Thematic Structure and Verb Copying in Mandarin Chinese

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ABSTRACT

In this study of verb-copying in Mandarin Chinese, it is shown that the function of verb-copying is to highlight the quantity element in a sentence. Thus, different from the traditional treatment, we propose to separate post-verbal elements of frequency and duration phrases from resultative phrases. This functional view of verb-copying coincides with the observations made in R.L. Cheng, 1976. Studies in Chinese Syntax and Semantics, Universe and Scope: Presupposition and Quantification in Chinese, pp. 55–102, Ting-chi Tang, R. Cheng and Ying-che Li (eds), Taipei: Student Book Co. about focus devices in Mandarin. It is also shown that verb-copying is a manifestation of interaction between the thematic structure R. Jackendoff, 1972. Semantics in Generative Grammar, Cambridge: MIT Press and R. Jackendoff, 1987. Linguistic Enquiry 18. 369–411. and the phrase structure condition C.-T. T. Huang, 1982. “Logic and Theory of Grammar,” MIT Dissertations. That is, only a certain type of verbs needs to undergo verb-copying when the verb is followed by two elements, one of which is an adverbial phrase of frequency or duration. The restriction on the use of verb-copying is shown to follow from a joint operation of the thematic structure of verbs and the phrase structure condition. Topicalization, ba-construction, and the abundance of V–O compounds in the language further supports the view that two components of grammar are interacting with each other Hsin-I Hsieh, (1990). "In Search of a Grammatical Foundation for Dialect Subgrouping." Paper presented at IsCll, Academia Simea, Taipei, Taiwan, 20–22 July 1990.

INTRODUCTION

Traditionally, in Mandarin Chinese when a verb is followed by two constituents, an object (internal NP) and an adverbial phrase denoting result, duration, or frequency, the verb is reduplicated in the position between the V–NP sequence and the adverbial
phrase. This phenomenon of reduplicating a verb is customarily referred to as verb-copying. Compare the following sentences:

(1) a. Ta chi fan.  
   he eat rice  
   'He ate.'

b. Ta chi le liang ge zhongtou (duration)  
   he eat ASP two MW hour  
   'He ate for two hours.'

c. *Ta chi fan liang ge zhongtou.  
   he eat rice two MW hour  
   (This structure is ungrammatical.)

d. Ta chi fan chi le liang ge zhongtou  
   he eat rice eat ASP two MW hour  
   'He ate for two hours.'

(2) a. Ta qi ma.  
   he ride horse  
   'He rode horses.'

b. Ta qi de hen lei le. (result)  
   he ride DE very tired ASP  
   'He rode and got very tired.'

c. *Ta qi ma hen lei.  
   he ride horse very tired  
   (This structure is ungrammatical.)

d. Ta qi ma qi de hen lei.  
   he ride horse ride DE very tired  
   'He rode horses to the extent that he was very tired.'

(3) a. Ta nian shu.  
   he read book  
   'He studied.'

b. Ta nian liang ci. (frequency)  
   he read two time  
   'He read twice.'

c. *Ta nian shu liang ci.  
   he read book two time  
   (This structure is ungrammatical.)

Sentences (1a) and (1b) are grammatical, when the verb chi 'eat' is followed by only
on element; either an object or a duration phrase. Sentence (1c), with the verb chi 'eat'
followed by two elements, an internal NP argument (i.e. object) fan 'rice' and a
complement indicating duration of time liang ge zhongtou 'two hours', is ungram-
matical. It becomes grammatical when the verb chi 'eat' is duplicated, as illustrated
in sentence (1d). Sentences (2c) and (3c) are ungrammatical, because each verb is
followed by two constituents without an intervening copied verb. In Mandarin
Chinese, sentences in which a verb is duplicated, as illustrated in sentences (1d) (2d)
(3d), are called verb-copying (Li and Thompson 1981; Huang 1984).

In view of the above sentences involving verb-copying (and other related patterns),
Huang (1982) formulated his famous phrase structure condition (PSC), which states:

Within a given sentence in Chinese, the head (the verb or verb phrase) may branch to the left
only once, and only on the lowest level of expansion.

