

The Effect of Affective Operator “有(you)” and Its Related Variants

Mengxiang Wang¹²³ and Houfeng Wang³

¹Teachers' College of Beijing Union University

No.5, Wai Guan Xie Jie Road, Chaoyang District, Beijing, P.R. China (100011)

² Beijing Key Laboratory of Internet Culture and Digital Dissemination Research
No.35, Beisihuan Middle Road, Chaoyang District, Beijing, P.R. China (100010)

³Institute of Computational Linguistics, Peking University,
No.5, Yiheyuan Road Haidian District, Beijing, P.R. China (100871)
wmx1984@pku.edu.cn , wanghf@pku.edu.cn

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ABSTRACT. *Combining with the data of previous studies, this paper makes a quantitative study on the emotional structure “you(有)+NP”, and brings out: “you(有)” and its related variants can be followed by quantitative abstract nouns, which can elicit the positive meaning. According to these, we firstly pick up all quantitative abstract nouns with the help of CSD and GKB, and then match the affective operator “有 (you)” and its related variants respectively, which can produce some new phrases with emotional meanings. On the one hand, these are used for the expansion of the emotion dictionary automatically; On the other hand, these can help to judge the emotional tendency of the sentences, so as to provide reference for emotional tagging.*

Keywords: Affective operator, Quantitative abstract noun, You(有)

1. **Introduction.** The verb “有(you)” is frequently used. It was believed that there were several kinds (Zhu, 1982; Zhang, 1999), as shown below:

(1)我 有 一支 笔

wo you yizhi bi (“有” means “possess”, similar to “have”)

We have a pen

(2)山上 有 一个 庙

Shanshang you ge miao (“有” means “existence”)

There is a temple on the mountain

(3)他 有 七十 了

Ta you qishi le (“有” means “measurement”)

He is sventy.

(4)他 有 说过 这 句 话

ta you shuoguo zhe ju hua

He has said these words (“有” is an auxiliary word)

(5)这 条 蛇 有 碗 口 那 么 粗

Zhe tiao she you wankou na me cu

This snake is as crude as a bowel (“有” means comparison)

Those kinds of usages related to 有(you) may be different with each other. But there are no changes in their emotions. The verb 有(you) in the following sentences are followed by neutral compositions, but the emotion implied is positive.

(6)这 些 专 家 真 是 有 水 平

Zhe xie zhuanjia zhen shi you shuiping.

These experts are very experienced.

(7)这 个 地 方 真 有 氛 围

Zhe ge difang zhen you fen wei

There is a good atmosphere in this place.

The emotional tendencies in sentence (6) and sentence (7) are given by 有(you), because the nouns “水平(shuiping; level)” and “氛围(fenwei; atmosphere)” are neutral. With the verb “有(you)”, the emotion becomes positive. Also if there is the negative variant of “有(you)”, namely “没有(meiyou)”, the emotion then becomes negative. The effects “有(you)” and “没有(meiyou)” have on emotional tendency are symmetric.

Some scholars have once discussed the emotional usage of “有(you)” (Li Yuming, 1995; Yao Zhanlong, 2004; Li Xianyin, 2012). But their discussions were mainly about regularly discovering and explaining the reasons for such phenomenon, so they did no quantitative researching or studies. Besides, “有/没有(you or meiyou)” and other members have not been included into the emotional operator category which could identify the emotional color. There is no relevant knowledge about their features in semantic knowledge base, either. Those situations provide the research gaps and purposes for this study.

2. The categories of “有(you)+NP” and its common variants.

2.1. The categories of “有(you)+NP”. No matter how many usages of有(you) there are, we can divide them into three categories based on its noun predictive:

Category A: 有 电 脑、

you diannaο,

There is a computer;

Category B:有 钱、

you qian,

have money;

Category C: 有 能 力、

you nengli,

Have abilities;

有 警 察

you jingcha.

there are the police.

有 问 题

you wen ti.

have problems.

有 水 平

you shuiping.

of high level.

