

Study of Near Synonymous Mental-State Verbs: A MARVS Perspective

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Abstract

Near synonym has become a central issue for lexicon and semantics for the nuances in meaning, distribution and context. This study, drawing upon the MARVS framework of Huang et al. (2000) and Chang et al. (2000), aims to carry out the descriptive lexical-semantic analysis, elaborate the similarities and differences and investigate the factors influencing the discrepancy of the near synonyms. A mixed method of quantitative and qualitative analysis was used to identify the sense, role module and event module. The findings show that the near synonyms of mental-state verbs vary in frequency, role module and role internal attribution and indicate that there is a positive relationship between event structure modules and the senses. The study should, therefore, be of value to theoretical, pragmatical and pedagogical implication to a better understanding for the mental state verbs as well as the nature of the cognition.

1 Introduction

Near-synonym, or the paired-off signifiers, is an increasingly important area in linguistics. Because perfect or full synonyms do not exist logically (van Orman Quine, 1987), synonyms present subtle nuances, which is considered a “deviation from the one form-one meaning relation” (Taylor, 2003). Mental state verbs (MSVs), also known as psych-verbs or cognitive verbs such as *remember*, *think* and *recall*, are

defined as the “internal state lexicon” (Booth and Hall, 2000). Extensive research has distinguished the difference of near synonyms, particularly action or transitional verbs from the perspective of collocation, distribution and corpus-based studies (Lee and Liu, 2009; Hong, 2014) and shown the acquisition and production of cognitive verbs in children and the understanding of the polysemous meanings (e.g., Booth et al., 1997; Nixon, 2005). However, little is known about near synonyms of mental state verbs. Consequently, what is not clear is the fine-grained distinction between near synonyms of mental state verbs.

Hall et al. (1987) suggest that cognitive words may be “central to accessing, monitoring and transforming internal states”. Fetzer (2008) notes that cognitive verbs are applied in “a strategic manner”. The analysis of the near-synonyms of mental state verbs plays a crucial role in the study of meta-cognition and cognitive states. It is therefore important to investigate the mental state verbs, especially the near synonymous mental-state verbs for the understanding of metacognition.

As a theory analyzing the verbal semantics based on Mandarin Chinese database, the Module-Attribute Representation of Verbal Semantics (MARVS) is fast becoming a key instrument in the comparison of near synonyms. There are a number of studies that apply MARVS to the analysis of transitive verbs (e.g., Ahrens et al., 2003; Hong et al., 2008; Hong et al., 2012), from the perspective of MARVS.

Following the framework of Huang et al. (2000) and (Chang et al., 2000), the primary objective of this paper is to carry out the descriptive lexical-semantic analysis of the near-synonyms of 专心 *zhuanxin* ‘concentrate’ and 注意 *zhuyi* ‘pay attention to’ supplemented by another pair of psych-verbs, 担心 *danxin* ‘worry’ and 担忧 *danyou* ‘be concerned’ for the eventive information. Moreover, the study clarifies the similarities and differences of the near synonyms from sense, role module and event module with quantitative analysis and qualitative analysis systematically. Thirdly, this research sets out to gain further understanding of the factors influencing the similarity and discrepancy of two near-synonyms. Specifically, the study seeks to address the three questions:

RQ1. What are the senses and PoSs of the two near-synonym pairs?

RQ2. What are the role module and the event structure module of the near synonyms?

RQ3. Why do the role module and event module of the mental state verbs vary?

Utilizing Sinica Corpus and Chinese Word Sketch (CWS), the study, to the best of the author’s knowledge, first identifies the senses and parts of speech (PoS) of the mental state near-synonyms. In particular, it will generate some important insights into the roles and event modules of two pairs of near-synonyms *zhuanxin* and *zhuyi*, *danxin* and *danyou*. Further, the investigation provides an exciting opportunity to advance our knowledge of mental state verbs based on empirical study. In addition, the study contributes to pedagogical implication for the Chinese learners of the near synonyms.

The paper is structured as follows: it starts with the brief overview of the recent research on near synonyms. Then, on the basis of online tools of Sinica Corpus 4.0 with 11, 245, 330 word tokens and CWS with 1.4 billion word tokens, it will give an account of the comparison of the agent and the eventive information of the near-synonym of *zhuanxin* and *zhuyi* from a MARVS perspective. In addition, another pair of synonyms of perception of *danxin* and *danyou* is supplemented to further examine the role and event modules of mental state verbs. The next

section explains the similarity and difference of the near synonyms and it concludes with the main findings, limitations, and the implications.

