

DERIVING CONCEPTUAL STRUCTURES FROM SENSE: A STUDY OF NEAR SYNONYMOUS SENSATION VERBS

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Abstract

In Mandarin Chinese, lexical semantic relation of near synonyms is a widespread phenomenon, and is of great interest to many linguists. Most works deal with lexical semantic relation between lexical entries. This paper investigates the differences between Chinese near synonymous sensation verbs based on the data from “Academia Sinica Balanced Corpus of Modern Mandarin Chinese” (Sinica Corpus) and the sense distinction of Chinese WordNet. As observed, the differences are shown by analyzing the lexical concept and word formation collocation. Similarly, the core sense of a lexical entry also determines the lexical dissimilarities so as to find out the usage, contrast and distribution pattern of near synonyms.

Keyword: near synonyms, sensation verb, production, perception

1. Introduction

Sensation verbs describe cognitive behavior, which is a crucial part of natural language semantic field. In Chinese, each sensation meaning can often be expressed by few near synonyms. By studying the usage and distribution pattern of near synonyms in Chinese language use, we noticed the importance of examining the contrasts between them. Hong and Huang (2004) suggest that the difference between the two synonyms “sheng1” and “yin1”, which both mean “sound”, can be explained by comparing two cognitive concepts, namely production and perception.

Does this generalization extend to other near synonym pairs? This paper explores the usage pattern of two synonymous pairs of sensation verbs, “kan4” and “jian4” (“to look, see or watch”), “chu4” and “mo1” (“to touch”), in Chinese language use. We extract the core sense and lexical semantic features of the pairs to determine the conceptual differences between them, which help clarify their sense relation. We also try to find out whether sensation verbs have the same features and concepts in three other sub-fields of senses, i.e. senses of hearing, sight and touch.

In this study, we examine the contrast of two near synonymous pairs, “kan4” and “jian4” and “chu4” and “mo1” by adopting the same methodology used in Hong and Huang’s work (2004). Our main research issues are: (1) to study the lexical semantic of lexical entries in question; (2) to compare the conceptual differences between each pair of near synonyms; (3) to analyze their word formation collocation; and (4) to explain their contrast and distribution pattern.

2. Motivations and Objectives

Since ancient times, the use of near synonyms has been considered to be very similar to that of synonyms. In fact, it is not the case. There are, however, no clear definitions for near synonyms, but only descriptions of their usage differences based on natural data.

Language knowledge representation is a manifestation of systematic contrast through human communication instead of being conventionally defined. Take modal verbs as examples. Modal verb synonyms have the same syntactic functions and cannot be easily distinguished in terms of their lexical sense. Therefore, they are considered to be interchangeable. Nevertheless, it is not uncommon that this kind of near synonym always has contrasts in usage, as we can see the contrast between “neng2” and “hui4” below:

(1a) 臺灣廠商到德國開商展時，非常需要會 / *能德語和中文的人，做為溝通橋樑。

Tai2 wan1 chang3 shang1 dao4 de2 guo2 kai1 shang1 zhan3 shi2, fei1
chang2 xu1 yao4 hui4/ * neng2 de2 yu3 han4 zhong1 wen2 de5 ren2,
zuo4 wei2 gou1 tong1 qiao2 liang1.

Taiwan factory to Germany exhibit time, so need could German and
Chinese persons, to communicate bridge

When Taiwan factories exhibit in Germany, they so need some persons who could
speak German and Chinese to communicate with other persons.

(1b) 大學時，有一位朋友長得一表人才，加上能 / *會言善道，因此很得女性的鍾愛，但他卻喜歡換女友。

da4 xue2 shi2, you3 yi2 wei4 peng2 you3 zhang3 de2 yi4 biao3 ren2 cai2,
jia2 shang4 neng2/ * hui4 yan2 shan4 dao4, yin1 ci3 hen3 de2 nyu3 xing4
de5 zhong1 ai4, dan4 ta1 que4 xi3 huan1 huan4 nyu3 you3.

university time, have a friend grow striking appearance, add glib,
therefore so get female affection, but he like change girl friend.

