ROOT MERGER IN CHINESE COMPOUNDS[*]

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Abstract

Working on the computation of roots in Chinese compounds, this paper presents six major differences between the merger of roots in compound formation and the merger of elements in phrase structure formation: the existence of exocentric structures, the freedom of projectivity, the disappearance of subcategorization, the double licensing of formal features, the effect of Lexical Integrity in movement, and such an effect in pronominalization. All of these differences are accounted for by the hypothesis that roots do not have syntactic features. Moreover, this paper studies a case of merger level underspecification in languages that allow nouns and verbs to occur without any inflection: in the absence of a syntactic context, an isolated string of two elements can be ambiguous between the root-merger that eventually gives rise to a verb and the merger of a verb and its object that gives rise to a VP.

1. Introduction

In syntactic approaches to morphology (e.g. Halle & Marantz 1993, 1997, Harley and Noyer 2003, Embick & Noyer 2005, Borer 2005a, b), morphemes are divided into abstract or functional morphemes and root or lexical morphemes (substantive listemes). The former are composed exclusively of non-phonological features, such as [Past], [Plural], or features that make up articles, pronouns, and classifiers (see Borer 2005a: 96), whereas the latter include items such as *BEE* or *SWIM*, which are composed of phonological and conceptual features. Roots are language specific combinations of sound and meaning.

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Importantly, in such syntactic approaches, it is assumed that roots do not contain or possess grammatical (syntactic or syntactic-semantic) features (or properties). This assumption predicts that an element that expresses a certain concept may project in different categories, depending on the formal requirements of the syntactic configuration. The assumption is in contrast to the idea that the grammatical category of a word is dependent on the meaning expressed by it, an idea that can be traced back as far as Aristotle's *Poetics*. The empirical advantages of the assumption over the latter idea have been argued for in studies such as Marantz (1997, 1999), Barner & Bale (2002), Arad (2003), Fábregas (2005), Borer (2005a,b), and Harley (2005). In complement to the research that shows how lexical morphemes get their syntactic features from the syntactic contexts, this paper demonstrates how the absence of syntactic features in lexical morphemes accounts for their special ways of computation. The goal of this paper is to show the descriptive and explanatory power of the above assumption from a different perspective.

While most syntactic approaches to morphology focus on the computation of abstract morphemes, and the interactions or relationship between abstract morphemes and root morphemes (e.g. Arad 2003, Fábregas 2005, Irwin 2006, Myers to appear), few are about the merger of one root morpheme with another root morpheme, including the type of merger that derives categorically exocentric compounds (e.g. the English nouns *must-have* and *wanna-be*). One comprehensive study of the syntax of compounds is Josefsson's (1995, 1998) work of Swedish. She claims that "given the idea that Merge is free and operating at no cost, compounding with a verb and any type of segments should be allowed" (Josefsson 1998: 69). The empirical issue to be discussed in this paper is the computation of various roots in Chinese compounds, including categorically exocentric compounds.[1] The computation

[1] In this paper, we do not consider resultative and causative V-V compounds, since we have not excluded the possibility that they are derived by head movement (see Matushansky 2006 for syntactic head movement).

violates several well-recognized syntactic constraints, and is restricted in some unexpected ways. The apparent abnormality can be given a unified account by the assumption that roots do not have syntactic features. If roots have no syntactic features, their merger, as stated in Josefsson's above claim, is free.

Moreover, in addition to the categorial underspecification revealed by the syntactic approaches to roots (e.g. *red* can be either an adjective or a noun), another type of underspecification will be explored in this paper: the merger level underspecification. Without a context, an isolated string of two elements can have two possible syntactic derivations: it can be either the result of root-merger or the result of the merger of two elements that have syntactic features. For instance, the string *guan xin* 'carry heart' can be a verb after two steps of merger: the merger of the two roots, *guan* and *xin*, which have no category features, and the merger of the root complex with a functional category, that provides the [V] feature. The string can also be a VP after the verb *guan* is merged with the NP *xin*. In both cases, the string means 'be worried about'.