2 Literature Review

Though near synonyms share similar core meaning, they have subtle differences. A great deal of previous research has focused on the analysis and comparison of near synonyms from computational approaches including distribution patterns and syntactic behavior (Lee and Liu, 2009; Hong, 2014). Based on co-extension relation and distribution on psycholinguistic experimentation, Taylor (2003) distinguishes the near synonyms of “high” and “tall”. Chief et al. (2000) analyze syntactic behavior and distribution difference of *fangbian* and *bianli* on corpus-based study. It is also observed that context plays an important role in lexical choice (Reiter and Sripada, 2004). The distribution patterns of the state verbs and the Mandarin verbs of “throwing” are also investigated on corpus-based study (Tsai et al., 1998; Liu et al., 2000). These quantitative analyses have explored the semantic and syntactic behaviors and distribution patterns of near synonym pairs, however, what is less clear is the inherent semantic discrepancy.

To further examine the nature of near synonyms, Huang et al. (2000) establish the linguistic model of MARVS to examine the eventive information including role modules and event modules, which explores the words from lexical, semantic, syntactic views and grammatical explanation. In the same vein, Chung and Ahrens (2008) suggest that sense distribution and mutual information be supplemented in the differentiation. Several attempts have been made to distinguish *put* and *set*, verbs of ingestion, sensation verbs of *kanjian* ‘see’ and *chumo* ‘touch’, and transitive verbs of *chi1* ‘eat’, *wan2* ‘play’, *huan4* ‘change’ and *shao1* ‘burn’ (e.g., Ahrens et al., 2003; Hong et al., 2008; Hong et al., 2012). These studies examine the verbal polysemy and event structure of the transitive verbs, in particular, the action verbs whereas the eventive information of state verbs has not been closely examined.

Teng (1975) divides verbs into action- and state-verbs and distinguishes state-verbs with the modifiers of both degrees and time adverb. In an investigation into cognitive words, Hall et al. (1987) classify six levels systematically ranging from perception and attention, recognition, recalling, understanding, metacognition to evaluation of presuppositions in terms of processing degrees. The typology covers all the mental state verbs. Based on the comprehensive and elaborate criteria, Levin (1993) categorizes psych-verbs into four types of amuse, admire, marvel and appeal verbs. Her nearly fifty sub-categories of verbs have an extensive analysis of action and state verbs, however, the classification of psych-verbs is not comprehensive.

The near synonyms of mental state verbs provide subtle nuances in cognitive state and metacognition. Up to now, a number of studies have highlighted factors that are associated with the acquisition and production of cognitive verbs in children and the understanding of the polysemous meanings (e.g., Booth et al., 1997; Naigles, 2000; Nixon, 2005). Near synonyms of mental state verbs have seldom been analyzed from the perspective of MARVS.

To summarize, these studies highlight the similarity of meaning in near-synonyms and the analysis from distribution, context, corpus-based study and MARVS. However, little is known about the role module and event module of near synonym of cognitive verbs, which are significant in understanding the internal mental state, the self-awareness and metacognitive monitoring (Booth et al., 1997). This paper supplements another pair of the mental state verbs of *danxin* and *danyou* by Hall et al. (1987) and Levin (1993) to further analyze the psych-verbs.

3 Methodology

3.1 Theoretical Framework

Based on the assumptions of the universal properties of direct representation, conceptual motivation and representation clues, verbs have the eventive information (Huang et al., 2000). In MARVS, verbs can be divided into event modules and role modules for the research on lexical

semantic distinctions and two respective internal attributes:

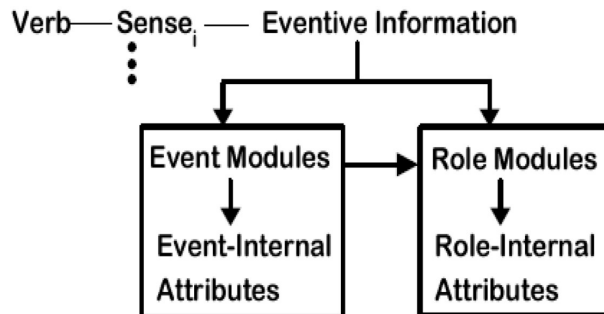


Figure 1: Theoretical framework of MARVS (Huang et al., 2000)

As shown in Figure 1, verbs contain the eventive information of event modules and role modules. Event modules include five atomic event structures of boundary, punctuality, state, process and stage. Further, event inherent attributes can be classified into control, realized and disposal. Roles involve agents, cause, causer, comparison, experiencer, goal, instrument, incremental theme, location locus, manner, range, recipient, source, and target. The role internal attributes include sentience, volitive, affectedness and design.

