

# Exclamative Sentences in Emotion Expressions in Mandarin Chinese: A Corpus-based Approach

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## Abstract

Emotions are found to be frequently involved in the exclamative sentences. This paper aims to examine the interaction between exclamative sentences and emotions in Chinese social media. We propose that exclamative sentences can express all kinds of emotions besides *surprise*. *Fear* emotion is mostly expressed in exclamative sentences. Lexical features, structural features and discourse features are analyzed to reveal a full picture of linguistic cues in emotion expressions in exclamative sentences. We believe that this study could provide a new approach for the study of sentence types in Mandarin Chinese, which is also crucial for people to understand the expressions of human emotions.

## 1 Introduction

Exclamative sentences are often related to highlighting emotion information, especially the sense of *surprise*. As one of the main four sentence types, the study of exclamative sentences in Mandarin Chinese is often neglected.

The current study aims to examine the interaction between exclamative sentences and different emotion types based on an emotion corpus of Chinese social media *Weibo*. We explore the representations of emotions in terms of lexical features, structural features and discourse feature when exclamative sentences are employed.

This paper is organized as follows. In Section 2, we give an overview of the previous studies in rela-

tion to emotion expression and exclamative sentences. Section 3 presents the corpus data and annotation scheme. In Section 4, we report the data analysis. Finally, we conclude the paper in Section 5.

## 2 Related Work

### 2.1 Emotion Analysis

Emotions are part of people's daily life and have been studied in many different disciplines, but the definition of emotion is diverse and debatable (James, 1884; Watson, 1924; Cannon, 1929; Plutchik, 1962; Bowlby, 1969; Lazarus, 1975; Frijda, 1986; Ortony et al., 1988; Harkins and Wierzbicka, 2001). The classification of emotion is another contentious issue. Researchers have proposed different approaches to grouping the basic emotions (Plutchik, 1980; Ekman, 1984; Turner, 2000; Sabini and Silver, 2005; Keltner et al., 2014; Scheff, 2015). In our study, we will follow the emotion classification proposed by Turner (2000). He identified five primary emotions, namely *happiness*, *sadness*, *fear*, *anger* and *surprise*.

Emotion words are normally classified into two types: expressive emotion words and descriptive emotion words (Kövecses, 2000). Expressive emotion words express emotions directly, while descriptive emotion words are words that describe emotions. There are two ways to express emotions: explicit and implicit (Lee, 2015). Explicit emotion refers to the emotion-related information which is presented by emotion keywords, while it is conveyed via inferences or connotation instead of emotion keywords in implicit emotion. Implicit

emotions can be signaled by means of lexical cues (e.g. adjectives, verbs, adverbs and conjunctions) and syntactic patterns.

The text-based emotion processing and analysis in linguistics is a popular research area in recent years. Researchers explore emotions in texts in order to find out the linguistic cues in emotion expressions in Chinese, such as figurative language (Hsiao and Su, 2010; Huang et al., 2005; Lee 2017), code-switching (Lee and Wang, 2015), discourse markers (Gao and Lee, 2018), right-dislocation (Lee and Lai 2018) and rhetorical question (Lau and Lee, 2018). These linguistic analyses can help enhance the theory as well as the classification and detection of emotion.

## 2.2 Exclamative Sentences

Exclamative sentences convey that something is surprising or noteworthy in some way (Zanuttini and Porter, 2003). They often include “a statement of an event or state and some special features indicating the speaker’s strong emotion about the event or state, which causes surprise, admiration, or even skepticism” (Zhan and Bai, 2016: 410).

The study of Chinese exclamative sentences has a long history, which can be traced back to *Mashi Wentong* (Ma, 1898/2000). But he didn’t give a clear definition of the exclamative sentence. Li (1924/2001) classified sentences into five categories, and it is the first time that exclamative sentences have been treated as an independent sentences type in the history of Chinese grammar. Lv (1942) defined the exclamative sentences, and he believed that the core function of exclamative sentences is to express emotions. Huang (1958) divided exclamative sentences into five subcategories: (1) exclamative sentences are composed of interjections; (2) exclamative sentences are composed of a noun and 啊 *a*; (3) some exclamative sentences have only one or two words, but they contain rich connotation; (4) slogans, greetings or wishes; (5) some adverbs or sentence-final particles are included in the exclamative sentences. Zhu (1994) applied three aspects theory to analyze exclamative sentences. Lv (1998) argued that there were three emotion marks in exclamative sentences. They are mark of self, mark of others and mark of content. In general, the study of Chinese exclamative sentence mainly focuses on the use of interjections or sentence-final

particles (Li, 1994; Zhu, 1994; Wang, 2002; Du, 2005).