The paper is organized as follows. Section 2 presents the abnormality of compounding in Chinese, section 3 is my account for the abnormality in the assumption that roots have no syntactic features, and section 4 uses the same assumption to explain the structural properties of a string like *guan xin,* which behaves like a word in one context but like a phrase in another context. Finally, section 5 concludes the paper.

2. The abnormality of compounding in Chinese

2.1 *Exocentric compounds*

When one element is syntactically merged with another element, the category label for the resultant element must be identical to one or the other of the two elements (Chomsky 1994: 10). In other words, all syntactic complexes are categorically endocentric. However, it is

well-known that compounds can be exocentric, i.e., there is no need for the category of the mother to be identical to either of its daughters. Patterns like the following are so productive to make Huang (1998) claim that Chinese is a headless language (all compounds under consideration are underlined in the examples in this paper).[2]

(1) a. zhe zhang zhuozi de da-xiao — A-A => N
this CL table MOD big-small
'the size of this table'

b. Wo hao-dai zhao-le fen gongzuo. — A-A => Adv
I good-bad find-PRF CL job
'I have found a job anyhow.'

(2) a. yi ge kai-guan — V-V => N
one CL open-close
'a switch' (e.g. a power switch)

b. yi ge hen bao-shou de ren — V-V => A
one CL very keep-defend MOD person
'a very conservative person'

(3) a. Wo yao wu-se yi ge zhu-shou. — N-N => V
I want thing-color one CL assist-hand
'I want to look for an assistant'

b. hen mao-dun — N-N => A
very spear-shield
'very contradictory'

[2] The abbreviations used in the Chinese examples are: EXP: experience aspect, PRF: perfect aspect, PROG: progressive aspect, CL: classifier, PRT: sentence-final particle, Q: question, MOD: modification.

Two adjective-like roots form a nominal in (1a) and an adverb in (1b). Two verb-like roots form a noun in (2a) and an adjective in (2b). Two noun-like roots form a verb in (3a) and an adjective in (3b).

In the following (4a), a verb-like root and a noun-like root form an adjective. In (4b), an adjective-like root and a noun-like root form a verb. Finally, in (4c), an adjective-like root and a verb-like root form a noun.

(4) a. yi jian hen kai-xin de shi V-N => A
one CL very open-heart MOD thing
'a very happy thing'

b. Ta yizhi zai nali pin-zui. A-N => V
he continuously at there poor-mouth
'He is talking garrulously over there.'

c. yi ben xiao-shuo A-V => N
one CL small-say
'a novel'

All of these compounds are categorically exocentric. In the syntactic approaches to root merger such as Roeper et al. (2001) and Mukai (2004), exocentric compounds are excluded in their consideration. However, such data challenge any syntactic analysis of root merger.

2.2 *The freedom of projectivity*

If a transitive verb is merged with a nominal element (an instance of so-called "set-merge" in Chomsky 2000: 133), it is the V feature of the verb, rather than the N feature of the nominal,

that projects. As expected, in (5a), *dao* ‘road’ looks like the object of *zhi* ‘know’, and the whole string *zhi-dao* is a verb. However, we also see the opposite situation in compounds like (5b). In this example, *ji* ‘self’ seems to be the object of *zhi* ‘know’, however, the whole string *zhi-ji* is a noun. Compound nouns like *ling-shi* ‘lead-event => consul’, *hua-shi* ‘dissolve-stone => fossil’ and *zhu-shou* ‘assist-hand => assistant’ pattern with (5b).

(5) a. Wo zhi-dao. V-N => V
I know-road
‘I know.’

b. wo de zhi-ji V-N => N
I MOD know-self
‘my confident or close friend’

Moreover, when an adjective modifies a noun (called “pair-merge” in Chomsky 2000: 133), the whole complex should be a nominal, which cannot be selected by a degree word. As expected, in (6a), *da* ‘big’ modifies *mi* ‘rice’, and the whole string *da-mi* ‘rice’ is a noun, which cannot be selected by the degree word *hen* ‘very’. In (6b), however, although *da* ‘big’ modifies *dan* ‘gall bladder’, *da-dan* ‘brave’, as an adjective, is selected by the degree word *hen* ‘very.’