3.2 Procedure

Prior to data collection, the senses are referred to from the dictionary and parts of speech (PoS) of the two verbs are extracted from Sinica Corpus and Chinese Word Sketch. Based on WordSketch from CWS, it then analyses the role module and the event structure module in terms of the tense, modifier and event inherent attributes. To further analyze the verbs of perception, the study carries out WordSketch on another pair of negative admire verbs of *danxin* and *danyou* from *Chinese Synonymous Usage Dictionary* (Teng, 1996) to get the role module and event module. The next step is to compare the two pairs of near synonyms of mental state verbs for an examination of the common attributes. Finally, it provides the explanation for the similarity and discrepancy and concludes with a summary of the findings.

4 Results

To distinguish the near synonyms of the mental state verbs, the study investigates the three factors of senses, role modules and event modules respectively.

4.1 Senses of the near-synonym verbs

Both verbs have one sense of similar meanings of being absorbed in something. According to Chinese Modern Dictionary, *zhuanxin* has one sense of concentrating one’s attention and one part of speech (VH). *Zhuyi* has one sense of focusing the willpower and two parts of speech (VK and Nv):

专心集中注意力: ~一意 | 学习必须~。

zhuanxin focus one’s concentration

注意把意志放到某一方面。~安全 | 提请~。

zhuyi focus one’s willpower to a certain aspect

A general overview of the near synonym in Sinica Corpus indicates that *zhuanxin* (freq. = 244) is much less used than *zhuyi* (freq. = 2007). Similarly, WordSketch of the near synonym showcases the sharp contrast. As shown in Figure 2, the frequency of *zhuanxin* (freq. = 3859) and *zhuyi* (freq. = 136547) varies greatly in gagaword2 corpus, indicating that *zhuyi* is much more extensively applied in various text types.

專心/注意 gigaword2 freq = 3859/136547

Common patterns

專心 21 14 7 0 -7 -14 -21 注意

Subject 105 5572 22.0 1.3

我 6 6 13.8 2.7

他 12 28 13.7 2.9

Figure 2: WordSketch comparison of *zhuanxin* and *zhuyi* in gigaword2

Furthermore, the PoSs of the verbs also vary since *zhuanxin* is VH, or stative intransitive verb and *zhuyi* is mostly used as VK, namely Stative Verb with a Sentential Object as indicated in Table 1:

Based on the study of the senses and PoSs, it is observed that the distribution of the near synonym varies although the near synonym shares

Words	PoS	Freq.
<i>zhuanxin</i>	VH	244
<i>zhuyi</i>	VK	1879
	Nv	128

Table 1: Comparison between *zhuanxin* and *zhuyi* in Sinica Corpus

similar meaning, meaning that they are used in different context. Moreover, the mental state verbs are used to indicate a durative event, but the nuances in PoSs illustrate that structure of the near synonym differ.

4.2 Role module

As stated earlier, role includes the elements of agent and theme. This study compares the agent, or the subject and theme (object) of the near synonym. The comparison is revealing in three ways. Firstly, the subjects of *zhuyi* include instrument such as *chuanzhi* (ships) and experiencer including *minzhong* (mass), *jiashiren* (driver) and *kaosheng* (examinee). As presented in Table 2, subject of *zhuanxin* tends to be the pronouns of I or he, while that of *zhuyi* a community or a group of people.

<i>zhuanxin</i>			<i>zhuyi</i>		
Subjects	Freq.	Salience	Subjects	Freq.	Salience
我 (I)	6	13.81	船只 (ships)	2349	97.12
他 (he)	12	13.75	民众 (masses)	471	38.49
			驾驶人 (drivers)	50	33.03
			考生 (examinees)	55	27.45
			家长 (parents)	53	24.98
			投资 (investors)	35	22.39

Table 2: Comparison of subject collocation between *zhuanxin* and *zhuyi*

Secondly, turning to objects, Table 3 illustrates the collocation of objects with *zhuanxin* and *zhuyi*. As shown in Table 3, *zhuyi* is collocated with a noun such as problem, items, development related to risk. Conversely, *zhuanxin* is followed by a phrase of event type including a process and a state such as note-taking, study, listening to lecture, incubation and painting. The theme of *zhuanxin* is a durative event and that of *zhuyi* tends to be a noun.

