Verb-Copying in Chinese Revisited

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Abstract

Six types of verb-copying sentences in Mandarin Chinese are identified. It is shown that verb-copying presents a microcosm of 'complexity' and cannot be adequately accounted for within the familiar paradigm of generative grammar. It is further demonstrated that verb-copying phenomena can better be understood in terms of interaction among semantic, pragmatic, and phonological principles, each of which being applied with a typicality condition.

1. Introduction


1. An embryonic version of this paper under the title 'Verb-Copying in Chinese: Syntactic and Semantic Typicality Conditions in Interaction' was first presented at 1989 LSA Annual Meeting, Washington, D.C. An earlier version of this paper was presented at the Fifth International Symposium on Chinese Languages and Linguistics (IsCLL V), National Chengchi University, Taiwan, December 1996. I am very pleased to be able to wrap up this paper finally. In the past ten years, I have greatly benefited from discussions with my colleagues and students both at Ohio State University and National Chung Cheng University. I am also grateful to Prof. Tang Ting-Chi, who has carefully read the manuscript and made several valuable comments and suggestions. Naturally, I am solely responsible for any errors and infelicities herein.
construction cannot be understood by syntactic factors alone. In this paper, I would like to show that verb-copying sentences are independent of the well-known phrase structure constraint proposed by Huang, and that verb-copying phenomena are resultant from the interaction among semantic, semiotic, pragmatic, and phonological motivations.

In Section II, six types of verb-copying sentences are identified for purposes of analysis. In Section III, it is shown that verb-copying is independent of the phrase structure constraint for Chinese proposed in Huang (1982, 1988). Section IV presents different kinds of evidence in support of a semantic analysis for verb-copying. Section V discusses the functional differences between verb-copying sentences and their corresponding non-verb-copying sentences from the semiotic point of view. Section VI accounts for ungrammatical non-verb-copying sentences by means of both pragmatic and phonological motivations. Section VII concludes the paper with some remarks on the autonomy thesis of syntax and the interaction approach to syntax proposed by Hsieh (1991, 1996) and Her (1996).

2. Types of Verb-Copying Sentences

The (a) sentences in (1)-(6) below are treated by Chinese grammarians as involving verb copying, a grammatical process in which a verb is reduplicated after its direct object when followed by adverbial elements (cf. Li and Thompson 1981:442-450). For the purpose of present analysis, verb-copying sentences are divided into six types according to the function of the adverbial complement in the sentence. The post-verbal adverbial elements underlined in these sentences are duration complements as in (1), frequency complements as in (2), descriptive complements as in (3), resultative complements as in (4), location complements as in (5), and direction complements as in (6).
Duration complement:

(1) a. Wo shui-jiao shui-le san-ge zhongtou.
    I sleep-sleep sleep-ASP three CL hour.
    'I slept for three hours.'


Frequency complement:

(2) a. Wo qu Riben qu-guo liang-ci.
    I go Japan go-ASP two-CL
    'I have been to Japan twice.'

b. Wo qu-guo Riben liang-ci.

Descriptive complement:

(3) a. Ta kan shu kan-de hen kuai.
    he read book read-DE very fast
    'He reads very fast.'

b. Ta kan shu hen kuai.

Resultative complement:

(4) a. Ta kan shu kan-de hen lei.
    he read book read-DE very tired
    'He is tired from reading.'

b. *Ta kan shu hen lei.

Location complement:

(5) a. Ta xie zi xie zai heiban-shang.
    he write word write at blackboard on
    'He wrote characters on the blackboard.'

b. ?Ta xie zi zai heiban-shang.

Direction complement:

(6) a. Women zou lu zou dao xuexiao.
    we walk road walk to school
    'We walked to school.'

b. Women zou lu dao xuexiao.

In referring to the (a) sentences above as verb-copying, Li and Thompson assume that the second instance of the verb between the direct object and the adverbial complement is "copied" from the first
instance (ibid. p 442). However, they also suggest that the first instance of the verb plus the direct object behaves as a "frozen" unit because the verb does not take aspect markers and the direct object is typically non-referential. As a matter of fact, Tsao (1987) has further argued that the second instance of the verb is the main verb. If so, then the term verb-copying may be misleading. Nonetheless, for the present purpose, we will use the term to refer to the (a) sentences without assuming the grammatical process of copying the second instance of the verb from the first instance.

