中国语言学报

QUEST FOR THE ESSENCE OF CHINESE GRAMMAR

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ABSTRACT

Some key issues in the analysis of Chinese grammars in the past five
decades are identified and discussed from typological perspectives. They
include 1) the wordhood in「字」and 「詞」, and word formation; 2) parts
of speech; 3) syntactic pivots (topic, subject, and object); 4) active vs.
passive voice; 5) cognitive principles of word order; 6) SOV vs. SVO.
Typological characterizations of Chinese are also summarized, pointing to
the importance of understanding Chinese from perspectives of creole and
sign language. Mental lexicon of「字」,「詞」and four-character idioms should
be constructed with syntactic structures for the processing of reading Chinese.

1. INTRODUCTION

Due to the lack of indigenous Chinese grammar on the one hand, and the paucity of morphology on the other hand, Chinese grammarians since *Mǎ shì wén tōng* 馬氏文通 in 1898 have largely been based on grammatical theories derived from studies on Indo-European languages. The influence of American grammatical theories, traditional or contemporary, is particularly notable. In addition to the adoption of meta-language suitable for analyzing Indo-European languages, Chinese grammarians have taken English translations of Chinese sentences for constructing Chinese grammar, treating them as semantic equivalents without considering the possibility that different languages can reflect different world views. Cognitive relativity, as subscribed to by anthropological linguists in the well-known Sapir-Whorfian hypothesis, is completely abandoned. However, cognitive grammar, which has only emerged in early 1980s, has restored the spirit of the weak form of Sapir-Whorfian hypothesis in that structures in different language can be derived from different cognitive principles in different cultural contexts. Thus, with the perspectives from cognitive grammar, language differences can be uncovered more clearly than the principles-and-parameters approach adopted in generative grammars, which tend to overemphasize the universality at the cost of the differences which can be attributed to different world views and cognitive relativity in more revealing manners (Tai 1989).

The author received his training in generative grammar in late 1960s in US. In 1975, he was invited by Professor William S-Y. Wang to serve as one of the associate editors for the Journal of Chinese linguistics launched in 1973. He served the post until Professor Wang retired from the Journal as the editor-in-Chief in 2018. The Journal has generated a wealth of invaluable knowledge of Chinese language and linguistics. It was with the development of the *Journal of Chinese Linguistics*, the author has learned about some of the key issues of Chinese grammar to be highlighted in this short essay.

2. WORDHOOD

2.1 *Zì* 字 and *cí* 詞

Since the inception of grammatical studies of Chinese, the wordhood has been a complex issue. In his seminal work, Chao (1968, 136) has pointed out that "the Chinese sociological equivalent of the word is *zì* 字. While *zì* 字 is the indigenous concept of subunits in the Chinese sentence, *cí* 詞 a loan concept. The English word 'dictionary' has two renditions in Chinese, i.e., *zìdiǎn* 字典 and *cídiǎn* 詞（辭）典. But *zìdiǎn* 字典 is unmarked, *cídiǎn* 詞典 is marked. Therefore, in colloquial Chinese, the former is the default translation of 'dictionary' and much more frequently used as in *Wǒ yào mǎi yīběn yīngwén zìdiǎn* 我要買一本英文字典 and *Zhè yīběn zìdiǎn duōshǎoqián* 這一本字典多少錢?

Zì 字 represents a monosyllabic, monomophemic word in most cases. Therefore, it constitutes as the basic unit in the lexicon and grammar of Chinese, even though through the historical process, the disyllabic-monomorphic words have reached an estimated 50% of the words in the lexicon. The half-and-half composition of monosyllabic and disyllabic words thus yields to two different views of Chinese morphology and grammar, as expressed in *zì běnwèi* 字本位 versus *cí běnwèi* 詞本位. The former view was espoused by (XU Tongqiang 徐通锵 2008, etc.), and the latter view by (Chao 1968; LU Jianming 陸儉明 2011). Correspondingly, two views of learning Chinese exist. *Zì běnwèi* 字本位 introducing basic vocabulary with Chinese characters and their pronunciations at the same time in literacy training in traditional Chinese school across Chinese dialectal regions with textbooks such as *wénzì méngqiú* 文字蒙求, *sānzìjīng* 三字經, *bǎijiāxìng* 百家姓 and *qiānzìwén* 千字文. This method has also been adopted in second language teaching of Chinese language (Bellassen 1989; LÜ Bisong 呂必松 2016). On the other hand, *cí běnwèi* 詞本位 takes the position that spoken language need to be introduced first, followed by Chinese characters. This method is justified by the fact that disyllabic vocabulary cannot be easily learned and taught directly with Chinese characters. This approach to learn to read Chinese has been adopted in literacy training in elementary schools as well as in teaching Chinese as a second language (DeFrancis 1965).

A dual method of teaching of Chinese reading as a second language would be to adopt both *zì běnwèi* 字本位 and *cí běnwèi* 詞本位

simultaneously or alternatively depending on different functional needs of learning Chinese. As a matter of fact, the two views of language acquisition also have non-trivial implication for child language acquisition of both spoken and written Chinese across the vast dialectal areas of China.

For several reasons not to be repeated here, Chao (ibid) has termed the concept of *zì* 字 as "sociological word" to be distinguished from *cí* 詞 as the "linguistic word". Many examples can be provided to show that *zì* 字 is fundamentally rooted in Chinese mental lexicon, but a couple of them are sufficient for the purpose of illustration. For example, it is common for ordinary people to refer to new words in English as *shēngzì* 生字, rather than *shēngcí* 生詞. Similarly, when seeing the disyllabic word *tǎntè* 忐忑 for the first time, one might ask "這兩個字什麼意思？", instead of "這個詞什麼意思？" In fact, some linguists have proposed that characters are the basic lexical units for Chinese (e.g., Huang et al. 2022).