He claimed that Chinese is largely head-final, allowing only a very limited range of
head-initial constructions. What this constraint says essentially is that only one
constituent is allowed after the verb, and thus the function of verb-copying is to save
the ungrammatical strings and to bring the structure into conformity with PSC. He
does not distinguish, as he could have, post-verbal elements: frequency, result, and
duration phrases are treated equally.

Recently, however, C. Huang (1990) offered a substantially different view on the
verb-copying phenomenon. He points out that the concept of verb-copying would not
be necessary if the focus of study were not restricted to sentences with identical verbs.
He regards any stipulations on the verb-copying data as misguided efforts, because
verb-copying is part of a more general phenomenon. He proposes that as long as the
cause and effect relation between the two verbs is clear and logical, no identical copies
are required. Thus, there is no 'verb-copying fact' to be accounted for in the language.
Given the data (resultative construction) he discussed in the paper, verb-copying rule
can be replaced by a syntactic rule of concatenating two VPs with suitable semantic
restrictions on the two verbs. Therefore, verb-copying can be disposed of. Though not
overtly indicated in the paper, he separates duration and frequency phrases from result
phrases with emphasis on the latter. This may have been an improvement over
previous studies.

Separating resultative from frequency and duration phrases seems a first step to
really understand the nature of verb-copying, for the two categories (duration and
frequency vs resultative) reside in two different levels of speech function. When
describing an action or an event, we can choose to focus on the description of the action or event itself, or we can choose to focus on the result of the action or of the event. C. Huang has given some convincing examples for resultative construction, but left out sentences involving duration and frequency.

Tai (1989), claiming the inadequacy of PSC based on the counter-examples he uncovered in the language, argued for a semantic motivation (over syntactic one) to explain what Huang and others would call verb-copying. He also observed the difference between frequency and duration phrases in verb-copying sentences.

This paper is an attempt to confirm Huang’s phrase structure condition (PSC) by incorporating the thematic structure of verbs into the PSC. However, our approach is different from C. Huang’s syntactic approach which considers verb-copying as some sort of a device to save ungrammatical strings from violating PSC. On the contrary, we approach and explain verb-copying in terms of its ‘pragmatic’ function (i.e. language use), which is to vividly mark an action or event by emphasizing and highlighting the quantity of the action or event. We will show that counter-examples to the PSC cease to exist when thematic structures of verbs are incorporated in the grammar. Thematic structure not only constrains the number of postverbal constituents, it also helps to account for other independent structures, such as topological, and ba-construction. Verb-copying is a manifestation of interaction (Hsieh 1990) between PSC and thematic structure, thus, a competition between abstract structure and iconic (conceptual) structure (Hsieh 1989).

This paper is organized as follows: Section 1 describes the function of verb-copying, Section 2 introduces basic assumptions concerning thematic structures, Section 3 explains the nature of verb-copying in terms of thematic structure and its interaction with constituent structure. Section 4 provides independent evidence for incorporating thematic structure in the grammar. Section 5 concludes the paper.

FUNCTION OF VERB-COPYING

In our use of language to communicate thoughts, we can choose to describe the action or event or we can describe the result of the action or event. In this line of thought, verb-copying in Mandarin Chinese becomes a very interesting issue. The issue includes such questions as the following: Why is verb-copying compulsory in certain cases and not in others? What factors are involved to trigger verb-copying in these cases? What is verb-copying anyway or is there really such a thing as verb-copying? We believe there is more to the verb-copying than just a device to bring a structure into conformity with Huang’s PSC. The pragmatic function of verb-copying is to emphasize elements of quantity in a sentence. Quantity includes frequency, duration, and individualization. Frequency is the number of times a specific action occurs. These occurrences are separated but ordered in time. Put abstractly, frequency is a quantity whose parts are separate but linearly ordered. Duration is the span of time a specific action lasts. The parts of a time span are not separated and are ordered in time. In other words, duration is a quantity whose parts are continuous and linearly ordered. Particular individuals of a category are necessarily separate but are not ordered unless explicitly specified. Therefore, individuation is a quantity whose parts are separate and linearly unordered. In general, frequency and duration are used to modify actions (denoted by verbs), and they are placed after the verb. Individuation is to modify entities denoted by nouns and is placed before nouns. In conforming to PSC, frequency or duration phrases can be preposed before the noun, forming one constituent of a seemingly nominal phrase. PSC would not be violated and the sentence is grammatical. For example, sentence (1c) is ungrammatical, because two constituents follow the verb. It becomes grammatical, if we move the duration phrase and place it before the object, as illustrated in (4) below:

(4) Ta cha le liang ge zhongtou fan.
    he eat ASP two MIW hour rice
    ‘He ate for two hours.’

