

down'. Perhaps instead the eye is 'looking down on an inferior'. Finally, T.B. \**tip* 'ten' (Benedict 1972:19) relates to 十 686a *tiap* 'ten' (Li: *tiap*) where an *s*-cluster need not be postulated.

A fuller discussion of the many cases of possible cognates where Tibetan has *s*-clustering with -*l*-, -*r*-, and nasals, which are only briefly mentioned in this paper, would necessitate a lengthy treatment. Such a study would also have to include examples of cases where velars and palatals both occur in O.C. phonetic series and word families.

It is hoped that this study has strengthened the case for the existence in Old Chinese of clusters of type \**sp*-, \**st*-, and \**sk*-, but it is obvious that much work still remains to be done.

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## A DERIVATIONAL CONSTRAINT ON ADVERBIAL PLACEMENT IN MANDARIN CHINESE

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(1973)

A general derivational constraint on the placement of predicates is proposed to account for the surface distribution of Chinese adverbials, negatives, and auxiliaries which can be appropriately derived from underlying predicates. It is observed that in Chinese, a preverbal adverbial is always understood as having the main verb in its scope, while a postverbal adverbial is never understood in this way. It will be shown that the proposed constraint and an independently motivated assumption of universal characterization of the semantic scope relation can excellently explain the facts of linear order of multiple adverbials and their corresponding semantic scope interpretations in Chinese. By assuming that the proposed constraint holds for Chinese, but not for English, it is possible to account for the differences between Chinese and English with respect to the placement of adverbials and other surface constituents which can be derived from underlying predicates.<sup>1</sup>

1. **INTRODUCTION.** Although logicians have presented different approaches to the formal representation of adverbials in predicate calculus, they seem to agree that the semantic function of an adverbial is to map properties of predicates into new properties.<sup>2</sup> Semantically, we can therefore identify any grammatical constituent in a given language which satisfies this definition as an adverbial. Syntactically, it is however the case that adverbials may vary from language to language in their surface syntactic properties. Even within the same language, adverbials of different kinds often exhibit different syntactic patterns. It not infrequently happens that when linguists try to analyze the structure of a particular language, they cannot agree with each other on treating certain types of constituents as adverbials. The task of identifying adverbials in a particular language can be made easier, if we identify adverbials in terms of some semantic functions of cross-linguistic validity rather than on the basis of their language-specific syntactic behaviors.<sup>3</sup>

Due to the lack of overt adverbial markings, Chinese grammarians have

<sup>1</sup> An abbreviated version of this paper was presented at the Annual Meeting of the Linguistic Society of America, St. Louis, Missouri, December 28, 1971. I am indebted to Gerald A. Sanders for valuable comments on the original manuscript. I have also benefited from comments by Emmon Bach, John Robert Ross, and Benjamin K. T'sou during the meeting. This research was supported in part by a summer research grant from the Graduate School, Southern Illinois University at Carbondale.

<sup>2</sup> For more discussion concerning this see Reichenbach (1947:301-310), Clark (1970), Parsons (1972), Harman (1972) and others.

<sup>3</sup> See Sanders (1972) for an important discussion of semantic and syntactic characteristics of different types of adverbs. For detailed discussion of a number of important semantic functions of adverbials see Shuan-fan Huang (1971).



adopted a strategy which is based on the notion of modification to cope with the problems of identifying adverbials. The term modification in Chinese grammar is typically characterized by Chao (1968) as the following:

'An expression X is said to modify another expression Y when XY is an endocentric construction and Y, but not X, is the center. X is called the attribute or modifier, and Y the head or modified part.' (Chao 1968: 274)

Chinese adverbials are then defined as those constituents which are in the modification construction with verbs, adjectives, and other adverbials. It is significant to note that Chao has not defined the term modification in the same way as logicians have normally defined it.<sup>4</sup> The linear order plays a rather important role in his definition. By his definition, a constituent which has the function of an adverbial will not be considered as an adverbial, if it doesn't precede the governing head or center. Thus, adverbials are considered as adverbials, only if they precede governing heads. If they follow governing heads, they are treated as complements. This distinction by Chao is particularly clear in the cases where adverbials are in construction with the main predicate.