At the same time, even with the concept of "linguistic word", the question of wordhood in Chinese is still recalcitrant to linguistic analysis. Thus, different approaches to Chinese word formation are presented in Packard (1997), followed by an in-depth analysis of Chinese words by Packard (2000), in which different views of words such as "orthographic" "sociological" "lexical" "semantic" "phonological" "morphological" "syntactic" and "psychological" word are adopted to define the word in Chinese. In both works, Packard shows that while Chinese does not have grammatical agreement, and has little morphophonemic alternation and inflection, the wordhood still can be properly defined in the Chinese mental lexicon. More recently, Myers (2022) has presented more evidence for wordhood in Chinese.

Still, Zhang (2007) clearly shows that the syntactic and semantic computation of compound words in Chinese are resistant to the standard theory of syntactic merge of root morphemes as proposed by Chomsky (2000). For instance, two antonymous adjectives can be compounded as noun with the sematic polarity neutralized, as in *dàxiǎo* 大小 'size', *chángduǎn* 長短 'length', and *gāodī* 高低 'height'. Zhang's account is that the root morphemes such as *dà* 大 and *xiǎo* 小 do not have syntactic or semantic features to begin with, and only when they form a compound together, they get to assign a function which map these root morphemes into nominals with antonymous meaning neutralized. Yet, the nature of this

function is not clear at all. This kind of phenomena cannot be accounted for by the theory of "distributed morphology", since nowhere in Chinese syntax does such kind of rule exist. Therefore, it appears more apt to treat this kind of nominals with "construction morphology" (Xu 2018).

2.2 Compounds

Chinese exhibits only a paucity of inflection and derivation, therefore compounds constitute the core of Chinese morphology. A compound word is a word formed by combining two or more words. However, as noted by Chao (1968, 359), in practice, any word written with two or more characters is treated as a compound in the tradition of Chinese linguistics. Thus, disyllabic monomorphemic words such as *húdié* 蝴蝶 and *méiguī* 玫瑰 are treated as compound words. See Sproat (2000) for a list of such disyllabic words represented by two characters. They function as one single word in reading Chinese. They help the segmentation of Chinese written text without word space to facilitate processing Chinese reading. They are processed faster than compound words such as *shūzhuō* 書桌, *táidēng* 檯燈, and other kinds of compounds which have internal syntactic and semantic structures (Sung 2021).

There is such a wealth of data in two characters compound words that Chao (1968) has devoted a whole chapter of more than 120 pages to discuss the nature and classification of compounds (ibid., 359−480). His classification focuses on the syntactic and semantic relationship between the two characters which form a compound. The classification of compounds include: subject-predicate (S-P) compounds, e.g., *dìzhèn* 地震 and *tóuténg* 頭疼, coordinate compounds, e.g., *shūbào* 書報 (N-N) and *yīkào* 依靠 (V-V), subordinate compounds, e.g., *niúròu* 牛肉 (N-N), *xiāngliào* 香料 (A-N), *fēijī* 飛機 (V-N); *kǒushì* 口試 (N-V), *dàxiào* 大笑 (A-V), *xiānshēng* 先生 (H (adverb)-V); *bīnglěng* 冰冷 (N-A), *fēikuài* 飛快 (V-A), *xiāngjìn* 相近 (H-A).

The three groups of examples listed under subordinate compounds do not exhaust Chao's detailed documentation of the versatility of subordinate compounds. It suffices here to show that the three groups of compounds represent nouns, verbs, and adjectives as centers of the subordinate compounds, respectively. They serve to illustrate the point that syntactic principles can be largely employed to account for compound

formation, and thus in accordance with the theory of distributional morphology.

It is worth noting that while form classes (parts of speech) are employed by Chao (ibid) to analyze the composition of compounds, semantic considerations are also used. The most interesting examples can be found in the section of coordinate compounds via semantic synonymy, e.g., *jiānnán* 艱難 and *fēnsàn* 分散; antonymy, e.g., *chángduǎn* 長短 and *mǎimài* 買賣; parallelism, e.g., *shānshuǐ* 山水 and *fùmǔ* 父母; polymers, e.g., *shìnónggōngshāng* 士農工商 and *jiājiǎnchéngchú* 加減乘除.

It should also be noted that genuine coordinate structure in syntax lies in the free word order of the two or more coordinated constituents without changing the meaning. For example, there is no meaning difference between 'apple and peach' and 'peach and apple'. However, the great majority of coordinate compounds are not of genuine coordinate structure. All the examples in the above paragraph cannot have their word order reversed. Furthermore, there are quite a few compounds of which the word order can be reversed, but with different meaning, e.g., *jìsuàn* 計算 vs. *suànjì* 算計 and *líbié* 離別 vs. *biélí* 別離. Only few examples are hard to discern the differences in meaning, e.g., *lěijī* 累積 and *jīlěi* 積累 and *suōjiǎn* 縮減 and *jiǎnsuō* 減縮.