## 2.3 Exclamative Sentences and Emotions

Most of the studies indicate that exclamative sentences contain strong emotions (Li, 1924; Gao, 1948; Lv, 1942; Huang, 1958; Zhu, 1982). In particular, exclamative sentences are considered to involve unexpectedness, i.e., a sense of *surprise* (Milner, 1978). However, Badan and Cheng (2015) argued that exclamatives do not always imply a sense of *surprise*. Exclamatives in Mandarin appear to mark surprise and non-surprise by different types of exclamatives.

## 3 Data Collection and Annotation

### 3.1 Corpus Data

The corpus data were retrieved from one of the most popular social media platforms in Mainland China *Sina Weibo*. *Sina Weibo* has 340 million monthly active users and occupies 56.5% of China’s microblogging market in terms of active users. People can share their ideas and thoughts and express their emotions and attitudes via *Weibo* in real-time.

The corpus was comprised of 13,262 posts randomly extracted from *Sina Weibo* (Lee and Wang 2015). After removing posts that contained noise (as in (1)), advertisement (as in (2)), and the short posts less than 10 words (as in (3)), the manual annotation was carried out.

- (1) 我发起了一个投票 【如果可以重新选择, 你希望成为哪个星座? 】  
*wǒ fāqǐ le yī gè tóupiào* 【*rúguǒ*  
 I launch LE one CL vote 【if  
*kěyǐ chòngxīnxuǎnzé, nǐ xīwàng*  
 can reselect, you hope  
*chéngwéi nǎgè xīngzuò?*】  
 become which one constellation? 】  
 ‘I have launched a vote. 【If you can reselect your constellation, which one do you want? 】’

- (2) 6/14 飞日本 Paul Joe 搪瓷隔离 不输 cpb 还便宜好多  
 6/14 fēi rìběn Paul Joe tángcígélí  
 June 14<sup>th</sup> fly to Japan Paul Joe foundation  
 bù shū cpb hái piányi hǎo duō  
 NEG lose cpb also cheap very much  
 ‘(I will) fly to Japan on June 14<sup>th</sup>. The foundation of Paul Joe as better as CPB, and it is also cheaper a lot.’
- (3) 分享图片  
 fēnxiǎng túpiàn  
 share picture  
 ‘Share the picture’

There are 6,056 posts (46%) with emotions. Five emotions were annotated, namely, *happiness*, *sadness*, *fear*, *anger* and *surprise* (Lee et al., 2013). In order to qualify the quality of the annotation, two annotators were asked to annotate 1,000 posts. Then we used Cohen’s Kappa coefficient to calculate the inter-annotator agreement. The Kappa Score is  $k=0.692$ .

Then we extracted 2,000 posts with emotions for our analysis. The distribution of each kind of emotion types is shown in Figure 1.

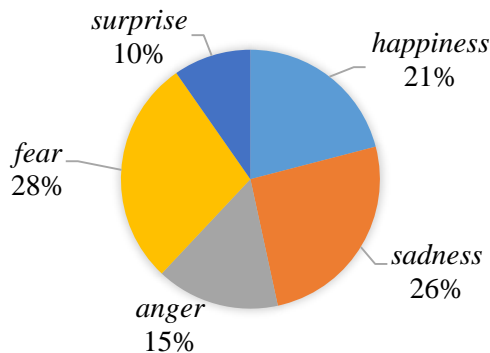


Figure 1: Distribution of Emotion types in 2000 posts

Then posts with exclamative sentences were extracted from the above dataset. There were 688 posts containing exclamative sentences and emotions. The distribution of all emotion types in 688 posts is shown in Table 1. Some posts contain more than one emotion.

| Emotion Type     | Token | Percentage (%) |
|------------------|-------|----------------|
| <i>happiness</i> | 209   | 25             |
| <i>sadness</i>   | 161   | 19             |
| <i>anger</i>     | 160   | 19             |
| <i>fear</i>      | 244   | 29             |
| <i>surprise</i>  | 70    | 8              |
| Total            | 844   | 100            |

