

Discussion on Lexical Phonosemantic Types in Analytical Grammar

Haiyun Liu

School of Literature and Journalism
Sichuan University
Chengdu, China

Abstract—Analytical grammar adopts the axiomatic strategy similar to mathematical analytic geometry, and places the phono-semantic types of Chinese vocabulary into the phonosemantic system of cognate words, which is characterized by four elements: pivotal meaning, meaning-class, phonetic nucleus and Phonetic category. The phonosemantic nucleus composed by pivotal meaning and phonetic nucleus, which is the center of the homologous system of Chinese, is in the recessive position. It forms a three-dimensional structure of phonosemantic type with phonetic category and generalized meaning. All the phonosemantic types of vocabulary can be placed in this three-dimensional structure.

Keywords—analytical grammar; phonosemantic nucleus; phonosemantic type

I. INTRODUCTION

The basic reason for the formation of cognate lies in the iconicity of the subjective and objective world — the iconicity analogy of human thinking and the iconicity connection of the material world, which are the iconicity of semantics and the iconicity of sound manifested in cognate words. Cognate words are recursively generated on the basis of iconicity of sound and meaning, which is the generation mechanism of cognate words. The phonetic correspondence of cognate languages in historical linguistics is not the recursion of iconicity of phonosemantic, but the correspondence of diachronic evolution system. There is not necessarily a phonosemantic recursive relationship between different languages. It is the evolution mechanism of cognate words rather than the generation mechanism. This paper discusses the generation mechanism of cognates rather than the evolution mechanism.

II. PROPOSAL OF THE CONCEPT OF PHONETIC NUCLEUS

Traditional language philology has made great achievements in the study of the relationship between sound and meaning of cognate words, but they all belong to the same type of analysis, which can be collectively referred to as empirical phonosemantics. The empirical phonosemantics has encountered some problems difficult to overcome: how can it be called "sound close"? How to determine the standard of phonetics? Some scholars advocate strictness, some advocate leniency, and can't agree with each other. How to determine

"same meaning" and "close meaning" and what is their constitutive relations? These are controversial (Sun Yongchang, 2009: 142-145). Yang Guangrong (2000: 173-174) believes that etymology in the past is a linear concept, and his solution is to construct a nonlinear etymology. "It believes that all cognate words in a language are not generated by linear pattern. On the contrary, all cognate words in a language are generated in a nonlinear way in general. Some cognates don't have a clear 'root' or 'primitive form', and the cognates that can find a 'root' or 'primitive form' are just a part of it." His concrete operation is to divide the sound and meaning into two dimensions, and then form iconicity network or cognate group by matching the sound and meaning.

It is believed that Yang's two-dimensional etymology is very successful in the division of semantic nucleus and meaning-class, and the concept of "iconicity element" (2000:173) is also instructive, but he is messy in the two-dimensional (2000: 159-160) of speech, and he turns the initial consonant and rhyme, the pronunciation method and the pronunciation position, the rhyme belly and the rhyme tail into two-dimensional respectively, which makes the two-dimensional structures of semantics and speech difficult to be generated organically. It seems that the two-dimensional structures of speech and semantics are carried out respectively, and then form a word. It is impossible to see which element of "pivotal meaning" is matched with the two-dimensional structure of speech. Is it the pronunciation method or position of initial, vowel or initial? If it is one of the elements, then other speech units do not need to be two-dimensional, and if "pivotal meaning" may match with any elements after the two-dimensional speech, then it is equivalent to the failure of the two-dimensional speech. In fact, this is the same as the confusion of empirical phonosemantics in phonetics. It means it is impossible to grasp the standard of phonetics. Whether it is loose or strict, it will lead to the mistakes of cognate word association. The reason why the speech is difficult to be two-dimensional is that it is bound by syllables or segments and cannot find the phonetic nucleus of cognates.

