands emoji extends from the original meaning of religious prayer to expectation and entreaty for various things in life. For example, "Hope to pass this exam smoothly" metaphorically extends the expectation for divine blessing to the expectation for the exam result, which can be regarded as extending spiritual appeal to secular affairs. The grinning-with-teeth emoji can be extended to an attitude of being full of enthusiasm and positivity towards life, for example, "Keep this state every day and live happily," extending a specific happy emotion to a life attitude. The red heart emoji can be extended to the aspiration and cherishing of beautiful things, for example, "We should protect this beauty with our hearts," extending the love for specific people or things to the protection of abstract beautiful things. The metaphorical extension of the smiling face emoji is weaker, but it can be extended to creating a harmonious social environment, for example, "How nice it would be if everyone could get along with a mood," extending individual mild emotion to the creation of group social atmosphere.



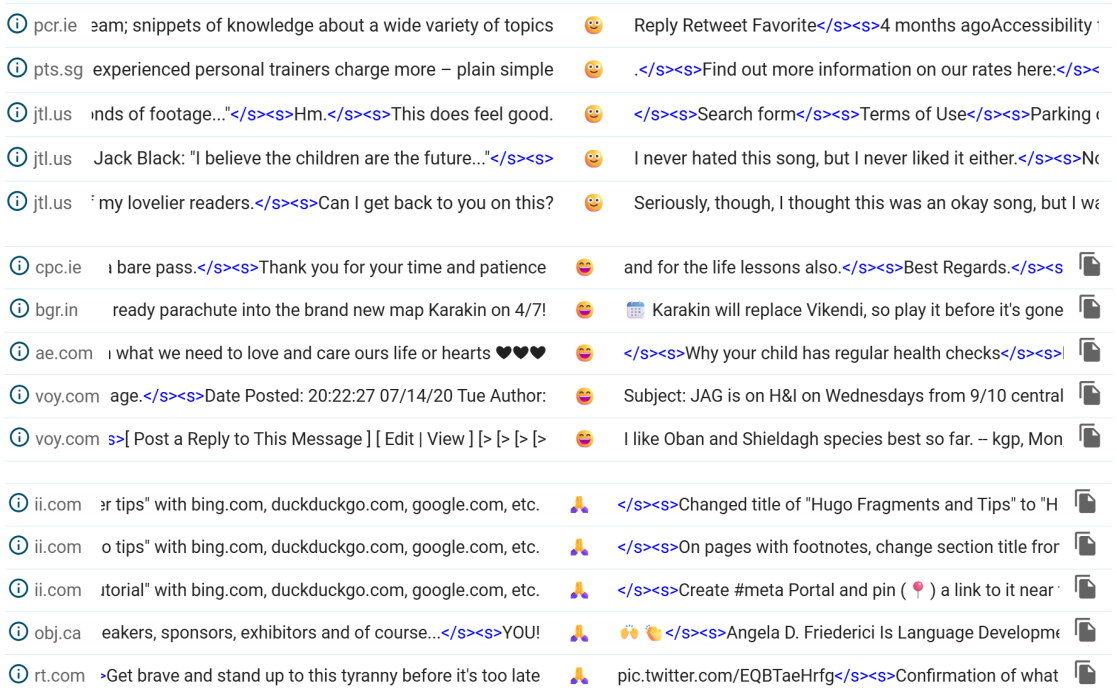


Figure 5. Example sentences of the four types of emojis in Sketch Engine

5.3. Pragmatic contexts

From the perspective of pragmatic functions, all four types of emojis can perform speech acts. The folded-hands emoji is used for prayer and blessing in religious contexts, and for requesting and thanking in daily contexts; its pious gesture can mitigate the face threat of requests. The grinning-with-teeth emoji is mainly used to express intense happiness and excitement, and often appears in relaxed scenes such as friends' gatherings and sharing good news. The red heart emoji is used to express affection, thanks, and positive evaluation, and often appears in the expression of emotional relationships and affection for things. The smiling face emoji is used for greeting, polite interaction, and maintaining a friendly atmosphere, and often appears in daily social interaction and business communication.

From the perspective of emotional intensity, the folded-hands emoji has high intensity in religious contexts, expressing piety and reverence; in daily requests, its intensity is weaker, but it still carries sincerity. The emotional intensity of the grinning-with-teeth emoji is clear, being fairly strong happiness and excitement, and there is little difference in how different cultures understand it. When the red heart emoji expresses love, its emotional intensity varies by culture and specific situation: in Western cultures it may represent deep love, while in Eastern cultures, when used for liking among friends, it is weaker. The emotional intensity of the smiling face emoji is weaker, mainly conveying a faint, peaceful positive emotion, and different cultures understand it relatively consistently.

From the perspective of frequency of use, the folded-hands emoji is used relatively frequently in regions where religious activities and culture prevail; in daily communication unrelated to religion, its frequency is lower, unless it is used to express particularly sincere requests or feelings. The grinning-with-teeth emoji is used relatively frequently in relaxed scenes such as friends' gatherings and sharing interesting things on social media, while its frequency decreases in formal occasions such as business meetings and academic lectures. The red heart emoji is used relatively frequently when expressing emotional relationships and

affection for things, and its frequency is lower in scenes unrelated to emotion, such as simple work reports. The smiling face emoji is used relatively frequently in daily social interaction, whether for greeting people when meeting, simple greetings, or interaction on social platforms; in particularly serious and formal occasions, its frequency decreases significantly.