During the term of the university, I had a friend who was very handsome and glib, so
he got many affections. But he liked to change girl friends.

Considering the lexical sense of sensation verbs and its natural language use, “kan4” and “jian4” both mean “to look, see, or watch”, while “chu4” and “mo1” mean “to touch with hands”. The question we are concerned with is, are they substitutable in all cases?

Ancient Chinese dictionaries have given the two pairs of near synonyms appropriate definitions. According to “shuo1 wen2 jie3 zi4(說文解字)”, “kan4” and “jian4” are defined as follow:

(2) “kan4” and “jian4”: “kan4”, “to look with hands on the forehead, partly cover the eyes”; “jian4”, “to see unawares”.

As for “chu4” and “mo1”, “guang3 ya3 • shi4 gu3 si4(廣雅·釋詁四)” and “guang3 ya3 • shi4 yan2(廣雅·釋言)” has defined them as:

(3) “chu4” and “mo1”: “chu4”, “to bump, run into, touch”; “mo1”, “to touch gently with hands”.

As defined, we notice that they differ from each other, even though they share similar meaning.

This paper will investigate the lexical semantic relations between each pair of near synonyms, namely “sheng1” and “yin1”, “kan4” and “jian4”, “chu4” and “mo1”, by studying their sense distinction, word formation collocation, and distribution pattern.

3. Literature Review

Lexical semantic relation between near synonyms has been a well-studied topic in Chinese and English. In Mandarin Chinese, there are homonymous near synonyms (e.g. “bao1 han2(包含, 包涵)” meaning “to include”) and near synonyms with similar meaning (e.g.

“qing1 chu3”, “ming2 bai2” meaning “to understand”(Cai 2002)). Some research teams (e.g. Yuan Ze University) found that near synonyms pose great problems to natural language searching. In order to improve the searching accuracy and completeness, it is necessary to have resort to other means such as proximity operator and truncation. In English, there was research on semantic relations between two verbs of putting, “put” and “set” (Zhuang et al. 2001).

The most remarkable related works in Mandarin Chinese include Deng (1996), Cai et al. (1996a, 1996b), Chang et al. (2000a), and Chief et al. (2000). The majority of the works contribute to the discussion of verbal near synonyms (Chang et al. 2000b, Liao 2002, Liu 2002, and Wu 2002). Apart from that, near synonymous sensation verbs “sheng1” and “yin1” (Hong and Huang 2004) and “kan4”, “ting1” and “wen2” (Zhung 2002) have also been discussed.

4. Theoretical Framework

The study discusses the lexical sense of each lexical entry and the lexical semantic relation between near synonymous pairs in three groups of sensation verbs (senses of hearing, sight and touch). It further explores the similarities and differences in the relations among the groups. As mentioned, we adopt the same theoretical framework as used for the analysis of “sheng1” and “yin1” in Hong and Huang (2004). In this respect, lexical entries are distinguished by lexical semantic features. Studying the distribution of word formation collocation explains the relation between sense and concept, which in turn determines the semantic roles of the three pairs of sensation verbs. It will be explained by examining the core sense of lexical entries in below sections.

5. Methodology

The present research extracts the natural data related to “kan4” and “jian4”, “chu4” and “mo1” from Sinica Corpus. It is followed by calculating the frequency of lexical entries and that of lexical categories. Based on the sense distinction, lexical semantic features of each of the lexical entries are determined so as to work out their collocation patterns. The results give a clear picture of the lexical semantic functions and distribution which help examining

different types of collocation.

After analyzing the senses, lexical semantic features and collocation distribution of “kan4” and “jian4”, “chu4” and “mo1”, we compare how sensation verbs in senses of hearing, sight and touch are presented in Chinese language use.