At present, the phonic dichotomy of cognate words cannot find a "nucleus" to maintain cognate words as well as the analysis of cognate words' meaning, which only stays on the surface phonetics of sound conversion. According to the principle of iconicity of phonosemantic of cognate words, not only the meaning of cognate words is in iconicity network, but

also the sound of cognate words is in iconicity network at recursive level. Theoretically, the sound of a group of cognate words also has a common "nucleus", which is called the phonetic nucleus. The phonetic nucleus is the nucleus element to maintain the phonetic iconicity of a group of homologous words. In phonetics, the phonetic nucleus does not represent initial consonant, rhyme or segment, but represents phonetic characteristics. In phonology, it represents the common distinctive characteristics of homologous words. Phonetic category is a kind that is differentiated according to the common distinctive features, also called phonetic collections. The so-called "phonetic conversion" in the phonology of cognate words is only a phenomenon in Phonetic category, and it is restricted by the phonic nucleus mechanism. The phonic nucleus is the common distinguishing feature of a group of cognate words. Any phonetic conversion relationship can be expressed by phonetic nucleus (common distinguishing feature) and phonetic category, so that a "nucleus" to maintain cognate words' phonetic can be found smoothly, just like the thought of dichotomy of cognate words' meaning (pivotal meaning and meaning-class).

According to the generation mechanism of cognates, a group of cognates can be represented as a set of sounds and meanings {pivotal meaning, meaning-class, phonic nucleus, phonic category}, which can formally express the sound and meaning types of cognates:

- (a) word meaning = pivotal meaning (meaning-class)
- (b) word sound = phonic nucleus (phonic category)
- (c) phonology → {common distinctive features} / pivotal meaning (meaning-class)

(a) represents the specific meaning of a group of cognates, which is the result of the change of the meaning-class based on the pivotal meaning. (b) represents the specific phonetic of a group of cognates, which is the result of the phonic category selection based on the phonic nucleus. (c) represents the phonology of a given group of cognates, which is the phonic nucleus with the same {common distinguishing feature}. A group of words with the same pivotal meaning and phonic

nucleus are cognate words. The specific phonetic is selected within the phonetic collections limited by {common distinctive features} (so-called phonic nucleus). The specific meaning of words changes in the meaning-class.

III. PHONOSEMANTIC NUCLEUS IN ANALYTICAL GRAMMAR

Yang Guangrong (2014) pointed out that "analytic grammar has the nature of analytic geometry, and the denotation and connotative space concept of natural language running through it", "the generation of word units of analytic grammar is in accordance with the two-dimensional etymological law", and pivotal meaning and meaning-class are the two keys of two-dimensional etymology, respectively corresponding to the connotation and denotation of natural language. In terms of phonetic, it can also be corresponding to the connotation and extension of natural language, namely, phonic nucleus and phonic category. Finally, the three-dimensional static types of vocabulary can be constructed by the four elements of pivotal meaning, meaning-class, phonic nucleus and phonic category.

"The combination of pivotal meaning and phonic nucleus constitutes the genetic part of cognates, which is the recessive component" (Yang Guangrong, 2005). The basic mechanism of cognates generation is the dual iconicity of sound and meaning. The recursive inheritance of cognates includes not only pivotal meaning, but also phonic nucleus. The phoneme system of a language is limited, so the speech expression is limited, which is also the reason why there are many homophones in Chinese. Therefore, there is no sense distinguishing function for the phonic nucleus which is not combined with the pivotal meaning, and the existence of the phonic nucleus alone is valueless. It must exist on the basis of the pivotal meaning. The group of "斐/fěi", "駢/fěi", "排/fěi", "排/pái", "斐/fěi", "斐/fěi", "菲/fěi", "菲/fěi" and "緋/fěi" gain sound from "非/fēi" (Jiang Shaoyu, 2015). They have same phonic nucleus A ({A | + consonant, + lip sound, - nasal sound; + excess, - nasal sound, - plosive sound, + middle}), but they can be divided into three different word families, and their relationship can be represented by two-dimensional coordinate system as following "Fig. 1":

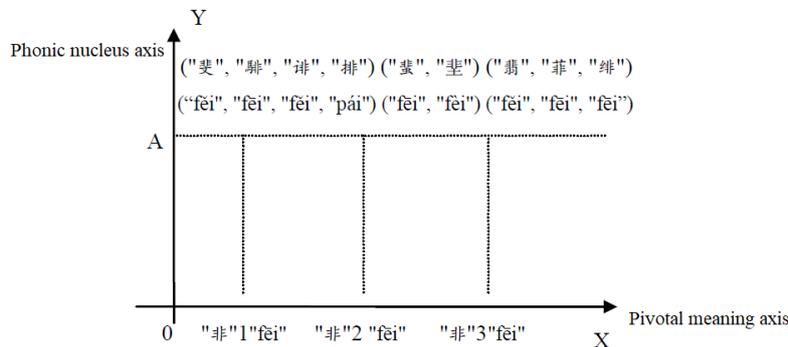


Fig. 1. Phonosemantic nucleus coordinate system

Group a: the semantic meaning of "斐/fěi", "駢/fěi", "排/fěi" and "排/pái" is "分別/非违"(fēn bié /fēi wéi). Group b: the semantic meaning of "斐/fěi" and "斐/fěi" is "飞扬"(fēi yáng). Group c: the semantic meaning of "菲/fěi", "菲/fěi" and "緋/fěi"