Syntactically, the quantity phrase liang ge zhongtou fan is similar to a pre-nominal classifier phrase. Sentence (4) and (5) have the same structure:

(5) Ta cha le liang wan fan.
    he eat ASP two bowl rice
    ‘He ate two bowls of rice.’

Semantically, duration liang ge zhongtou ‘two hours’ is not an attribute to the noun rice, rather, it is a modification of the verb chi ‘eat’ or of the activity chi fan ‘eating’. Classifier liang wan is a genuine attribute that classifies or individuates the noun fan ‘rice’ in terms of its container wan ‘bowl’.

The preverbal frequency phrase is possible for some nouns:

(6) Ta cha le san ci (de) pingguo.
    he eat ASP three time POSS apple
    ‘He ate apples three times.’

Again, the noun pingguo ‘apple’ cannot be classified in terms of frequency. Obviously, the frequency word points to the action or the activity (of eating apples), though it is placed before the noun.

Let us examine the other type of nouns to see if they are able to take preverbal frequency phrases or duration phrases. Observe the following sentences:
A sharp difference emerges between sentences in (4), (6) and (7): modifiers of verbs which can be placed in front of nouns in (4) and (6) cannot be so placed without loss of grammaticality in (7). Why should there be such a difference, if semantics alone will tell us there is a difference between modifier of nouns and modifier of verbs? Interestingly, verb in sentences (4) and (6) has verb-copying counterpart, while verb in sentence (7) need not. Compare the following:

(8) a. Zhangsan ai le Wang xiaojie yi ci.  
Zhangsan love ASP Wang miss one time  
‘Zhangsan loved Miss Wang once.’

b. Zhangsan ai le Wang xiaojie yi nian.  
Zhangsan love ASP Wang miss one year  
‘Zhangsan loved Miss Wang for one year.’

(9) a. *Ta chi pingguo san ci.  
he eat apple three time  
‘He ate apples three times.’

b. Ta chi pingguo chi le san ci.  
he eat Apple eat ASP three time  
‘Eating apples, he has eaten three times.’

c. *Ta chi pingguo san nian.  
he eat apple three year  

d. Ta chi pingguo chi le san nian.  
he eat Apple eat ASP three year  
‘He ate apples (lived on apples) for three years.’

Why is there a seemingly asymmetry between sentences of type (4) or type (6) and sentences of type (7) in terms of modifiers and verb-copying structure? Furthermore, PSC is violated in sentences (8) and yet they are grammatical; PSC is not violated in sentences (7) but the sentences are ungrammatical. It is obvious that PSC cannot be

the explanation for the asymmetry. We will offer our explanation in terms of thematic structure of verbs and different types of nouns in the following section.

ASSUMPTIONS

This section briefly explains theoretical assumptions and notions made in this paper. The assumption is that each lexical item has its thematic structure according to Jackendoff’s lexical semantics (Jackendoff 1972, 1987). We also assume that the thematic structure is composed of thematic roles, which are arranged in a certain hierarchy according to their degrees of ‘agentivity’ or other differences (see Larson 1985; Bresnan and Kanerva 1989; and Li 1990).

Thematic Structure and Thematic Roles

Each verb has its thematic structure, which is composed of thematic roles. Thematic roles are entailments or presuppositions from lexical semantics (Ladusaw and Dowty 1988; Jackendoff 1972, 1987) and are components of the mental representation of objects and concepts. For example, the verb chi ‘eat’ implies and requires an actor (i.e. agent) and something to be acted upon (i.e. theme) in lexical semantics and thus has a thematic structure of [agent, theme]. We also assume with Jackendoff (1987) that some of the thematic role can be left unspecified. For instance, only agent of ‘eat’ is specified in syntax in the sentence ta chi le (he-cat-ASP) ‘he has eaten’. [Theme] is not specified.