(6) a. yi dai (*hen) da-mi A-N => N
one bag very big-rice
‘a bag of rice’

b. yi ge hen da-dan de ren A-N => A

one CL very big-gall.bladder MOD person

'a very brave person'

The examples in these two subsections demonstrate the freedom of root merger in Chinese with respect to categories. Trying to find some headedness systems in Chinese compounding, Packard (2000: 39) proposes the following principle:

(7) a. (bisyllabic) nouns have nominal constituents on the right

b. (bisyllabic) verbs have verbal constituents on the left

Examples such as (6a) are compatible with (7a), and examples such as (5a) are compatible to (7b). However, as recognized by Packard (2000: 127), there are quite a lot of counterexamples to (7). In addition to the examples discussed above, we can see that in none of the nouns in (8a) is the constituent on the right a nominal (contra (7a)), and in none of the verbs in (8b) is the constituent on the left a verb (contra (7b)). Both patterns are productive. We thus see the freedom of projectivity in compounds.

(8)	a.	[chang-duan$_A$]$_N$	[dong-zuo$_V$]$_N$	[wai-yu$_V$]$_N$,
		long-short	move-make	outside-meet
		'length'	'activity'	'marital affair'
	b.	[mian$_N$-shi]$_V$	[yan$_N$-chan]$_V$	[she$_N$-xing]$_V$
		face-test	eye-envy	snake-walk
		'interview'	'envy'	'walk like a snake'

2.3 *The disappearance of subcategorization*

It is generally recognized that if the selection or subcategorization of a verb has not yet been satisfied, it cannot be merged with another element. In (9a), for example, the verb *mai*^{3}*-le* 'bought' should be merged with the nominal *shu* 'book', to satisfy its subcategorization requirement, rather than the verb *mai*^{4} 'sell'. However, in compounds like (9b), the root *mai*^{3} 'buy' is indeed merged with *mai*^{4} 'sell', and the compound is acceptable. In (10a), the transitive verb like element *zha* 'fry' is not merged with any internal argument. Instead, it is merged with the material-denoting element *you* 'oil.' Similarly, in (10b), although the transitive verb-like element *kan* 'look at' is merged with *niao* 'bird,' the whole compound does not mean to look at a bird. In other words, *niao* here does not function like an internal argument to satisfy the subcategorization of *kan*. Instead, the compound means to look over like a bird does. The real internal argument is *zhengge chengshi* 'the whole city.'

(9) a. Ta mai^{3}-le {shu/*mai^{4}}.
he buy-PRF book/sell
'He bought books.'

b. yi zhuang mai^{3}-mai^{4}
one CL buy-sell
'a transaction of trade'

(10) a. Wo yao you-zha zhexie jiaozi
I will oil-fry these dumpling
'I will fry these dumplings with oil'

b. Ni keyi niao-kan zhengge chengshi.
you can bird-look whole city
'You can look at the whole city like a bird does.'

These examples show that root merger does not care about subcategorization at all.

2.4 *The issue of Case and theta role assignment*

Another well-known constraint in syntax is that a formal feature such as Case and theta roles cannot be licensed twice. For instance, if a transitive verb has been merged with a nominal as its internal argument, the resultant complex cannot take another nominal as an internal argument. This is shown in data like (11a). The formal features of the transitive verb *xie* 'write' are satisfied by the object *zi* 'character' and thus the nominal *yi pian wenzhang* 'an article' cannot occur as another object. However, as pointed out by Chao (1968: 132), *chu* 'produce' in (11b) takes *ban* 'version' as its object, but the whole *chu-ban* 'publish' behaves like a transitive verb, taking another nominal *yi bu shu* 'one CL book' as an object. (11c) shows the same point.