Thirdly, the two verbs share similarity in role internal attributes which include sentence, vo-

专心 <i>Zhuanxin</i> ‘concentrate’		注意 <i>Zhuyi</i> ‘pay attention to’	
Objects	Freq.	Objects	Freq.
相夫教子 (mothering)	16	事项 (items)	3101
向学 (study)	35	动态 (development)	641
待产 (labour)	10	自身 (self)	68
作笔记 (note taking)	3	饮食 (diet)	574
养病 (recovery from illness)	14	动向 (development)	428
听讲 (listening to lecture)	30	情势 (situation)	396
养伤 (recovery for injury)	7	环境卫生 (environment)	781
孵蛋 (incubation)	3	交通安全 (safety)	182
念书 (study)	36	卫生 (sanitation)	171
作画 (painting)	21	变化 (change)	972

Table 3: WordSketch comparison for objects of *zhuanxin* and *zhuyi*

lition, affectedness and design. Both *zhuanxin* and *zhuyi* can be collocated with 一定 *yiding* ‘must’, indicating that they have the role-internal attribute of [+volition]:

专心 concentrate	5
注意 pay attention to	22

Table 4: Frequency of collocation with *yiding* (must) in gigaword2

a. 上课**一定要专心**听讲，回家要复习。

“Be concentrated in class and review the lecture after returning home.”

b. 卫生部门因此提醒患者个人用药时**一定要注意**药品的有效期，不要使用失效药品。

“The health department remind the patients of paying attention to the expiry date of the medicine and do not take the expired drugs.”

Overall, WordSketch on the subjects of the near synonyms indicates that the subject is experiencer which varies in scope based on the severity of objects. Further, both *zhuyi* and *zhuanxin* can be collocated with a role-internal attribute of [+volition] on the experiencer.

4.3 Event Structure Module

By analysing the collocations and MI of modifiers of the near synonym pairs in Sinica Corpus, this study examines the tense, boundary, modifier and event inherent attributes of event structure module.

Tense

It is observed that *zhuyi* can be collocated with the collocation of *le* (freq. = 544) whereas *zhuanxin* is not followed with *le*, indicating that

zhuyi has the event module of process as exemplified in the following example:

由于上海**较早地注意**了再就业、养老保险、医疗保险等社会保障工作，进而比较好地解决了企业人多、债多、社会负担重的问题。

“Because Shanghai paid attention to the social insurance of reemployment, endowment insurance, medical insurance earlier, the problems of overstaff, debt and social burdens are solved more satisfactorily.”

However, it is noteworthy that *le* is both an aspect marker (freq. = 143) and sentence particles (freq. = 401) in the collocation with *zhuyi*. In most cases, when *le* is placed at the end of the sentence, it is a sentence particle in which the collocation with *le* often indicates the boundary in the future tense as shown in the following example:

喜爱天文的民众**注意了**！台北市立天文科学教育馆**今明天**举办「天文仪器联展」。

“Astronomy enthusiasts, attention please. Taipei Astronomical Museum will hold ‘Astronomical Instruments Exhibition’ today and tomorrow.”

Boundary

Both of the near-synonym verbs can be collocated with 开始 *kaishi* ‘start’, indicating that they can be used in the boundary events.

专心 concentrate	21
注意 pay attention to	374

Table 5: Frequency of collocation with *kaishi* in gigaword2

a. 经济部已**开始注意**战后的市场问题，经济部所属的中华工程公司将率先重回科威特。

“Economic Development has noticed the marketing problem after the war, and China’s Engineering Company attached to the department will return to Kuwait first.”

zhuyi ·////////·

b. 等于吃了定心丸，**开始专心**规划立委选举辅选工作。

“They feel reassured and begin to devote themselves in the planning of supportive work of the legislative.”

zhuanxin ·////////·

Modifier

Modifiers of *zhuyi* include adverb of time such as 随时 *suishi* ‘anytime’ with the frequency of 32 and the MI of 5.441 meaning that the event type of the verb is the process and state.