3. Syntactic Motivation

Huang (1982:41) has proposed a phrase structure constraint formulated in X-bar structure to serve as a surface constraint on Chinese word order. It has been referred to as Phrase Structure Constraint (hereafter PSC ) given below.

(7) a. \([x^n X^{n-1} YP^*]\) iff \(n = 1\) and \(X \neq N\)
    b. \([x^n YP^* X^{n-1}]\) otherwise

PSC is designed to capture the generalization that word order in Chinese is largely head-final and is head-initial only in VP's in which the verb precedes the object. The head-initial condition in Chinese can be informally stated as in (8):

(8) Within a given sentence in Chinese, the head (the verb or VP) may branch to the left only once, and only on the lowest level of expansion. (Huang 1984:54)

Huang (1982, 1988) accounts for the unacceptable sentences such as sentences (1b), (4b), and (5b) as due to the violation of PSC. In these sentences, the head of VP branches to the left not only at the level of V' (verb-object) but also at the level of V" because the adverbia
complement following the direct object is a daughter constituent of V".²
He proposes that the verb-copying in the these sentences violates PSC. Thus, he argues that verb-copying is syntactically motivated by PSC. While PSC filters out ungrammatical sentences with two post-verbal elements such as (1b), (4b), and (5b), it also incorrectly rules out grammatical sentences with two post-verbal elements such as (2b), (3b), and (6b). Therefore, it is dubious that verb-copying is motivated by PSC.

As a matter of fact, there is evidence that verb-copying is independent of PSC. Consider,

(9) a. Ta yizhi ku-le san-ge zhongtou.
   He continuously cry-ASP three-CL hour
   'He kept crying for three hours."

b. Ta yizhi ku, ku-le san-ge zhongtou

(10) a. Ta ku-de hen lei.
   He cry-DE very tired.
   'He is very tired from crying."

b. Ta yizhi ku, ku-de hen lei.
   'He is very tired from continuous crying."

Sentences like (9a) and (10a) show that verb-copying is not needed for sentences with an intransitive VP. Huang's account is that since an adverbial complement in an intransitive VP is directly dominated by V' and not by V", intransitive VP's with adverbial complements therefore do not violate PSC and do not call for verb-copying. However, (9b) and (10b) show that verb-copying can occur in intransitive sentences as long as there is a pause between the verb and

². See Huang (1982:52). In other words, an adverbial complement of an intransitive verb must be lowered down to become the sister constituent of the verb as if it were an object of an transitive verb. The proposed restructuring is actually not in line with the spirit of the 'tree-pruning' principle which deletes a node that doesn't branch. Nevertheless, 'tree-pruning' coupled with relabeling can render an intransitive verb and its adverbial complement both dominated by V' and their constituency thus conforms to PSC.
the reduplicated verb. Thus, contrary to Huang's observation, verb-copying can occur in VP's which do not violate PSC. Thus, on the one hand, there are sentences like (2b), (3b) an (6b), which violate PSC but which do not require verb-copying to be grammatical. On the other hand, there are sentences like (9a) and (10a), which do not violate PSC but which allow verb-copying. Therefore, it is clear that verb-copying is independent of PSC.

4. Semantic Motivation

Sentences like (9b) and (10b) indicate that verb-copying is semantically motivated in that the repetition of the verb has a natural semiotic function of signifying the repetition of an activity. There are several pieces of evidence suggesting that verb-copying in Chinese is semantically motivated.

First, verb-copying is prohibited in VP's of instantaneous change-of-state event type. Examples in (11) and (12) illustrate this semantic condition on verb-copying.