Although those three are all “有(you)+NP” structures, only category B and category C show emotional tendency. Among them, the noun in category A has physical meaning and displays no emotional tendency combined with “有(you)”. Category B has two meanings, and only one of them displays emotional tendency combined with “有(you)”. For example, “有钱 (you qian)” means “just has money” or “rich”, while just the latter has positive emotional tendency. Category C normally has emotional tendency. Among the three categories, category A is the most common because its noun predictive is of physical meanings. Category B is the least common. Apart from the examples above, there are also others like “有墨水(you moshui; have ink), 有出路(you chu lu; have a way out), 有刷子(you shuazi; have a brush) and 有意见(you yijian; have an opinion)”. Compared to category B, category C is more common, but less common than category A. This study focuses on category B and category C of “有(you)+NP”.

2.2. Several common variants of “有(you)+NP”. When “有(you)+NP” shows emotional tendency, there is “很(hen)” and “大(da)” added to express the degrees. In such case, they have emotional tendencies, different from category A, for example:

- (8) 他 这 个 人 很 有 头 脑
Ta zhe ge ren hen you tounao.
He is really brilliant.
- (9) 他 这 个 人 很 有 方 法
Ta zhe ge ren hen you fangfa.
He is really resourceful.
- (10) 他 这 个 人 大 有 作 为
Ta zhe ge ren da you zuowei.
He is very capable.
- (11) 他 这 个 人 大 有 来 头
Ta zhe ge ren da you laitou.
He has great background.

Sometimes, “有(you)” can be exchanged with “很有(henyou)” and “大有(dayou)”, such as “很有(henyou)/大有(dayou)/有(you)” + “来头(laitou)/背景(bei jing)”. Sometimes, “有(you)” can only be exchanged with “很有(henyou)”, but cannot be exchanged with “大有(dayou)”. For example, “头脑(tounao)” can only be used like “(很)有头脑((hen) you tounao)”, but cannot be used in “大有头脑(dayou tounao)”. This situation is common. Sometimes, “大有(dayou)+NP” can be used while “很有(henyou)+NP” cannot be. If they are exchanged, the meaning will also change.

For example, “他大有文章(ta dayou wenzhang)” means there is a problem or story with him. If “大有(dayou)” replaces “很有(henyou)”, the meaning will not stay the same.

The linguistic data of People’s Daily of January 1998 has been analyzed by this study. The differences between the three categories were found.

TABLE 1. THE LINGUISTIC DATA OF PEOPLE'S DAILY OF JANUARY 1998

Lexical item	Number of NP	Category A	Category B	Category C
有(you)	1881	1786	25	70
很有(henyou)	52	0	1	51
大有(dayou)	22	0	0	22

From this table, it could be seen:

(1) The ability of connecting NP of “有(you)” is greater than that of “很有(henyou)” and “大有(da you)”. Their relationships of their abilities can be expressed like this: 有(you) > 很有(hen you) > 大有(da you).

(2) As there is emotional tendency only in category B and C, the nouns connected with “很有(hen you)” and “大有(da you)” have emotional colors, but those connection with “有(you)” do not. So the differences in emotion tagging abilities of NP connected with them can be shown like this: 大有(dayou) > 很有(henyou) > 有(you). Based on this and the fact that in most cases, “很有(henyou)” and “有(you)” could be exchanged, many scholars have studied “很有(henyou)+NP”.

3. The restrictions requirements of nouns and the extraction rules of the emotional structure “有(you)+NP”.

3.1. The requirements and restrictions rules of the emotional structure “有(you)+NP”.

As we know, there are not all the “有(you)+NP” have the emotional tendency, while the constructions like “有篮球(have basketball)” are not emotional ones. He Zizhang (2010) pointed out that there are two rules the nouns in “有(you)+NP” have to follow if “有(you)+NP” means to show emotional tendency:

(i) The nouns have to be abstract ones.

(ii) The nouns indicate the attributes of people or things (such as people's spirits, personal quality or the basic properties of things).

For example, “桌子 (zhuozi) desk” is not an abstract noun, so there is no emotional tendency in “有桌子(you zhuozi)”. Although “文明(wenming; civilization)” is an abstract noun (which we think should be used to illustrate abstract concept and cannot be used with quantifier), it is not a noun which indicates attributes of people or things. Thus there is no such saying like “有文明(you wenming)”, neither is there emotional tendency of it.

