

The Morphology of Chinese: A linguistic and cognitive approach. By Jerome L. Packard. Cambridge: Cambridge University Press, 2000. Pp. xvi, 335.

Reviewed by SAN DUANMU, *University of Michigan*

1. Chinese morphology

Morphology deals with two main problems: the definition of the morpheme and the inflection and derivation of words. In Chinese the morpheme mostly corresponds to an orthographic character (a single syllable), and there is no apparent distinction between roots and affixes. Thus, Chinese presents a special problem: the notion of the word is very hard to define, and without it there is no way to study derivation or inflection (this is not to imply that there is no problem in defining the morpheme or the word in languages like English; I will return to this issue below). It is also worth noting that, although the linguistic tradition in China dates back to the earliest written records, the notion 'word' did not exist in the Chinese vocabulary until it was translated from western grammar in the 20th century. The properties of Chinese have given rise to two views. According to one, languages can be different. Some languages have morphology, such as English, and some do not, such as Chinese. Similarly, some languages have the category word, and some do not. According to the second view, all languages are fundamentally similar. All of them have morphology, and all of them have the category word, if we study them carefully. The first position is the conventional wisdom. The second position is what Packard takes. (There is also a third view, which is not considered in Packard's book and so will not be considered here: all languages are fundamentally similar, and in none of them is the word a real grammatical category.) I want to say at the outset that Packard's book is a remarkable achievement in a very difficult field. I will review the contents of the book first and offer some comments.

2. Overview of the book

Packard assumes the position that, like English, Chinese also has the category word and its morphology is separate from syntax. The organization of the book is straightforward. Chapter 1 discusses why the issue is worth studying and outlines the scope of the study, which is largely limited to nouns and verbs made of two morphemes. Chapter 2 reviews various definitions of the word and argues that the best definition is that the word is the smallest free form syntactically (Packard calls it the 'syntactic definition'). Chapter 3 classifies morphemes into four categories using two binary features, [+/-free] and [+/-function]. A function word is [+free, +function]. A content word is [+free, -function]. A bound root is [-free, -function]. An affix is [-free, +function] (this category is further divided into 'word-forming' affixes and 'grammatical' affixes). It is also proposed that every complex word (a word made of two or more morphemes) has a head. Moreover, in a noun the head is on the right and in a verb it is on the left (the 'Headedness Principle'). Chapter 4 illustrates various types of complex nouns and complex verbs according to their component morpheme types. Chapter 5 discusses word formation rules and proposes that Chinese has two rules: (a) a word (X^0) is made of two roots, free (X^0) or bound (X^{-1}), or a root and a word-forming affix (X^w), and (b) a word is made of a word plus a grammatical suffix (G). It is also argued that the same rules hold for English. Chapter 6 discusses how new words are formed. Among the processes are

lexicalization (phrases becoming words), ‘grammaticalization’ (words becoming affixes), and truncation. Chapter 7 discusses what is listed in the lexicon. It is proposed that, except words with grammatical suffixes (inflectional suffixes), all compounds and derived words known to the speaker are listed (along with all morphemes). In other words, words and compounds are not generated online from morphemes, as some others propose. The lexicon does have word formation rules, though, which can generate or interpret new compounds. Chapter 8 summarizes the proposals.

3. The definition of the word

Packard defines the word as the smallest syntactically free form, i.e. “an independent occupant of a syntactic form class slot” (p.12, p.18). Thus, *cat* is a word in English because it can occupy a noun slot, as well as occurring alone; *at* is also a word in English because it can occupy a preposition slot in a sentence, even though it is rarely used alone. The root *-logy* is not a word, but a bound root, because it requires another root on its left. Some parallels can be found in Chinese, too. For example, *māo* ‘cat’ is a word because it can be used alone; *he* ‘and’ is also a word because it can occupy a conjunction slot, even though it is rarely used alone. The suffix *-hua* ‘-ize’ is a bound morpheme, because it requires a stem to its left. However, there is a major difference between ‘bound roots’ in Chinese and those in English. In English, a bound root requires another morpheme in a specific direction (e.g. *bio-* requires a morpheme on its right and *-logy* requires one on its left). In Chinese, on the other hand, most bound roots simply require another syllable, regardless of whether it is a word or an affix, and regardless of which side. Consider the form *ya* ‘duck’, which is usually used with a meaningless syllable *zi* (literally ‘child’), as in *yazi* ‘duck’. Thus, for Packard *ya* is not a word but a bound root. But *ya* does not require an affix in a given direction. For example, *xiao ya* ‘small duck’ and *ya mao* ‘duck feather’ are both good. (The need for another syllable is probably phonological, instead of morphological; I will return to it below.) In this regard, *ya* seems word-like, so do most other Chinese roots.