In reading Chinese texts, segmentation of one-character, two-character, and multi-character words and four character idioms such as *qiānshān wànshuǐ* 千山萬水 and *qiānyán wànyǔ* 千言萬語 works as a parser of lexical chunks stored in the mental lexicon to interact with various kinds of syntactic parsers. On this view, the transparency of syntactic and semantic relationships between the two characters facilitates the reading. We can roughly divide the degree of transparency into three levels from "transparent" to "translucent" to "opaque" as shown in ex. (1)−(3) below.

(1) level I (transparent)
    shāngāo   山高 vs. *gāoshān* 高山
    shuǐshēn   水深 vs. *shēnshuǐ* 深水
(2) level II (translucent)
    nǚér 女兒 vs. *érnǚ* 兒女
    sūnzi 孫子 vs. *zǐsūn* 子孫

(3) level III (opaque)

gāotiě 高鐵 (abbr. of *gāosù tiělù* 高速鐵路) vs. *tiěgāo* 鐵高 (abbr. of *tiělù gāojià* 鐵路高架)

yīshēng 醫生 (abbr. of *yībìng shūshēng* 醫病書生) vs. *shēngyī* 生醫 (abbr. of *shēngwù yīxué* 生物醫學)

On level I, *shāngāo* 山高 has subject-predicate structure, while *gāoshān* 高山 has adjective-noun structure. Similarly, the contrast between *shuǐshēn* 水深 and *shēnshuǐ* 深水. On level II, *érnǔ* 兒女 is an abbr. of the coordinate phrase "*érzi* 兒子 和 *nǔér* 女兒". Similarly, *zǐsūn* 子孫 is an abbr. of the coordinate phrase "*érzi* 兒子 和 *sūnzi* 孫子". On Level III, while *gāotiě* 高鐵 'high speed rail' is lexicalized, *tiěgāo* 鐵高 'the elevation of railway' is not lexicalized, since the project of railway elevation is hard to become part of the daily life. In contrast, both *yīshēng* 醫生 and *shēngyī* 生醫 are lexicalized.

Due to rapid development of science and technology, more and more abbreviated two-character compounds have emerged. For example, *héfèi* 核廢 from *hénéng fèiliào* 核能廢料, *hǎidàn* 海淡 from *hǎishuǐ dànhuà* 海水淡化. Even for the literate in Taiwan, they have to learn newly abbreviated compounds in reading the Chinese newspapers.

It appears that two-character compounds constitute the core of Chinese compounds. In fact, there is an important phonological reason for this phenomenon. A metrical foot usually consists of two syllables with stress on one of the two syllables to create different metrical patterns in different languages (Myers 2022). The one-syllable-morpheme-character template naturally yields the two-character compounds as optimal units in the mental lexicon of the literate in reading Chinese. This optimality induces Chinese readers to segment the text by two-character chunks to facilitate their reading. At the same time, this default segmentation strategy also creates all sorts of "garden path", as shown in the following examples (4)−(5).

(4) 在台大部分學生有健康保險。
   a. 在台 / 大部分 / 學生 / 有 / 健康 / 保險。
      Zàitái dàbùfèn xuéshēng yǒu jiànkāng bǎoxiǎn
   b. 在 / 台大 / 部分 / 學生 / 有 / 健康 / 保險。
      Zài táidà bùfèn xuéshēng yǒu jiànkāng bǎoxiǎn

(5) 美女毒販生意熱門，招來警察。
    a. 美女/毒販/生意/熱門/，招來/警察。
       Měinǚ dúfàn shēngyì rèmén zhāolái jǐngchá
    b. 美(國)/女毒販/生意/熱門/，招來/警察。
       Měi (guó) nǚdúfàn shēngyì rèmén zhāolái jǐngchá

The mental lexicon along with rules in "distributed morphology" and meaning in "construction morphology" enables Chinese readers to process Chinese texts. The mental lexicon, proposed originally by Miller (1986,1991), focuses on the matric relationship between sound and meaning, leaving the third dimension of orthography unanswered.

With the complex system of Chinese characters, compound word, and idioms, syntactic rules of distributed morphology, and construction meanings of compounds and idioms, the Chinese mental lexicon for the native Chinese readers must be more complex than that of alphabetic languages like English.

In characterizing Chinese language for the readers of Scientific American, Prof. William Wang had a succinct statement that "Although the Chinese system of writing is complex, the basic structure of the language is simple" (Wang 1973). Yet the Journal of Chinese Linguistics he founded in that year has uncovered the complexity of both spoken and written Chinese in numerous ways.

2.3 Word and Phrase

In addition to the entanglement between *zì* 字 and *cí* 詞, the distinction between compound words and phrases has also been an issue concerning the wordhood in Chinese, for example, *hónghuā* 紅花 'safflower' and *hóng de huā* 紅的花 'red flower'; *huángguā* 黃瓜 'cucumber' and *huáng de guā* 黃的瓜 'yellow melon/gourd/squash'.

Yet, on both semantic and syntactic tests, *hónghuā* 紅花 and *huángguā* 黃瓜 are words, while *hóng de huā* 紅的花 and *huáng de guā* 黃的瓜 are phrases. Semantically, *hónghuā* 紅花 is a kind of flowers which are usually red, but also can be yellow, but *hóng de huā* 紅的花 cannot have yellow-colored flowers as its members (Myers 2022). In other words, *hónghuā* 紅花, like *yīnghuā* 櫻花 and *méihuā* 梅花, is a member of the category of *huā* 花, while *hóng de huā* 紅的花 is the intersection

of the category of *huā* 花 and the category of *hóng* 紅. Syntactically, as shown in (6), the two have different syntactic restrictions.