(11) a. *xie-le zi [$_{DP}$ yi pian wenzhang]
write-PRF character one CL article

b. chu-ban [$_{DP}$ yi bu shu]
produce-version one CL book
'to publish a book'

c. fu-ze [$_{DP}$ zhe jian shi]
carry-duty this CL matter
'to take charge of this matter'

Likewise, in (12), *yan* 'eye' and *hong* 'red' seem to have a subject-predicate relation, the former functioning as the unique argument of the latter. But the whole *yan-hong* 'envy' takes

bie-ren de caifu ‘other people’s wealth’ as its internal argument. Since there is no more unlicensed formal features in the compound, it should not take another nominal as its internal argument, contrary to the fact.

(12) Ta yan-hong [$_{DP}$ bie-ren de caifu]
he eye-red other-people MOD wealth
‘He envies others’ wealth’

In an NV-like or VN-like compound, if the N-like part has a certain semantic relation with the complement of the compound, such as a possessive or modification relation, one might claim that the former is raised from a complex nominal that also contains the latter. For instance, in (13a), *wo* ‘I’ is the complement of the compound *gen-zong* ‘follow-trace,’ and it is also the possessor of the second part of this compound, *zong* ‘trace.’ One might assume that *zong* is base-generated in the same complex with *wo* and then adjoins to *gen* ‘follow’, as illustrated in (13b). Such constructions are similar to the so-called classifying incorporation constructions discussed in Mithun (1984).

(13) a. Ta zai gen-zong wo.
he PROG follow-trace I
‘He is following me.’
b. Ta zai gen-zong$_i$ [wo t_i].

However, in many compounds, no root has any semantic relation with any nominal external to the compound. For instance, in (11c), *ze* ‘duty’ has no semantic relation with *zhe jian shi* ‘this matter’. Similarly, in (12), *yan* ‘eye’ has no semantic relation with *bie-ren de*

caifu ‘others’ wealth.’ Such data are different from incorporation constructions, and thus the movement derivation hypothesis illustrated in (13b) does not apply to them.[3]

We can see in the above four subsections that certain syntactic constraints are violated in root merger. The following two subsections show that root merger is constrained in some ways that are not found in regular syntactic computation.

2.5 *The effect of Lexical Integrity in movement*

One special constraint on root merger is that no element can be moved out of a compound. This has been captured by the well-accepted Lexical Integrity condition (Di Sciullo and Williams 1987, and Spencer 1991). The condition states that no syntactic process is allowed to refer to parts of a word.

(14) a. Tamen yixiang fu-ze.
they always carry-duty
‘They are always responsible

b. *Tamen yixiang lian ze dou fu.
they always even duty also carry
Intended: ‘They are always even responsible.’

In (14a), *fu-ze* ‘carry-duty => responsible’ is a compound. (14b) shows that part of this compound, *ze* ‘duty’, cannot be preposed in the *lian …dou* ‘even … also’ focus construction. If all words are derived in syntax, this special constraint on the movement of roots needs an account.

[3] Swedish compounds similar to (11b, c) and (12) are discussed in Josefsson (1998: sec. 4.2.1 and 4.2.2). She concludes that such data are derived by free root merger, rather than any syntactic Move (p. 77). One will see later in section 3 that we reach the same conclusion.

2.6 *The effect of Lexical Integrity in pronominalization*

Another effect of the Lexical Integrity condition is that it is impossible to refer to part of a word by using an anaphoric device such as a pronoun. In (15), *ta* 'it' cannot take *cha* 'tea', which is part of the compound *cha-hu* 'tea-pot', as its antecedent.

(15) *Ta xian na-le yi ba $\underline{\text{cha}_i\text{-hu}}$, ranhou ba ta_i dao-ru beizi-li.
he first take-PRF one CL tea-pot then BA it pour-in cup-in
Intended: 'He first took a tea-pot, and then poured the tea into a cup.'