Table 1: Distribution of emotion types in 688 posts

Then emotions which were expressed by exclamative sentences were analyzed. As shown in Table 2, the most frequent emotions expressed by exclamative sentence is *fear* (28%), followed by *happiness* (24%), *anger* (21%), *sadness* (18%), and *surprise* (8%).

| Emotion Type     | Token | Percentage (%) |
|------------------|-------|----------------|
| <i>happiness</i> | 171   | 24             |
| <i>sadness</i>   | 129   | 18             |
| <i>anger</i>     | 149   | 21             |
| <i>fear</i>      | 198   | 28             |
| <i>surprise</i>  | 57    | 8              |
| Total            | 704   | 100            |

Table 2: Distribution of emotion types which was indicated by exclamative sentences

### 3.2 Annotation Scheme

In order to facilitate our analysis, we designed an annotation scheme and annotated 688 posts. The first step was to search for the exclamative sentences in the posts. Then we needed to identify whether it expresses emotion(s). The third step was to annotate the lexical features, syntactic features and discourse features. The lexical features include the presence of adverbs, interrogative expressions, sentence-final particles and interjections. The structural features are reduplication, and the structure ‘NP+SFP! + S’. Discourse features contain code-switching, and slogan and blessing. For instance, 我好low呀! wǒ hǎo low ya! ‘How low I am!’ is the exclamative sentence which expresses *sadness* emotion in (4), and the lexical feature is the usage

of the adverb 好 *hǎo* ‘very’ and discourse feature is code-switching.

- (4) 算算都 8-9 年没出去玩过了, 我连方特, 常恐, 欢乐谷都没去过。我好 low 呀! 今年一定要出去旅游了…  
*suànsuàn dōu 8-9 nián méi*  
 count even eight-nine year NEG  
*chūqù wán guò le, wǒ lián*  
 go out play GUO LE, I even  
*Fāngtè, Chángkǒng,*  
 Fangta Wild Dreamland Dinosaur Land  
*Huānlègǔ dōu méi qù guò.*  
 Happy Valley all NEG visit GUO.  
*wǒ hǎo low ya! jīnnián yídìng*  
 I very low SFP! this year must  
*yào chūqù lǚyóu le ...*  
 necessary go out travel LE...  
 ‘I haven’t traveled for eight to nine years. I even haven’t visited Fangta Wild Dreamland, Dinosaur Land and Happy Valley. How low I am! I must take a trip this year...’

#### 4 Data Analysis

In this section, we present some observations and statistics in terms of lexical features, syntactic feature and discourse features.

#### 4.1 Lexical Features

Some adverbs, interrogative expressions, sentence-final particles, and interjections can be used to express people’s feelings and emotions in exclamative sentences. Table 3 shows the details of these words.

| Category                  | Item   |
|---------------------------|--|
| Adverbs                   | 太 <i>tài</i> ‘too (much)’, 真 <i>zhēn</i> ‘really’, 好 <i>hǎo</i> ‘very’, 简直 <i>jiǎnzhí</i> ‘simply, 都 <i>dōu</i> ‘even’, 原来 <i>yuánlái</i> ‘originally’   |
| Interrogative expressions | 多少 <i>duōshǎo</i> ‘how much’, 多么 <i>duōme</i> ‘how’, 多 <i>duō</i> ‘what’, 何 <i>hé</i> ‘what’, 怎 <i>zěn</i> ‘how’   |
| Pronoun                   | 这 <i>zhè</i> 那 <i>nà</i>   |
| Sentence-final particles  | 啊 <i>a</i> , 呀 <i>ya</i> , 哇 <i>wa</i> , 哪/呐 <i>nǎ/nà</i> , 吧 <i>ba</i> , 哦 <i>ò</i> , 哎 <i>āi</i> , 呢 <i>ne</i> , 啦 <i>la</i> , 咯 <i>lo</i> , 哟 <i>yōu</i> , 喽 <i>lōu</i> , 嘛 <i>ma</i> , 喔 <i>o</i> , 咩 <i>miē</i> , 诶 <i>ēi</i> |
| Interjections             | 啊 <i>a</i> , 哇 <i>wa</i> , 哎/唉 <i>āi/āi</i> , 嗨 <i>hēi</i> , 呵呵 <i>hēhē</i> , 哈哈 <i>hāhā</i> , wow, 靠 <i>kào</i> , 卧槽 <i>wòcào</i> , 草 <i>cǎo</i> , 吼 <i>hǒu</i> , 嘻嘻 <i>xīxī</i> , 哎哟 <i>āiyōu</i>                                |