(6) a. 很紅的花。
       Hěnhóng de huā
    b. *很紅花。
       Hěn hónghuā

Similarly, the color of *huángguā* 黃瓜 is green, but it has two varieties, namely *dàhuángguā* 大黃瓜 and *xiǎohuángguā* 小黃瓜, akin to *dàbáicài* 大白菜 and *xiǎobáicài* 小白菜. The examples in (7) illustrate the same point.

(7) a. 這條大黃瓜太小了。
       Zhè tiáo dàhuángguā tàixiǎo le
    b. 這條小黃瓜太大了。
       Zhè tiáo xiǎohuángguā tàidà le

There are other kinds of test which can distinguish between words and phrases and provide more evidence for the wordhood in Chinese (Xu 2018; Myers 2022).

3. PARTS OF SPEECH

Regardless of the paucity of inflection and derivation in Chinese morphology, parts of speech in Chinese can still be defined by semantic contents and syntactic distributions. However, distinctions in parts of speech can often be blurred. Most of the prepositions in Chinese are developed from verbs, and their verbal meaning is still transparent. They often co-occur with the main verb, thus called 'coverbs' (Defrancis 1963; Chao 1968; Li and Thompson 1981). The underlined words in sentences (8)−(10) are coverbs.

(8) 中國人用筷子吃飯。
    Zhōngguórén yòng kuàizi chīfàn
(9) 他把杯子打破了。
    Tā bǎ bēizǐ dǎpò le

(10) 杯子<u>被</u>他打破了。
　　　Bēizi bèi tā dǎpò le

　　　The underlined word *yòng* 用 in (8) is the coverb for the main verb *chī* 吃. Sentence (8) can be translated into English both as (11) and (12).

(11) Chinese eat meals with chopsticks.
(12) Chinese use chopsticks to eat meals.

　　　On the other hand, the preposition "with" in the following English sentences (13)−(15) must be translated into different coverb phrases.

(13) George had dinner with Mary.
　　　喬治<u>跟瑪莉</u>一起吃晚餐。
　　　Qiáozhì gēn mǎlì yīqǐ chī wǎncān
(14) George had dinner <u>with great pleasure</u>.
　　　喬治<u>很愉快的</u>吃晚餐。
　　　Qiáozhì hěn yúkuàide chī wǎncān
(15) George had <u>spaghetti with meat balls</u>.
　　　喬治吃<u>肉丸義大利麵</u>。
　　　Qiáozhì chī ròuwán yìdàlìmiàn

　　　Sentences in (13)−(15) also show that the preposition "with" does not have a clear meaning of itself, but can form different syntactic phrases yielding different meanings. The English "with" may have the original meaning of 'accompanying', but it has 26 meanings as listed in the Webster's Dictionary. In contrast, *yòng* 用 has a transparent meaning of 'to use'.

　　　McCawley (1992), on a universal basis of cross-linguistic identification and implicational universals proposed by Greenberg (1963), has concluded that most of the so-called "coverbs" are prepositions, but some are verbs. However, while the original meanings as main verbs are bleached, they still maintain the temporal aspects of verbs. For example, *yòng kuàizi* 用筷子 precedes the action of eating in the real world, as shown in (8) . The temporal aspect of prepositions, such as *cóng* 從 'from' and *dào* 到 'to', can be further illustrated by the following pair of

sentences (16a)–(16b) and their English equivalents.

(16) a. 他從公園走到圖書館。
          Tā cóng gōngyuán zǒudào túshūguǎn
          'He walked from the park to the library.'
      b. *他到圖書館從公園走。
          Tā dào túshūguǎn cóng gōngyuán zǒu
          'He walked to the library from the park.'

        Note that in English the 'from' phrase and the 'to' phrase can be reversed in word order without affecting the grammaticality of both sentences. It is not the case in Chinese. As *cóng* 從 and *dào* 到 still maintain the temporal aspect of their original verb meaning, they must obey the temporal sequence principle of word order in Chinese (Tai 1985, 2011). Therefore, (16b) is not grammatical.
        As a matter of fact, the verb-hood of *dào* 到 is stronger than that of *cóng* 從 . This can be illustrated by different degrees of ungrammaticality in (17) and (18), in which the nouns are preposed to the front of the sentences.

(17) ?圖書館，他從公園走到。
          Túshūguǎn tā cóng gōngyuán zǒu dào
(18) *公園，他從走到圖書館。
          Gōngyuán tā cóng zǒu dào túshūguǎn

        An event can be divided into sub-events in terms of temporal sequence. Sentences (8)−(10) can be segmented into sub-events, as in (8')−(10'), and their word order is naturally explained by the principle of temporal sequence.

(8')中國人/用筷子/吃飯。
    Zhōngguórén yòngkuàizi chīfàn
                1   2   3
(9')他/把杯子/打破了。
    Tā bǎbēizǐ dǎpòle
     1   2   3

(10') 杯子/被他/打破了。

    Bēizi bèitā dǎpòle

      1   2   3

    Grammaticalization, a process of deriving 'functional words' (*xūcí* 虛詞) from 'content words' (*shící* 實詞) through "semantic bleaching" or "semantic weakening", has played a key role in the development of Chinese grammar (WU Fuxiang 吳福祥 2005). Grammaticalization forms a continuum, so does the category of coverb/preposition in Chinese in their residual verbal meanings in temporal aspect.

    With respect to parts of speech in Chinese, McCawley (1992) also concluded that (1) auxiliary verbs are verbs; (2) "localizers" such as *shàng* 上, *xià* 下, *lǐ* 裡, and words such as *yǐqián* 以前 and *yǐhòu* 以後, are not prepositions, but nouns; (3) adjectives are verbs, as recognized in Chao (1968).