There is nothing wrong with this distinction. What has gone wrong is that many Chinese grammarians have taken this distinction as 'given' rather than something to be 'explained'. It seems clear that the so-called verbal complements have the same semantic function as adverbials in mapping the property expressed by the main predicate onto a new property. This is further evidenced by the fact that the equivalents of many of these Chinese verbal complements are adverbials in English. Questions should then be raised as to why adverbial placement in Chinese has this particular feature. Why is it that while some adverbials are placed before the main verb, some other adverbials are placed after? What kinds of adverbials are placed before the main verb? What kinds are placed after?

In terms of surface distribution, adverbials in Chinese can be categorized into three classes: adverbials which can only occur before the main verb, adverbials which can only occur after the main verb, namely the so-called verbal complements, and adverbials which can occur either before or after yet with different functions. The purpose of this paper is to propose a theory which will account for the placement of adverbials in Chinese. The proposed theory consists essentially of the assumption that most adverbials are derived from underlying predicates and a general constraint on the placement of Chinese adverbials which is shown to be valid for the placement of Chinese predicates in general. It will be shown that the systematic differences between Chinese and English in their respective patterns of adverbial place-

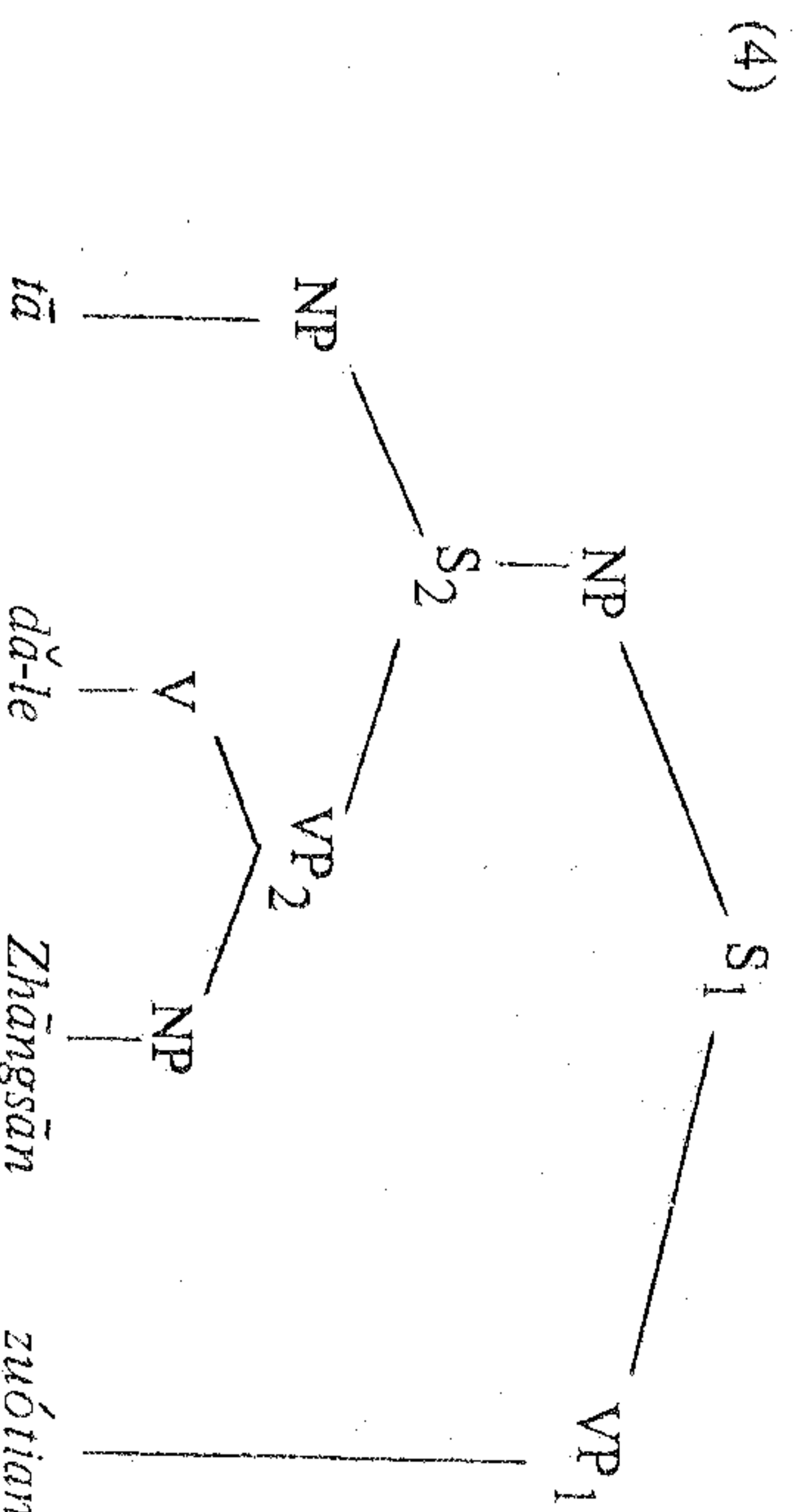
<sup>4</sup>Generally speaking, logicians have considered the process of modification as the mapping of a property into new property.