Table 3: lexical items in exclamative sentences

The words above co-occur with the exclamative sentences in most cases (63.2%) and these exclamative sentences obtain different kinds of emotions.

|                          | <i>happiness</i> |      | <i>sadness</i> |      | <i>anger</i> |     | <i>fear</i> |      | <i>surprise</i> |     | Total |      |
|--------------------------|------------------|------|----------------|------|--------------|-----|-------------|------|-----------------|-----|-------|------|
|                          | Token            | %    | Token          | %    | Token        | %   | Token       | %    | Token           | %   | Token | %    |
| Adverb                   | 42               | 6.0  | 26             | 3.7  | 27           | 3.8 | 50          | 7.1  | 16              | 2.3 | 161   | 22.9 |
| Interrogative expression | 3                | 0.4  | 4              | 0.6  | 1            | 0.1 | 4           | 0.6  | 1               | 0.1 | 13    | 1.8  |
| Pronoun                  | 2                | 0.3  | 3              | 0.4  | 4            | 0.6 | 8           | 1.1  | 2               | 0.3 | 19    | 2.7  |
| Sentence-final particle  | 49               | 7.0  | 45             | 6.4  | 28           | 4.0 | 75          | 10.7 | 21              | 3.0 | 218   | 31.0 |
| Interjection             | 12               | 1.7  | 4              | 0.6  | 7            | 1.0 | 6           | 0.9  | 5               | 0.7 | 34    | 4.8  |
| Total                    | 108              | 15.3 | 82             | 11.6 | 67           | 9.5 | 143         | 20.3 | 45              | 6.4 | 445   | 63.2 |

Table 4: Distribution of Emotion types in different lexical features

Table 4 shows the distribution of different emotion types involving different kinds of word class:

adverb, interrogative expression, pronoun, sentence-final particle and interjection. Although these lexical items can be used in exclamative sentences

to help evoke emotions, they have different performances. *Fear* emotion has the highest frequency occurring in exclamative sentences, while *surprise* emotion is the lowest one. This proves that exclamative sentences can be used to express all kinds of emotions, and the *surprise* emotion may be the least one.

Sentence-final particle is the most common method in exclamative sentences to mark emotions, and it often collocates with adverbs. For example, there are two exclamative sentences in (5): 声音好大啊! *shēngyīn hǎo dà a!* ‘How loud the sound it is!’ and 太厉害拉! *tài lìhài la!* ‘How amazing they are!’. 声音好大啊! *shēngyīn hǎo dà a!* ‘How loud the sound it is!’ use adverb 好 *hǎo* ‘very’ and sentence-final particle 啊 *a* ‘SFP’ to form the exclamative and it expresses *fear* emotion, while the exclamative sentence 太厉害拉! *tài lìhài la!* ‘How amazing they are!’ includes adverb 太 *tài* ‘too’ and sentence-final particle 拉 *la* ‘SFP’ to mark *surprise* emotion. Therefore, adverbs and sentence-final particles in exclamative sentences are efficient to indicate and intensify emotions.

- (5) 杂这才发现我家的鱼吐水像打 kiss, 声音好大啊! 太厉害拉!  
*zá zhè cái fāxiàn wǒ jiā de yú*  
 why this just find my home DE fish  
*tǔ shuǐ xiàng dǎ kiss,*  
 spray water look like make kiss,  
*shēngyīn hǎo dà a! tài lìhài la!*  
 sound so loud SFP! too amazing SFP!  
 ‘Why do I just find that my fishes look like  
 kiss when they spray water? How loud the  
 sound it is! How amazing they are!’