is "赤/chì". Their phonic nucleus are completely the same. Without semantic nucleus of them it has no function of distinguishing semantic meaning. In coordinate system, pivotal meaning is set as x-axis, which means independent variable;

("xiá mǔ yú") part, which are non-homophone motivation cognates, as following "Fig. 4":

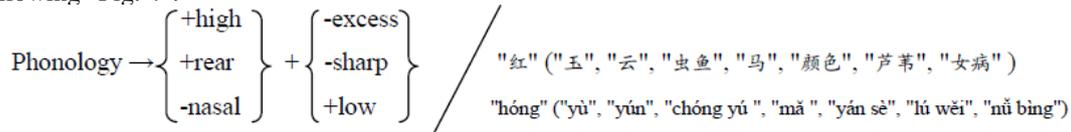


Fig. 4. Non-homophone motivation cognates.

3) Non-semantic involved sound-variant cognates — with same pivotal meaning, phonic nucleus and meaning-class but different sound value: This kind of cognates has definite pivotal meaning, phonic nucleus, and meaning-class value. It changes sound only on phonic category axis and these words have same phonic and semantic nucleus and same meaning-

class but different pronunciation. As shown in "Fig. 2", if phonosemantic nucleus is C, and then the specific meaning-class value B is determined on the meaning-class line CB, then the group of cognates is on the synonym line BA. For example, the second person "女, 尔, 而, 若, 乃" ("nǚ, ěr, ér, ruò, nǎi") is shown as following "Fig. 5":

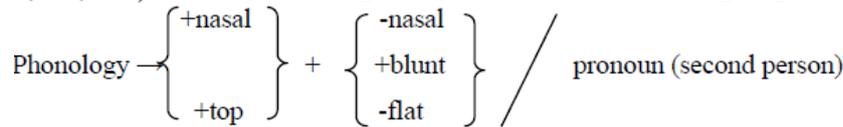


Fig. 5. Non-semantic involved sound-variant cognates.

4) Words of {A, ø} type — with same pivotal meaning, phonic nucleus, meaning-class value and phonic value, shown as variant Chinese characters sometimes in different shape: This kind of cognates has definite pivotal meaning and phonic nucleus, specific meaning-class value and phonic value. Therefore, a specific point can be obtained in the three-dimensional coordinate system of the lexical phonosemantic type. Theoretically, this point is also in the same source plane, but in the language practice, this point becomes the so-called "insulation without evidence" because of its absence of cognate in the place. Generally, it is not regarded as cognate words, but its phonosemantic nucleus is also unique in the three-dimensional coordinate system of lexical phonosemantic types, which does not prevent it from being classified as cognate words.

intersection point, and the nucleus of phonosemantic is unique. This means that no matter whether the pivotal meaning changes or the nucleus of sound changes, the phonosemantic nucleus is not the same, which is reflected in the three-dimensional coordinate system of lexical phonosemantic types. In other words, the different values on the axis of the phonosemantic nucleus determine the different homology of different phonosemantic nucleus. Take two different points A and A' as plane ABCD and plane A'B'C'D' perpendicular to Z axis, which are homologous planes of word family A and word family A' respectively. It can be seen from the figure that homologous plane ABCD and homologous plane A'B'C'D' are not on the same level. Therefore, this kind of lexical phonosemantic types do not belong to homologous words, and are heterogeneous phonosemantic nucleus type. To put it another way, in this type of heterogeneous phonosemantic nucleus, phonic nucleus and pivotal meaning cannot be the same at same time. The lexical phonosemantic types of heterogeneous nucleus are as following "Fig. 6":

B. Heterogeneous Phonosemantic Nucleus Type

In the integrated coordinate system of "pivotal meaning – phonic nucleus", any point on the x and y axis has only one