ment can be explained by assuming that this constraint holds for Chinese, but not for English.

2. **ADVERBIAL PLACEMENT.** In Chinese, time adverbs, locative adverbial phrases, and modal adverbs can occur before the main verb, but not after.<sup>5</sup> This is illustrated in examples (1)-(3).

- (1) a. *tā zuótiān dǎ-le Zhāngsān*  
(he) (yesterday) (hit-asp) (John)  
He hit John yesterday.  
b. *zuótiān tā dǎ-le Zhāngsān*  
c. \* *tā dǎ-le zuótiān Zhāngsān*  
d. \* *tā dǎ-le Zhāngsān zuótiān*
- (2) a. *tā zài xuéxiào-lì dǎ-le Zhāngsān*  
He hit John in the school.  
b. *zài xuéxiào-lì tā dǎ-le Zhāngsān*  
c. \* *tā dǎ-le zài xuéxiào-lì Zhāngsān*  
d. \* *tā dǎ-le Zhāngsān zài xuéxiào-lì*
- (3) a. *tā kěnéng dǎ-le Zhāngsān*  
He hit John, possibly.  
b. *kěnéng tā dǎ-le Zhāngsān*  
c. \* *tā dǎ-le kěnéng Zhāngsān*  
d. \* *tā dǎ-le Zhāngsān kěnéng*