6. Corpus Analysis

The analysis, based on the Sinica Corpus and the criteria proposed by Huang et al. (2003) to differentiate the lexical meaning, shows the main difference between “kan4” and “jian4” in which “kan4” emphasizes the active cognition of the agent, whereas “jian4” stresses on the image perception. As for the other near synonym pair, “chu4” puts the emphasis on the action of the agent, while “mo1” on shape or textual perception. Following the same criteria, we notice their differences in terms of collocation, e.g. kan4 wan2(finish seeing), tou1 kan4(peep at); pie1 jian4(get a glimpse of), li4 gan1 jian4 ying3(get instant results); chu3 dian4(to get an electric shock), peng4 chu3(touch and contact), mo1 chu1(touch and find), mo1 dao4(touch and achieve), and distribution. As a result, differences between each pair can be worked out.

According to Sinica Corpus, “kan4” has the frequency rate of 7468, consisting of 7252 verbs and 216 adverbs. It derives 181 word types. As for “jian4”, there are 1987 verbs out of the total of 1992. The remaining five are nouns. It derives 233 word types. Of 36 “chu4”, 35 of which are verbs and one noun. There are 73 words types derived from “chu4”. “mo1” has the frequency rate of 144 which all appear as verbs and 42 derived word types.

The results demonstrate the differences in cognition and perception between the near synonymous pairs. For instance:

- (4) a. 我記得那天下午我們<看>了好幾百份作品。
 wo3 ji4 de2 nei4 tian1 xia4 wu3 wo3 men2 <kan4> le5 hao3 ji3 bai3 zuo4 pin3.
 I remember that day afternoon we see several hundred copy production.
 I remembered that we saw numerous productions in that afternoon .
- b. 小學時，我並不介意人家在我不注意時偷<看>我的答案，但我也會故意讓別人作弊。
 xiao3 xue2 shi2, wo3 bing4 bu4 jie4 yi4 ren2 jia1 zai4 wo3 bu2 zhu4 yi4 shi2 tou1 <kan4> wo3 de5 da2 an4, dan4 wo3 ye3 bu2

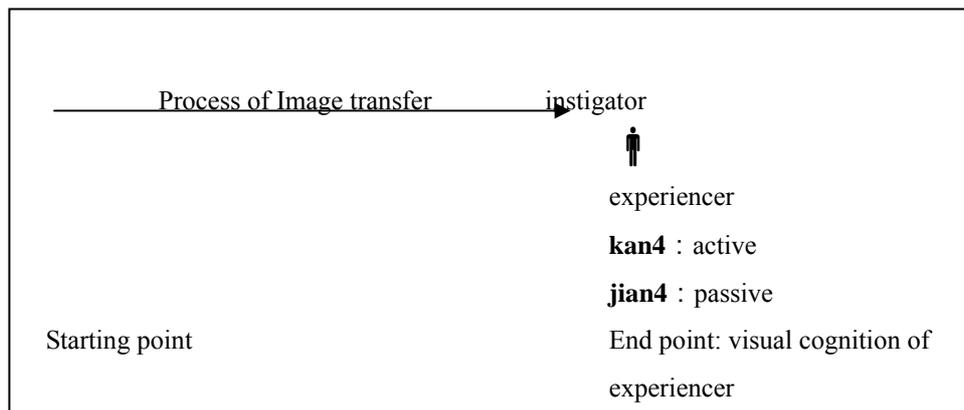
hui4 gu4 yi4 rang4 bie2 ren2 zuo4 bi4.
 elementary school time, I not care someone in I not notice time
 peep my answer, but I also not purposely let other people cheat.
 During the term of the elementary school, I didn't care about someone peeped my
 answer when I had no attention. But I didn't purposely let someone cheat in an
 exam.

