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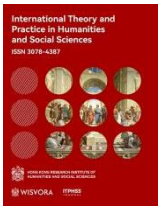

The Determination of Morphemes in Chinese Words and a Special Type of Affix Morphemes in Chinese

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Abstract

When the structure of Chinese bisyllabic words is examined by using the substitution method, three kinds of results can be obtained, namely, "morpheme+morpheme", "morpheme+syllable" and "syllable+syllable". Whether the result of "morpheme+syllable" is reasonable or not, there have been different opinions in the academic circles. In modern Chinese, morpheme refers to the smallest combination of sound and meaning, and the feature of "smallest unit" of morpheme determines that a morpheme cannot contain other independent morphemes. According to the traditional point of view, "butterfly" as a whole is regarded as a morpheme, and "蝶(dié)" of "蝴蝶(húdié,butterfly) "is also regarded as a separate morpheme, which is obviously not valid at the same time. Similarly, such a contradiction exists in the word formation of words like "苹果(píngguǒ,apple) " and "蟾蜍(chánchú,toad)" . Therefore, on the basis of the study of such special words in Chinese, this paper organises the composition forms of Chinese bisyllabic words, puts forward the principle of scientific division of morpheme composition in Chinese vocabulary, and considers a group of special syllables, such as "蝴(hú)""螃(páng)" and so on, as a type of special affix morphemes, pointing out that "蝴(hú)" is a special class of morpheme. It is argued that a group of special syllables such as "蝴(hú)" and "螃(páng)" is a special kind of affix morpheme, and it is pointed out that the substitution method and the residual method should be combined and applied when discriminating morphemes in Chinese words.

1. Introduction

The concept of "morpheme" originated from the North American structuralist school of linguistics. American linguist Bloomfield defined morpheme as "a recurring (meaningful) form that cannot be analysed into smaller recurring (meaningful) forms(Bloomfield, 1983)" . After the concept of morpheme was introduced into China, its prevailing textbook definitions in the Chinese context are:

1) the smallest phonological and semantic combination
2) the smallest meaningful linguistic unit(Shao, 2016).

At present, the more common method of determining how many morphemes a Chinese word

consists of is to use the "homomorphic substitution method", i.e., to replace the linguistic unit to be determined whether it is a morpheme or not with a known morpheme, and if the replaced Chinese word is still meaningful, then it is proved that the unit being replaced is an independent morpheme. The realization of morpheme substitution needs to be carried out by searching in the word set that satisfies the parallel and universal conditions of the word. After summarizing the same morphemes, the screening is conducted according to the same internal structure(Wang, 2024). For example, the Chinese word "割让(gēràng,cede)" can be replaced by "割舍(gēshě,meaning to give up) " and "割裂 (gēliè,meaning to divide something improperly)", "割弃(gēqì,meaning to cut off and abandon) ", which can also be replaced by "辞让" (círàng,meaning to politely give way), "礼让(lǐràng,meaning to politely give way)" , "推让 (tuīràng,meaning to refuse to accept due to politeness, modesty)" , etc(Yao, 2016). Both "割" and "让" have independent meanings and their meanings are related to the overall meaning of the word "割让", so both "割(gē)" and "让(ràng)" can be regarded as independent morphemes in Chinese.

Table 1 Homographic substitution of the word"割让(cede) "

割让(gēràng)	
割舍(gēshě)	辞让(círàng)
割裂(gēliè)	推让(tuīràng)
割弃(gēqì)	礼让(lǐràng)

On the basis of the existing research on the determination of Chinese morphemes, this paper, from the perspectives of the historical evolution of morpheme formation and the comparison between Chinese and foreign countries, has sorted out the history of the application of the concept of residual morphemes in Chinese and conducted a specific study on a special group of Chinese words such as "螃蟹(pángxiè,crab)" and "蝴蝶(húdié,butterfly)", arguing that these words are a special type of compound word. The study of such words, which can be regarded as derivatives formed by the combination of "root + affix", has perfected the application of the substitution method in the determination of morphemes, cancelled the self-contradictory result of "morpheme + syllable" brought by the substitution method, and made the Chinese morphemes more precise . The result of the substitution method is cancelled, and a complete, systematic, concise and easy-to-operate theory can be formed for the determination of Chinese morphemes.