We will adopt Bresnan and Kanerva’s definition of thematic roles. Agent is the argument that causes or has control over the situation described by the verb. Theme is the argument of which location or state is predicated, or change of location or state. With the motion verbs it is the theme that undergoes motion. With verbs of effect or action, the patient is the locus of the effect (Bresnan and Kanerva 1989: 24).

Thematic Hierarchy

Thematic roles are arranged in a certain order. Several linguists have proposed different hierarchies for thematic roles: Larson (1985), Bresnan and Kanerva (1989), Givon (1984), Kirparksy (1987), Foley and Van Vian (1984), and Grimshaw and Mester (1988), etc. Each has his own criteria in setting up such a hierarchy. We will take up Larson’s and Bresnan and Kanerva’s for discussion.

Larson proposes the following thematic hierarchy, which governs the relative subordination of arguments in D-structure:

agent > theme > goal > obliques (manner, location, time, ...).
This hierarchy states that the relative position on the thematic hierarchy corresponds to a relative structural subordination of complements, with arguments bearing the lowest-ranked role being most subordinate.

Bresnan and Kanerva, incorporating Kirpansky (1985), Givon (1984) and Foley and Van Vilan (1985), proposes the following thematic hierarchy:

agent > benefactive > recip/exp > inst > theme/patient > locative.

Different from Larson's hierarchy, Bresnan and Kanerva's hierarchy refers to a universal hierarchy of thematic roles. This hierarchy not only points to an order of thematic roles within a lexical item, it also dictates the lexicalization pattern. For example, thematic structures of the Mandarin verbs chi 'eat', and zhuo 'look for' are [agent, theme] and [agent, patient] respectively with the thematic roles arranged in descending order from left to right.

Furthermore, the ability of lexicalization increases as thematic role goes down the hierarchy away from 'agent'. Mandarin Chinese provides a piece of good evidence in having a great number of V-0 compounds (such as xi zao 'take a bath', dan xin 'worry', na shou 'be good at', and bi ye 'graduate', etc.), which incorporate theme or patient in the lexical item, and directional verb compounds (such as zou jin lai 'enter', fan xia lai 'put down', zou shang lai 'walk up', etc.), which combines a locative element in the lexicon. There are no compounds with V+ benefactive or V+ instrument. Benefactive or instrumental has to be marked by overt syntactic marker. Thus, in Mandarin, compound formation tends to take thematic roles at the lower end of the hierarchy, and prepositional phrases (co-verbal phrases) tend to take thematic roles in the higher end of the hierarchy. Thematic roles that are relevant to our discussion are agent, theme, patient, and locative. We assume thematic roles are hierarchically ranked, and the hierarchy is as follows, taking Larson and Bresnan's also into consideration:

Agent > theme > patient > locative.

We separate theme and patient in the hierarchy, because the distinction makes a difference in syntactic behavior, which we will discuss in the next section.

Thematic Roles: Patient and Theme

Bresnan and Kanerva's hierarchy of thematic roles places both patient and theme roles in the same position. We distinguish patient and theme roles, because their distinction is crucial for verb-copying and other syntactic patterns. As we have shown in section one, there is asymmetry between different types of nouns concerning their behavior of occurring with quantity phrases. In terms of topicalization and ba-construction, we observe the following asymmetry:

(10) a. Zhangsan ai Li xiaojie.
    Zhangsan love Li miss
    'Zhangsan loves Miss Li.'

    b. *Li xiaojie Zhangsan ai.
    Li miss Zhangsan love

(11) a. Wo chi le fan le.
    I eat ASP rice ASP
    'I ate.'

    b. Fan wo chi le.
    Rice I eat ASP
    'Meal/irice I ate.'

Some verbs, such as ai 'love' in (10a), can take an NP after the verb, and the object NP cannot be preposed to the topic position. (Here, we define topic syntactically as the NP occupying the sentence-initial position.) On the other hand, some verbs, such as chi 'eat' in (11a), can also take an NP after the verb, and this NP can be preposed to the topic position. Parallel behavior is also seen in the ba-construction. We consider the former as having a thematic structure of [agent, patient] and the latter [agent, theme].