MI	Freq(y)	freq(x, y)	Modifier
5.441	777	32	随时 anytime (D)
5.197	186	6	时时 always (D)
4.636	326	6	定期 regularly (D)
4.382	490	7	平常 usually (Nd)

Table 6: Modifiers of time of *zhuyi*

However, it is worth noting that *zhuyi* has a collocation with 一下 *yixia* ‘for a moment’ (freq. = 1458), showing that it has the event module of punctuality.

Event Inherent Attributes

The event inherent attributes of control can be identified with the collocation of “Don’t”,

realized with negative expressions and disposal with *ba*. WordSketch of the near-synonym indicates that both can be collocated with negative expression, meaning that they have in event inherent attributes of being “realised”. The filtering of 不 *bu* ‘not’ in CWS presents that *zhuanxin* (64) and *zhuyi* (854) has the collocation with *bu* which is the indication of negative expressions.

专心 concentrate	64
注意 pay attention to	854

Table 7: Frequency of collocation with *bu* (not) in gigaword2

The comparison between the near synonyms of *zhuanxin* and *zhuyi* can be summarised as follows

As indicated in Table 8, the near synonym varies in frequency, PoS and event modules but share similarities in role internal attribute and event internal attribute. *Zhuyi*, the stative intransitive verb is more frequently used than *zhuanxin*, a stative verb. Though both the near synonyms can be used for state and process, *zhuyi* can be used in punctual event. Both have role internal attribute [+volition] on experiencer

	<i>zhuanxin</i>	<i>zhuyi</i>
PoS	VH	VK and Nv
Role modules	<experiencer, goal> (he, research)	<experiencer/instrument, theme> <drivers/ships, situation>
Role-internal attribute	[+volition] (<i>yiding</i> , should)	[+volition] (<i>yiding</i> , should)
Event Modules	boundary (start), stage (this year), state (<i>yizhi</i>)	boundary(start), process (always), punctuality (for a moment)
Event Internal Attribute	[+realized]	[+realized]

Table 8: Comparison of eventive information between *zhuanxin* and *zhuyi* in MARVS

and the event internal attribute of “being realized”.

4.4 Negative admire verb of *danxin* and *danyou*

Turning to another near synonym pair of negative admire verbs, a similar analysis is carried out in terms of senses, role module and event structure module.

Senses and PoSs

担心 放心不下

danxin to be concerned about a problem, situation

担忧 感到忧虑和不安。

danyou to be in a worried/troubled state of mind

As shown in Figure 3, WordSketch on the near synonym display that *danxin* (freq. = 75,459) is more frequently used than *danyou* (14727). Both *danxin* and *danyou* are VK, stative verb with a sentential object based on the analysis of Sinica Corpus.

擔心/擔憂 gigaword2 freq = 75459/14727

Common patterns

擔心	21	14	7	0	7	14	21	擔憂	
SentObject	25414	1770	38.7	28.0	SentObject_of	1885	1069	2.9	16.9
有	472	25	49.0	28.7	感到	380	524	65.3	76.9
有	279	14	43.7	19.7	感到	213	256	58.8	66.8
遭到	442	11	42.8	13.7	深感	12	88	21.5	54.2
有	238	13	42.3	19.4	開始	402	47	50.6	23.8
爆發	220	14	37.2	18.3	不禁	50	10	44.1	23.3
發生	762	44	35.0	19.1	需要	117	13	31.3	11.1
引發	291	16	34.9	16.4	顯示	86	14	30.9	13.9
害怕	82	8	33.8	17.9	感	6	12	17.1	27.2
有	86	8	33.0	17.2	感	6	10	17.3	25.1
安危	204	16	47.1	25.4	自己	708	11	30.5	6.0
孩子	206	6	28.0	7.7	將來	106	6	25.0	9.7
油價	111	8	24.8	11.5	利率	255	8	24.1	6.9
它	246	17	24.7	12.8	北韓	186	16	24.0	13.7
恐怖份子	62	8	23.3	14.2					

Figure 3: WordSketch comparison of *danxin* and *danyou* in gigaword2

4.4.1 Role module

The subject of *danxin* include the experiencer of investor, they, people, analyst, family members, we, officials and the industry, and that of *danyou* is officials, they, people, he and government.

Since *danyou* can be collocated with “feel”, it has the role-internal attribute of [+sentience].