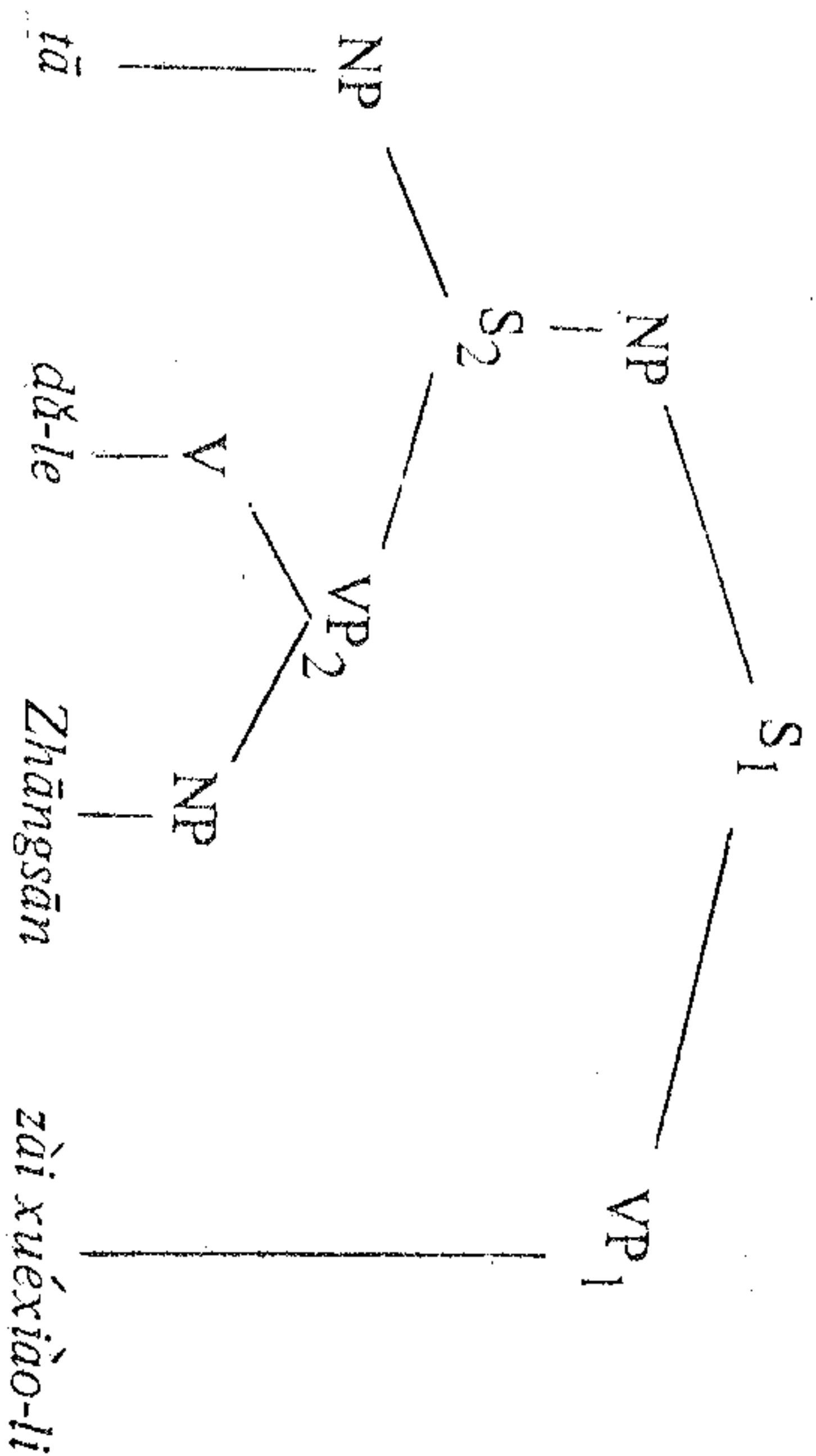
On the evidence of English syntax, Lakoff (1965, 1970), Schreiber (1968) and others have argued that these adverbials are underlying higher predicates which take abstract sentential subjects. If we assume that these adverbials in Chinese are also derived from the same type of higher predicates, the underlying structures of (1), (2), and (3) can be represented as (4), (5), and (6) respectively.



