

Interpretation of the level of ANGER in discussion forum

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摘要

在這個數位時代，人們可以輕易地接觸到眾多社群媒體平台，以快速交流或互動。本研究觀察表憤怒情緒「怒」在中文線上討論區中網路使用者的情緒表達。本研究語料取自臺灣的電子佈告欄系統（Bulletin Board System, BBS），該平台具對話性，但沒有表情符號可以直接傳達對話雙方的情緒。本研究從該平台擷取了 7,464 筆包含「怒」的語料，刪除不符的語料後，有效語料為 7,285 筆。本研究檢視語料中「怒」的語義與搭配詞分布。結果顯示，有超過四分之一高頻搭配詞的語料屬於「怒」的非常規用法，意即這些語料中的用法並不必然表達「憤怒」的情緒。我們從這些非常規用法的搭配詞中，可看到語義從情緒表達轉向為表行動積極性，甚至是動作程度強弱。分析結果可見「怒」不僅是情緒表達，也可延伸作為說服聽者同理說話者行為的標記。所有中文標題，中文摘要和中文關鍵字。

Abstract

In this digital era, people have easy access to a vast array of social media platforms for quick communication or interaction. The ways how online users conveyed their emotional expression attracted our interest. This present paper investigates the literal emotional expression of ANGER in Chinese online discussion forum, targeting the term *nu4* 'angry/anger'. We referred to a Bulletin Board System (BBS) in Taiwan which is a conversation-like platform with no emoji icon to convey emotion directly. A collection of 7,464 instances were retrieved from the platform. After deducting noisy data, we looked into the meanings and distribution of *nu4* of the

7,285 instances. The analysis showed a significant number of instances (nearly a quarter of the high frequency instances) belong to the unconventional category where *nu4* does not necessarily refer to emotion since the meaning of anger has degraded. This finding prompted a further collocate analysis to examine the functional shift. In conclusions, from the collocates of these unconventional uses of *nu4*, it showed a semantic shift from emotional expression to pragmatic functions, signaling aggressiveness or indicating the intensity of an action, and carrying a persuasive function in online forums to demonstrate the shift of the speaker's actions.

Keywords: ANGER, emotional expression, Chinese *NU4*

1 Introduction

Emotion is an abstract concept by nature which generally expressed in metaphorical forms and has received attentions in interpreting the emotion conceptualization (Kövescs 2005, Matsuki 1995, Lakoff and Kövescs 1987). It is believed that emotions are affected by cultures. For example, ANGER IS A HOT FLUID IN A CONTAINER or THE ANGRY PERSON IS A PRESSURED CONTAINER is a common metaphorical expression in English. Though many in the past (Yu, 1998; Chen, 2010, etc.) studied Chinese ANGER metaphors and found some commonly shared metaphors such as ANGER IS HEAT with other languages, source domains might slightly differ. Yu (1998) pointed out that instead of referring ANGER as HOT FLUID, Chinese tend to refer it as HOT GAS, i.e. reflecting the unique notion of "qi" in Chinese. Unlike these studies, our goal is to find out the representations of the emotion of ANGER in online discussion forum.

Emotions are part of the mental states. Croft (1993:64) said then following about mental state:

There are two processes involved in possessing a mental state (and changing a mental state): (1) the experiencer must direct his or her attention to the stimulus, and (2) the stimulus (or some property of it) causes the experiencer to be (or enter into) a certain mental state.

For (1) in the except above, we get examples such as *He is angry at the comment*; and for (2) we get *The comment infuriates him* (our own examples). The two are respectively termed as ‘subject-experiencer’ and ‘object-experiencer’ (cf. Lakoff, 1971; Verhoeven, 2009) patterns. For Chinese, there are markers that indicate the direction of anger, namely *dui4* ‘towards’, *rang4* ‘cause/make’, *shi3* ‘cause’, etc. (see also Cheung and Larson, 2006). These markers, however, mainly work for conventional terms such as *sheng1qi4* and *fa1huo3* ‘be.angry’. When it comes to our target term, *nu4* ‘angry/anger’, which is a direct expression of ANGER, we found some slightly different patterns.