(11) a. Ta faxian zhe-i-jian shi liang nian le.
he discover this-CL matter two years SFP
'It has been two years since he discovered this matter.'

b. * Ta faxian zhe-i-jian shi faxian-le liang nian le

(12) a. Ta si-le zhangfu liang nian le
she die-ASP husband two year SFP
'It has been two years since her husband died.'

b. * Ta si zhangfu si-le liang nian le

Second, minimal pairs like that between (13) and (14) abound. In

3. That an intransitive verb cannot be reduplicated without a pause can be accounted for by the application of hapology in Chinese grammar (cf. Chao 1968). It is needed to account for the unacceptability of the string -le le at the end of an intransitive sentence where both the aspect -le and the sentence final particle le can occur next to each other. It is also needed to accounted for the fact that while song-gei 'to send to', jiao-gei 'to hand to', etc. are grammatical, gei-gei 'to give to' is not.
(13) the action can be continued for a certain period of time, therefore verb-copying is allowed. In contrast, the action in (14) cannot be continued after completion, therefore verb-copying is prohibited.

(13) Ta shang ke shang-le san-ge zhongtou
    he attend class attend-ASP three-CL hour
    'He has attended the class for three hours.'

(14) *Ta xia ke xia-le san-ge zhongtou
    he finish class finish-ASP three-CL hour
    'He has been after the class for three hours.'

Similarly, the contrast between (15) and (16) is due to the semantic difference in event types, even though they have identical surface structures.

(15) Ta tiao shui tiao-le san-ge zhongtou
    he jump water jump-ASP three-CL hour
    'He has dived for three hours.'

(16) *Ta tiao he tiao-le san-ge zhongtou
    he jump river jump-ASP three-CL hour
    '*He has committed suicide by jumping into the river for three hours.'

If verb-copying were motivated by PSC, there should be no reason for verb-copying to be disallowed in (14) and (16). It is clear that the predicates xia ke 'finish the class' and tiao he 'commit suicide by jumping into the river' denote instantaneous change-of-state, and therefore, are incompatible with verb-copying, which is typically used for durative events. This difference between instantaneous and durative events in Chinese can be further witnessed in the contrast between (17) - (18) and (19)-(20) sentences.

(17) *Ta xia-le san-ge zhongtou de ke
    he finish-ASP three-CL hour DE class
    'He has been after the class for three hours.'
(18) *Ta tiao-le san-ge zhongtou de he
he jump-ASP three-CL hour DE river
'He has committed suicide by jumping into the river for three hours.'

(19) Ta shang-le san-ge zhongtou de ke
he attend-ASP three-CL hour DE class
'He has attended the class for three hours.'

(20) Ta tiao-le san-ge zhongtou de shui
he jump-ASP three-CL hour De water
'He has dived for three hours.'

Third, for many verbs, presence or absence of verb-copying yields differences in meaning. Thus, while (21) indicates the time lapse since the completion of the action, (22) indicates the duration of the action.

(21) Wo gei ta xie xin yi-ge yue le.
I to him write letter one-CL month SFP.
'It has been a month since I wrote him a letter.'

(22) Wo gei ta xie xin xie-le yi-ge yue le.
'I have been writing to him for a month.'

Fourth, for some verbs, verb-copying is permissible for duration complement but ungrammatical for frequency complement. For example,

(23) a. Ta renshi Amei renshi-le san nian le.
he know Amei know-ASP three years SFP
'He has known Amei for three years.'

b. *Ta renshi Amei renshi-le san ci le
he know Amei know-ASP three times SFP
'*He has known Amei for three times.'

While the situation of 'knowing someone' can last for three years, it does not make sense to say 'knowing someone three times.' In contrast, verb-copying is permissible for frequency complement as in (24) but
marginal for duration complement as in (25).

(24) Ta qu zhongguo qu-le san ci
    he go China go-ASP three times
    'He went to China three times.'

(25) ?Ta qu zhongguo qu-le san nian.
    he go China go-Asp three years
    'He has gone to China for three years.'

It appears that the situation of 'going to somewhere' can be understood as 'telic' and can be completed three times as three separated tasks and can thus be repeated three times. In contrast, it is odd to say that 'going to somewhere' (being telic) has lasted for three years. It is important to note here that this discrepancy in verb-copying between frequency and duration complements reveals another aspect of the inadequacy of PSC, which has treated both types of complements on the same footing.

Fifth, while verb-copying is uniformly required for resultative complements (26), it is required for some descriptive complements (27), but not for others (28).*

(26) a. Ta nian shu nian-de hen lei.
    he read book read-DE very tired
    'He is very tired from reading.'

b. *Ta nian shu hen lei.