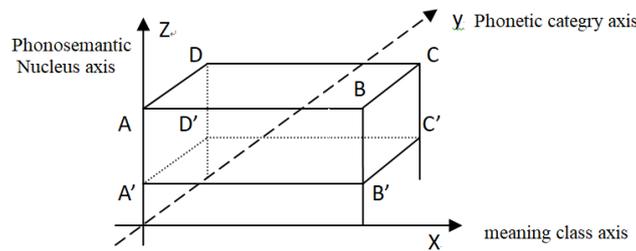


Fig. 6. Three-dimensional coordinate system of Phonosemantic types of heterogeneous vocabulary

1) *Words — with same pivotal meaning, same meaning-class and phonic values but different phonic nucleus, inexistent (this vocabulary type does not exist):* Phonic category is the natural sound set divided by phonic nucleus (common distinctive feature). Phonic nucleus and phonic category determine each other's relationship, which is different from the relationship between pivotal meaning and meaning-class. A given phonic nucleus will generate a corresponding phonic category, and there will be different values in the phonic category. Two or more words with the same Phonic value. In other words, the actual phonemes are the same, their phonic nucleus must be the same, and the proposition is contradictory to this, so there is no such phonosemantic type. As shown in "Fig. 3", CD and C'D' are not in the same homologous plane, and the phonosemantic nuclei are different, but the phonic category are the same, the phonic nucleus are also the same, the difference is the pivotal meaning, which is not consistent with the proposition.

2) *Non-homophonic synonyms— with same pivotal meaning, same meaning-class value, but different phonic nucleus and phonic values:* "Pivotal meaning is a vertical semantic component and a genetic component of etymological meaning" [7]⁶⁶. Two points need to be noted here: first, pivotal meaning is a vertical component, not a central morpheme summarized horizontally, but a derived relationship; second, pivotal meaning is a genetic component of meaning, which is a necessary condition rather than a sufficient condition for the derivation of cognate words, and it must also have recursive heritage. It is the recursive inheritance of the phonosemantic nucleus that is the necessary and sufficient condition for the derivation of cognates. "Same pivotal meaning" defined in 3.2.1-3.2.4 proposition doesn't mean that two groups of words have derived relationship, but that two or more groups of cognate words have iconicity in their respective pivotal meaning, which is a horizontal comparison of two or more pivotal meanings. Words with the same pivotal meaning but different sounds can be collectively called non-homonymic pivotal meaning words. For example, the following four groups of cognates:

"高" 1: "乔", "桥", "骄", "侨", "矫", "蹻", "超", "翩", "稿"

"gāo"1: "qiáo", "qiáo", "jiāo", "qiáo", "qiáo", "jiāo", "jiào", "qiáo", "jiāo"

"高" 2: "捣", "捣", "捣", "捣", "捣", "傑", "傑", "傑"

"gāo"2: "jiē", "jié", "jié", "jié", "jié", "jié", "jié"

"高" 3: "俊", "俊", "俊", "峻", "峻", "峻", "峻"

"gāo"3: "qūn", "jun4", "jùn", "jùn", "jùn", "jùn", "jùn"

"高" 4: "卓" ("卓"), "桌", "倬", "禘", "禘" ("gāo"4: "zhuó" ("zhuó"), "zhuō", "zhuō", "zhuó", "zhào")(the short one is called "禘/jǐ", the long one is called "禘/zhào" and "卓/zhào" (Wang Niansun's "Guangya Shiqi" records: "all from the upper cage to the lower cage are called "卓/zhào")

The above four groups of cognates are different in phonic nucleus and phonic category, and have no derivative relationship, but their respective pivotal meanings are all "high", which provides conditions for the generation of synonyms. When the pivotal meanings and meaning-class of one group of cognates and one group of cognates are the same, the two words can be regarded as non-homonymous synonyms. For example, the three words "侨/qiáo", "傑/jié" and "俊/jùn" all have the meaning of "outstanding talents". Shuowen Renbu: "'侨/qiáo' means high". In "Guxun Huizuan", the second note ② of "侨/qiáo" is quoted from Liu Baonan's "Interpretation of Analects of Confucius", "'侨/qiáo' refers to the tall height of one person"; the seventh note ⑦: "侨/qiáo" means outstanding person. "Yupian Renbu" says: "傑, 英傑(jié yīng jié)". "Shuowen Renbu" records: "俊, 材千人也(jùn, cái qiān rén yě)". "俊" refers to excellent person. "峻/jùn", "傑/jié" and "峻/jùn" all have the meaning of "tall mountain". "乔/qiáo", "卓/zhuō" and "俊/jùn" all have the meaning of "高/gāo". "稿/gāo" and "稿/jiǎo" all have the meaning of "禾苗出穗" (hé miáo chū suì). They are all non-homonymous synonyms.