Interjection is another lexical feature that can be used to indicate emotions strongly and implicitly. Interjections are considered a context-sensitive peripheral class that typically encode pragmatic meanings (Cuenca, 2000). Norrick (2007) argued that interjections are often associated with exclamatives as items which signal both *surprise* and either positive or negative affect. For instance, 靠 *kào* ‘cor’ is the interjection which expresses surprise, excitement, admiration, or alarm. It is a cue in (6) to indicate a specific emotion—*surprise*. The following sequence is also an exclamative sentence 哥真滴败了! *gē zhēn dī bài le!* ‘How disappointed I am!’ to

intensify the *surprise* emotion. Therefore, interjections not only mark emotions, but also elicit exclamative sentences to intensify emotions.

- (6) 他还说他好多朋友都是结婚后, 老婆知道是同志的也都过得好好的, 只要对老婆好点, 不要明着找男人就 ok 的。靠!  
 哥真滴败了!  
*tā hái shuō tā hǎoduō péngyǒu dōu*  
 he also say he many friend all  
*shì jiéhūn hòu, lǎopó zhīdào shì*  
 be marry after, wife know be  
*tóngzhì de yě dōu guò de hǎohǎo*  
 gay DE also all live DE good  
*de, zhǐyào duì lǎopó hǎo diǎn,*  
 DE, as long as treat wife good a little,  
*búyào míng zhe zhǎo nánrén jiù*  
 NEG open ZHE find man thus  
*ok de. kào! gē zhēn dī bài le!*  
 OK DE. Cor! I really DE lose LE!  
 ‘He also said that many of his friends also  
 lived very well even though their wives  
 knew they were gay after their marriage. As  
 long as they were kind to their wives and  
 didn’t have affairs with other men explicitly,  
 they’ll be fine. Cor! How disappointed I  
 am!’

## 4.2 Structural Feature

Exclamative sentences have some structural features to mark emotions as well. We found two structural features in our data: (1) reduplication; (2) NP + SFP! + S.

Reduplication is the use of the same word, phrase, speech sound etc. in a poem, speech etc. (Ruse and Hopton 1992). Reduplication is a way to express the speaker’s strong emotion in an exclamative sentence (Zhan and Bai, 2016). There are 23 posts in our dataset which employ reduplications in exclamative sentences to express emotions. The two exclamative sentences 真多啊! 真多啊! *zhēn duō a! zhēn duō a!* ‘What a big amount of money! What a big amount of money!’ are the reduplication of 真多啊! *zhēn duō a!* ‘What a big amount of money!’ in (7) to indicate strong *sadness* emotion. The user wants to express the strong *sadness* emotion because she/he has to give a big amount of money to many people at the end of the year.

- (7) 年底要赶的人情，真多啊！真多啊！  
*nián dǐ yào gǎn de rénqíng,*  
 year end will give DE gift/money,  
*zhēn duō a! zhēn duō a!*  
 really much a! really much a!  
 ‘I have to give a lot of gifts or money to others at the end of the year. What a big amount of money! What a big amount of money!’

The structure ‘NP + SFP! + S’ is another way in exclamative sentences to express emotions. This structure is different from the use of interjections, because it is the ‘NP + SFP’ (e.g. 苍天啊 *cāngtiān a* ‘my god’, 大地啊 *dàdì a* ‘my god’, 人才啊 *réncai a* ‘how talent’, 罪恶啊 *zuìè a* ‘how guilt’) to evoke emotions, rather than interjections alone or ‘ADJ + SFP’. 26 posts in our dataset apply this structure in exclamative sentences to express emotion. For example, the structure of 我的大北京啊！ in (8) is NP (我的大北京！ *wǒde dà Běijīng* ‘my big Beijing’) + SFP (啊 *a* ‘SFP’), and then it elicits the following sequence 您 pm2.5 可别再让我不能喘气了！ *nín pm2.5 kě bié zài ràng wǒ bù néng chuǎnqì le!* ‘Don’t suffocate me with your pm2.5!’ to evoke *sadness* emotion. The structure ‘NP + SFP!’ has the strong tendency to elicit a sentence to mark emotions.

- (8) 我的大北京啊！您 pm2.5 可别再让我不能喘气了！拜托  
*wǒde dà Běijīng a! nín pm2.5*  
 my big Beijing a! you pm2.5  
*kě bié zài ràng wǒ bù*  
 EMPHASIS NEG again let me NEG  
*néng chuǎnqì le! bàituō*  
 can breathe LE! please  
 ‘My big Beijing! Don’t suffocate me with your pm2.5! Please!’