Based on this, only through “the parasitic abstract nouns” followed by “you(有)”, can the structure “you (有)+ NP” contain the emotional meaning and has emotional tendency (Li Xianying, 2012).

However, in fact some nouns which do not follow those rules, also go with “有(you)” and have emotional tendency, such as

“这事儿有门路了(zheshi you mei lu le; there is a solution of this problem)”.

“这件事有门道 (zhe jian shi you men dao; there is something behind this)”,
“他学校里有人(ta xuexiao li you ren; he has got hands to help him in the school)”,
“他肚子里有墨水(ta duli li you moshui; he is well-educated)” and so on.

All the nouns are physical ones, but they display emotional tendency. Sometimes even though the nouns have followed the rules, they still do not have emotional tendency. For example, “内向(neixiang; introversion)” and “热心(rexin; a warm heart)” are abstract nouns which describe people’s attributes, but they could not be connected with “有(you)”, so they could not display emotional tendency.

The author holds that if “有(you)+NP” has features of emotional tendency, the nouns must be parasitic abstract ones with quantitative features. If the noun is not abstract, it must be a metaphor for certain abstract features.

That is to say, “有(you)+NP” of emotional tendency has at least two conditions to restrain NP.

First, the nouns should generally be abstract ones, but not all abstract ones are suitable. The nouns must have quantitative and dependent features. The quantitative features refer to quantity and degrees. Usually they can be expressed by “一点(yidian; a little), 一些(yixie; some), 很少(henshao; a few), 很多(henduo; a lot of)”. For example, the noun “个性(gexing; characteristics)” has degree feature, so there are phrases like“有一点个性(you yidian gexing; he has some characteristics) (“一点” here is to indicate the degrees)”. The noun “能力(nengli; ability)” has quantitative features, so phrase like “有很多能力(you henduo nengli; have a lot of abilities) (here “很多” refers to the quantity)” exist. However, the noun “文明(wenming)” has no quantitative features, so there is no phrase like “有文明(you wenming; is civilized)”. Dependent features mean that the nouns cannot independently refer to any meanings; they can only be combined with certain subject to reflect the attributes of the subjects. For example, the noun “能力(nengli; ability)” is dependent on people and be regarded as a feature of people, so it is dependent to some degrees. The noun “科学(kexue; science)” does not depend on any things, nor is it a characteristic of any subject, so the noun “科学(kexue; science)” should not be included into the structure “有(you)+NP”.

Second, if NP is not an abstract noun, it must have characteristics of metaphor. And the characteristic means it is a parasitic abstract noun. For example:

(12) 他 这 个 人 肚 里 有 墨 水
ta zhe ge ren duli you moshui.

He has a lot of knowledge.

(13) 全 班 只 有 他 有 墨 水
quanban zhiyou ta you moshui.

In this class, he was the only one who has ink.

Here the noun “墨水(moshui; ink)” is a physical noun. But the “墨水(moshui)” in former sentences has a metaphor for “知识(zhishi; knowledge) and 文化(wenhua; culture)” while in latter sentence, it refers to physical things, so there is no metaphor. “知识(zhishi; knowledge) and 文化(wenhua; culture)” are both abstract nouns. So the phrase “有

墨水” in former sentence has emotional tendency while in the latter does not.

Reversely it could also be used to judge whether a physical noun has metaphorical meanings. For example, if there is emotional tendency found in “有(you)+具体名词(jitimingci; physical nouns)” in emotion tagging, the nouns must have metaphorical meanings. Here are examples:

(14)他有两把刷子

ta you liang ba shuazi

he is powerful/ he has 2 brushes

If the emotion is tagged positive, the “两把刷子(liang ba shuazi,2 brushes)” has metaphorical meanings the same as the abstract noun “能力(ability)”. If there is no emotional color, then this “两把刷子(liang ba shuazi, liang ba shuazi)” refers to physical objects.

3.2. Extraction of Abstract Noun with Quantitative Features in the Emotional Structure “有(you) +NP”. According to the above conditions, NP is an abstract noun with quantitative features or a non-abstract noun with metaphorical features in the emotional structure “有(you)+NP”. Starting from these two semantic and grammatical features, we may extract the noun by using some resources.