3) *Words — with same pivotal meaning, same phonic value, but different nucleus sound and meaning-class values:* This vocabulary type does not exist. The proposition contradicts with the theory that the same phonic value must have same phonic nucleus.

4) *Non-homophonic pivotal meaning words — with same pivotal meaning but different phonic nucleus, sound class and meaning-class values:* The two words have different value of nucleus and category, so there is no condition of homophone proximity. The two words have the same pivotal meaning and different meaning-class, so the two words have the same pivotal meaning accidentally. In other words, they are actually multiple groups of words expressing the same pivotal meaning. For example, in 3.2.2, the four groups of words with the pivotal meaning of "high" have the same pivotal meaning, and the pivotal meaning of "red" has the same voice meaning, such as "非/fēi" ("翡/fēi" and "菲/fēi"), "萌/mán" ("瑞/mán" and "稿/mán"), "赤/chì" ("赫/hè" and "赫/hè"), "者/zhě" ("褚/zhě" and "褚/chǔ"), "段/jiàn" ("瑕/xiá", "瑕/xiá" and "霞/xiá", and "朱/zhū"("祿/zhū"). For another example, the pivotal meaning of three groups of words "桶/tǒng, 桶/tǒng, 蛹/yǒng", "窗/chuāng, 聰/cōng, 窗/cōng" and "控/kōng, 空/kōng" are all "空/kōng". The three groups of words are non-homophonic pivotal meaning words from each other.

5) *Homophonic and same meaning-class word— with same phonic nucleus, same meaning-class value, same phonic value but different pivotal meaning:* The phonic nucleus and phonic category are the same, that is, homophone. Different pivotal meaning leads to different phonosemantic nucleus, so it is not on the same homologous plane. The words of this kind of phonosemantic type are homophones at first, and they are related in meaning and easy to be confused with cognates. The line where the intersection line CC' of homophone face CC'D'D and the

same face BB'C'C is located belongs to homophone synonymous type words.

6) *Homonym — with same phonic nucleus and phonic value, different pivotal meaning and meaning-class value:* Homonym is of same phonic value. They are on the homonym plane CC'D'D in the three-dimensional coordinate system of lexical phonetic type, but not in the same class plane. Homonym belong to this kind. Chinese homonym is a common phonetic phenomenon, most of which are not related in the sense, such as "书/shū", "输/shū", "舒/shū", and "疏/shū" in Modern Mandarin Chinese.

7) *Near-sound same meaning-class word — with same phonic nucleus, same meaning-class value, different pivotal meaning and phonic value:* Such as "禛/zhēn" (章真/zhāng zhēn) and "禛/zhēn" (端耕/duān gēng), "端/duān" and "章/zhāng" are of similar sound in quasi dual tone, and the phonic nucleus are as following "Fig. 7":

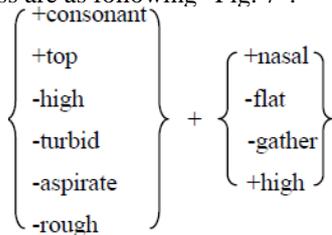


Fig. 7. Near-sound heterogeneous vocabulary.

Shuowen (《说文》) says: "以真受福也。"(yǐ zhēn shòu fú yě) *Duan Yucai* (段玉裁) was interpreted: "this is also said '从示从真, 真亦声'(cóng shì cóng zhēn, zhēn yì shēng). Cut out the silent part. Sound and meaning are of same source". "Shibu" also records: "禛, 祥也。"(zhēn, xiáng yě). Xu Kai stated: "'禛/zhēn' has the character of '贞/zhēn', which refers to upright person. If a man is upright, he will be blessed by the heaven". It can be seen "禛/zhēn" gets meaning form "真/zhēn", and "禛/zhēn" from "贞/zhēn" (正/zhèng)", but with different pivotal meaning. Both of them belong to *Shuowen* (《说文》), and are related to "禛/shī", which are synonyms of near sound.