(12) *Zhangsan ba Li xiaojie ai.
    Zhangsan BA Li miss love

(13) Wo ba fan chi le.
    I BA rice eat ASP
    'I ate the rice/meal.'

In view of the asymmetry in terms of quantity phrase taking, topicalization, and ba-construction, and incorporating Bresnan and Kanerva's definition, we conclude that theme is separable from the verb but patient is not separable from the verb.

The distinction of theme and patient is also prompted by the transitivity proposal of Hopper and Thompson (1980). Theme has a higher transitivity than patient in terms of its affectedness in being able to occur in ba-sentence. Thus, it is placed higher than patient in the hierarchy.

We have discussed thematic structure and thematic roles and distinguished patient and theme roles. We will discuss the significance of thematic structure in verb-copying and show how thematic structure interacts with constituent structure, especially in the sense of Hsieh (1989, 1990).
VERB COPYING AND THEMATIC STRUCTURE OF VERBS

In this section, we are going to show how thematic-structure constraints of a verb interacts with Huang's PSC and how the two interacting forces jointly determine whether verb-copying takes place or not.

Simple Verbs

We hypothesize that only verbs with a thematic structure of [agent, theme] will observe PSC and obligatorily apply the verb-copying rule. Consider sentences which involve simple verbs such as follows:

(14) a. Ta pao malasong pao le liang ci.
   he run marathon run ASP two time
   'He ran in marathon race twice.'

   b. *Ta pao malasong liang ci.
      he run marathon two time

(15) a. Ta tui che tui le san ge zhongtou.
      he push car push ASP 3 MW hour
      'He pushed the car for three hours.'

   b. *Ta tui che san ge zhongtou.
      he push car 3 MW hour

Both pao 'run' and tui 'push' have a thematic structure of [agent, theme], and both themes can be topicalized.

(16) Malasong ta pao le liang ci.
     Marathon he run ASP two time
     'As for marathon race, he ran twice.'

(17) Che ta tui le san ge zhongtou
     car he push ASP 3 MW hour
     'The car, he has pushed for three hours.'

On the other hand, verbs with a thematic structure of [agent, patient], though they violate the PSC, do not have to undergo verb copying. Examine the following:

(18) a. Ta kan wo liang ci.
     he see me two time
     'He visited me twice.'

   b. Ta kan wo kan le liang ci, keshi...
      he see I see ASP two time but
      'He has visited me twice, but...'  

In fact, in some cases verb-copying can cause the sentence to be incomplete as in (18b) above.

Furthermore, Li and Thompson (1981: 444) have observed that there are instances in which a referential, animate, or definite direct object is followed by a frequency or duration phrase but no verb-copying is necessary, as illustrated below:

(19) Ta ting le Zhangsan liang ci.
     he listen ASP Zhangsan two time
     'He listened to Zhangsan twice.'

Zhangsan is animate and referential, no verb-copying is necessary. Indefinite or inanimate nouns have to undergo verb-copying as the following shows:

(20) a. *Ta ting le yinyue liang ci.
       he listen ASP music two time

       b. Ta ting yinyue ting le liang ci.
          he listen music listen ASP two time
          'He listened to music twice.'

The explanation in terms of animate and definite nouns may account for some of the examples, but it is not true for the following sentences:

(21) a. *Wo qu kan Zhangsan liang ge zhongtou.
       I go see Zhangsan two MW hour

   b. Wo qu kan Zhangsan liang ci.
      I go see Zhangsan two time
      'I went to visit Zhangsan twice.'

(22) a. *Wo shuo Zhangsan san ge zhongtou.
       I speak Zhangsan 3 MW hour
       'I scolded Zhangsan for three hours.'
b. Wo shuo Zhangsan liang ci.
   I speak Zhangsan two time
   'I scolded Zhangsan twice.'