    Finally, the issues regarding the distinction between nouns and verbs in Chinese have been raised in SHEN Jiaxuan 沈家煊 (Shen 2014). Perhaps, through semantic criteria and syntactic distribution patterns, the distinction can be made as attempted in Tai (1997).

4. CLASSIFIERS VS. MEASURES

    Classifiers are subsumed under the general category of measures as individual measures (Chao 1968, 585). Li and Thompson (1981) also grouped classifier phrases together with measure phrases (ibid.104). Tai and Wang (1990), in search of the nature of human categorization, opted to separate "classifiers" from "measures" as an independent form class, even though both have the function of counting objects, entities and events. The distinction is that "while classifiers categorize nouns by picking up some salient perceptual features physically or functional based, measures do not categorize but only denote the quantity of objects" (Tai and Wang 1990, 38). This distinction claims that while all languages have measures, only some languages like Chinese and Thai have classifiers.

    Therefore, Chinese is a classifier language, but English is not, even though English has a couple of expressions such as "one head of cabbage" and "two ears of coin". The distinction also has typological implications regarding how a language makes distinction between count nouns and mass

nouns, plurality, and quantification, etc. (Aikhenvald 2000; Zhang 2013; Chen et al. 2022).

The cognitive basis of Chinese classifiers can be more clearly detected from the subset of cognitive properties underlying the learnability of human languages (Pinker 1989, 183–192). For example, inanimate entities can be schematized as 1, 2, and 3 dimensional entities. Thus, the classifier *tiáo* 條 categorizes perceptually 1-dimensional long and thin entities such as *huángguā* 黄瓜, *lù* 路 and *hé* 河. Metaphorically, it extends to *mìng* 命 and *fǎlù* 法律 (Tai and Wang 1990). The classifier *zhāng* 張 categorizes 2-dimensional flat surface such as *zhǐ* 紙 and *zhuōzi* 桌子 (Tai and Chao 1994). Then, there are several 3-dimensional classifiers such as *kuài* 塊, *kē* 顆 and *lì* 粒 which also involve other properties such as rigidity and size. The classifier *gè* 個 is a default classifier which can be treated as 0-dimensional, thus semantically empty, yet syntactically required to form numeral classifier phrases (Myers 2000).

In terms of grammaticalization, Chinese classifiers are derived from "content" words. *Tiáo* 條 originally is a noun denoting tiny and flexible tree branches. *Zhāng* 張 originally is a verb meaning 'to open, to stretch'. Thus, it also serves as the classifier for 'mouth' as in *yīzhāng zuǐ* 一張嘴.

There are other classifiers which have the nominal origins from animal body parts as in *yītóu niú* 一頭牛 and *liǎngwěi yú* 兩尾魚. In Southern Min, the classifier *wěi* 尾 also serves as a classifier for "snake" and "worm", in addition to fish (Tai 1999a). Chinese dialects provide a wealth of data for the understanding of human categorization (Tai 1992, 1994).

Classical Chinese as expressed in Confucius analects and other literature does not have classifiers, e.g., *sān rén xíng bì yǒu wǒ shī yān* 三人行必有我師焉. Classifiers emerged in large quantities during the period of *wèi jìn nán běi cháo* 魏晉南北朝 (LIU Shiru 劉世儒 1965). Its emergence remains an enigmatic research question (Wang 1994, Her 2022).

The rich variations in classifiers across Chinese dialects are still to be uncovered. In addition to the traditional method of asking the native informants to provide data, psycholinguistic approaches can also be designed to elicit hidden data of classifiers in Chinese dialects (Kuo, Lee and Tai 2008).

5. SUBJECT, OBJECT, VS. TOPIC

In Western traditional grammar, subject and predicate constitute the two main components of a sentence or proposition. In semantic term, subject is the entity to be included in the property set of the predicate, as in "John is smart." However, the notion of subject-predicate has been mixed with that of topic-comment as early as in Sapir (1921) and Hockett (1958) (Lyons 1977, 501). While "topic" is relatively easy to be defined as "someone or something to talk about", the notion of "subject" has been defined in various ways in different languages (Keenan 1976).

Chao (1968, 69) states that "the grammatical meaning of subject and predicate in Chinese is topic and comment, rather than actor and action". Chao's original idea was implemented into the topic vs. subject language typology proposed by Li and Thompson (1976). Topic is what to talk about, be it an entity or event. Thus, topic is a discourse notion, and a paragraph in Chinese can consist of one topic sentence, followed by several clauses to form a topic chain (Tsao 1990). For example, the following paragraph (19) contains one topic followed by three (or more) clauses.

(19) 昨天在火車站遇見一個從美國來的學生(a)，人長的很高(b)，兩
手拉著兩個行李(c)，背上還有一個背包(d)，裝滿了東西(e)⋯⋯
Wǒ zuótiān zài huǒchēzhàn yùjiàn yīge cóng měiguó láide xuéshēng (a)
Rén zhǎng de hěngāo (b)
Liǎngshǒu lāzhù liǎnggè xínglǐ (c)
Bèishàng háiyǒu yīge bēibāo (d)
Zhuāngmǎn le dōngxī (e)

The whole paragraph is like one single sentence talking about the American student I ran into on the train station yesterday.