There is further subtlety in defining the word in Chinese. The form *ya* occurs in compounds like *[[yang ya] chang]* ‘raise duck farm (duck-raising farm)’, where it occupies a noun slot and serves as the object of the verb. In this case, *ya* again looks like a word. In Packard’s definition, however, *ya* is a morphological noun (N^0), not a syntactic noun (N^0); since a word is defined as a syntactically free form, *ya* is still not a word. Next consider the examples in (1) and (2).

- (1) *riben, fa-guo* (**riben, fa; *riben-guo, fa-guo*)
 Japan France-country
 ‘Japan and France’
- (2) *ying, fa, deng guo*
 England, France, other country
 ‘England, France, and other countries’

In (1) *fa* ‘France’ must be used with a redundant syllable for ‘country’ (but ‘Japan’ should not), so it is not a word. In (2), *fa* can be used without ‘country’, so it seems to be a word. This is a case where the bound/free distinction is flexible. Now is *fa* a word or a

bound root? Packard is aware of such ambiguities. He suggests (p.18) that alternations between free and bound forms are due to different registers (dialectal, formal, individual, etc.). In other words, in each given register, every form is either free or bound. However, the above examples cannot be explained this way. In particular, both (1) and (2) can be used in the same register, such as news report. Thus, the free/bound ambiguity still exists. To maintain that *fa* 'France' is not a word, one might need to say that a word must be free in all syntactic contexts of a given register.

4. [A N] and semantic composition

Packard (p.15) suggests that *hong niao* 'red bird' is a phrase but *hong hua* 'red flower (safflower)' is a compound, because the meaning of the former is compositional and that of the latter is opaque. This is a **simplistic** argument. Let us consider it in detail.

First, semantic opacity is not a sufficient condition for a compound. For example, no one considers 'kick the bucket' to be a compound in English, even though its meaning is opaque. Second, semantic opacity is not a necessary condition for a compound either. For example, most researchers consider English [N N] to be a compound, such as *apple pie*, *rice pudding*, or *gas tank*, even though their meanings are compositional. Thus, semantic opacity is subject to syntactic requirements: some syntactic structures cannot be a compound (such as 'kick the bucket'), and some syntactic structures must be a compound (such as [N N]). (I will not discuss why some structures cannot be compounds, some must be compounds, and some can be compounds.) Semantic opacity is relevant only if there are structures that can be either a phrase or a compound, such as [A N] in English. Thus, *black sheep* is a compound if it refers to an unusual child in a family, but a phrase if it refers to a sheep that is black. In fact, such structures should usually be phrases, except in some special cases, such as having semantic opacity.

To extend the same argument to Chinese [A N], as Packard does, one must assume that [A N] is usually a phrase in Chinese. But the assumption is controversial. For example, Dai (1992) and Duanmu (1998) argue that, unlike English [A N], which is a phrase, Chinese [A N] is always a compound. I will review two arguments. First, the adjective in English [A N] can be modified by an adverb, but that in Chinese [A N] cannot, as shown in (3).

- (3) *hen/xiangdang hong niao
very/fairly red bird
'very/fairly red bird'

If [A N] is a phrase, A should be modifiable by an adverb, such as 'very' or 'fairly'. The bad Chinese expression shows that [A N] is not a phrase in Chinese. The good English counterpart shows that it is a phrase in the English.

Second, English [A N] is fully productive, but Chinese [A N] is not. A common motivation for considering Chinese [A N] to be a phrase is that it is quite productive. However, Chinese [A N] is not fully productive. First, when A is disyllabic, the productivity goes down dramatically. Some examples are shown in (4), where good synonymous forms are shown in parentheses.

(4) *kunnan ti (nan ti)
'hard question'

*kuanda jian (da jian)
'large room'

?qinkuai gongren (qinkuai de gongren)
'diligent worker'

Second, although Chinese [A N] is very productive when A is monosyllabic, there are striking gaps. Two examples are shown in (5).

(5) *gan shu (gao de shu)
'tall tree'

*gao ren (gao de ren)
'tall person'

In (5), A and N must be mediated with the particle *de*. If Chinese [A N] is a phrase, it should be fully productive (as English [A N] is), and we should not find any gaps, especially for daily expressions like those in (5). In summary, while English [A N] is fully productive and its A can take an adverbial, neither is true for Chinese [A N]. The restrictions on Chinese [A N] are better explained if it is a compound.

5. Functional elements

Following Selkirk (1982: 77) and Di Sciullo and Williams (1987: 27-28), Packard (p.160) assumes that the head of a word is the lexical element, instead of the grammatical affix. For example, the head of 'birds' is 'bird', not '-s' (p.231). Similarly, the head of 'walked' is 'walk', not '-ed'. However, since Pollock (1989), the standard approach in **syntax** now is to view functional elements (such as affixes) as heads of syntactic projections. Thus, the head of 'birds' is '-s' and that of 'walked' is '-ed'. If this view is correct, the line between syntax and morphology should be radically reconsidered, including the notion of the word. It is worth noting that Di Sciullo and Williams (1987: 110) also suggested that it is possible that syntax and morphology form 'one grand science of the word/phrase, with no separation'. From the Chinese perspective, it would be no surprise if the notion of the word turns out to be an illusion and if there is no real line between syntax and morphology.