2. Limitations of homomorphic substitution and the proposal of "residual morphemes"

2.1 Limitations of the homologous substitution method

Using the homomorphic substitution method to examine the structure of Chinese bisyllabic words, we can get "morpheme + morpheme" (e.g. "割让(gēràng,cession)", "礼貌(lǐmào,politeness)", "告示(gàoshì,notice)"), "morpheme+syllable" (e.g. "蝴蝶(húdié,butterfly)", "苹果(píngguǒ,apple)", "蟾蜍(chánchú,toad)"), "syllable + syllable" (e.g., "沙发(shāfā,sofa)" ,"滴答(dīdā,tick)", "蟑螂(zhāngláng,cockroach)").

Table 2 Three types of Chinese disyllabic words obtained through the substitution method

"morpheme + morpheme"	割让(gēràng)	礼貌(lǐmào)	告示(gàoshì)
"morpheme+syllable"	蝴蝶(húdié)	苹果(píngguǒ)	蟾蜍(chánchú)
"syllable + syllable"	沙发(shāfā)	滴答(dīdā)	蟑螂(zhāngláng)

The second result, "morpheme+syllable", is a structure of Chinese words that is different from that of other languages, which some scholars call "intra-word segmental component + morpheme construction(Feng, 2013). In this type of structure, one syllable in the disyllabic word can be homomorphically substituted, while the other cannot. For example, the character "蝴(hú)" in "蝴蝶(húdié)" cannot form other structures like "蝴 x", so it is not an independent morpheme; however, the character "蝶(dié)" in "蝴蝶(húdié)" can form other words such as "彩蝶(cǎidié,colored butterfly)" and "粉蝶(fěndié,pink butterfly)" , so it should be recognized as a morpheme. Similarly, the character "苹(píng)" in "苹果(píngguǒ)" cannot form other words alone, while the character "果(guǒ)" can combine with other morphemes. The essence of this type of substitution is to find components with a convergent relationship in terms of pronunciation and meaning, and use materials with the same sound and meaning to assist in judgment.

Table 3 Homographic substitution of the "morpheme+syllable" words

蝴蝶(húdié)		苹果(píngguǒ)	
蝴？	彩蝶(cǎidié)	苹？	水果(shuǐguǒ)
	粉蝶(fěndié)		浆果(jiāngguǒ)
	凤蝶(fèngdié)		干果(gānguǒ)

However, it should be noted that the results obtained by the substitution method are only a formal classification and cannot directly replace the definition of a morpheme as a basis for determining whether a component is a morpheme. Simple substitution can only show that some components have independent word-formation ability, but it cannot directly affirm their morpheme nature. Therefore, it is clearly insufficient to rely solely on the structure obtained by the substitution method for judgment, and a comprehensive analysis should be carried out in

combination with the essential characteristics of morphemes. At the same time, the substitution method uses known morphemes for substitution, but the origin of the original known morphemes cannot be verified. The types and quantities of morphemes mastered by each person also affect the substitution process, and the consistency of meaning during the substitution process cannot be unified. In previous studies, some scholars have noticed that the homomorphic substitution method may have problems in determining the morphemes of many Chinese words. For example, Ding Jianchuan pointed out that the results obtained by using the homomorphic substitution method to examine words like "蝴蝶(húdié)" and "豇豆(jiāngdòu)" do not reflect the true morpheme composition of these words(Ding, 2015). Zhang Shuang, through enumerating numerous examples, pointed out that determining whether a disyllabic combination contains one or two morphemes based solely on whether it can only be unidirectionally substituted has limitations. For the specific morpheme composition in a disyllabic combination, each syllable in the combination should be analyzed strictly based on the definition of a morpheme and then judged(Zhang, 2004). Yang Xuming et al. drew on the concepts, determination criteria, and classification standards of morphemes to conduct a literature review on the relationships between morphemes and the other three - level units. They also pointed out the limitations of the homographic substitution method from two perspectives: the functional view and the semantic view(Yang & Zhao, 2019). In addition, the internal structure of Chinese compound words is very complex. The degree of tightness of the components within compound words varies, with some being tight and others loose. Therefore, some can be substituted while others cannot. When distinguishing them, we cannot consider those that cannot be substituted as monomorphemic words and deny their status as compound words (Bai, 1992). Therefore, when determining whether a component is a morpheme, a case-by-case analysis is required. A morpheme is the smallest unit of sound and meaning combination, so no other independent morpheme can be contained within a single morpheme. Words composed of the structure "morpheme + syllable", such as "蝴蝶", "苹果", "蟾蜍", etc., are generally regarded as monomorphemic simple words. However, these simple words contain other independent morphemes (such as "蝴" in "蝴蝶", "苹" in "苹果", "蜍" in "蟾蜍", etc.). Therefore, this view ignores the internal morpheme structure, underestimates the theories of historical semantics and lexicology, and ultimately leads to a situation that contradicts the definition of a morpheme. In addition, the limitations of the homomorphic substitution method also lie in ignoring the inheritance of Chinese history, being overly subjective in judging the situation and semantic relationships, and the diversity of word processing results is caused by the dependence on structural components and the sensibility of language sense.