If roots are syntactic constituents, their inability to be antecedents of pronouns is puzzling.

Summarizing, from the perspective of syntactic computation, we have seen six aspects of abnormality of root merger in Chinese. If there is a lexicon component in the computation system, and if all compounds are derived in the lexicon rather than syntax, we can treat all of these abnormalities as properties of lexicon-internal operations, using the assumed "lexicon" as a place to store the cases that we fail to explain. However, a syntactic account and a unified one is available for the abnormalities.

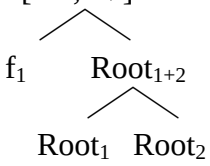
3. Root merger in the absence of categorial features

I claim that all of the abnormal aspects of root merger can by accounted for by the hypothesis that roots do not have any syntactic features.

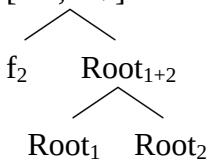
Let us first consider the projection abnormality presented in 2.1. In syntactic merger, projection means that the category of a complex is identical to one of its daughters. If roots do not have categorial features, they have nothing to project when they are merged together. The

category of the resultant element is decided by the selecting functional element. Roots are categorized by combining with category-defining functional heads (Marantz 1997, 1999, Embick & Noyer 2005: 5, Borer 2005a: 21). I illustrate this dependency in (16) (*f* means functional morpheme). The complex root is a nominal in (16a), an adjective in (16b), and a verb in (16c).

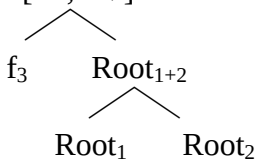
(16) a. [+N, -V]



b. [+N, +V]



c. [-N, +V]



Thus, strictly speaking, it is not that two adjectival roots form a noun compound in data like (1), since roots have no category. Instead, one should describe the compounding operation as the merger of two property-denoting roots.

Second, it is a standard assumption that when two elements are merged, it is necessary to determine which of them projects, i.e. which one determines the syntactic category of the resulting structure (Chomsky 1994). How do we decide the projecting element? In set-merge of elements that have categorial features, the element that selects its sister, or the element whose uninterpretable features are valued by its sister, projects. For instance, in the phrase *buy a book*, the selection feature of the verb *buy* is satisfied by the DP *a book*, the V feature of *buy* projects, so that the whole phrase *buy a book* is a VP, rather than DP. As stated in Chomsky (2000), “the label of the selector projects” (p. 134), and “computation is driven by a probe/selector of a label, which projects” (p. 135). Since roots have no syntactic features, they do not have any uninterpretable features, and thus there is no issue of projection when one root is merged with another root. Thus the resultant complex can be any category, depending on the selecting functional category. This accounts for data like (5b) in 2.2.

In pair-merge of elements that have categorial features, i.e., when a modifier and the

modified element are merged, it is the modified element that projects. Uriagereka (2006) proposes that a regular Merge operation produces a category with a new category label, but the Merge operation for modification is Merge without category labeling, so that the integration of a modifier does not change the category of the resultant complex. In other words, before a modifier is merged with the modified element, both already have categorial features. If roots do not have any categorial features, and if one root semantically modifies the other, it makes no sense to talk about how the modification may keep the original categorial features. Thus, again, the resultant complex can be any category, depending on the selecting functional category. This accounts for data like (6b) in 2.2.

Third, the selectional requirement or subcategorization of an element comes from the syntactic features of the element. In the absence of any such syntactic features, a root is able to merge with another root freely, if any semantic relation can be established between them in the language. This accounts for the abnormality of root merger discussed in 2.3.

Fourth, the licensing of formal features, such as the assignment of Case and theta roles, is also a function of syntactic features, which roots do not have. In the absence of any such syntactic features, the merger of one root with another root is neither driven by nor leads to any licensing or double licensing of Case or theta roles. This covers the fact discussed in 2.4.