(27) a. Ta xie zi xie-de hen hao.
    he write character write-DE very good
    'He writes characters very well.'

b. *Ta xie zi hen hao.

(28) a. Ta xie zi xie-de hen kuai.
    he write character write-DE very fast
    'He writes characters very fast.'

4. In addition to (28b), Ta xie zi hen zhengqi 'He writes neatly.' and Ta chang ge hen huoting 'He sings very well (pleasant to hear).’ are perfectly acceptable. It appears that hen hao 'very well' is one of the few descriptive adverbial complements which require verb-copying.
It seems that the resultative complement implies the extent of an action more than the descriptive complement. The contrast between (26) and (28) can thus be attributed to their different forces in implying the extent of an action, which, in terms of semiotic functions, naturally accords with verb-copying. The ungrammaticality of (27b) remains to be explained, unless we are willing to assume that *hen hao* is more of a resultative complement than of a descriptive complement. Again, (26)-(28) point to the inadequacy of PSC, which has treated the descriptive complement on a par with the resultative complement with respect to verb-copying.

Our explanation for the obligatory verb-copying in sentences involving resultative complements can be extended to account for verb-copying in sentences involving locative complements (5a). As observed in Tai (1975), post-verbal locative complements typically function to indicate the location of a participant in an event as a result of the action. Therefore, it is not surprising to find that the post-verbal locative complements behave like resultative complements in that they trigger obligatory verb-copying.

As to the verb-copying in sentences involving directional complements as illustrated in (6), I would like to point out a semantic difference between (6a) and (6b). For most native speakers, (6a) has the implication that 'the school' is not the destination of the action 'walking,' but rather the end point of a purposeless wandering. Verb-copying creates the image of repeating an action and fit with the meaning of purposeless walking. In contrast, 'the school' in (6b) is the destination of the action, and the action of 'walking' does not conjure the image of wandering around. Therefore, (6b) is incompatible with verb-copying. Like the contrast between (21) and (22), here is another case where the presence or absence of verb-copying yields differences in meaning.

The data in (11)-(28) clearly suggest that the semantic condition
on verb-copying has to do with the event type of a sentence and not merely with the aspectual value of the main verb. The semantic condition of verb-copying can therefore be stated as:

(29) Semantic Condition on Verb-Copying
The event type of a sentence involving verb-copying is typically one in which the situation can be repeated or continued.

It is necessary to point out that the event type ruled out by the condition (29) overlaps but does not correspond to the achievement event type in Vendler-Dowty's theory of event types (cf. Dowty 1979). Thus while verb-copying is unacceptable in (11) and (12), it is acceptable in (30) and (31), even though all of the four sentences involve achievement predicates.

(30) a. Ta diu che diu-le yi nian le.
he lose car lose-ASP one year SFP
'It has been one year since he lost his car.'
b. Ta diu-le che yi nian le.

(31) a. Ta hui guo hui-le yi nian le.
he return country return-ASP one year SFP
'It has been one year since he returned to his home country.'
b. Ta hui guo yi nian le.

As observed by Li Lin-ding (1984) and Jia Ying (1985), while situations in sentences (11) and (12) cannot be changed again once they have been completed, the situations in (30) and (31) can be changed again and therefore it still makes sense to talk about the duration of a changed situation.

Summing up this section, the semantic motivation is especially clear and strong in sentences involving duration, and resultative complements. In sentences with these two types of complements, verb-
copying is obligatory. Sentences with locative complements indicate resultative locations, and verb-copying tends to be obligatory also. The motivation, however, is not as clear in sentences with frequency and descriptive complements, and verb-copying is therefore optional. Verb-copying in sentences with directional complements is also optional but yields different meanings. Furthermore, contrary to common belief, frequency complements are not on a par with duration complements with respect to verb-copying. In the same vein, descriptive complements behave differently from resultative complements as well as duration and frequency complements. Also contrary to expectation, directional complements behave differently from locative complements in verb-copying. In short, all six types of verb-copying sentences identified in Section II cannot be treated on the same footing as suggested in Huang's PSC approach or any formal syntactic approaches, such as Case Theory in Li (1990). 5

5. Semiotic Motivation

Post-verbal time complements in Mandarin Chinese can function to indicate either 'the duration of an event' or 'time lapse since the event took place' (See also Ernst 1987, Li 1987). The two functions can be illustrated in the following three sentences.