2.2 The proposal and limitations of "residual morphemes"

In An introduction to the study of language, Bloomfield proposed the concept of "unique constituent", arguing that although the constituent cran- only appears in the combination of cranberry, it should be recognised as a separate constituent because it has a fixed phonological form and its meaning is fixed, i.e. cranberry is distinguished from other berries by the presence of carn-. It is believed that although cran- only appears in the combination of cranberry, since it has a fixed phonetic form and its meaning is fixed, i.e. cranberry can be distinguished from other berries by the presence of carn-, it should be recognised as an independent constituent(Bloomfield,

1983).Some scholars introduced this concept into the analysis of Chinese words, proposed the concept of "residual morphemes" and the residual method of morpheme analysis. They believed that components such as "苹" in "苹果" and "豌" in "豌豆" cannot be used independently in modern Chinese, but they all have the function of distinguishing meanings. Therefore, "苹" and "豌" should be regarded as independent morphemes, and words such as "苹果" and "豌豆", like "水果(shuǐguǒ,fruit)" and "绿豆(lǜdòu,mung bean)" , are compound words rather than simple words (Tao, 2011), which confirms that some of the "syllable + morpheme" words obtained by the substitution method are actually composites. Some scholars have analyzed the causes of "residual morphemes" in terms of internal and external factors, and explored the feasibility of "啤" in "啤酒 (píjiǔ,beer)" being a residual morpheme from the perspectives of sound and meaning(Chen, 2023).The introduction of residual morphemes makes it clear that the collocational ability of a constituent that can become a morpheme does not need to be greater than 1, which provides a new way of thinking for defining the nature of "syllable + morpheme" words, and also provides a new perspective for the determination of Chinese morphemes. However, such a viewpoint only solves part of the problem, i.e., it only confirms that some of the words with genus structure are synthetic words rather than simple words, and for the rest of "syllable + morpheme" words, such as "toad", "butterfly", "crab For the remaining "syllable + morpheme" words, such as "蟾蜍", "蝴蝶", "螃蟹", etc., no reasonable explanation can be given.

3. Relationship between the overall lexical meaning of "morpheme+syllable" words and the meaning of their constituents

To explain the formation of such words and define their nature, it is necessary to first clarify the characteristics of these words. By comparing the more special words of the type "syllable (AⅠ) + morpheme (BⅠ)" such as "蝴蝶", "螃蟹", "蟾蜍" (hereinafter referred to as TypeⅠ words) with words of the type "syllable (AⅡ) + morpheme (BⅡ)" such as "苹果", "豌豆" that can be explained by the residual method (hereinafter referred to as TypeⅡ words), obvious differences can be found in the relationship between the overall word meaning of these two types of words and the meanings of their constituent components.

Bloomfield pointed out that the concept of "unique constituent" in the Chinese context can only correspond to AⅡ syllables in typeⅡ words, the overall meaning of such words cannot be expressed by the BII part of the word alone, and the separate morpheme BII can only indicate the type of the word's meaning, and its extension is not the same as the extension of the word. It is not the same as the extension of the word. This kind of words can only express the correct connotation and extension of the word meaning when syllable AⅡ and morpheme BⅡ are combined, e.g. 苹果(apple) ≠ 果(fruit), 豌豆(pea) ≠ 豆(bean). Specifically, the broad category

of "bean" as genus in "pea" covers a wide range of legumes, while "pea" as species formulates specific types. In this kind of words, the meaning of syllable AII is a distinguishing meaning, which points out the specific type and makes the meaning of the word more specific and clear.