Li and Thompson (1976) concluded that "the topic is discourse notion, whereas the subject is to a greater extent a sentence internal notion". On the surface structure of an English sentence, "subject" can be defined morphologically as the unit which can agree with the verb, e.g., singular third person agreement in English, syntactically by auxiliary-subject inversion as in "Can I help you?", and semantically by the selection restriction between subject and verb.

In the deep structure defined in Chomsky (1965), the subject is the

NP immediately dominated by the S node, while the object is the NP immediately dominated by the VP node. Chomsky (1986) further defined the subject as external argument and the object as internal argument. In terms of semantic compositionality, the object combines with the verb in VP, and the subject combines with the whole VP in S.

The asymmetry between subject and object with respect to several grammatical patterns in Chinese has been observed within the framework of generative grammar. To wit, Huang (1984) shows an asymmetry between subject and object with respect to pro-drop; McCawley (1989) observes the asymmetry in Chinese comparatives; and Tang (1989) observes the asymmetry in Chinese reflexives. In the long literature of psycholinguistic processing of subject and object relative clauses, it has been shown that subject relatives is easier to process than object relatives, thus establishing the primacy of subject (Lin 2018).

Semantic concepts such as "agent" and "patient" can be used to distinguish "subject" from "object" or "external" from "internal" argument from the point of view of a universal argument selection principle proposed by Dowty (1991, 576) as stated below:

> In predicates with grammatical subject and object, the argument for which the predicate entails the greatest number of Proto-Agent properties will be lexicalized as the subject of the predicate; the argument having the great number of Proto-Patient entailments will be lexicalized as the direct object.

Lapolla (1990) has argued that there are no "syntactic pivots", such as "subject" and "object" in Chinese, which neutralize different semantic roles. The notions of "subject" and "object" as syntactic functions independent of their semantic roles simply do not exist in Chinese. The author's own observation, however, is that while subject and object as syntactic pivots may not play as an important role in Chinese as in English, it can still be argued that the distinction between subject and object not only can be, but needs to be made in Chinese, as shown in the asymmetry between the subject and the object in Chinese syntactic operations in aforementioned studies (Huang 1984; McCawley 1989; Tang 1989; Lin 2018).

Li and Thompson (1981) introduce topic both as a discourse notion

and a syntactic one. While still claiming topic is a discourse notion, they attempt to distinguish topic from subject at the sentence level. Topic is identified as the preverbal noun phrase appearing in the sentence-initial position. Subject is then defined as the noun phrase which bears a "doing" or "being" relationship with the verb. While they give several arguments based on functional, semantic, and typological considerations, almost no valid syntactic tests were provided.

Jiang (1991) and Tai (1997) have used the placement of sentential adverbs which modify the whole sentence and the adverbs which modify only verbal phrases to make a distinction between the subject and the topic. In short, "topic", "subject" and "object" as syntactic constructs in Chinese syntax may not as clear-cut as in the syntax of English and other European languages. They can be identified through a cluster of semantic and syntactic criteria.

6. ACTIVE VS. PASSIVE

With some rare exceptions, Chinese linguists have treated (20) as the active, and (22) as the corresponding passive, while (21) is a variant of active voice with a causal meaning.

(20) 他打破了杯子。
　　　Tā dǎpò le bēizi
(21) 他把杯子打破了。(*bǎ* 把 sentence)
　　　Tā bǎ bēizǐ dǎpò le
(22) 杯子被他打破了。(*bèi* 被 sentence)
　　　Bēizi bèi tā dǎpò le

Tai (1989) took a non-objective approach by treating the *bǎ* 把 sentences as active and *bèi* 被 sentences as corresponding passive. Formally, the operation in word order is simply the reversed order between "agent" and "patient" on the action tier. Then (20) is an event on the thematic tier. The distinction between action tier and thematic tier was first made by Jackendoff (1985). The non-objectivist view is also a world view underlying the structure of Chinese language as originally stated in Tai (1984). Unlike English accomplishment verbs such as "to kill" and "to learn" which can be expressed by single verbs, their Chinese equivalents cannot be expressed by

monosyllabic words *shā* 殺 and *xué* 學, and must be expressed by action-result compounds *shāsǐ* 殺死 and *xuéhuì* 學會. Chinese does not have monosyllabic accomplishment verbs. It uses action-result compounds to ensure the attainment of goal as required in accomplishment verbs.

There are two important questions in human communication. One is "what has happened", and the other is "who did what to whom". If we focus on the former question then the thematic tier is used to report the happening of an event as in (20), but if we focus on the latter, then we need to make a distinction between the "agent" and "patient" as *bǎ* 把 sentences for the agent-orient view and *bèi* 被 for the patient-orient view. In terms of basic word order, Chinese uses SVO for thematic tier, but "S *bǎ* OV" and "O *bèi* SV" on the action tier. Note that both *bǎ* 把 and *bèi* 被 constructions on action tier put the verb or verb compound in the final position. The verb-final word order and the order of relative clause before head noun constitute two important syntactic features for treating Chinese as an SOV language typologically (Tai 1973, 1976).

7. TIME AND SPACE
7.1 Temporal Relationship Between Two Events

As a sequel to temporal sequence between two events (Tai 1985), seven different kinds of temporal relation are further identified with illustrative sentences (23)−(29) as below (Tai 2011; Hwang and Tai 2014).

(23) 他先到圖書館借書(E1)，再回研究室工作(E2)。
　　　Tā xiāndào túshūguǎnjièshū zài huí yánjiùshì gōngzuò
　　　(E1 occurs before E2, or E2 occurs after E1.)