- (5) a. 他是人家門口或轉角處、十字路口，反正<見>隙就鑽，管他是否違規停車，
 只要自己方便就好。
 ta1 shi4 ren2 jia1 men2 kou3 huo4 zhuan3 jiao3 chu4, shi2 zi4 lu4
 kou3, fan3 zheng4 <jian4> xi4 jiu4 zuan1, guan3 ta1 shi4 fou3
 wei2 gui1 ting2 che1, zhi3 yao4 zi4 ji3 fang1 bian4 jiu4 hao3.
 he is someone entry or corner, intersection, one way or another see
 gap get into, control he whether against regulations park, only
 oneself convenient.
 He parked in front of the door or on the corner of someone's house or on a
 crossroads. As long as it is convenient to him, he always avails himself of every
 opportunity no matter whether he parked legally or not.
- b. 然而我相信，教育的「功效」，絕非立竿<見>影，或一蹴可幾。
 ran2 er2 wo3 xiang1 xin4, jiao4 yu4 de5 “ gong1 xiao4 “, jue2 fei1
 li4 gan1 <jian4> ying3, huo4 yi2 cu4 ke3 ji1.
 however I believe, education efficiency, by no means get instant results,
 or reach the goal in one step.
 However, I believe that the efficiency of education is not able to be reached in one
 step.
- (6) a. 汶萊傳統的見面禮是互相輕<觸>手掌，然後把手掌放於胸前，以示敬意。
 wen4 lai2 chuan2 tong3 de5 jian4 mian4 li3 shi4 hu4 xiang1 qing1
 <chu4> shou3 zhang3, ran2 hou4 ba3 shou3 zhang3 fang4 yu2
 xiong1 qian2, yi3 shi4 jing4 yi4.
 Brunei tradition gifts given at one's first meeting each other lightly touch
 palm, then let palm put on chest front, to show compliment.
 The tradition in Brunei to greet is to touch the palms lightly to each other, and then
 placing the palm in front of the chest to show the respect.
- b. 如果使用者根據手冊指示，將此有問題的機器接地的話，即可避開<觸>電的
 危險。
 ru2 guo3 shi3 yong4 zhe3 gen1 ju4 shou3 ce4 zhi3 shi4, jiang1 ci3
 you3 wen4 ti2 de5 ji1 qi4 jie1 di4 de5 hua4, ji2 ke3 bi4 kail
 <chu4> dian4 de5 wei2 xian3.
 if user base on handbook instruction, ready this question machine
 touch land, then can avoid get an electric shock danger
 According to the user manual, if the machine with such problem is placed on the
 ground, one can avoid the chance of being electrocuted.

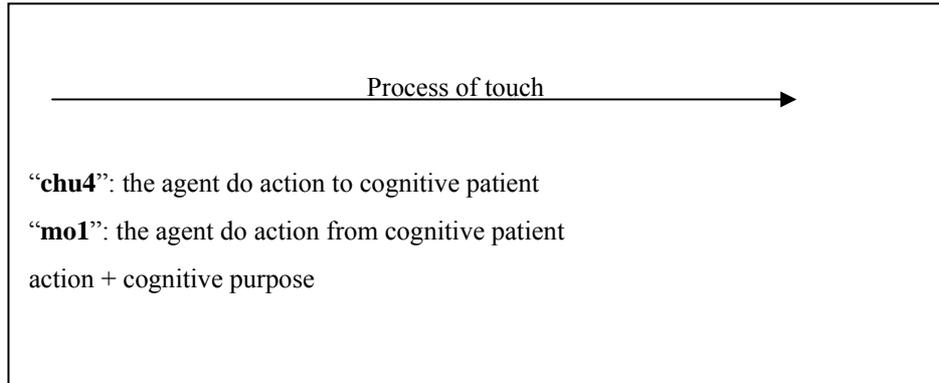
- (7) a. 在血肉模糊中掙扎著站起來，又重新擺好架勢，我把眼淚吞下去，<摸>肚皮，哈哈的大笑。
 zai4 xie3 rou4 mo2 hu2 zhong1 zheng1 zha2 zhe5 zhan4 qi3 lai2,
 you4 chong2 xin1 bai3 hao3 jia4 shi4, wo3 ba3 yan3 lei4 tun1 xia4 qu4,
 <mo1> du4 pi2, ha1 ha1 de5 da4 xiao4.
 in flesh and blood blurred struggle stand, and again square off, I
 let .tears swallow, touch belly, loudly laugh.
 I stood up, struggling and badly wounded. I re-posed my posture, swallowed the
 tears, then touched my belly and laughed heartily.
- b. 這一方面的改變，譬如說是不是有不正常的分泌物，或是說腹部是不是有不正
 常的疼痛，或是有<摸>到什麼硬塊，或是什麼之類的
 zhe4 yi4 fang mian de5 gai bian, pi ru shuo shi4 bu2 shi4 you3 bu2
 zheng chang de5 fen mi wu, huo4 shi4 shuo1 fu bu shi4 bu2 shi4
 you3 bu2 zheng chang de5 teng tong, huo4 shi4 you3 <mo1> dao4
 she2 me5 ying4 kuai4, huo4 shi4 she2 me5 zhi lei de5.
 this one aspect change, for example whether have no normal
 secretion, or belly whether have no normal pain, or have touch
 what callous, or and so on.
 In this change, there are some changes in the aspect; for instance, is there any
 unusual discharge, tummy pain or any lump and so on