6. The Headedness Principle

The Headedness Principle says that (a) the head of a complex noun is on the right and (b) that of a complex verb is on the left, where (b) is mostly based on V-O (verb-object) compounds. Packard also notes some 'exceptions'. For example, in the complex verb *cai-pai* 'color-rehearse (to dress rehearse)' the head 'rehearse' is on the right. Similar 'exceptions' are quite easy to find, such as *shou-xie* 'to hand-write', *you-jian* 'to oil-fry', and *zao-qi* 'to early-rise'. One is tempted to expand the Headedness Principle and, for example, add (c): the head of complex [A V] verbs (where A is an adverbial) is

on the right. Or perhaps more generally, the head of a complex word is on the same side as its corresponding phrase. It is unclear why Packard does not consider such proposals. (See also the role of phonology next.)

7. The role of phonology

As Packard (p.50) notes, the majority of monosyllabic Chinese morphemes are bound. On the other hand, all disyllabic Ns in Chinese (made of one or two roots) are free, a fact that is rarely explained. (Disyllabic [V O] in a compound is not always free, as Packard notices (p.174-175). The reason is complicated and will not be discussed here.) This raises a fundamental question: what determines whether a form is free or bound? In a purely syntactic or morphological approach, there is no answer, because syllable count should not be a factor. For example, in Packard's word-formation rules (p.168) only X^0 can expand; this means that all bi-morphemic forms are X^0 , which is free. But there is no explanation why X^1 , which is bound, cannot expand, i.e. why there is no bi-morphemic X^1 . In phonology, the answer is obvious: a minimal expression is a disyllabic foot. More specifically, an expression in a metrically strong position should be disyllabic, whereas one in a metrically weak position need not (Duanmu 1999). Metrically weak positions are usually syntactic heads. Metrically strong positions are usually syntactic nonheads. Some English examples are shown in (6), where words in strong (stressed) positions are shown in uppercase.

(6)	Structure	Strong	Example
	[N1 N2]	N1	PANcake
	[V O]	O	eat CAKES
	[P N]	N	in SCHOOL

Now let us consider word length requirement in Chinese. First, it is well known that many Chinese words have a long (disyllabic) and a short (monosyllabic) form. Some examples are shown in (7).

(7)	Flexible word length in Chinese		
	Disyllabic	Monosyllabic	Gloss
	mei-tan	mei	
	coal-charcoal	coal	“coal”
	shang-dian	dian	
	business-store	store	“store”
	da-suan	suan	
	big-garlic	garlic	“garlic”
	zhong-zhi	zhong	
	plant-colonize	plant	“to plant”
	gong-ji	gong	
	attack-hit	attack	“to attack”

er-duo	er	
ear-petal	ear	“ear”

The conventional wisdom for the dual vocabulary, which Packard (p.266-267) adopts, is that monosyllables have too many homonyms and disyllabic forms are created to avoid ambiguity. However, the choice between the short and the long forms are constrained by their position. In simple terms, a word in a strong position should use a long form, and a word in a weak position need not. Consider the examples in (8) and (9).

- (8) [V O] phrase, where O is strong
- | | | |
|--------|-------------|---------|
| [2 2] | zhong-zhi | da-suan |
| *[2 1] | zhong-zhi | suan |
| [1 2] | zhong | da-suan |
| | plant | garlic |
| | “(to) plant | garlic” |
- (9) [N1 N2] compound, where N1 is strong
- | | | |
|--------|---------|------------|
| [2 2] | mei-tan | shang-dian |
| [2 1] | mei-tan | dian |
| *[1 2] | mei | shang-dian |
| | coal | store |
| | “coal | store” |