From the perspective of collocational habits, the folded-hands emoji is often collocated with words such as deities, Buddha, and blessing in religious contexts, as in "May Buddha bless you"; in daily request contexts, it is often collocated with words such as please, help, and beg, as in "Please help me with this matter." The grinning-with-teeth emoji is usually collocated with words such as fun, interesting, and happy, and in online language it is also collocated with exaggerated words such as super and invincible to strengthen happy emotion. The red heart emoji is often collocated with words such as love, like, and darling when expressing love, and with words such as like, amazing, and wonderful when expressing affection for things. The smiling face emoji is often collocated with words such as hello, nice to meet you, and hello everyone, as in "Hello, nice to meet you"; in online language, it is also collocated with simple words to express emotion and feelings.

Overall, the four types of emojis all exhibit polysemy and context dependence in the corpus, but there are systematic differences in their semantic emphasis, emotional intensity, frequency of use, and collocational habits. The folded-hands emoji extends from religious prayer to daily requests and thanks, the grinning-with-teeth emoji highlights intense happiness, the red heart emoji focuses on affection and positive evaluation, and the smiling face emoji expresses a mild and friendly social attitude.

6. Conclusion and implications

6.1. Research summary

This paper takes the folded-hands emoji (🙏), the grinning-with-teeth emoji (😀), the red heart emoji (❤), and the smiling face emoji (🙂) as research objects, and adopts a research method combining corpus-driven analysis and qualitative pragmatic analysis. The study is based on the frequency, distribution, and collocation results of the enTenTen21 corpus in Sketch Engine, supplemented by the position frequency, sentiment analysis, and trend data of Emojiall, and through manual reading of public Twitter examples, it summarizes the core meanings, extended meanings, metaphorical extensions, and pragmatic functions of the four types of emojis.

The study draws conclusions in three aspects. First, all four types of emojis exhibit polysemy and context dependence, but their semantic division of labor is relatively stable: the folded-hands emoji extends from religious prayer to requests, thanks, and secular expectations, the grinning-with-teeth emoji mainly expresses intense happiness, the red heart emoji focuses on affection and positive evaluation, and the smiling face emoji emphasizes a mild and friendly social attitude. Second, in the English online context, all four types of emojis are mainly used at the end of sentences, with positive sentiment dominant, but there is a gradient in emotional purity. Third, cross-cultural differences should not be simplified into national differences, but should be understood as the result of the joint action of multiple layers including language community, religious tradition, platform culture, and user group.

6.2. Research implications

At the theoretical level, the study reveals several specific mechanisms of emoji meaning generation. First, the symbolicity of emojis is not mutually exclusive, but continuously distributed: the grinning-with-teeth emoji has relatively strong iconicity, and its meaning is therefore relatively direct; the red heart emoji has both

indexical and symbolic features, and its meaning covers emotional orientation and cultural convention; the folded-hands emoji has the strongest symbolicity, and therefore relies more on religion, ritual, and contextual convention. Second, the polysemy of emojis is not disordered, but is centered on the core meaning and constrained by collocation and pragmatic function. The extension of the folded-hands emoji from prayer to request and thanks shows that pragmatic behavior can in turn shape the direction of semantic extension; the polysemy of the red heart emoji is mainly limited to the category of emotional preference, showing that the extension of emotional symbols is constrained by cultural emotional categories; the intensity difference between the smiling face emoji and the grinning-with-teeth emoji shows that there is a gradient within positive emotion. Third, emojis provide weak cues in communication, and their meaning requires recipients to make relevance inferences in combination with context, collocation, and social relationships; therefore, emoji sense disambiguation cannot rely solely on visual similarity, but should also incorporate pragmatic function and cultural context.

At the practical level, this paper has certain reference value for cross-cultural communication, pragmatic teaching, platform emoji design, and NLP emoji meaning prediction. Collocations, emotional intensity, and sentence-final position preference can serve as auxiliary features for emoji meaning annotation, providing a linguistic basis for the emoji sense disambiguation task. For cross-cultural communication, understanding the differences in the use of the same emoji in different language communities and platform cultures helps reduce misreading; for platform design, the semantic gradient of emojis prompts product designers to pay attention to the differences in the applicability of emojis in formal and informal scenarios; for pragmatic teaching, the sentence-final preference and emotional intensity differences of emojis can serve as specific content for cultivating digital pragmatic competence.

This study also has the following limitations. First, the corpus platform is biased towards English web pages. Sketch Engine uses the enTenTen21 English web corpus, and Emojiall data are also mainly based on English labels, so the conclusions mainly apply to the English online context and cannot be directly generalized to other languages. Second, cross-cultural stratification is insufficient. This paper does not conduct stratified sampling by language, religion, region, or user group, and cross-cultural judgments can only serve as hypotheses to be verified, rather than statistical conclusions. Third, no statistical significance test or annotation consistency test was conducted. Semantic classification is mainly based on manual reading, lacking double annotation and consistency indicators, so the results are exploratory observations. Fourth, as a third-party platform, Emojiall's data sources and calculation methods are not fully public, and the reliability of its sentiment analysis and position frequency needs to be treated with caution. In addition, the distribution charts of Sketch Engine show that the hits of the four types of emojis are not uniform, with obvious peaks, indicating that their use is greatly influenced by specific documents or topics, and this paper has not further controlled for topic and event variables.

Future research can be advanced in the following directions: expand multilingual and multi-platform corpora, conduct stratified sampling by language, religion, platform, and user group, introduce manual annotation and consistency evaluation, combine statistical models with large model contextual embeddings, further compare emoji usage differences in different contexts, and construct an interpretable emoji sense disambiguation framework. Particularly worth advancing is the integration of position, sentiment, collocation, and pragmatic function into a multidimensional annotation system, and testing its explanatory power in scenarios such as irony, teasing, and cross-cultural misreading. Only in this way can emoji research move from case description to more generalizable and verifiable semantic–pragmatic analysis.

Disclosure statement

The authors declare no conflict of interest.

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