8) *Similar-sound and different meaning-class word — with same phonic nucleus, but different pivotal meaning and similar meaning and sound class values:* This kind of words has some phonetic relations due to the function of phonetic nucleus. Some of them are close to each other in pronunciation and have different semantics such as "浅/qiǎn" (Qing Yuan) and "肩/jiān" (Jian Yuan). The former is derived from the pivotal meaning of "爿/jiān" (small), the latter is homologous with "坚/jiān", and "浅/qiǎn" and "坚/jiān" are vowel rhyme which are Non-synonymous words with near sound.

9) *Words — with different pivotal meaning and phonic nucleus, same meaning-class value and sound class value, which is inexistent:* The same sound class shall have same phonic nucleus, so it is inexistent

10) *Non-homophonic and same meaning-class word — with different pivotal meaning and phonic nucleus, same*

meaning-class value, different phonic value: There are two kinds of non-homophonic synonyms: one is the synonym of the same thing but different name which is not related in phonetics; the other is the synonym of same meaning-class or same thing class. Due to the influence of time and space, some of the same things have phonetic changes, which belong to the phonic-change cognate words or homogeneous phonic and semantic words. For example, "布谷-拔谷-鹄鹄-获谷-击谷-谷谷-郭公" ("bù gu -bō gǔ -bó gū -huò gǔ -jī gǔ -gǔ gǔ -guō gōng") belongs to the same phonosemantic nucleus. Another situation is that people name the same thing from different angles. The reason for naming is different in meaning and pronunciation, such as "檐/ mián", "楣/ mǐ", "椽/ lǚ", "产/ yán" and "椽/ bī". These five words are actually the same thing, but the reason for word formation is different, and the phonetic form is also different: "the eaves is near the house, so it's called '檐/yán'; its function is 'to connect the head and make the head level', so it's called '楣/ mián'. It is also called '椽/lǚ' because it focuses on the rafters of the house, and '椽/bī' because it focuses on the comparison of the rafters. The eaves board is the eyebrow of the house, so it is called '楣/mǐ'" These five words belong to five different word families, but they refer to the same thing. They are Homonym. They refer to the same thing, and are words of same meaning-class. The second category is more common. The traditional way of arranging meaning categories is to collect words with the same meaning, many of which are non-homophonic and same meaning-class word. It should be noted that there are different levels in the classification of semantic classes, so the same meaning-class word are different in levels.

11) *Words — with different pivotal meaning and phonic nucleus, same sound class value but different meaning-class value, which is inexistent:* Same sound class value shall have same phonic nucleus, so it is inexistent.

12) *Unlinked words of sound and meaning— with different pivotal meaning and phonic nucleus, different sound class value and meaning-class value:* Distant phonosemantic are distant refers to words that have no relationship between sound (phonic nucleus, phonic category) and meaning (pivotal meaning, meaning-class). Select one member from each group of homologous words with distant phonosemantic, and then these members are also disrelated phonosemantic. In the three-dimensional coordinate system of lexical phonosemantic types, words with distant phonosemantic are not on the same source plane, nor on the homophone plane CC'D'D and the same type plane BB'C'C.

V. CONCLUSION

The phonosemantic types of Chinese vocabulary are as follows "Fig. 8":