Faced with the above sentences, we realize animateness or referentiality of nouns cannot be the sole criterion for determining whether verb-copying is required (or prohibited). In fact, there is a clear distinction in behavior between the duration phrase and frequency phrase (compare sentences in (21) and (22)). Tai (1989) is probably the first one who noticed this difference and gave it a reasonable semantic account. Though both duration and frequency denote quantity, we need to distinguish them. Duration is a quantity whose parts are not separable and are ordered, while frequency is a quantity whose parts are separable and ordered, just as we have pointed out earlier.

Even in sentences involving simple verbs, the interference of thematic-structure constraints with Huang's PSC is obvious. Thus, verbs with a thematic structure of [agent, locative] or [them, locative] do not have to observe the PSC and are able to have two constituents following the verb.

(23) a. Ta hui jia wu ci.
    he return home five time
    'He returned five times.'

b. *Ta hui jia hui le wu ci.
    he return home return ASP five time

(24) a. Wo zai fang li san ge zhongtou.
    I at room in 3 MW hour
    'I was in the room for three hours.'

b. *Wo zai fang li zai le san ge zhongtou.
    I at room in at ASP three MW hour

Both hui 'return' and zai 'be at/in' have a thematic structure of [agent, locative]. The NPs fangli 'in the room' and jia 'home' have a localized theta-role rather than theme role. Notice fangli and jia cannot be topicalized, and no verb-copying is necessary.

Complex Verbs

Complex verbs refer to verb compounds in which a verb is composed of two verbs, such as chi bao 'to be full by eating', zuo hao 'do well', etc. Two prominent types of complex verbs are resultative verb compounds and directional verb compounds. We assume each lexical item has its own thematic structure; therefore, a complex verb, being composed of two lexical items, has complex thematic structure, which has two thematic roles. However, a morphological process may occur and merge separate thematic roles (Chang 1989, Li 1990). Such a morphological process may be constrained by the fact that there are only two (and at most three) arguments syntactically allowed in a clause. Verbs with a thematic structure [agent, patient] or [agent, theme], which is the result of merging of thematic roles, will not be subject to the verb copying, even if the PSC is violated.

(25) a. Ta da po zhe ge boli wu ci le.
    he hit broke this MW glass five time ASP
    'He broke this glass five times.'

    he hit broke this MW glass hit broke five time ASP

(26) a. Ta chi wan fan san ge zhongtou le.
    he eat finish rice 3 MW hour ASP
    'It has been three hours since he finished eating.'

b. *Ta chi wan fan chi wan san ge zhongtou le.
    he eat finish rice eat finish 3 MW hour ASP

Ditransitive verbs with a thematic structure of [agent, patient, goal] will not be subject to verb copying.

(27) a. Ta gei wo shu.
    he give I book
    'He gave me books.'

b. *Ta gei wo gei shu.
    he give I give book

A New Look at Verb-copying Phenomenon

Separating duration and frequency phrases from a resultative phrase is an important improvement in understanding the nature of verb-copying. Whether verb-copying is required relies on thematic structure, which varies according to these three separate types of phrase. In fact, verb-copying can be modified as well. Compare the following:

(28) Ta qi ma qi de bi qing lian zhang.
    he ride horse ride DE nose blue face swollen
    'His face got all bruised from riding a horse.'
(29) Ta qi ma shuai de bi qing lian zhong.
    he ride horse fall DE nose blue face swollen
    'His face got all bruised from falling while riding a horse.'

Sentence (28) is an instance of explicit verb copying, since the same verb qi ‘ride’ is repeated. Sentence (29) is an instance of implicit ‘verb copying’, because the second verb shuai ‘fall’ expresses a usual consequence of the action denoted by the first verb qi ‘ride’. We will call the second type of verb-copying as pseudo verb-copying. Notice that a second verb (i.e. shuai ‘fall’) is required in the sentence (29). If the position of the second verb is left empty, the sentence is ungrammatical, as illustrated in the following.

(30) *Ta qi ma de bi qing lian zhong.
    he ride horse DE nose blue face swollen

Complex verbs do allow a special kind of pseudo-verb-copying, though. By this special pseudo-verb-copying, a verb or adverb expressing some sort of completion, such as you ‘have’ or yijing ‘already’, replaces the prohibited second copy of the verb, thus making the sentence grammatical. We have the following examples:

(31) Ta da po zhe ge boli you wu ci le.
    he hit broke this MW glass have five time ASP
    'It has been five time that he broke this glass.'