4.4.2 Event Structure Module

Modifiers of *danyou* are related to durative event of process and state, such as *chixu* (continue) (freq. = 9) and *jixu* (keep) (freq. = 7) and *danxin* with *yizhi* (keep) (freq. = 358). The frequency of the modifiers showcases that both verbs are used in process and state.

Both *danxin* (freq. = 402) and *danyou* (freq. = 47) can be collocated with “start”, meaning that they can be used in boundary events as well.

In addition, the collocation with *le* of *danxin* (freq. = 72) and *danyou* (freq. = 30) illustrates that they can be used in process and state. Strikingly, time adverb is followed after the verbs to indicate the period of time:

danxin ./////·
yilu (all along the way) 10 *jitian* (several days)
haojigeyue (several months)
danyou ./////·
yitian (a day) *yizhen* (a while)

To sum up, despite the similarity in meaning between *danxin* and *danyou*, the near synonyms have similarity and difference in MARVS as indicated in Table 9:

	<i>danxin</i>	<i>danyou</i>
PoS	VK and Nv	VK and Nv
Role modules	<experiencer, theme/recipient> (investor, oil price/person)	<experiencer/cause, theme> <officials, pandemic>
Role-internal attribute	[sentience] (feel)	[sentience] (feel)
Event Modules	boundary (start), process (a day)	boundary(start), process (months)
Event Internal Attribute	[+control] (bie, don't)	lack of control

Table 9: Comparison of eventive information between *danxin* and *danyou* in MARVS

As presented in Table 9, the synonyms are similar in PoS, role-internal attribute and event modules, but vary in event internal attribute.

Moreover, both Sinica Corpus and CWS indicate that *zhuyi*, *danxin* and *danyou* can be separated by other elements, which indicates that all the three words are separatable words (*liheci*).

Home	Concordance	Word Sketch	Thesaurus	Sketch-Diff	Frequency	Collocation
KWIC/Sentence		View options	Sample	Filter	Sort	翻 译 器

0163 了，他們也是受到人家的注< /p>< /p>意，警察注意到他，
0081 ，最大陣風九級，船隻請注特別意。審核：伍預報員
0040 大陣風八至九級，船隻請注特別意。審核：雯預報員
0186 ，最大陣風九級，船隻請注特別意。審核：雯預報員
0057 ，最大陣風九級，船隻請注特別意。審核：偉預報員

Figure 4: Separatable word of *zhuyi* in gigaword2cna

Home	Concordance	Word Sketch	Thesaurus	Sketch-Diff	Frequency	Collocation
KWIC/Sentence		View options	Sample	Filter	Sort	翻 译 器

0018 ，至少在紐約，他們不必擔這個心。< /p>華府十二月三日
0166 裡，做自己的習題，然後擔< /p>< /p>心是不是會比同學考
0162 武力解放台灣，但(日本)又擔什麼心呢？那是中國的內政
0084 青壯年的女人雖然比男人要擔更多的心，她們卻有一個
0164 的民眾、父母、老師都要擔一份心與一份責任，不要
0248 ，「吃人一口飯、還人一擔米」，形容心中的感受，
0189 人們「先考慮對某一件事該擔多少心，並且不再多擔心
0390 所以才對他這幾天的風波擔了這麼久的，他感到很
0241 公安局透露槍手不斷潛入表示擔心(曼谷)。民意日報：泰國
0071 學生家長都無所謂了，台大擔什麼心。不過，教育部面對

Figure 5: Separatable word of *danxin* in gigaword2cna

Home	Concordance	Word Sketch	Thesaurus	Sketch-Diff	Frequency	Collocation
KWIC/Sentence		View options	Sample	Filter	Sort	翻 译 器

0103 市政府提出「冬季多挑一擔土，夏汛少擔十分憂」、
0119 冬春多挑一擔土，夏汛少擔一份憂。」在(牌加竹頭
0097 冬修多操一份心，夏汛少擔一份憂」，冬修質量高，
0063 冬修多操一份心，夏汛少擔一份憂< /p>堤防，是湖北人民
0063 冬修多操一份心，夏汛少擔一份憂」，已成為全省

Figure 6: Separatable word of *danyou* in gigaword2cna

Similarly, Sinica Corpus also indicates that *danxin* can be used as a separatable word.
每考一次试就要担一次心
be worried for each examination
害得大家为他担不少心
all are worried about him
你担什么心嘛
What are you worried about?
害大家担半天心
all are worried about you for a long time.