And among the words of type Ⅰ, the overall meaning of the words can be expressed by morpheme BⅡ, the extension of the meaning of morpheme BⅡ is the same as that of the word, which has completely expressed the independent concept, such as 蝶=蝴蝶(butterfly), 蟹=螃蟹 (crab). Based on the above classification, it can be seen that there is a significant difference in the status of meaning expression between the syllable AⅠ and the morpheme BⅠ in Type I words that cannot be explained by the residual method. The overall meaning of this type of word is reflected by the morpheme BⅠ, while the syllable AⅠ only plays an auxiliary role in harmonizing and stabilizing the pronunciation. This characteristic makes the word formation of this type of word unable to be directly explained by Bloomfield's residual morpheme theory. Reasons such as phonetic harmony and historical evolution jointly lead to the interdependent relationship between the syllable AⅠ and the morpheme BⅠ. It is necessary to continue to explore its special word formation reasons and morpheme classification in the Chinese context.

Table 4 Two different types of "morpheme + syllable" words

Type1 Words	"蝶"="蝴"(butterfly)	"蟹"="螃蟹"(crab)	"蟾蜍"="蟾"(toad)
Type2 Words	"果"(fruit)≠"苹果"(apple)	"豌豆"(pea)"≠"豆"(bean)	

4. The Causes and Nature of AⅠ-Type Syllables

4.1 The Causes of AⅠ-Type Syllables

According to the above summary, the meaning of Type I words can be solely borne by the morpheme BⅠ part. In standard modern Chinese, the individual morpheme BⅠ part cannot be used as a word alone, but must be combined with the syllable AⅠ to form a word. The reason for this is closely related to the disyllabification trend of Chinese. Due to the rapid development of the Chinese vocabulary system itself and the development and changes of word meanings, Chinese vocabulary has always had a disyllabification trend(Z. Huang & Yang, 1990). For example, "师" (teacher) has become "lǎoshī", and "民" (people) has become "人民". During the transition of Chinese vocabulary from monosyllabic to disyllabic, the components it combines with follow certain regularities, which are closely related to the disyllabification trend of Chinese, the historical development of Chinese, and the laws of vocabulary evolution. In addition to morphemes such as "lǎo" and "ā" that are used in large numbers, many original monosyllabic words either add category morphemes after them to form new words, or add new morphemes related to the characteristics of the original words and make their radical forms typified to form new words, or both. The existence of disyllabification enables language to generate enough new words to express frequently emerging new concepts, playing a productive role in human communication and cognitive processes. Some monosyllabic words in ancient Chinese have also gradually evolved due to decreased usage frequency. For example, the character "泔"(gān) in "泔水" (gānshu,iswill), which originally meant "rice-washing water" in ancient Chinese, has become

a residual morpheme through disyllabification, becoming a typical example of language evolution.

The addition of category morphemes corresponds exactly to the causes of Type II words. Driven by the reason of the typification of the radical form, Type I words and AⅠ-type syllables are formed. The so-called typification of the radical form of characters means that two characters with different morphological structures, one character is influenced by the other and has exactly the same radical as it. For example, "螃蟹" was originally simply called "蟹", and later was written as "旁蟹" according to its sideways walking characteristics. Finally, due to the influence of radical typification, it was written as "螃蟹". Another example is that "蝴蝶" was originally simply written as "蝶", and later was written as "胡蝶" because of its long and beautiful whiskers (in common sayings, "whiskers" are called "胡"(hú)). Later, due to the trend of radical typification, it was written as "蝴蝶" . The typification of the radical form can be further divided into two categories: adding a radical to the original character and changing the radical of the original character. The former, such as the change from the word "延"(yán) to "梴"(chān), accounts for a large proportion and also reflects the laws and particularities of the evolution and development of Chinese characters. "延" means "longm", and "梴" means "long wood"(Tan, 2012). The semantic meaning undergoes extension and expansion in this process, and at the same time expresses the characteristic properties and category of the object it refers to. Such a change has produced residual components such as "páng" and "hú". Because their Chinese character forms are influenced by the radicals of other morphemes when they are formed, and after formation, no other components that can be combined with them can be found, the collocation ability of these components is fixed at 1.