Fifth, elements that have no categorial features cannot move. The theoretical background of this claim is the following. Any element that undergoes overt movement must have its categorial features. In Chomsky (1995), all overt movement chains are composed of two sub-threads: a thread of formal features that take part in the required checking (CH <FF>) and a thread of categorial features (CH <CAT>). The latter thread does not involve feature checking, but it is simply the carrier of the former thread. In Chomsky's terms, overt formal feature movement is always pied-piped with a categorial chain. This implies that in the absence of categorial features, no overt movement is possible. If roots do not have categorial

features, they cannot move.

Alternatively, one may assume that all types of syntactic movement are triggered by checking of uninterpretable features. Such features are syntactic. Roots do not have them. Thus roots do not have uninterpretable features. As we know, in a movement operation, either the traveler or the target, or both, have uninterpretable features, and only elements that have syntactic features are able to move and check the uninterpretable features of the target. Since roots do not have syntactic features, they cannot move. This captures the effect of Lexical Integrity in movement discussed in 2.5.

Sixth, all pronouns agree with their antecedents in ϕ-features (person, number, and gender). Although some pronouns are underspecified with certain ϕ-features, they must be specified and agree with their antecedent in at least one ϕ-feature. For instance, Chinese pronoun *ta* 'he/she/it' has no gender feature, but it does have at least the third person feature. ϕ-features are syntactic features, which roots do not have. If roots cannot provide the ϕ-features that pronouns agree with, they cannot be antecedents of pronouns. This captures the fact discussed in 2.6.

In this section, we have accounted for the six abnormalities of root merger by a single assumption: roots do not have syntactic features.

4. "Breakable compounds" as products of two ways of merger

In Chinese, some expressions with the same phonological forms behave like compounds in one context and phrases in another. Such expressions are called "breakable compounds" (*lihe ci*) in grammar books (e.g. Zhang 1957). Typically, the string is composed of a transitive verb-like element and an object-like element. The whole string looks like a V(erb)-O(bject) string. One example is the string *dan xin* 'carry heart => worry' (Xue 2001: 61).

The following examples show that *dan xin* should be considered to be a word. The

example in (17a) shows that the apparent VO string takes the nominal *zhe jian shi* 'this matter' as its object. This is similar to the case of root merger discussed in 2.4. It is similar to the examples in (11b) and (11c). (17b) shows that movement of *xin* is forbidden. This is the effect of the Lexical Integrity in root merger, discussed in 2.5. Moreover, (17c) shows that it is not possible to answer the question with *dan* alone. This indicates that *dan* is not a word. All of these examples show that *dan xin* should be considered a compound word, and its components roots.

(17) a. Ta hen dan xin zhe jian shi
he very carry heart this CL matter
'He is very worried about this matter.'

b. *Xin, wo yi-dian dou bu dan _ zhe jian shi
heart, I one-bit all not carry this CL matter
Intended: 'I don't worry about this matter.'

c. Question: Ta dan xin zhe jian shi ma?
he carry heart this CL matter Q
'Is he worried about this?'
Answer: {Dan xin/*Dan (a)}
carry heart/carry INTERJECTION

The examples in (18) are different. The string *dan xin* in (18a) does not have any object, indicating that *xin* could be the object of *dan*, i.e., the former is an NP and latter is a verb, and they form a VP. (18b) shows that it is possible to move *xin* in topicalization. Thus there is no effect of the Lexical Integrity. (18c) shows that it is possible to answer the question with *dan* alone. Thus *dan* here is a full-fledged word, rather than a part of a word. These facts show

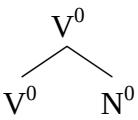
that both *dan* and *xin* have syntactic features and thus *dan xin* here should be considered a phrase.