### 4.3 Discourse Feature

Code-switching and slogan and blessing are two discourse features in our dataset. We will mainly discuss code-switching in this part because slogan and blessing often involve *happiness* emotion.

Code-switching text means that there is more than one language contained in the text (Adel et al., 2013; Auer, 2013). Code-switching posts are very popular in Chinese social media *Weibo*. Emotions can be expressed by either monolingual or bilingual

text in the code-switching posts. As shown in Figure 2, *happiness* (35.5%) is the most frequent emotion expressed by English, followed by *anger* (26.9%), *fear* (21.8%), *sadness* (13.2%) and *surprise* (2.6%).

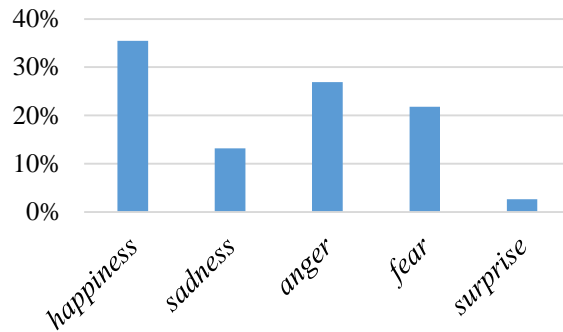


Figure 2: Emotions expressed by English

For example, the *anger* emotion is expressed by English exclamative sentence ‘what a fucking day!!!!’ and the code-switching text 简直是 fuck fuck fuck!!! *jiǎnzhí shì fuck fuck fuck!!!* in (9). The emotion which is expressed by another language is strong and direct.

In addition, Lee (2017) argued that the repetition of exclamation marks, question marks, or the mix of two in conjunction can express strong emotion. In (9), the reduplication of punctuation can also function to intensify the emotion expressed through exclamative sentences.

- (9) **what a fucking day ! ! ! !** 就像是迈阿密和纽约的温差，简直是 **fuck fuck fuck ! ! !**  
*what a fucking day!!!! jiù xiàng*  
 what a fucking day!!!! thus the same as  
*shì màimǎmì hé niūyuē de*  
 be Miami and New York DE  
*wēnchā,* *jiǎnzhí shì*  
 temperature difference, simply be  
*fuck fuck fuck!!!*  
 fuck fuck fuck!!!  
 ‘What a fucking day!!!! It is the same as the temperature difference in Miami and New York. Fuck, fuck, fuck!!!’

The punctuation can also be placed in the middle of a word or phrase to emphasize and intensify emotion (as in (10)).

- (10) 实况转播：嘉宾评委酷姐伊小宝~ 穿越  
忐忑一曲 hold 全场！臣服啊！有木有  
！！有！木！有！！  
*shíkàng zhuǎnbō: jiābīn píngwěi Kùniū*  
live broadcast: guest judge Kuniu  
*Yīxiǎobǎo ~ chuānyuè tǎntè yì qǔ*  
Yixiaobao transport back Tante one song  
*hold quán chǎng! chénfú a!*  
hold whole audience! impressive a!  
*yǒu mù yǒu! yǒu! mù! yǒu!!!*  
see NEG see! see! NEG! see!!!  
'Live broadcast: the guest judge Kuniu  
Yixiaobao holds the whole audiences by  
singing a song Tante! That's really impres-  
sive! See! See!'

## 5 Conclusion

This paper observes the emotion expressions in exclamative sentences. We believe that the exclamative sentences can obtain all kinds of emotions besides *surprise*. Lexical features, structural features and discourse features are examined to show the close relationship between them. Firstly, some adverbs, interrogative expressions, sentence-final particles, and interjections are identified to regard them as linguistic cues to express emotions in exclamative sentences. The lexical items co-occur with the exclamative sentences in most cases (63.2%) and these exclamative sentences obtain different kinds of emotions. Then two structural features are analyzed: (1) reduplication; (2) NP + SFP! + S. These structures are often presented in exclamative sentences to mark emotions. Lastly, the discourse features are examined. Code-switching and the reduplication of punctuation can function to express and intensify emotions. We believe that the linguistic account of this study could provide a better understanding of the representations of human emotions, which is also essential for study of other disciplines.

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