(24) 他轉身(E1)，就走了(E2)。
　　　Tā zhuǎnshēn jiù zǒule
　　　(The ending point of E1 is also the beginning point of E2.)

(25) 他拿書(E1)進圖書館還書(E2)。
　　　Tā náshū jìn túshūguǎn huánshū
　　　(E1 overlaps with E2.)

(26) （張三跟李四賽跑），張三已經跑到終點(E1)，李四還在半途(E2)。
　　　(Zhāngsān gēn lǐsì sàipǎo) Zhāngsān yǐjīng pǎodào zhōngdiǎn
　　　Lǐsì huánzài bàntú
　　　(E1 and E2 have the same beginning point, but different ending points.)

(27) 我在睡午覺的時候(E1)，他偷偷地走了(E2)。

Wǒ zài shuìwǔjiào de shíhòu tā tōutōudì zǒule

(During E1, E2 occurs.)

(28) 水滾了(E1)，再把餃子放進水裡煮(E2)。

Shuǐ gǔnle zài bǎ jiǎozi fàngjìn shuǐlǐ zhǔ

(E1 starts first and continues till E2 occurs and finishes.)

(29) 他一邊吃飯(E1)，一邊看書(E2)。

Tā yībiān chīfàn yībiān kànshū

(E1 and E2 occur simultaneously.)

Chinese is abundant in serial verb constructions (SVC) (Li and Thompson 1981, 594–620). SVC consists of a sequence of verbs or verb phrases which act together as a single predicate in one single event without overt markers of coordination or subordination, e.g., sentence (25). SVCs also follow temporal sequence principle and are widespread in Creole languages and in the languages of West Africa, Southeast Asia, Amazonia, Oceania, and New Guinea (Aikenvald and Dixon 2006, 1). In fact, Sinitic languages, including Mandarin Chinese, Cantonese, Southern Min, exhibit a rich variety of SVC (Hwang 2008; Matthews and Yip 2011)

7.2 Spatial Arrangement

There are two basic ways to map the three-dimensional spatial arrangement into one-dimensional sequencing in spoken language. One way is "from-whole-to-part-to point". The other is "from-point-to-part-to-whole". For example, the word order of an address in Chinese is from a street name to section of the street and to the number (avenue, section X, number), while in English and other languages, the word order can be the reversed (number, section X, avenue). In Chinese, the word order of temporal relationship "from-whole-to-part-to-point" is an isomorphic mapping from the spatial relationship, e.g., "2022 year, August 1, afternoon five o'clock, and twelve minutes". In fact, logical scope in Chinese is also an isomorphic mapping from spatial scope, though metaphorically (Tai 1985, 1999b).

The contrast is analogous to "zoom in" vs. "zoom out" in photo taking. In terms of nesting image, "nesting inwards" applies in Chinese, where a larger unit is viewed or ordered before a smaller one; that is, the smaller unit is embedded or contained within the next larger one. The effect

is similar with the use of a video camera that first shows a long shot with foreground, and then slowly disappears as the camera lens eventually zooms in for a close-up of the intended object. The converse then holds true for English, where the zoom lens first focuses on the object, receding to the distant background for a broad view in the final, longshot of the scene. We can also extend the container-contained relationship to the reporting of the location of an object. Again, the contrasting strategies can be illustrated by the Chinese sentence in (30) and its English equivalent in (31). Note that they are in reverse order.

(30) 在廚房裡的桌子的上面的盒子裡有錢。
　　　Zài　chúfáng-lǐ-de　zhuōzi-de　shàngmiàn-de　hézi-lǐ　yǒu qián
　　　　　　　1　　　　　　2　　　　　　3　　　　　4　　　5
　　　At　kitchen-in-GEN　table-GEN　top-GEN　　box-in　have money
(31) There is money　in the box　on the top　of the table　in the kitchen.
　　　　　　　　　5　　　　　4　　　　3　　　　　2　　　　　1

　　　In addition to the mapping of container-contained relation, spatial relation can also be mapped on the cognitive axis of trajectory (Figure) and landmark (Ground). Thus, (32) and (33) represent two basic principles of spatial arrangement in Chinese, respectively.

(32) Zhuōzi-shàng　　yǒu　　qián　(container-contained)
　　　table-top　　　　have　money
　　　'There is money on the top of the table.'
(33) Qián　　zài　zhuōzi-shàng　　(trajectory-landmark)
　　　money　at　table-top
　　　'The money is on the top of the table.'

8. SPATIALIZATION OF TIME
　　　The spatial relationships such as "before" vs. "after" and "above" vs. "below" can also be metaphorically mapped onto temporal relationship. For example, spatial conceptualization of time in Chinese is as the following sentence (34):

(34) a. *Qián-tiān* 前天 (front-day) 'the day before yesterday'
    b. *Hòu-tiān* 後天 (back-day) 'the day after tomorrow'
    c. *Shàng-xīngqí* 上星期 (above week) 'last week'
    d. *Xià-xīngqí* 下星期 (below week) 'next week'

      The hypothesis that spatial expressions are more basic, grammatically and semantically, than various kinds of expression has been referred to as "localism". It was first proposed by linguist Anderson (1971) and then by psychologists Miller and Johnson-Laird (1976). The spatialization of time is an obvious and pervasive phenomenon often noted by linguists. Notable English examples are "in the house" and "in a week"; and "long object" and "long time". Various issues in child language acquisition (Clark 1971, 1973) were also centered on the development of temporal expressions derived from spatial expressions such as "before" and "after". Tai (1985) also put out the temporal scope principle based on the spatialization of time. Thus, in both spatial scope and temporal scope the principle is "from-container-to-contained", as illustrated in the following pairs of sentences (35)−(36).