Crucially, these linguistic realizations of anger in digital discourse are not only descriptive of emotional states but also potentially strategic in persuasion. Most studies of persuasion analyze how narratives are formalized, focusing on settings where a persuader utilizes a broad, sense-making explanation to frame their claim, influencing audience perception (O’Keefe, 2016; Bullock, Shulman, and Huskey, 2021; Hosman, 2002; Moyer-Gusé, 2008; Miller, 2002; Green and Brock, 2000, etc.). For instance, Schwartzstein and Sunderam (2021) provided evidence that persuasion increases when the messages lead audience to adopt a narrative supported by clearly presented and convincingly explained data. Conversely, Ispano (2022) suggested that audiences who focused strictly on a high coherence criterion in interpreting utterances may limit their understanding. O’Keefe (2016) argued that various forms of consequence-based arguments in persuasion research, though appearing quite different, share core principle that messages are more persuasive when outcomes are considered as desirable.

In contrast, evidence from online forums shows that *nu4* demonstrated a key pragmatic divergence that may shift away from denoting literal emotion

toward signaling aggressiveness or intensity, thereby strengthening argumentative force. From a persuasive-language perspective in AI, such shifts are significant because they illustrate how emotional expressions function as rhetorical resources, enhancing stance-taking and influencing audience perception without relying solely on traditional, formal narratives, and often through nonverbal means (Mehrabian and Williams, 1969; Miller, 2002; Green and Brock, 2000, etc.). In fast-paced digital contexts, brief textual utterances, especially those that contain emotional expression, may prompt emotional engagement and draw the audiences in even without full story, and thus creating persuasive impact, even if it is in a subtle, non-traditional signals.

Consequently, for AI systems designed to process or generate persuasive language, understanding these nuanced uses of anger terms (whether literal or metaphorical, emotional or argumentative) becomes essential, as it shows how emotion expressions can be harnessed not only to convey states of mind but also to achieve persuasive impact in human-AI communication

2 *Nu4* in online discussion forum

Nu4 is an equivalent of ‘anger’ but it is used perhaps in a more serious manner. This corpus-based study not only look into the use and interpretation of *nu4* in online discussion forum, but also distinguishing the conventional use as an emotional ANGER expression from its unconventional applications. For the data of this study, a total of 7,464 instances of *nu4* were retrieved from the PTT corpus, a Bulletin Board System (BBS) in Taiwan (accessed through <http://lopen.linguistics.ntu.edu.tw/copens/>). The PTT was selected because it contains conversation-like discussion threads within which emotion was usually expressed directly. The communication style on this platform is more direct in a way that emotion is conveyed explicitly without relying those subtle cues or context. In this study, 179 instances were deleted which including movie title, proper nouns, or unidentifiable uses. After analysis, the results are shown below.

Categories	Sub-Categories	Sub-Categories Freq. (%)	Category Freq.	Total (%)
Lexical items	Resultative (<i>nu4</i> + verb) (including <i>chi1</i> ‘to eat’, <i>qiang4</i> ‘to irritate’ <i>pil</i> ‘to criticize’, <i>hel</i> ‘to drink’, <i>shuai3</i> ‘to fling’, <i>chou1</i> ‘to draw/pull out’)	3491 (71.17%)	4905	65.72
	Angry (<i>be.angry/anger</i>)	1414 (28.83%)		
Emoticons			1571	21.04
Idiomatic Expression			810	10.84
Deleted instances (proper nouns or unidentifiable uses)			179	2.40
Total			7464	100

Table 1 Distribution of *NU4* in PTT

First, all the instances were categorized based on the appearance of *nu4* found in the data, including Idiomatic expressions and Lexical items both of which were defined by their semantic features, as well as Emoticons. Within these, sub-categories can be found under Lexical items, including Resultative and Angry (used either as verbs or nouns), which together accounted for over 65% of the total instances. In order to further understand the behavior of *nu4* used in online discussion forum, we further examined the collocates of *nu4*, particularly focusing on the category termed Resultative.

First of all, *nu4* is used ‘lexically’ in the instances, and we found that, still, a majority of the instances were used to express the meaning ‘*be.angry/anger*’. As in example 1 below, the experiencer was angry because of the reason that s/he was not being informed or updated. Stimulus which causes the experiencer to be in the ANGER state could be observed in instances.

- 老闆還是沒有主動 告訴 我任何 boss still NEG. initiative to.tell 1_{SG} any 消息 我真的 怒了 news 1_{SG} real **NU4**-PTCL
The boss still hasn't informed me any news and I am really angry.

The use of *nu4* in this example denote the lexical emotion meaning ‘*be.angry*’. The conventional uses of *nu4* refers to literal lexical expressions of emotion to convey the emotional states of ‘*be.angry/anger*’. As for non-lexical or symbolic cues, such as text-based icons, emoticons, and

punctuations would be categorized under Emoticon where emotion is conveyed visually through a range of symbolic strategies rather than lexical.