Further analysis illustrates that *zhuyi* is separated by words of severity, *danxin* by frequency, severity and time duration, and *danyou* by severity.

5 Discussion

This paper set out to examine the sense and PoSs of two near synonyms of *zhuanxin* and *zhuyi* and *danxin* and *danyou* with Sinica Corpus and CWS. First of all, both of the first synonym pair have the core meaning of paying attention to something but they vary in frequency and PoSs. *Zhuanxin* is less frequently used than *zhuyi* in the various text types. *Zhuanxin* is a stative intransitive verb and *zhuyi* is mostly used as stative verb with a sentential object. Compared with the first pair, *danxin* and *danyou* have similar core meaning of being worried about, but *danyou* is applied in a worried state and they are VK or a stative verb. *Danxin* is more frequently used than *danhou*.

Turning to the second question of the role module and the event structure module of the near synonyms, both *zhuanxin* and *zhuyi* indicate state and process, bounded activity and inchoative activity, however, *zhuyi* can also be used in punctuality. They share the event inherent attributes of realisation, while *zhuyi* has the role internal attribution of volition. Similarly, the negative admire verbs of *danxin* and *danyou* have the role internal attribute of sentience and are used in process and state, but *danxin* has the event internal attribute of control.

The third question in this research is the factors influencing the similarity and discrepancy. The study found that mental state near synonyms share similar core meaning, PoSs and durative state. Accordingly, the two pairs of near synonyms share many similarities in the boundary and the event internal attributes of being “realised”. A possible explanation of similarity lies in the durative event of the mental-state near-synonyms. This finding supports evidence from observations that distribution and context are crucial in lexical choice (Chief et al., 2000; Taylor, 2003; Reiter and Sripada, 2004).

On the other hand, the distribution, subject

and object of the near synonyms vary greatly. The discrepancy in the senses of the verbs could be attributed to the difference in usage since *zhuanxin* is the concentration of attention and *zhuyi* that of willpower. Therefore, *zhuyi* can be used in the role-internal attribute of [+volition], in punctual event and the future tense. Conversely, *zhuanxin* which is a more durative event is mainly used in the past tense and collocated with the modifier of time lasting for a period. The results further support the idea of Levin that the meaning determines the behaviour of the verbs (1993:1).

One unanticipated result is that *zhuyi*, *danxin* and *danyou* are separatable words though the elements between the diasyllabic verbs vary in terms of severity, frequency and time duration. This result may be explained by the verb-object morphological structure of the near synonyms. The finding is congruent with that of Petrovčič (2016) that monosyllabic counterparts of the disyllabic verb are tagged as two different verbs. Moreover, the study demonstrates that the V-O structure mental state verbs can be applied as separable words.

6 Conclusion

This present study was designed to determine the sense, role modules and event structure modules of mental state near synonyms on the Sinica Corpus and CWS. The findings clearly indicate they share similarities in state and process, bounded activity, role-internal attribute and event internal attribute. However, *zhuyi* can also be used in punctuality. Further, they share the event inherent attributes of realisation, while *zhuyi* has the role internal attribution of volition.

The finding may contribute in several ways to our understanding of mental state verbs and provide an empirical basis for us to understand the discrepancy of mental-state synonyms, in particular, the role modules of the experiencer and the role internal attributes and the modifiers. Pragmatically, the descriptive study of the near synonym in collocation, modifier and tense is applicable in the usage and identification of

the near synonym. It will be a matter for further research to supplement more near-synonyms of mental state verbs for the sense, role module and event modules from the MARVS perspective to explore the nature of the cognition.

Although the study has demonstrated the event information of mental-state verbs, the findings are subject to two limitations. Firstly, the study focuses on two pairs of near synonym and the negative admire verbs. It might be possible to enlarge the quantity and category from two pairs of near synonym to more mental state verbs and subcategories such as perception, marvel and appeal for a holistic analysis of cognition. Secondly, the study concentrates on the PoS of verb whereas some mental state verbs such as *zhuanxin* can also be used as adverbs, which can be taken into account for the role module in the future study.

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Website resources

- [1] Sinica Corpus
<http://db1x.sinica.edu.tw/kiwi/mkiwi/>
- [2] Chinese Word Sketch
<http://wordsketch.ling.sinica.edu.tw/>