Table 5 The evolution process of "蝴(páng) " and "螃 (hú) "

Original Word	Disyllabification	Radical typification
蟹	旁(sideways walking)蟹	螃蟹
蝶	胡(long and beautiful whiskers)蝶	蝴蝶

4.2 The Characteristics of AⅠ-Type Syllables

Chinese characters are square characters composed of components. The formation process of AⅠ-type syllables is rich in the unique characteristics of Chinese characters. As a part not included in the concept of "residual morphemes" proposed by Bloomfield, it fully demonstrates the particularity of Chinese characters. If judged by the results obtained by the substitution method, this type of component can both be juxtaposed with morphemes and be a part of a

morpheme. This result not only does not hold logically but also cannot find similar examples in other languages. Judging intuitively from the structure, if words like "húdié" and "pángxiè" are regarded as words and the characters "蝶(dié)" and "蟹(xiè)" are regarded as morphemes, then components such as "蝴(hú)" and "螃(páng)" should naturally be regarded as morphemes. However, in the Chinese definition of a morpheme, a morpheme must have its own independent meaning. Precisely for this reason, there are different views in the academic community regarding whether this type of syllable can be regarded as a morpheme. Some scholars, proceeding from the synchronic principle, believe that although this type of morpheme had practical meaning during the process of character formation, few people can recognize the specific meaning of such characters nowadays. Therefore, based on the principle that morpheme identification should mainly rely on modern synchronic analysis, they believe that this type of character does not have a clear meaning and cannot be regarded as a morpheme (Z. Liu, 2001). Some other scholars, proceeding from the principle of parallel substitution, believe that "húdié" should be regarded as a simple word, while words like "彩蝶(cǎidié)" and "粉蝶(fěndié)" can be regarded as compound words. This is because the "蝶(dié)" in "彩蝶(cǎidié)" means "butterfly," while the "蝶(dié)" in "蝴蝶(húdié)" cannot be regarded as having the meaning of "butterfly." They believe that once the necessary conditions for parallelism are lost, whether the conclusion is that it is "one morpheme" or "one residual morpheme + one morpheme," there will be problems(Feng, 2013).

It is not difficult to find that although the above viewpoints all point out the basis for why AⅠ-type syllables cannot be determined as morphemes from some principles that should be followed in the determination of Chinese morphemes, none of them can explain the nature of this type of syllable, nor can they solve the problem of "morpheme containing morpheme" in this type of word. In fact, the limitation of the above viewpoints lies in only limiting the meaning of a morpheme to the category of real meaning, without observing the formation of Chinese words from a dynamic perspective of word development and evolution. They only explain that this type of component does not have the status of a morpheme from the perspective of expressing real meaning, ignoring that the meaning required in the concept of a morpheme includes not only real meaning but also structural and functional meaning and distinguishing meaning. In fact, the absence of real meaning in a syllable does not mean that this syllable cannot become a morpheme. Morphemization is a complex process, including not only the transformation of syllables into morphemes but also aspects such as the grammaticalization and lexicalization of morphemes. The development of language phenomena is a process, and a trans-temporal theory and method should be used to examine language phenomena in different time and space. For components of the AⅠ syllable type, the formation process of this type of component, such as the changes from "旁(páng)" to "螃(páng)" and from "胡(hú)" to "蝴(hú)," is actually the development of Chinese morphemes in a specialized direction based on the original, combining the nature and characteristics of things with semantic categories, in order to meet the disyllabification trend of words and deepen the ideographic function.

During the long development process of Chinese, the meaning and function of AⅠ syllables have undergone significant evolution. From "旁(páng)" to "螃(páng)," the meaning borne by the syllable has changed from "旁(páng)" only representing the characteristics of the side and walking appearance to "螃(páng)" representing both the sideways walking characteristics and the character meaning category of "insect." From "胡(hú)" to "蝴(hú)," the meaning borne by the syllable has changed from "胡(hú)" only representing large or whiskers to "蝴(hú)" representing both characteristics and the character meaning category of "insect." The process of the formation of the glyphs of these characters itself is a further concretization of their ideographic functions. Therefore, the view that these syllables do not have any meaning is obviously incorrect. From the internal mechanism, the disyllabification trend of Chinese prompts morphemes to combine to form a more stable lexical structure. From the external environment, social development, cultural exchanges, and many other factors bring new concepts and expression needs, therefore, the study of the semantic evolution of morphemes should be regarded as an important foundation for exploring the semantic composition of modern Chinese compound words(Xu & Huang, 2024). In fact, most non-word-forming morphemes have lost their independence in the evolution of language from monosyllabic words in ancient Chinese that retained clear meanings. Their functions have gradually been limited to dedicated word formation. It should be recognized that after multiple development stages of language, the real meaning of this type of syllable has gradually become grammaticalization in the long history of the evolution of Chinese characters and the Chinese language, but their meanings after grammaticalization and their structural and functional meanings still exist. With radical typification as the most crucial turning point, this type of component has evolved from initially representing certain properties or characteristics of things to a component specifically used to assist other morphemes in forming words, thus possessing the characteristics of an affix. This evolutionary process is precisely an adaptation of the development of Chinese.