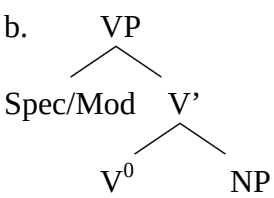
(18) a. Ta dan xin.
he carry heart
'He was worried.'

b. Xin, wo yi-dian dou bu dan.
heart, I one-bit all not carry
'I am not worried at all.'

c. Question: Ta dan xin ma?
he carry heart Q
'Is he worried?'
Answer: {Dan xin/Dan a}
carry heart/carry INTERJECTION

Working in a syntactic approach to word formation, Xue (2001: 76) states that all words are derived in syntax. He further proposes that breakable compounds are derived by two structures: (19a) is for compound-like forms, as in (17); and (19b), which is a regular phrase structure, is for phrase-like forms, as in (18).

(19) a.


b.


In (19a), both daughters, V^0 and N^0, have syntactic features such as categorial features. One problem of this structure is that it does not explain how the formal features of the

daughters are licensed. For instance, the complex in (17a) selects the object *zhe jian shi* ‘this matter’. If the selection relation of the lower V^0 has already been satisfied by the N^0, how can its projection, the upper V^0, take another object?

As claimed by Packard (2000: 123), “breakable compounds” are construal of either word or phrase, depending on the context. In my analysis, the word-like forms of "breakable compounds” are derived by root merger, as represented in (16c), and the phase-like forms are derived in the VP phrase represented in (19b).

As expected, not only VO-like strings, but also other kinds of strings such as Subject-Predicate-like strings (e.g. *xin fan* ‘heart vexed’) and parallel combination strings (e.g. *shui jiao* ‘sleep sleep’) behave like compounds in one context and phrases in another. Our analysis of the VO-like strings also applies to these types of data.

(20) a. Baoyu xin-fan-le haoji tian.
Baoyu heart-vexed-PRF several day
‘Baoyu has been vexed for several days.’

b. Baoyu, xin (hen) fan.
Baoyu heart very vexed
‘Speaking of Baoyu, he was (very) vexed.’

(21) a. Baoyu yijing shui-jiao-le.
Baoyu already sleep-sleep-PRF
‘Baoyu has already slept.’

b. Baoyu shui-(zhe) jiao ne.
Baoyu sleep-PROG sleep PRT
‘Baoyu is sleeping.’

In (20), the semantic relation between *xin* ‘heart’ and *fan* ‘vexed’ is similar to that between a subject and a predicate. In (20a), the two elements form a compound, which is followed by the perfective aspect suffix *le*. In (20b), however, the two elements may be separated by the degree word *hen* ‘very’. In this sentence, *xin* functions as a syntactic subject, and *fan* together with *hen* is the syntactic predicate. In (21), both *shui* and *jiao* mean ‘sleep.’ In (21a), the two elements form a compound, which is followed by the perfective aspect suffix *le*. In (21b), however, the two elements may be separated by the progressive aspect marker *zhe*. In this sentence, *jiao* is the cognate object of the verb *shui-le* (cf. English *dance a dance*).

The above discussion shows that without a syntactic context, a “breakable compound” is ambiguous between the two possible merger levels: the merger of two roots and the merger of words or phrases. Thus, syntactic contexts not only decide the category of a root, but also give us clues of the merger level of two elements.

The existence of “breakable compounds” in Chinese can be accounted for by the fact that both the verb and the object nominal of a VP can be bare (i.e., without any inflection marker) in this language. When two bare forms are adjacent, only the context can tell whether or not they are roots. In languages in which nouns and verbs are always signaled by their inflection markers (e.g. Semitic and Romance languages), we see no counterpart of the Chinese “breakable compounds.”

5. Summary

Working on the computation of roots in Chinese compounds, this paper has presented six major differences between the merger of roots in compound formation and the merger of elements in phrase structure formation: the existence of exocentric structures, the freedom of projectivity, the disappearance of subcategorization, the double licensing of formal features,

the effect of Lexical Integrity in movement, and such an effect in pronominalization. All of these differences have been accounted for by the hypothesis that roots do not have any syntactic features. Moreover, this study also discussed a case of merger level underspecification: without a syntactic context, an isolated string of two elements can be ambiguous between the root-merger that eventually gives rise to a verb and the merger of a verb and its object that gives rise to a VP.

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