In (8) the strong form is O, which should not be shorter than V. In (9) the strong form is N1, which should not be shorter than N2 (the details of a metrical analysis are given in Duanmu 1999). Such constraints on word length choices cannot be explained in terms of ambiguity avoidance. Instead, a phonological analysis based on metrical structure is the only viable solution. The phonological approach has further implications. First, word categories that often occur in strong positions should have more disyllabic forms, and word categories that often occur in weak positions should have fewer disyllabic forms. This is mostly true. For example, prepositions, classifiers, and aspect markers (all being syntactic heads) are mostly monosyllabic (95%, 68%, and 95% respectively in modern Chinese). In addition, there is a big difference between native nouns and native verbs (borrowed nouns and verbs in modern vocabulary are mostly disyllabic): 17% of native nouns are monosyllabic, whereas 73% of native verbs are. This can be attributed to the fact that nouns often occur in strong positions (subject and object, neither being a syntactic head), whereas verbs mostly occur in weak positions (the head of a verb phrase). Second, the primary function of disyllabic words is to satisfy phonological needs, instead of semantic or syntactic needs. Therefore, how a monosyllabic word is stretched to a disyllabic word is not morphologically important. For example, some disyllabic words are created from phrases, such as *chi-fan* ‘eat rice (have meal)’. Some are created through repetition of two synonymous morphemes, such as *ming-liang* ‘bright-bright’, *tu-xiang* ‘picture-picture’, *zhong-zhi* ‘plant-plant’, and *xiao-shou* ‘sell-sell’. Some are created by adding a syllable whose meaning is simply ignored, such as *da-suan* ‘(big)-garlic’, *lao-hu* ‘(old)-tiger’, *er-duo* ‘ear-(petal)’, and *shu-mu* ‘tree-

(wood)’. In other words, there is a reason why morphological patterns in disyllabic words may not follow simple generalizations: disyllabic words are created primarily for phonological needs, not morphological needs. Therefore, it is predicted, rather than unexpected, that any morphological generalization in disyllabic words, such as the Headedness Principle, can have exceptions.

8. The increase of compounds in Chinese

Packard (p. 266, p.316) suggests that there was a ‘large-scale development’ of compounds in Chinese during the Han period (200 BC – AD 220). The statement is problematic in two ways. First, according to Feng (1998: 219-220), a source Packard cited, the ratio between the number of compounds (disyllabic words) and the total number of syllables in a text increased from about 1% to about 3%, based on a study of four texts. But that is hardly a striking change, considering the fact that in modern Chinese about 70% of commonly used words are compounds (Duanmu 1999 and references therein). Second, Feng’s definition of compounds (p.204) is based on semantic opacity. By his definition, structures like ‘apple pie’, ‘book club’, ‘film society’, ‘passenger lounge’, ‘car wash’, ‘fly catcher’, etc., are not compounds, because their meanings are transparent. Now if such structures are compounds, as most people would agree, then Feng’s estimation of Chinese compounds is way too low.

If the estimation of compounds in classical Chinese is in doubt, so will be various conclusions drawn from it, such as the explanations for compound increase (economy and social growth vs. simplification of syllable structure).

9. Conclusions

I have raised some unresolved questions. They are not so much of a criticism for Packard’s book itself. On the contrary, the book offers an excellent summary, and in many cases original improvement, of what has been known and said in the field of Chinese morphology, which is a remarkable achievement. In addition, plenty of examples are provided, which make the book a useful source of reference. My questions are raised rather for the field, which is still not well understood. For example, unlike Packard’s optimism, I do not feel that I now know how to define the word in Chinese (or in English for that matter), even though I argued for a distinction between words and phrases in Chinese myself (Duanmu 1998). Nor do I feel that the distinction between syntax and morphology is clearer than before.

I do agree with Packard that there is no evidence that Chinese is fundamentally different from English or other languages. In addition, I agree that any true generalization from Chinese may have implications for other languages. Packard’s book is a new contribution to an important field, the ultimate understanding of which, I believe, may involve syntax and phonology.

*Acknowledgments: I thank Jerome Packard for some helpful comments; remaining errors are mine.

Reviewer’s address:

San Duanmu

Department of Linguistics
University of Michigan
ANN ARBOR, MI 48109-1285

e-mail: duanmu@umich.edu

REFERENCES

- Dai, John Xiangling. 1992. *Chinese morphology and its interface with the syntax*.
Doctoral dissertation, Ohio State University, Columbus.
- Di Sciullo, Anna-Maria, and Edwin Williams. 1987. *On the definition of word*.
Cambridge, MA: MIT Press.
- Duanmu, San. 1998. "Wordhood in Chinese". *New approaches to Chinese word formation: Morphology, phonology and the lexicon in modern and ancient Chinese*
ed. by Jerome L. Packard, 135-196. Berlin: Mouton de Gruyter.
- Duanmu, San. 1999. Stress and the development of disyllabic vocabulary in Chinese.
Diachronica XVI: 1.1-35.
- Feng, Shengli. 1998. Prosodic structure and compound words in classical Chinese. In
New approaches to Chinese word formation: morphology, phonology and the lexicon in modern and ancient Chinese, ed. Jerome L. Packard, 197-260. Berlin: Mouton de Gruyter.
- Pollock, Jean-Yves. 1989. Verb movement, Universal Grammar, and the structure of IP.
Linguistic Inquiry 20:365-424.
- Selkirk, Elisabeth. 1982. *The syntax of words*. Cambridge, Mass.: MIT Press.