(32) Ta ku-le san tian
     he cry-ASP three day
     'He has cried for three days.'

(33) Ta si-le san nian
     ta die-ASP three year
     'It has been three years since he died.'

5. Strictly speaking, Huang's PSC is a stipulation rather than an explanation. Li (1990) has proposed to account for PSC in terms of the direction of abstract Case assignment and theta-role assignment. Li's theory, like Huang's, is based on formal and structural principles. Our findings thus challenge not only Huang's but also Li's theory. See also Ernst (1988) for some other limits of Huang's and Li's theories in this regard.
(34) Ta zou-le san tian
    he walk-ASP three day
    'He has walked for three days.' (duration of time)
    'It has been three days since he left.' (lapse of time)

In (32), the time complement san tian 'three days' indicates the
duration of the event ku 'to cry'. In (33), the time complement san nian
'three years' indicates the lapse of time since the instantaneous change-
of-state of si 'to die'. In (34), the time complement san tian 'three days'
is ambiguous with respect to both functions, because the verb zou is
polysemous, meaning both 'to walk' and 'to leave'. When the verb zou
means 'to walk', it is an activity verb and can co-occur with durative
time complements. When the verb 'zuo' means 'to leave', it is an
achievement verb indicating instantaneous change-of-state, and can
only be compatible with lapse-of-time complements. In terms of
semantic motivation of verb-copying, one would expect verb-copying
in (32) and the durative reading in (34). However, the general
constraint of 'haplogy' in Mandarin Chinese (cf. Chao 1968) would
prevent verb copying involving intransitive verbs, since it would render
a string of two consecutive words.

In the case of transitive verbs, the haplogy would not occur
because of the intervening direct object after the first instance of the
verb. The result is the coexistence of the following two constructions in
contrast.

(35) Subject + Verb + Direct Object + Time Complement
(36) Subject + Verb + Direct Object + Verb + Time Complement

(35) and (36) are different in form. One of the fundamental
assumptions in functional linguistics is that different forms generally
invite different functions, and thus, the general absence of genuine
synonyms. We can further assume that, everything else being equal, (35)
is more in tune with the function of lapse of time, whereas (36) is more
in tune with the function of duration of time. This assumption is
aligned with the semantic motivation of verb-copying as stated in (29).
The semiotic function of (36) as well as semantic motivation for verb-
copying are both manifestations of the reduplication motivation
identified by Haiman (1983) and Tai (1993) as a universal iconic
motivation.

The contrast in form between (35) and (36) is reflected in the
meaning differences between (21) and (22) repeated below as (37) and
(38)

(37) Wo gei ta xie xin yi-ge yue le.
   I to him write letter one-CL month SFP.
   'It has been a month since I wrote him a letter.'
(38) Wo gei ta xie xin xie-le yi-ge yue le.
   'I have been writing to him for a month.'

Minimal pairs such as (37) and (38) abound. It suffices here to give two
more pairs.

(39) Ta chi-le fan san ge zhongtou le
   he eat-ASP meal three CL hour SFP
   'It has been three hours since he ate the meal.'
(40) Ta chi fan chi-le san ge zhongtou le
   he eat meal eat-ASP three CL hour SFP
   'He has been eating the meal for three hours.'
(41) Liu laoshi jiao hanyu sanshi nian le
   Liu teacher teach Chinese thirty year SFP
   'It has been thirty years since Teacher Liu started teaching
   Chinese.'
(42) Liu laoshi jiao hanyu jiao-le sanshi nian le
   Liu teacher teach Chinese teach-ASP thirty year SFP
   'Teacher Liu has been teaching Chinese for thirty years.'

It can be seen from the English translations that while (37), (39),
and (41) sentences indicate the time lapse since the completion of the
action, their respective corresponding (38), (40) and (42) sentences indicate the duration of the action.

We have observed earlier that verb-copying is optional in sentences involving frequency complement and descriptive complement as illustrated in (2) and (3). The absence or presence of verb-copying involving these two types of complement, unlike other types of complement, does not invite any meaning differences except that the complement tends to be emphasized with the presence of verb-copying. That verb-copying is used in these two types of complement purely for emphasis is consistent with the semiotic principle to use repetition to emphasize.