Affixes brought about by the disyllabification of morphemes are not uncommon in Chinese. For example, words like "鹰(yīng,eagle) " and "虎(hǔ,tiger) " have evolved into "老鹰(lǎoyīng)" and "老虎(lǎohǔ)" in modern Chinese, bringing the affix "老(lǎo)". Words like "儿(ér,son)" and "孩(hái,child)" have evolved into "儿子(érzi)" and "孩子(háizi)," bringing the affix "子(zi)." Words like "公(gōng,grandfather)" and "婆(pó,grandmother)" have evolved into "阿公(āgōng)" and "阿婆(āpó)," bringing the affix "阿(ā)" (Guo, 2004). These affixes also do not have actual meanings, but this does not prevent them from obtaining the status of morphemes as affixes. Comparing affixes such as "阿(ā)," "子(zi)," and "老(lǎo)" with components such as "螃(páng)" and "蝴(hú)" in AⅠ-type syllables, obvious similarities and differences can be found. The

similarities are that both types of components are generated in the disyllabification trend of Chinese and have fixed positions in word formation. The differences are that the word-formation abilities of components such as "子(zi)," "阿(ā)," and "老(lǎo)" are greater than 1, while the word-formation abilities of components such as "螃(páng)" and "蝴(hú)" are exactly equal to 1.

4.3 AⅠ-Type Syllables Are a Special Type of Affix

In terms of origin, AⅠ-type syllables have the same origin as a group of affix morphemes. Originating from the historical process of the development of Chinese vocabulary, AⅠ-type syllables have undergone a dynamic transformation process from independent to attached components. However, unlike affixes such as "老(lǎo)" and "阿(ā)" that can form words in batches, the collocation ability of AⅠ-type syllables is equal to 1, and they can only combine with a specific root to form words. Although they have a similar historical background in origin, their word-formation functions are significantly different from those of typical affixes. It is precisely because of this characteristic that researchers generally overlook the essence of this type of component, have not yet linked this type of component with affixes for research, and have not deeply explored their internal connection with affixes. They only regard them as special syllable components.

Bloomfield defined an affix as "those bound forms that are attached to the base form in secondary derivative structures." He believed that affixes before the base form are prefixes, affixes after the base form are suffixes, and affixes inserted in the middle of the base form are infixes (Bloomfield, 1983). Since Xue Xiangsui formally proposed the concept of Chinese affixes in the article "Brief Introduction to Chinese Language and Characters" in 1919, different scholars have some differences in the specific definition of the concept of Chinese affixes. Zhu Dexi believed that an affix is a positional morpheme that can only be attached to a root (Zhu, 1982), which reflects the characteristics of affixes from the perspective of word formation. Ren Xueliang believed that an affix is a morphological marker(Ren, 1981). Xing Fuyi pointed out in "Modern Chinese" that an affix is an "additional part" that expresses "additional meaning"(Xing, 2011). Huang Borong and Liao Xudong believed that affixes express additional meanings and play a grammatical role(B. Huang & Liao, 1981). Although different scholars have some differences in the specific definition of affixes, it is not difficult to find that the academic community has generally reached a consensus on the characteristics of affixes, mainly including:

1)fixed position;

2)expressing additional meaning or playing a grammatical role;

3)must be attached to a root.

No matter which of these explanations it is, there is no specific requirement for the word-formation ability and collocation ability of affixes.

All the characteristics of the above affixes can be well reflected in AⅠ-type syllables. First of all, the collocation ability of this type of syllable is 1, and it only appears in a certain position in the word. Its position is undoubtedly fixed. Secondly, this type of syllable assists the BⅠ-type

morpheme in forming words and has and expresses some of the characteristics of the B Ⅰ-type morpheme in the process of development and evolution, meeting the requirements of expressing additional meaning or playing a grammatical role. Finally, this type of component only appears with one root and is attached to this root to form a word.