As for the extraction of abstract nouns, we firstly referred to the classification of abstract nouns stipulated in Modern Chinese Semantic Dictionary (CSD) of Peking University and extracted 2,294 abstract words.

In terms of the extraction of nouns with quantitative features, we looked up the Grammatical Information Dictionary for the features of relevant “infinite quantifiers” . According to the statistics, 21,184 nouns could be modified with infinite quantifiers like “些(xie; some)” and “点(dian; little)” in the Grammatical Information Dictionary. Combining the results from the above two dictionaries, we extracted 428 abstract nouns. Finally, 386 abstract nouns with quantitative features that can be placed after “有(you)” were selected manually.

To extract the non-abstract nouns with abstract metaphorical features, we adopted the large-scale semantic knowledge-based rule method. First of all, based on the large corpora that have been processed through syntactic analysis, we extracted the arguments before and after “有(you)”. Then, the selection restriction knowledge of “有(you)” is obtained. Referring to these selection restriction conditions, a certain threshold was given to identify the nouns with metaphorical features among the arguments before and after “有(you)”. Finally, these nouns were manually chosen.

To obtain the selective restriction knowledge of “有(you)”, we firstly adopted the Xinhua News corpus in Chinese GigaWord. Based on the automatic dependency syntax analysis, the two arguments before and after “有(you)” were extracted. After removing the repeated arguments, 41,733 effective cases of “A_有(you)_B” were retrieved. After that, the weighted combination formula of argument similarity was used to obtain the priority rules for selection restrictions of “有(you)”. At last, combined with the corpus, it was concluded

that 482 nouns after “有(you)” are beyond the rule knowledge. The artificial comparison results showed that 47 specific nouns have abstract metaphorical features. The weighted formula of similarity used is shown as follows:

$$SR_{sim}(有, r, a_0) = \sum_{a \in Seen(v, r)} weight(v, r, a) \cdot sim(a, a_0) \quad (1)$$

Where v is the verb “有(you)”; r is the syntactic or semantic role; a is the noun or semantic argument; sr is the selection priority, which is a pair of real values. We can freely set the weights (v, r, a). 1 means that all arguments are uniformly treated; if frequency is used, the noun that occurs more frequently is more important; if taking into account their collocation with other predicates, the indicators like inverse document frequency can be adopted.

It should be pointed out that when paring with “有(you)”, these 47 non-abstract nouns with metaphorical features only tend to highlight their metaphorical meanings and possibly have no emotional tendency. For example, the structure “有墨水(you mo shui; have ink)” has two meanings and the specific meaning depends on the actual context of the whole sentence and the noun before “有(you)”.

In turn, we can also judge whether a specific noun has metaphorical color with the help of this knowledge. In the process of emotional tagging, we found that if the structure of “有(you)+specific noun” is characterized by emotional tendency, this noun generally has metaphorical color. For example, the structure “他(很)有两把刷子(ta (hen) you liang ba shua zi; he is very competent)” is marked with “positive affirmation” in the process of emotional tagging, then the noun phrase “两把刷子(liang ba shua zi; competent)” has a metaphorical meaning, which can be mapped as the abstract noun “competency”; if there is no emotional color in it, then “两把刷子(liang ba shua zi; competent)” refer to real objects.

Combining these two methods together, we extracted 433 nouns which can be paired with “有(you)” to form emotional structures.

4. The influence of “有(you)” and its negative variants on NP’s Emotional Tendency.

4.1. “有(you)”’s influence on NP’s emotional tendency. First, emotional tendency and emotional color are different. Emotional colors refer to three kinds of colors: commendatory, derogatory and neutral. But there are only two kinds of emotional tendencies: positive and negative. For example, “尝试(changshi, try)” and “冒险(maoxian, take a risk)” are neutral nouns, but “尝试(changshi, try)” is positive in emotional tendency while “冒险(maoxian, take a risk)” is often negative.

Also only when the nouns after “有(you)” are parasitic abstract nouns, “有(you)” can be regarded as an emotional operator. Unless the nouns have metaphorical meanings, otherwise “有(you)” cannot be considered as the emotional operator.