(32) Ta chi wan fan yijing san ge zhongtou le.
    he eat finish rice already 3 MW hour ASP
    'It has been three hours since he finished eating.'

The same can be observed of simple verbs:

(33) a. Ta nian shu nian le liang ge zhongtou.
    he read book read ASP two MW hour
    'He studied for two hours.'

b. Ta nian shu you liang ge zhongtou le.
    he read book have two MW hour ASP
    'It has been two hours since he studied.'

We can immediately see the difference between these two sentences. The first one refers to the duration of time in which an action was performed, while the second one refers to the span of time of an action from the beginning up to the point when the sentence was uttered. Tai (1989) pointed out that one characteristic of verb copying is that it indicates the duration of the action. This can be easily seen from the difference in meaning of sentences (34) and (35) below, taken from Tai (1989). Furthermore, the time duration for verbs with [agent, patient] thematic structure is the time lapse from the completion of the action rather than the duration of the action.

(34) Wo gei ta xie xin (you) yi ge yue le.
    I to he write letter (have) one MW month ASP
    'It has been a month since I wrote him a letter.'

(35) Wo gei ta xie xin xie le yi ge yue le.
    I to he write letter write ASP one MW month ASP
    'I have been writing to him for a month.'

The first sentence, without the verb copying, indicates the lapse of time since the completion of the action writing a letter; while the second sentence, with the verb copying, indicates the duration of the action writing.

In conclusion, we propose to maintain PSC by augmenting it with necessary thematic-structure constraints. In fact, J. Huang (1982) himself uses subcategorization to block verb-copying from applying to the following sentence, and he could have applied this device more generally:

(36) a. Ta bi wo xue yi.
    he force me learn medicine

b. *Ta bi wo bi xue yi.
    he force I force learn medicine
    'He forced me to study medicine.'

In view of the significant number of counter-examples to the PSC we are led to reconsider the validity of PSC and the nature of verb-copying. Thus, we distinguish strong verb-copying and weak verb-copying and we incorporate thematic structure into the grammar. Only verbs which take a theme role may undergo verb-copying. The PSC remains valid if thematic structure is incorporated in the theory.

SUPPORTING EVIDENCE AND RELEVANCE OF ADOPTING THEMATIC STRUCTURE

Verb Copying and Focus Device

Cheng (1976) claimed that repetition is one of the syntactic devices in identifying
focus in Mandarin Chinese. According to him, what is repeated in a sentence is an unfocussed element and what is not repeated is the focus. Focus is defined in terms of semantic criteria of background–foreground, and new–old information. Thus, verbal complement (underlined in the examples below) is the exclusive focus in the sentence.

(37) Ta du jia shi zai Maui du de.
    he spend vacation is at Maui spend DE
    ‘It is on Maui he spent his vacation.’

(38) Ta shui shi shui le hen jiu.
    he sleep is sleep ASP very long
    ‘Admittedly, he slept for a long time.’

The repeated portion of the sentence, such as du jia ‘spend vacation’ in sentence (37) and shui ‘sleep’ in sentence (38), is the unfocussed element in a sentence, and the unrepeated portion is the focus of the sentence. Cheng’s observation in connection with (38) confirms our claim that verb-copying is to emphasize the quantity. This claim can be further tested by A-not-A questions. Thus, consider

(39) Ta qi ma qi le wu ci.
    he ride horse ride ASP five time
    ‘He rode horses five times.’

(40) Ta qi ma you mei you qi le wu ci?
    he ride horse have not have ride ASP five time
    ‘Did he ride horses five times?’

In answering A-not-A question, we have the following choices:

(41) a. You, ta qi le wu ci.
    have he ride ASP five time
    ‘Yes, he rode five times.’

b. Meiyou, ta meiyou qi wu ci, zhi qi le san ci.
    no, he NEG ride five time, only ride ASP three time
    ‘No, he did not ride five times, he only rode three times.’

c. Meiyou, ta yi ci ye mei qi guo.
    no, he one time also no ride EXP
    ‘No, he did not even ride once.’