(35) 台灣台北市羅斯福路三段 100 號。
    Táiwān táiběishì luósīfúlù sānduàn yībǎihào
    'No.100, section 3, Roosevelt Rd, Taipei, Taiwan'
(36) 現在是 2022 年 9 月 10 日下午 5 點 45 分。
    Xiànzài shì èrlíngèrèrnián jiǔyuè shírì xiàwǔ wǔdiǎn sìshíwǔfēn
    'It is now 45 minutes past 5p.m., Sept. 10, 2022.'

      Tai (1985) demonstrated that a large set of word order in Chinese can be explained by cognitive-conceptual principles of temporal sequence and spatial scope. Both principles are isomorphism to the perception of the external world, thus both are iconic principles. Other aspects of iconicity in Chinese have been observed in Greenberg (1995) and Tai (1999b). In retrospect, Tai (1985, 1999b) countered the autonomous thesis of syntax as espoused by generative grammarians (Newmeyer 1998).

9. INFORMATION FOCUS
      The information center of a sentence does not have to be on the main

verb. Consider the contrast between Chinese and English sentences (37)−(38) below.

Question: Does he run fast?
(37) a. 他跑得快嗎？
          Tā pǎodé kuài ma
      b. 他跑得快不快？
          Tā pǎodé kuàibùkuài
          Answer: Yes, he does./ No, he doesn't.
(38) 快、不快/*跑、*不跑
      Kuài bùkuài/pǎo、bùpǎo

     The question concerned is not whether "he runs or not", but about whether the speed is fast or not. While Chinese answers with the relevant information focus 'fast', English answers with the syntactic head — the verb. It also accounts for why, in addition to (37a), (37b) is also a question form in Chinese. Similarly, in action-result verb compounds, the information focus is on the result, not on the action, to wit, as shown in the following examples (39)−(42),

(39) 你看/聽懂了嗎？
      Nǐ kàn tīngdǒng le ma
      'Do you understand (by reading or listening).'
(40) 懂了、沒懂 / *看了、*聽了
      Dǒng le mòdǒng kàn le tīng le
      'Yes, I do.'/'No, I don't.'
(41) 你把他殺死了嗎？
      Nǐ bǎ tā shāsǐ le ma
      'Did you kill him?'
(42) 我殺了他，但是他沒死。
      Wǒ shā le tā dànshi tā méi sǐ
      '*I killed him, but he didn't die.'

     Also, the information focus also plays a role in word order for conjoined sentences (43)−(44) expressing causal and conditional relationship.

(43) a. 他病了，所以不能出席會議。

    Tā bìng le suǒyǐ bùnéng chūxí huìyì

   b. 他不能出席會議，因為他病了。

    Tā bùnéng chūxí huìyì yīnwèi tā bìng le

(44) a. 如果我有錢，我會買房子。

    Rúguǒ wǒ yǒu qián wǒ huì mǎi fángzi

   b. 我會買房子，如果我有錢。

    Wǒ huì mǎi fángzi rúguǒ wǒ yǒu qián

Some pragmatic contexts need to attend first to the most urgent task, as shown in the ex. (45), in imperative speech acts.

(45) 快跑開，屋子要塌下來了。

Kuài pǎokāi wūzi yào tāxiàlái le

'Run away quickly! The house is falling down.'

10. CONCLUDING REMARKS

In this paper, distinctive features of Chinese grammar for further understanding of the essence of Chinese grammatical have been identified. Chinese grammar has been characterized in different typological frameworks as isolating, analytic, discourse-oriented, topic-prominent, and pervasive in iconicity with a variety of serial verb constructions. These typological characteristics are shared by Creole and sign language, both are "young" languages for different reasons (Tai 2013).

The hypothesis originally put forth by Hashimoto (1976) that Chinese has gone through Altaicization through interaction with Altaic people from the north is certainly a reasonable hypothesis which can be supported by the mixed typological features of SOV and SVO languages (Tai 1973), and the change from SVO to SOV languages (Li and Thompson 1975; Tai 1978). Given the long history of interaction between Sino-Tibetan language people and Altaic language people, Chinese has certainly been creolized in tone patterns and word order. What remains to be an enigmatic question is that the monosyllabic template seems to have not changed.

One-syllable-one-morpheme-one-word "gestalt" might have also played a key role in the persistence of *zì* 字 in the Chinese writing system.

From the point of view of the mental lexicon, how *zì* 字 and *cí* 詞 are represented in sound and in graph in reading Chinese is an important research area for Chinese reading for the hearing as well as the deaf with implication for reading disability and second language acquisition.

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漢語語法本質的探索

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摘要

本文綜觀過去 50 年來漢語語法研究的重要議題，並點出爭議所在。這些議題包含 1)「字」與「詞」的糾結；2)詞類的區分；3)「主題」、「主語」與「賓語」的角色；4)主動句與被動句；5)認知原則與詞序；6)基本詞序的爭議：「主語-賓語-動詞」，還是「主語-動詞-賓語」。本文也從語言類型學的角度來檢視這些爭議，同時建議更進一步從克里奧語與手語的特徵詮釋漢語語法，並使用以漢字為基礎的心理詞典探討中文閱讀，俾對閱讀理論有重大的啟示。

關鍵詞

漢語　**漢**字　**詞**類　**句**法軸心　**認**知原則　**語**言類型學

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