Generally speaking, when “有(you)+NP” has emotional tendency, its nouns do not have emotional tendency or the emotional color is neutral. The difference is made by the adding of “有(you)”. For example, “长相(zhangxiang; looks)” and “身材(shencai, figure)” are neutral, but “有长相(you zhangxiang; is good looking)” and “有身材(you shencai; have good body figure)” express positive and commendatory emotion.

386 parasitic abstract words have been collected here from the fifth edition of *Modern Chinese Dictionary*. When “有(you)” is added before them, these nouns all display certain emotional tendencies. An investigation has been done to study their own emotional colors and the emotional tendencies they possess after being connected with “有(you)”.

TABLE 2. DISTRIBUTION TABLE OF EMOTIONAL TENDENCIES OF THE STRUCTURE “有(YOU)+PARASITIC ABSTRACT NOUNS”

Parasitic abstract nouns (386 个)		With “有(you)”	
		Positive tendency	Negative tendency
commendatory	34	34	0
derogatory	18	2	16
neutral	334	319	15

From this table, it is clear that the structures “有(you)+NP” have more positive emotional tendencies. We can say that an absolute majority of the structures “有(you)+NP” have positive meanings, which also accord with the universal thought of “the more the better”. Most of the emotional tendencies of neutral or commendatory nouns become positive and affirmative after “有(you)” is placed before these nouns, while the emotional tendencies of derogatory nouns will basically not change after “有(you)” is added before them.

In addition, the author also investigated and compared the phrases with “有(you)/没有(meí-you)+NP” in Emotion Analysis Dictionary of HowNet (hereinafter referred to as Emotion Dictionary) and found that the phrases with “有(you)+NP” generally have positive tendencies, while the phrases with “没 mei (有 you)+NP” mostly have negative tendencies. Although the phrases with “有(you)+NP” also have negative emotions or comments, most of them are the structures with “有(you)+ negative NP”, such as “有愧色(you kui se; be guilty)” and “有微词(you wei ci; have veiled criticism)”. This suggests that “有(you)” generally will not cause inverse migration of NP’s emotional tendency.

TABLE 3. DISTRIBUTION TABLE OF “有(YOU)+NP” IN THE EMOTIONAL DICTIONARY

	Words with positive emotion	Words with negative emotion	Words with positive comments	Words with negative comments
Emotion Dictionary	836	1254	3730	3116
With “有(you)”	7	10	95	11
With “没 mei (有 you)”	0	4	5	27

4.2. **The Influence of Negative Variants of “有(you)” on NP’s Emotional Tendency.** The negative variants of “(很(hen))有(you)” are: “(很)没(有) (hen mei you), “一点儿……也没有(yi dian er...ye mei you” and “没有一点儿……(meiyou yi dian er...)”(He Zizhang, 2010). For example, there are phrases like: “(很)没(有)头脑(hen meiyou tounao; very stupid”, “一点儿头脑也没有(yi dian er tounao ye meiyou; very stupid)” and “没有一点儿头脑(meiyou yi dian er tounao; very stupid)”.

Investigations have been done on the 386 selected parasitic abstract nouns and three negative variants. The preferences in choosing nouns are shown here:

TABLE 4. ALLOCATION TABLE FOR NEGATIVE VARIANTS OF “有(YOU)”

Negative variants of “(很)有 (hen you)”	Parasitic (386)		Emotional tendency of the combination	
	No-derogatory 345	Derogatory 41	Positive tendency	Negative tendency
一点儿... 也没有 (yidianer...yemeiyou) (not at all)	332	29	32	329
没有一点儿...(meiyou yi dian er...)	328	32	35	325
没(有) (mei you)	345	41	42	344
很没(有) (hen mei you)	309	27	25	311

From this table, it could be seen:

(i) “很没(有) (hen mei(you))” normally does not go with derogatory parasitic abstract nouns. That is to say, there are phrases like “有敌意(you diyi; hostile) or 很有敌意(hen you diyi; very hostile), but their negative variants such as “很没有敌意(hen meiyou diyi;not very hostile)” does not exist. However, other negative variants like “没有敌意(meiyou diyi; not hostile)”, “一点儿敌意也没有(yi dian er diyi ye meiyou; not hostile)” or “没有一点儿敌意(meiyou yi dian er diyi;not hostile at all)” are permitted. The reason is that emotional structure of the nouns which are after “很没(有) (hen mei(you))” emphasizes the meanings which do not appear as the speaker has expected. The nouns after “很没(有) (hen mei(you))” should not have derogatory or negative meanings. For example, there is no such phrases like “很没有危险(hen meiyou wenxian), 很没醋意(hen mei cuyi) or 很没怨言(hen mei yuanyan)”. But there are also exceptions. For example, the noun 心机 (xinjin) normally has negative emotional color, but it could be used in the sentence “这个小姑娘很没有心机(zhe ge xiao guniang hen meiyou xinji; this little girl is very innocent)”.

(ii) Most negative variants of “(很)有(hen you)+NP” have negative tendencies, which is the opposite of “(很)有(hen you)+NP”. This indicates that “(很)没(有) (hen mei you)”,

“一点儿……也没有(yi dian er...ye meiyou)” and “没有一点儿……(meiyou yi dian er...)”all express negative emotional tendencies.

5. The application of the emotional structure “有 (you)+NP” and its negative variants on emotional tagging.

5.1. **Extension of the emotion dictionary.** There are nearly 9,000 Chinese phrases with emotional tendencies in the Emotion Dictionary of HowNet. We may use “有(you)” and “没有(me-i-you)” as restrictions against nouns that follow in their emotional tendencies. The vocabulary of the Emotion Dictionary can be extended if “有(you)” and “没有(me-i-you)” are used to combine with those 433 nouns that were extracted earlier into new phrases respectively, and the natures of emotions of these new phrases are easier to be distinguished. The result of manual classification and comparison showed that among all 433 phrases with “有(you)+NP”, there are 395 emotionally positive phrases (8 of which have been included in the Emotion Dictionary), 38 emotionally negative phrases (4 of which have been included in the Emotion Dictionary). However, among all 433 phrases with “没mei(有you)+NP”, there are 24 emotionally positive phrases (4 of which have been included in the Emotion Dictionary), and 408 emotionally negative phrases (12 of which have been included in the Emotion Dictionary). Since certain of portion of these new phrases has already been included in the Emotion Dictionary, so in general, a total of 838 new phrases were added to the Emotion Dictionary, among which there are 408 emotionally positive phrases, and 430 emotionally negative phrases. Please refer to the following table.

TABLE 5. EMOTIONAL DISTRIBUTION OF NEWLY ADDED PHRASES IN THE EMOTION DICTIONARY

Noun	Positive	Negative	Overlap with the Emotion Dictionary
433 “有(you)+NP” new phrases	395	38	12 (8+4)
433 “没 mei (有 you)+NP” new phrases	25	408	16 (4+12)
Total number of added phrases	838		

The direct advantage of the extension of the Emotional Dictionary is that it offers a more complete emotional data support for the emotional analysis of text. We have analyzed the emotional trends of 300 musical texts with the Hevner Emotional Ring Model which has been optimized based on the cultural context of Chinese (Liu Tao, 2006). With the use of the extended Emotion Dictionary, the comparison of the emotional tagging experiment results is as follows:

TABLE 6. THE EMOTIONAL TAGGING ANALYSIS OF MUSICAL TEXTS WITH THE USE OF THE ORIGINAL EMOTION DICTIONARY

Type	Accuracy	Recall rate	F value
Positive	80.73%	91.42%	85.74%
Negative	89.55%	79.01%	84.71%

With the use of the extended Emotion Dictionary:

TABLE 7. THE EMOTIONAL TAGGING ANALYSIS OF MUSICAL TEXTS WITH THE USE OF THE EXTENDED EMOTION DICTIONARY

Type	Accuracy	Recall rate	F value
Positive	82.84%	92.74%	87.51%
Negative	90.61%	82.48%	86.35%

The data above show that the accuracy with the use of the extended Emotion Dictionary in determining emotional types is increased to a certain yet insignificant extent.

5.2. Support for the emotional tagging of sentences. We may use the emotional tendency features of the emotional structure “有(you)+NP” and its variants to tag the emotional tagging of certain sentences.