With the above arguments and the evidence from natural language data, the relationships between “kan4” and “jian4”, “chu4” and “mo1” are presented as in (8) and (9) respectively:

(8) Relationship between “kan4” and “jian4”

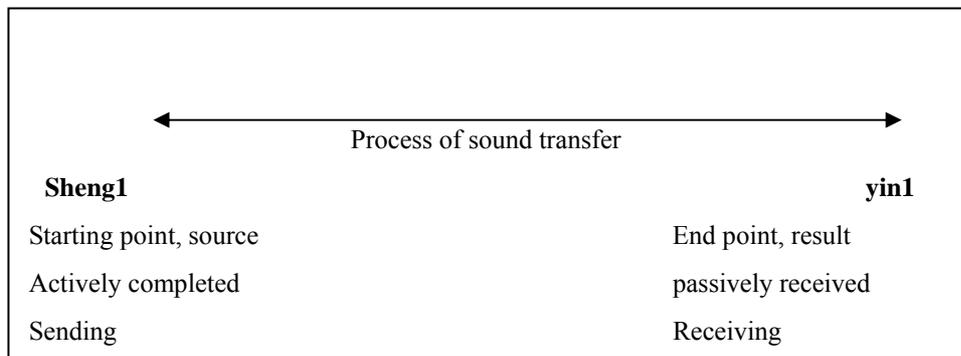


(9) Relationship between “chu4” and “mo1”



Now, let us compare the above two diagrams with Hong and Huang’s analysis of “sheng1” and “yin1” (2004), as shown below,

(10) Relationship between “sheng1” and “yin1”



Diagrams (8-10) demonstrate how sensation verbs of sight, touch and hearing differ. We find out that the processes of image transfer and touching are unidirectional. The process of sound transfer, on the other hand, is two-way, including the production or the perception of sounds.

When we compare the sensation verbs of sight, they both express visual cognition. The experiencer of “kan4” is an active participant, but it becomes a passive participant in “jian4”. As for sensation verbs of touch, they both express active cognition of the agent, but differ in sense cognition. The focus of “chu4” is the action of reaching the end point, whereas “mo1” focuses on the perception of end point.

(11) Relationship among sense of sight, touch and hearing

Features Lexical entries	Comparison of cognitive features	
	Instigator of action	Experiencer of sensation
Sense of hearing	Production	Perception
Sense of sight	Volition	Lack of volition
Sense of touch	Activity	Result

Diagram (11) summarizes the lexical semantic relationships among senses of hearing, sight, and touch. With respect to sense of hearing, the perception of “yin1” is a result of introspection, while the production of “kan4” is an action of extension. For sense of sight, “jian4” is introspective and passive cognition, “kan4”, however, is an active extended observation. Concerning sense of touch, “mo1” is the perception towards the status of the object at end point which is an introspective result, “chu4” describes action extension to the end point.

7. Conclusion

In Chinese sense system, the concept of perception has been widely applied in written and spoken languages. We hope to bring this idea into full play in the framework of language knowledge representation in order to provide a more concrete and regular interpretation for word expression and lexical semantic concept.

In conclusion, this paper has clarified the lexical semantic structures of “kan4” and “jian4”, “chu4” and “mo1”. The differences of lexical semantic concepts, lexical semantic functions, and word formation collocation have also been discussed. What was more, we have compared how three pairs of sensation verbs appeared in Chinese language use, which allowed us to have a better understanding of the lexical semantic relation among sensation verbs.

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