Furthermore, Liu (1995, 1996) has studied the occurrence of verb-copying at discourse level in relation to Hopper and Thompson's studies on discourse grounding (1980). She concludes that whenever verb-copying and non-verb-copying constitute a contrastive minimal pair for a given sentence, the verb-copying sentence is used to present backgrounded information for the main event, and the non-verb-copying sentence is used to present the foregrounded information, namely, the main story line. Our observations regarding meaning differences between verb-copying and non-verb-copying sentences with respect to different types of complements are in line with Liu's findings. Both studies point to a significant fact of interaction between form and function, that is, minimal pairs do exist in syntax as well as in phonology to provide contrast in meaning and function.

6. Pragmatic and Phonological Motivations

In Section III, we have shown that verb-copying is independent of PSC, and that it is semantically and semiotically motivated. Now, it is necessary for us to turn to those unacceptably sentences without verb-copying as in (1b), (4b), and (5b).

Let's deal with sentences such as (1b) first. It has been claimed by Li and Thompson (1981:445) that if the direct object is referential,
animate, and definite, verb-copying is optional. While sentences like (43) and (44) confirm the claim, sentences like (45) and (46) disconfirm the claim.

(43) Ta deng-le wo san-ge zhongtou
   he wait-ASP me three-CL hour
   'He has waited for me for three hours.'

(44) Ta da-le nei-ge ren liang-ci.
   he hit-ASP that-CL person two-time
   'He has hit the person twice.'

(45) Liu laoshi jiao hanyu sanshi nian le
   Liu teacher teach Chinese thirty year SFP
   'Teacher Liu has been teaching Chinese for thirty years.'

(46) Ta kao-le daxue liang-ci
    he test-ASP college two-time
    'He has taken the college entrance examination twice.'

Therefore, the ungrammaticality of (1b) cannot be accounted for by Li and Thompson's conditions on the direct object. It may have to do with the pragmatic relevance of (1b). Recall that sentence (39) is grammatical. For the purpose of discussion, we repeat these two sentences in (47) and (48), respectively.

(47) *Wo shui-le-jiao san-ge zhongtou.
    I sleep-ASP-sleep three CL hour.
    'I slept for three hours.'

(48) Ta chi-le fan san-ge zhongtou le
    he eat-ASP meal three-CL hour SFP
    'It has been three hours since he ate the meal.'

We have pointed out earlier that verb-copying is not necessary in (48) as the time complement indicates time lapse since the completion of the action. The general pragmatic function of (48) is to signify that the
state of affairs indicated in (48) has a special relevance to the current situation. Thus, an utterance of (48) can imply that he is hungry now, or that he is now allowed to take a certain medication. In contrast, it is not as easy for (47) to invite a similar kind of pragmatic relevance. Nonetheless, with the sentence-final particle le added to the end of sentence, (47) becomes more acceptable for native speakers. The reason is perhaps that the sentence-final particle le has a communicative function of signifying "currently relevant state" as proposed by Li and Thompson (1981:240-263). In essence, the ungrammaticality of sentences such as (47) cannot be easily accounted for in terms of its syntactic form. The contrast in acceptability between (47) and (48) can be more plausibly explained in terms of pragmatic relevance.

Now we turn to the ungrammaticality of (4b). For many native speakers, (4b) can be acceptable with a descriptive reading like 'He is not very good at reading (books).'</span> In this reading, the complement hen lei 'very tired' is not a resultative complement any more, but rather a descriptive complement meaning '(reading) tires him easily'. Thus, (4b) with descriptive reading has the same semantic function as (3b) in that they both describe a more-or-less permanent fact rather than the occurrence of a temporally bound event. Therefore, similar to (3b), verb-copying for (4b) with descriptive reading is not necessary. It is natural for a temporally bound event to have results, and therefore, to occur with resultative complements. Resultative readings are intrinsically incompatible with the description of permanent facts. What remains to be explained here is why genuine resultative complements require verb-copying. One possible explanation might be found in the following scenario. Resultative complements require the extent marker de to be placed between the main verb and the complement. The marker de, being monosyllabic and unstressed, must be 'cliticized' to a verb just like aspect markers in Mandarin Chinese. However, the element preceding the marker is the direct object rather than the verb. Therefore, verb-copying is triggered to receive the
cliticization of the marker *de (cf. Ernst 1986). Simply put, verb-copying serves to render the ungrammatical sentence (49) into grammatical sentence (50).