First of all, we built up a Quantitative Abstract Library (QAL) in which we describe the emotional values of these nouns when they are matched with “有(you)”. Positive emotions were labeled as 1a and negative emotions were labeled as 1b, while neutral emotions were labeled as 0.

For example, when “水平(shui ping; level)” and “敌意(di yi; hostility)” are added a “有(you)”, their emotional trends become positive and negative respectively, so we may label their emotional values as 1a and 1b correspondingly. It is worth noting that 1a and 1b here do not refer to the emotions of these two phrases themselves, but the emotions they have when they are matched with “有(you)”. Therefore, we may say that the NP of them is given by “有(you)”.

Besides, we normally label the emotional values of those nouns of metaphorical features as: 1a/0 (positive or neutral) or 1b/0 (negative or neutral).

E.g., “墨水(mo shui; ink)”, of which the emotional trend becomes “1a/0” when it is matched with “有(you)”, which means that it is possibly positive or neutral.

Then we take a look at the sentences to see if there is any phrase from the QAL is included, and whether “有(you)”-type verbs or “没有(meí-you)”-type verbs are added in front of them¹. In case of “有(you)”-type verbs, then the emotional trend of the entire sentence is in consistency with the emotional value of the NP; in case of “没有(meí-you)”-type verbs, then the emotional trend of the entire sentence is on the opposite of the emotional value of the NP. In case of other verbs, then its emotional trend is not determinable.

For example, the emotional value of the NP is 1a in case of any quantitative abstract NP included in the sentence, and the emotional value of the sentence is P (positive) in case that a “有(you)”-type verb is added in front of it; the emotional value of the NP is 1b in case of any quantitative abstract NP included in the sentence, and the emotional value of the sentence is N (negative) in case that a “没有(me-i-you)”-type verb is added in front of it. The emotional trend of the sentence is automatically labeled as N in case the emotional value of the NP is 1a and it is matched with a “没有(me-i-you)”-type verb; the emotional value of the sentence is P in case the emotional value of the NP is 1b. The sentence automatically quits in case that no quantitative abstract noun is included, nor is a “有(you) / 没有(me-i-you)”-type verb is added in front of it.

The detailed train of thoughts is illustrated as follows:

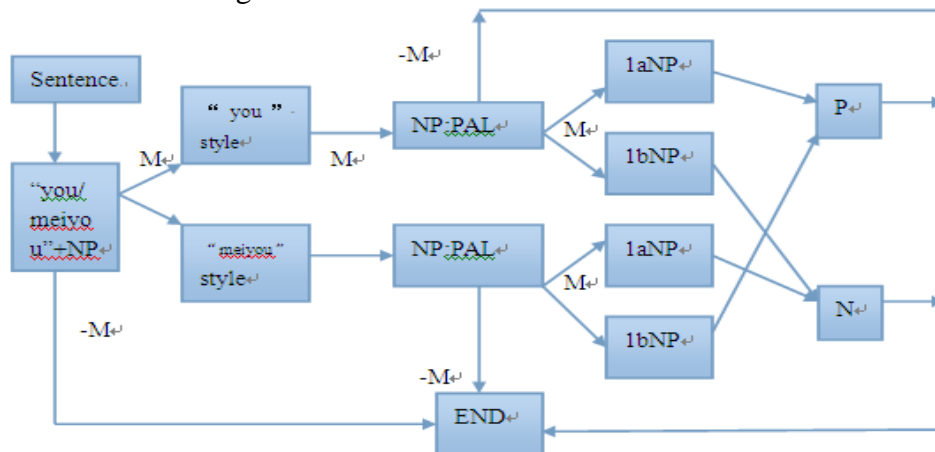


FIGURE 1. THE TRAIN OF THOUGHTS THAT DETERMINES THE EMOTIONAL NATURE OF A SENTENCE

Let’s take the sentence “小张很有能力(xiao zhang hen you neng li; Xiao Zhang is quite competent)” as an example,