Yet, unlike the conventional use of ‘to be angry’, the use of *nu4* in this online discussion forum are often accompanied by a follow-up impulsive consequence (*nu4 shui4jiao4* ‘angry-sleep’, *nu4 chu2zhi2* ‘angry-to.top.up.money’). It is worth noted that for these instances, they do not necessary highlight the emotional meaning of being angry or anger, but rather it aims to bring out the results or actions followed. These uses of *nu4* fall under Resultative category (constituted almost 46.76%) in this study.

- 布丁 布丁 布丁 可是我在 pudding pudding pudding but 1_{SG} on 減肥 鳴鳴鳴 算了 lose-weight Wooo_{crying} never-mind 怒 睡覺 **NU4** sleep
Pudding, pudding, pudding but I am on diet. (CRYING) Never mind, go to sleep.
- 為了 湊到 16 隻 英雄 怒 for-purpose to-collect 16 CL. hero **NU4** 儲值 值得了 top-up worth ASP.
It is worthwhile topped-up in order to collect 16 heroes.

In example 2, *nu4* showed a shift in intention of the speaker, i.e. the experiencer failed to get what s/he wanted (i.e. the pudding) as s/he was on diet,

s/he decided to go to sleep instead. However, as in example 3, *nu4* does not always refer to the emotion of the speaker or experiencer while the action was carrying out, but to emphasize the action of topping-up.¹ These examples show that the use of *nu4* in the online discussion forum change from denoting the emotion of being angry to referring to the intensity and aggressiveness of the action. We will discuss further the collocates of these unconventional uses of *nu4* in next section.

Meanwhile, we also found that *nu4* works almost similarly like an emoticon (21.04%), see 4 and 5.

4. 盯著 看真的 是服務 態度 有夠
 Stare-_{ASP} see real is service attitude really
 差 (怒!!!!!!)
 bad (*NU4*)
The service is really bad as they staring (at us) (EMOTICON_{ANGER})

5. 多少 蚊子 啦!!!!!!
 how-many mosquitoes-_{PTCL}
 怒!!!!!! (╯°□°)╯
NU4
How many mosquitoes? (EMOTION_{ANGER})

For instances under this category, lexical *nu4* often appears accompanied by many exclamation marks, or in brackets, as in example 4. This serves as an expression to convey emotion in this text-based environment. Some would follow by text emoticon, as in example 5, to emphasize the intensity of emotion. Both will be categorized under Emoticon. As mentioned, there is no emoji icon to convey emotion on this platform, text-based emoticons are the creation of users. Thus, these emoticons picturized the abstract mental state of the experiencer, showing their emotion vividly. As for the remaining instances, mostly are idioms and fixed expressions (including those that were collected as part of the conceptual metaphors mentioned by others) contributed to nearly 11% of the total instances.

6. 當 悲劇發生， 我們 悲
 when tragic happened 3_{PL}. sadness

不可抑， 怒 不可止…
 unsuppress-able *NU4* un-cease-able
When tragic happened, our sadness could not be suppressed, anger could not be ceased...

For idiomatic expression, *nu4* in this category keeps the literal definitions which refers to the conventional use of the emotion of anger. As in example 6, the experiencer could neither refrain their sadness nor could they cease their anger once the tragic happened. The conventional meaning of *nu4* in these idiomatic fixed expressions is highly predictable.

From the data retrieved, the conventional literal expression of *nu4* ‘be.angry/anger’ still makes up the majority. Meanwhile, a significant number of instances falling under Resultative category exhibited the unconventional use of *nu4*, which attracted our attention to look further into the collocates.

3 Unconventional use of *nu4*

For instances fall under Resultative category, collocate analysis was conducted to identify high frequency collocates of *nu4* in the discussion forum. According to the analysis of our data, the emotion of ANGER and the action of experiencer are closely related. It is interesting to point out that the emotion of ANGER declined in some of the instances. The high frequency collocates ($F \geq 100$) comprised of verbs including *chil* ‘to eat’ (612), *qiang4* ‘to irritate’ (490), *pi1* ‘to criticize’ (444), *he1* ‘to drink’ (112), *shuai3* ‘to fling’ (103), and *chou1* ‘to draw/pull out’ (103), constituted about 24.97% (1864) of all the instances.

Take *chil* ‘to eat’ for example, which obtained the highest frequency in our data, the instances do not necessarily refer to ‘angry-eat’ neither to convey the emotion of ANGER as found in example 7, but to express the aggressiveness of the action taken, as in example 8 and 9.