(49) *Ta kan shu-de hen lei.
    he read book-DE very tired
(50) Ta kan shu kan-de hen lei.
    'He is tired from reading.'

Finally, let's turn to the unacceptability of (5b). To begin with, it should be noted that (5b) is more acceptable for southern speakers of Mandarin than for northern speakers, who need to use the *ba construction for (5b). We repeat (5b) and its corresponding ba construction along with (5a) below.

(51) ?Ta xie zi zai heiban-shang
    he write word write at blackboard on
    'He wrote characters on the blackboard.'
(52) Ta ba zi xie zai heiban-shang
    'He wrote characters on the blackboard.'
(53) Ta xie zi xie zai heiban-shang.
    he write word write at blackboard on
    'He wrote characters on the blackboard.'

The post-verbal zai is also monosyllabic and unstressed, and like the marker *de, it needs to be cliticized to immediately preceding verb. Therefore, both ba construction (52) and the verb-copying construction (53) are triggered to meet the need of cliticization. In short, we propose a phonological motivation, which can be regarded as independently needed in Chinese grammar, for the ungrammaticality of (4b) and (5b).
7. Conclusion

James Huang's PSC is one of the most important generalizations of Chinese phrase structure proposed in recent years. According to him, verb-copying is syntactically motivated to confirm to PSC. We have, however, found that verb-copying is independent of PSC and is primarily motivated by semantic and pragmatic factors. Furthermore, PSC has treated verb-copying sentences involving different adverbial complements on an equal footing. Nonetheless, we have found that the six types of adverbial complements differ from each other in contributing to the acceptability of verb-copying sentences as well as corresponding non-verb-copying sentences. Both findings suggest the lack of a genuine explanatory value of PSC as a syntactic motivation for verb-copying in Chinese.

In this paper, I have shown that verb-copying sentences and their corresponding non-verb-copying sentences together present a complexity which can be better understood by a conjunction of semantic, semiotic, pragmatic, and phonological motivations. These motivations are manifestations of universal tendencies in Chinese grammar. Therefore, syntax need not be regarded as arbitrary and autonomous in every aspect. Some syntactic phenomena such as verb-copying in Chinese can be shown to have resulted from intricate interaction among independently motivated phonological, semantic, and pragmatic principles. These principles are typicality conditions and can be regarded as preference rules in the sense of Jackendoff (1983, 1987). They interact in the manner of interaction proposed by Hsieh (1991, 1996) and Her (1997). These principles sometimes complement each other, sometimes competing with each other. For instance, verb-copying semantics and cliticization reinforce each other in sentences with resultative complements to yield obligatory verb-copying almost without exception. For sentences with durative complements, when semantic motivation and pragmatic motivation reinforce each other,
verb-copying is also obligatory as in (1). When the two motivation do not reinforce each other, verb-copying is optional as in (43) and (45). Furthermore, the typicality condition on semantic and semiotic motivations is for duration of an event first, and for frequency of an event second. Therefore, verb-copying is generally optional for sentences with frequency complements. For most of the descriptive complements, neither the semantic motivation nor the extent marker de is needed. For them, verb-copying is only motivated by the emphasis function, which is optional in nature. Thus, in the case of sentences with descriptive complements, the difference between verb-copying sentences and their corresponding non-verb-copying sentences is merely a matter of emphasis on the complement. The cliticization is a typicality condition for the de marker first and for the post-verbal zai phrase second, especially for southern speakers of Mandarin, who can accept (5b) without rendering it into its corresponding ba sentence as for most of speakers of northern Mandarin. Finally, as these principles have typicality conditions, they interact with each other with relative strengths, often resulting in uncertain judgments by different native speakers. Thus, native speakers may not always agree on the requirement of verb-copying. This very fact should not bother any scientist who is willing to face the fluidity of natural phenomena. In short, verb-copying in Chinese is a microcosm of 'complexity' and should be treated in the spirit of the complexity theory rather than with familiar paradigm of generative grammar.6

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