Liu Yanmei proposed three basic criteria for identifying Chinese morphemes in "Three Divergent Points of Chinese Morpheme Analysis," which are:

1)having an independent syllable;

2)having meaning, including not only actual lexical meaning but also distinguishing meaning;

3)having a certain combination ability. The combination ability of a morpheme is ≥ 1, and when it is 1, the combination ability of the morpheme it combines with should be > 1 (Y. Liu, 2004).

Bai Junyao proposed several principles that need to be followed when identifying whether a component is a morpheme in "Problems in Morpheme Identification": First, establish the view that anything with meaning is a morpheme. Second, establish the view of identity. Third, establish the view of change or development. Fourth, establish the view of residual. Fifth, establish the view of "artificial" (Bai, 1992). When tested against these criteria, first, A Ⅰ-type syllables have independent syllables. Second, they have meaning. Third, the morphemes combined with A Ⅰ-type syllables are not residual morphemes, and their collocation abilities are greater than 1.

To sum up, components of the A Ⅰ-type syllable meet all the conditions for becoming an affix and a morpheme and should be recognized as a special type of affix. The dynamic transformation process they have experienced, the correspondence of their additional meanings and grammatical forms and functions are in line with the inevitable trend of language development.

4.4 Re-discussion of A Ⅰ-Type Components from the Perspective of Chinese-Foreign Comparisons

The nature of A Ⅰ-type affixes has always been difficult to determine. The reason, to a large extent, lies in that concepts such as "morpheme" and "affix" have not been well and flexibly applied in the Chinese linguistics system. A morpheme is regarded as the smallest unit of "sound-meaning combination," but what are the connotations and extensions of "meaning"? Can a component only be called an affix when its collocation ability is greater than 1? Is the concept of "residual morphemes" proposed by Bloomfield too narrow for the application of Chinese morphemes? The ambiguity of the answers to these questions is an important reason why A Ⅰ-type components have not been recognized as morphemes. At the same time, the ambiguity of the answers to these questions makes it difficult to reach a consensus on the nature of A Ⅰ-type components, thus affecting the accurate understanding of their status and role in the Chinese vocabulary system.

When we examine A Ⅰ-type affixes under the comparison of different languages, we will also find that this type of special affix widely exists in different languages, and they also have similarities in origin. This cross-linguistic commonality provides different perspectives for understanding the nature of A Ⅰ-type affixes. Due to various synchronic and diachronic reasons, the collocation abilities of some affixes are naturally weak or gradually weakened during the

evolution process. The most extreme case is the formation of "one-use affixes." For example, the component "calli-" in the English word calligraphy originates from the Latinized form of the Greek word kallos, meaning "beautiful." Its initial collocation ability was strong. However, through the continuous evolution of the language, "calli-" can only form the word calligraphy with the root "graphy" in modern English. Another example is that although the component "vice" can form words such as "vice-president," when it acts as an affix, it can only form the word "viceroy." In the word "hyphen," the "hyp-" was originally "hypo-," meaning "under," and this formal change has reduced its collocation ability to 1 (Hornby, 2016). It is not difficult to find that the formation of "one-use affixes" in English also has reasons such as formal changes (such as the evolution from "hypo-" to "hyp-") and the development of the vocabulary system (such as the weakening of the collocation ability of "calli-"), which to a certain extent have the same characteristics as "one-use affixes" in Chinese.

Regarding the concept, when Bloomfield defined the concept of an affix, he also did not make any requirements for the word-formation ability of an affix. Even if the collocation ability of an affix component is weak, as long as it can play a similar role, it can be regarded as an affix. The existence of such "one-use affixes" in English also provides strong evidence for the independent existence of AⅠ-type components as affixes in Chinese. The existence of AⅠ-type components in Chinese is not an isolated phenomenon, and similar situations can be found in other languages. When some English-translated words enter the Chinese system, a series of corresponding usages are generated through the analogical effect within Chinese. The existence of forms such as foreign morphemes also provides certain references for understanding the development and role of AⅠ-type affixes.