7. 你希望可以找個人一起
 2_{SG}. wish able to.find CL. people together
 瘋狂的 唱歌、怒吃 美食

¹ It is about an online-game which player might want to top-up credits in order to accomplish certain tasks within a short period of time. By doing so, gamers

could also upgrade their weapons or equipment more quickly.

be.crazy DE to.sing *NU4* to.eat gourmet

四處走走

wandering.around

You wish you could find someone to sing wildly with, devour delicious food, and explore different places together.

8. 每 張 都 是 五 顆 石 頭 要
each CL. ASP. SHI 5 CL. stone want-to
把 他 們 怒 吃 還 是 會 怕 怕
BA. 3PL. *NU4* to.eat still AUX. scare
Each card worth 5 stone, it is still scary to eat them.

9. 剛 八 點 左 右 停 電 ,
just 8 o'clock about power-failure
肥 宅 我 沒 事 做 , 怒
fat-otaku 1SG. NEG. matter to.do *NU4*
吃 兩 碗 泡 麵
to.eat 2 CL. instance-noodle
There was a power failure at about 8 o'clock, as a homebody I have nothing to do so I ate 2 bowls of instance noodle.

For example 7, it implies the determined attitude and the extent degree of the speaker to enjoy gourmet food with the ‘someone’. Also, analysis shows a total of 116 instances collocated with ‘eat’ were related to online-gaming, such as example 3 and 8. Gamers could ‘combine’ some of the available equipment in their platform lists in order to level-up their power/skills or to get access to next level. For gamers to obtain the crucial elements for level-up, one of the key methods is to collect as much the required items as possible in the game. And *chi1* ‘to eat’ is commonly used to refer to the action of collecting or combining treasure items in the game, so that the gamers could level up and unlock new abilities or new challenges. As in example 10 and 11, instead of expressing the emotion of ANGER, *nu4* in these sentences tend to modify the assertive attitude of speaker.

10. 太 謝 謝 了 !! 該
too thankful ASP. should
收 心 了
back-to-work-mode ASP.
準 備 怒 讀 書 明 天
prepare *NU4* study tomorrow
期 中 考 加 油 !!
mid-term make-effort

(I am) grateful. I should get back to work mode and to get ready study hard for tomorrow mid-term.

11. 10 萬 夠 你 買 紅 單
100 thousand enough 2SG. buy red-slip
轉 手 怒 賺 30 ~ 200 萬
resell *NU4* earn 300-2000 thousand
A hundred thousand is enough for you to buy a pre-sale house and resell it with 300-2000 thousand profit.

As in 10, the experiencer is suggesting themselves to get back to the ‘back-to-work’ mode where *nu4* du2shu ‘angry-study’ implies to study hard for the exam next day rather than ‘to study angrily’. It indicated that the experiencer determined to study hard, as well as showing the assertive manner of the speaker.

In Example 11, the speaker commented that with a 100 thousand investments in buying the pre-sale housing, the audience, could easily make a profit of 300 thousand to 2 million. The use of *nu4* in this sentence modifies the action ‘to-earn’, implying that the earning profit of selling the pre-sale houses is considered relatively high from the speaker point of view. The function of *nu4* in this situation is to emphasize the extent or high level of the profit earned. This implies that the returns from this investment are significant and easily obtainable, sending a message that the investment is profitable and worth pursuing, and thus serving a persuasive function to encourage the audience to take action. This suggests that *nu4* is used not only to convey emotion, but also to express speaker’s attitude and invite audience understanding regarding their proposed actions.

4 Conclusion

From this study, we found that the emotion of anger in the online discussion forum is different from the conventional metaphors found in the past. The morphological constructions also differ from how they are normally used in texts. Among these unconventional uses of *nu4*, the emotion meaning degraded while meanings emphasizing the degree and manner of actions extended. It is believed that the meanings of *nu4* shift from the emotion of ANGER to the expression of aggressiveness, and to the extent level. Emotional utterances and emoticons serve to hint at and trigger readers’ or

receivers' emotions, and thereby enhancing engagement with the message.

The use of *nu4* in the context not only expresses the aggressiveness of the action, meanwhile, it also serves as a marker that the speaker, reacting to the unexpected events, has shifted their intention toward carrying out the action. This, therefore, implies a subtle persuasive attitude in the context. It is worth looking into the expressions of extent level in Chinese in future studies.

Based on these findings, this study explores how emotional expressions evolve in online discussion forum particularly within text-based environment that lack of nonverbal cues. By examining the lexical and pragmatical shift of *nu4*, it gives clearer picture of how online users creatively adapt their emotional expression to communicate effectively.

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