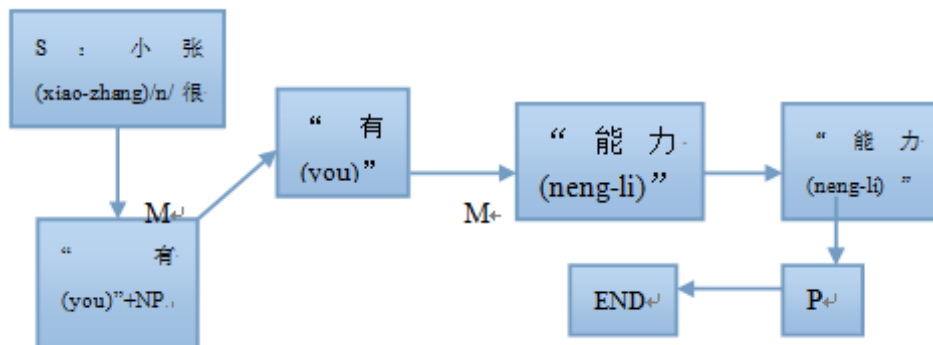


FIGURE 2. ILLUSTRATION OF E.G.1

First of all, let’s tag the properties of phrases of the sentence “小张 (xiao-zhang)/n/很 (hen)/d/有 (you)/v/能力 (neng li; competency)/N/” and see if there is any “有 (you)+NP” combination. If yes, then apply the affective operator rules of “有 (you)” type of verbs. Later, let’s determine whether the following phrase “能力 (neng li; competency)” is a

quantitative abstract noun, and if it is, then determine the nature of the NP. The emotional value of “能力 (neng li; competency)” is “1a” because it is matched with a “有 (you)”-type verb, so the emotional trend of the sentence “小张很有能力(xiao zhang hen you neng li; Xiao Zhang is quite competent)” is in consistency of the emotional value of the NP, which is P, case closed.

Now let’s take a look at the sentence “小张很没信心(xiao zhang hen mei xin xin; Xiao Zhang is quite unconfident)” for a change:

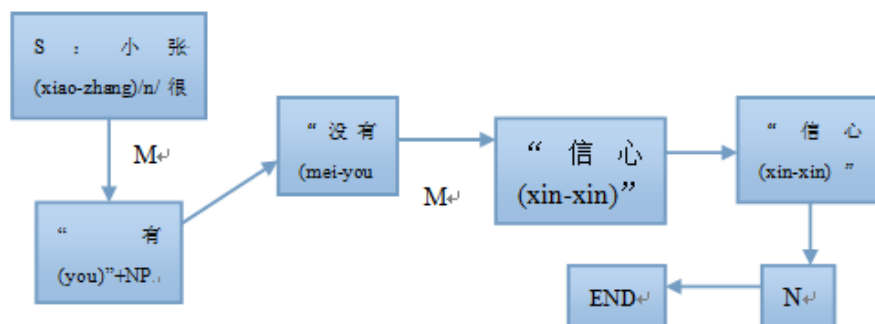


FIGURE 3. ILLUSTRATION OF E.G.2

Since the verb used in this sentence is a “没有 (mei-you)”-type one, hence the emotion of the sentence is N (negative) because it is on the opposite of the emotional value of “信心 (xin xin; confidence)”, which is “1a”, according to the emotional tagging rules of “没有 (mei-you)”-type verbs.

We mainly rely on the special restriction rules of affective operators “有 (you)” and “没有 (mei-you)” in such method. However, the rules require too much from the NP, which immensely restricts the range of emotional handling. For example, the emotional trend of a sentence such as “我有桌子(wo you zhuo zi; I have a desk)” is unable to be determined.

6. Conclusion. In conclusion, “有 (you)” and its variants are able to give emotions to following NPs in a “有 (you) + NP” emotional structure, and the “NP” shall meet two requirements. Firstly, the NP is an abstract noun or a noun with abstract and metaphorical meaning. Secondly, the NP shall be quantitative. Based on the these two requirements and together with the Peking University CSD and GBK, we have extracted 433 phrases that are able to be matched with “有 (you)” to form an emotional structure. 838 new phrases with emotional trends can be formed when these 433 nouns and affective operators are matched with “有 (you)” and its variants, offering substantial knowledge support for the extension of today’s Emotion Dictionary. Meanwhile, the emotional structure “没mei (有you)+ NP” also offers effective approaches for the determination of the emotional trends of sentences.

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