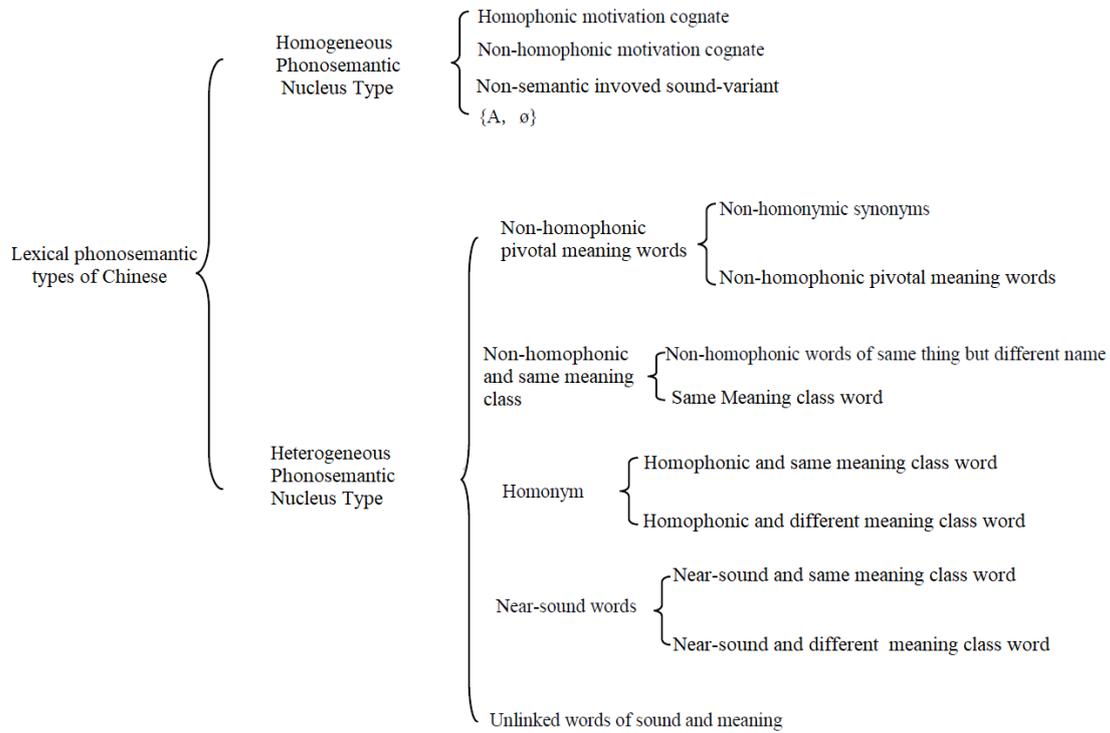


Fig. 8. The phonosemantic types of Chinese vocabulary.

The phonosemantic types of Chinese vocabulary study the phonosemantic relations of words from the internal and external combination of sound and meaning. From the internal combination of sound and meaning, the phonosemantic types of Chinese vocabulary involve various types of cognates. From the external combination of sound and meaning, they involve various types such as same-meaning words, synonyms, homophones, and approximant consonant words. Both the internal and external relations of phonosemantic are a continuum, not an absolute discrete quantity. From the internal relationship between sound and meaning, cognate words involve the factor of big and small levels, which is essentially the factor of big and small levels of phonosemantic nuclei. The big and small level of phonosemantic nuclei are determined by the pivotal meaning, and the pivotal meaning itself have the division of big and small levels, which is related to the unclear boundary of iconicity thinking itself. From the perspective of the external relationship of sound and meaning, synonyms and Near-synonyms can be subdivided into different types of phonosemantic because they are related to word sound, but they are not absolute. For example, the boundary between non-homonymic synonyms and non-homonymic near-synonyms lies in the difference of meaning-class, but the division of meaning-class itself can be large or small. The same thing (things, behavior, state, nature, degree, etc.) in different semantic fields has different status, which affects the meaning level of words, thus affecting the types of phonosemantic. The phonosemantic types of Chinese vocabulary need further study.

REFERENCES

- [1] Jiang Shaoyu. Summary of Chinese Historical Lexicology. Beijing: Commercial Press, 2015. (in Chinese)
- [2] Sun Yongchang. Principles of Exegesis. Beijing: Higher Education Press, 2009. (in Chinese)
- [3] Wang Li. Homologous Dictionary. Beijing: Commercial Press, 1982. (in Chinese)
- [4] Wu Zongji. What is "Distinguishing Features". Foreign Linguistics, 1980 (1): 44-46. (in Chinese)
- [5] Wu Zongji, Lin maocan, Bao Huaiqiao. Summary of Experimental Phonetics (updated version), Beijing: Peking University Press, 2014. (in Chinese)
- [6] Yang Guangrong. The Study of Tibetan Chinese Cognates: A New Historical Comparative Linguistics of Sino-Tibetan Family combining Chinese and Western theory. Beijing: Ethnic Publishing House, 2000. (in Chinese)
- [7] Yang Guangrong. On "Analytic Grammar" - Computability of Natural Language and Its Formal Theory. Journal of Shanxi University (PHILOSOPHY AND SOCIAL SCIENCES EDITION), 2014 (2). (in Chinese)
- [8] Yang Guangrong. Historical Comparative Linguistics: from Morphology to Gene. Journal of Shanxi University (PHILOSOPHY AND SOCIAL SCIENCES EDITION), 2005 (5). (in Chinese)
- [9] Zhang Jialu. The Distinguishing Features for standard Chinese (*Putonghua*). Journal of ACTA ACUSTICA, 2005, 30 (6): 506-514. (in Chinese)