5. Re-discussion on the Residual Method and Substitution Method for Determining Chinese Morphemes

After determining the nature of AⅠ-type morphemes, both Type I words and Type II words proposed above can be recognized as compound words composed of two morphemes. The result of "syllable + morpheme" obtained by the substitution method can actually be completely classified as compound words composed of two morphemes of the form "morpheme + morpheme." That is to say, a Chinese disyllabic word is either a simple word composed of two pure syllables or a word synthesized by two morphemes. There is no other third situation.

In terms of word formation, among the results of the so-called "syllable + morpheme" obtained by the substitution method, Type II words composed of "species name + genus concept" that can be explained by the view of residual morphemes can be analogized to the word formation methods of "水果(shuǐguǒ)" and "绿豆(lǜdòu)" and regarded as compound words of the attributive-head structure. For example, "苹果(píngguǒ)" refers to a specific type of fruit rather than other fruits, and "豌豆(wāndòu)" refers to a specific type of bean rather than other beans. The words composed of the root BⅠ and the affix AⅠ discussed in detail earlier can be regarded as derived words. When the affix AⅠ is in the front, the whole word is a prefix word, such as "螃

蟹(pángxiè)" and "蝴蝶(húdié)." When the affix AⅠ is at the back, the whole word is a suffix word, such as "蟾蜍(chánchú)," that is, the original classification method is reattributed.

The determination of the nature of AⅠ-type morphemes also provides a rigorous and scientific operation method and theoretical basis for the "residual method" of determining Chinese morphemes. The residual method of morpheme determination means that when a part of a word is determined as a morpheme, the remaining part should also be composed of one or more morphemes. Since the type of "syllable + morpheme" obtained by the substitution method no longer exists in reality, Chinese disyllabic words are either composed of two syllables or two morphemes. Therefore, the residual method can be used very conveniently to determine the internal structure of Chinese vocabulary. For example, in the word "蟾蜍(chánchú)," if "蟾(chán)" can be determined as a morpheme, then according to the residual method of morpheme determination, the remaining part "蜍(chú)" should also be a morpheme. In the word "飓风(jùfēng)," if "风(fēng)" can be determined as a morpheme, then "飓(jù)" should also be a morpheme.

As the smallest unit of sound and meaning combination and the basic grammatical unit of Chinese, morphemes are the necessary prerequisites for the existence of grammatical units such as words, phrases, and sentences. Only by clarifying the relationship between morphemes and words can we further explore the relationships between words and phrases, and between phrases and sentences. In the actual determination of Chinese morphemes, the residual method and the substitution method should be applied flexibly according to the actual situation. For components that can be determined by the substitution method, they should be first determined as morphemes. For components that cannot be determined as morphemes by the substitution method, the residual method can be used to determine their nature. Future research should continue to clarify the specific application of relevant concepts in linguistic theories and practical application scenarios, attach importance to the important value and application potential of the mutual supplementation of the residual method and the substitution method. Combining the two methods can greatly improve the efficiency and accuracy of determining Chinese morphemes, thus avoiding the problems that may be brought about by relying solely on the substitution method.

6. Conclusion

The method of determining morphemes in Chinese words has always been an important issue in the study of Chinese vocabulary. The academic community is well aware of the problems brought about by the traditional and commonly used determination method of simply relying on the homomorphic substitution method, but has been unable to completely solve them. Although discussions on the residual method have increased in recent years, its application in actual contexts still has limitations in dealing with all special situations in Chinese.The root cause lies in the insufficiently clear and in-depth understanding of the nature of morphemes, especially the lack of a unified understanding of the nature of AⅠ and AⅡ components mentioned in this paper, making it impossible to distinguish and define their subsidiary and distinctive functions.

This paper addresses the contradiction between the “syllable + morpheme” words resulting from the substitution method and the definition of morphemes by organizing the development process of the concept of residual morphemes and identifying AⅠ components as affix morphemes. It confirms that all “syllable + morpheme” words are actually disyllabic compound words, thus standardizing the compositional system of Chinese vocabulary. This enables the residual method to become a scientific and systematic approach for determining Chinese morphemes and provides a new model of “substitution method + residual method” for identifying the composition of Chinese words.

In future research on morpheme determination, it is necessary to continue to clarify the specific application of relevant concepts based on general linguistic theories and the actual situation of the Chinese language. Meanwhile, the important value and application potential of the residual method should be emphasized and organically combined with the substitution method. This will further promote the construction of the theoretical system of Chinese morphemes and provide a more solid theoretical foundation for the study of Chinese vocabulary.

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