These responses always involve quantity, which further shows that the focus of the A-not-A question lies in the quantity.

V–O Compounds

V–O compounds form two categories, one with a structure of [agent, theme], and the other [agent, patient]. Theme and patient are incorporated in the compound. Both theme and patient exhibit the same behavior as the independent theme and patient. Compare the following:

(42) a. Wo bi-ye san nian le.
    I finish-course 3 year ASP
    ‘It has been three years since I graduated.’

b. *Ye wo bi le san nian le.
    course I finish ASP 3 year ASP

(43) a. Wo xiaoz xi le liang ci.
    I bathe wash ASP two time
    ‘I bathed twice.’

b. Zao wo xi le liang ci.
    bath I wash ASP 2 time
    ‘I bathed twice.’

Though biye ‘graduate’ and xiaoz ‘bathe’ have the same structure of V–O, biye ‘graduate’ is not allowed, but it is allowed for xiaoz ‘bathe’. Similarly, verb copying is required for xiaoz ‘bathe’ but not for biye ‘graduate’.

(44) *Wo bi-ye bi le san nian le.
    I finish-course finish ASP 3 year ASP

(45) *Wo xiaoz liang ci.
    I bathe two time

Saliency

Our claim that verb-copying is to bring quantity into focus is consistent with the result of research on the placement of aspect marker le (Chang 1990a). The aspect marker le is to highlight the salient element in a sentence, and it is placed after the
verb which takes the quantity phrase as its object in a verb-copying sentence.

(46) a. Ta chi fan chi le san ge zhongtou.
he eat rice eat ASP three MW hour
'He ate for three hours.'

b. *Ta chi le fan chi san ge zhongtou.
he eat ASP rice eat three MW hour

The traditional belief that le has to place the second copy of the verb is not correct. Observe the following sentence:

(47) a. Ta zuo le san ge zhongtou zuo lei le.
he work ASP three MW hour work tired ASP
'He was tired from working three hours.'

b. *Ta zuo san ge zhongtou zuo le lei.
he work three MW hour work ASP tired

Again le is placed with the verb which takes the quantity phrase as its object.
Tai (1989) claimed that intransitive verb such as ku 'cry' can involve verb-copying as in sentence (48).

(48) Ta yizhi ku, ku le san ge zhongtou.
he continuously cry cry ASP 3 MW hour
'He kept crying for three hours.'

The so-called verb-copying in sentence (48) occurs across sentence boundary. The normal verb-copying occurs in the same clause. Across-boundary verb-copying has a corresponding non-verb-copying counterpart in sentence (49).

(49) Ta yizhi ku le san ge zhongtou.
he continuously cry ASP 3 MW hour
'He continuously cried for three hours.'

The verb ku 'cry' is duplicated, because there are two salient points (adverb yizhi 'continuously' and san ge zhongtou 'three hours') in sentence (48) and the speaker wants to highlight both. In cases where more than one semantic saliency points have to be marked, verb-copying will be used.

In conclusion, we have offered semantic evidence observed in Cheng (1976) to support our claim that verb-copying is to emphasize elements of quantity in a sentence.

The placement of aspect marker -le to mark the salient point in a sentence further supports our functional view of verb-copying. The abundance of V–O compounds and their behavior in terms of topicalization and verb-copying show that thematic structure is an independent mechanism interacting with the Phrase Structure Condition (Huang 1984).

CONCLUSION

In this paper, verb-copying phenomenon is discussed in terms of its functional use, and it is viewed as a manifestation of the interaction between syntax (Phrase Structure Condition) and semantics (thematic structure). The link between these two levels of representation lies in the thematic structure of predicates as proposed by Jackendoff (1972, 1987). We propose different parameters that affect the verb-copying. They include semantics (difference between frequency and duration), focus (emphasis and salient point of the sentence), syntax (phrase structure constraint), and thematic structure. Verb-copying is a manifestation of interaction between thematic structure and the Phrase Structure Condition. The Phrase Structure Condition is to make sure that a sentence is syntactically grammatical, provided that the thematic structure of the verb does not contradict it. The post-verbal elements of result phrases should be separated from frequency and duration phrases and handled independently by other principle when discussing verb-copying.

NOTES

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