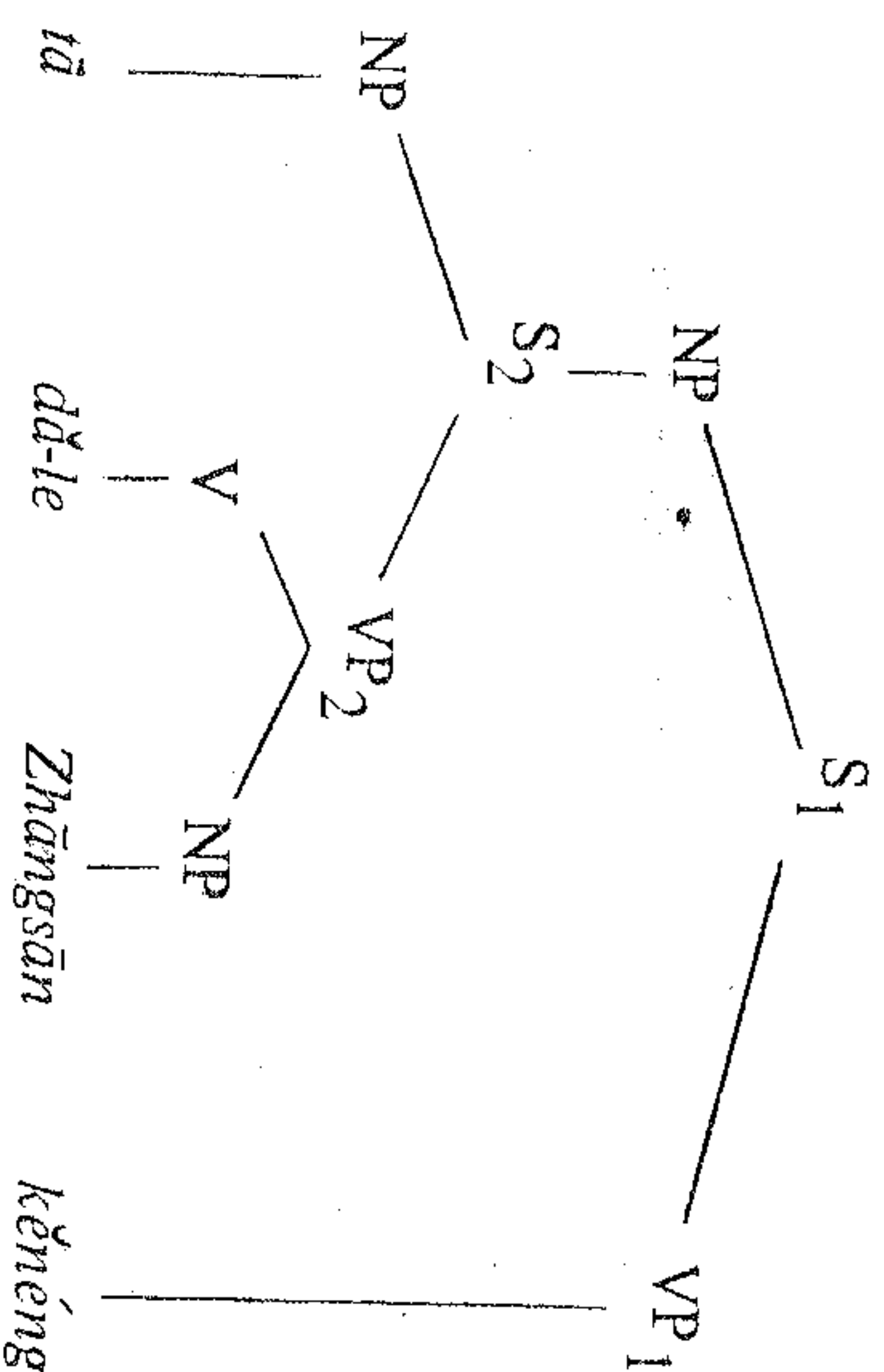
<sup>5</sup>Locative adverbial phrases can also occur after the main verb. However, preverbal locative adverbials and postverbal locative adverbials have different semantic functions. This is to be illustrated and discussed in sentence (18).



(5)



(6)



In the (4), (5), (6) representations, VP<sub>1</sub> commands VP<sub>2</sub>.<sup>6</sup> In (1), (2), (3) sentences VP<sub>1</sub> is always ordered before VP<sub>2</sub>. To account for the placement of adverbials derived from higher predicates which take sentential subjects, we can thus propose the following constraint:

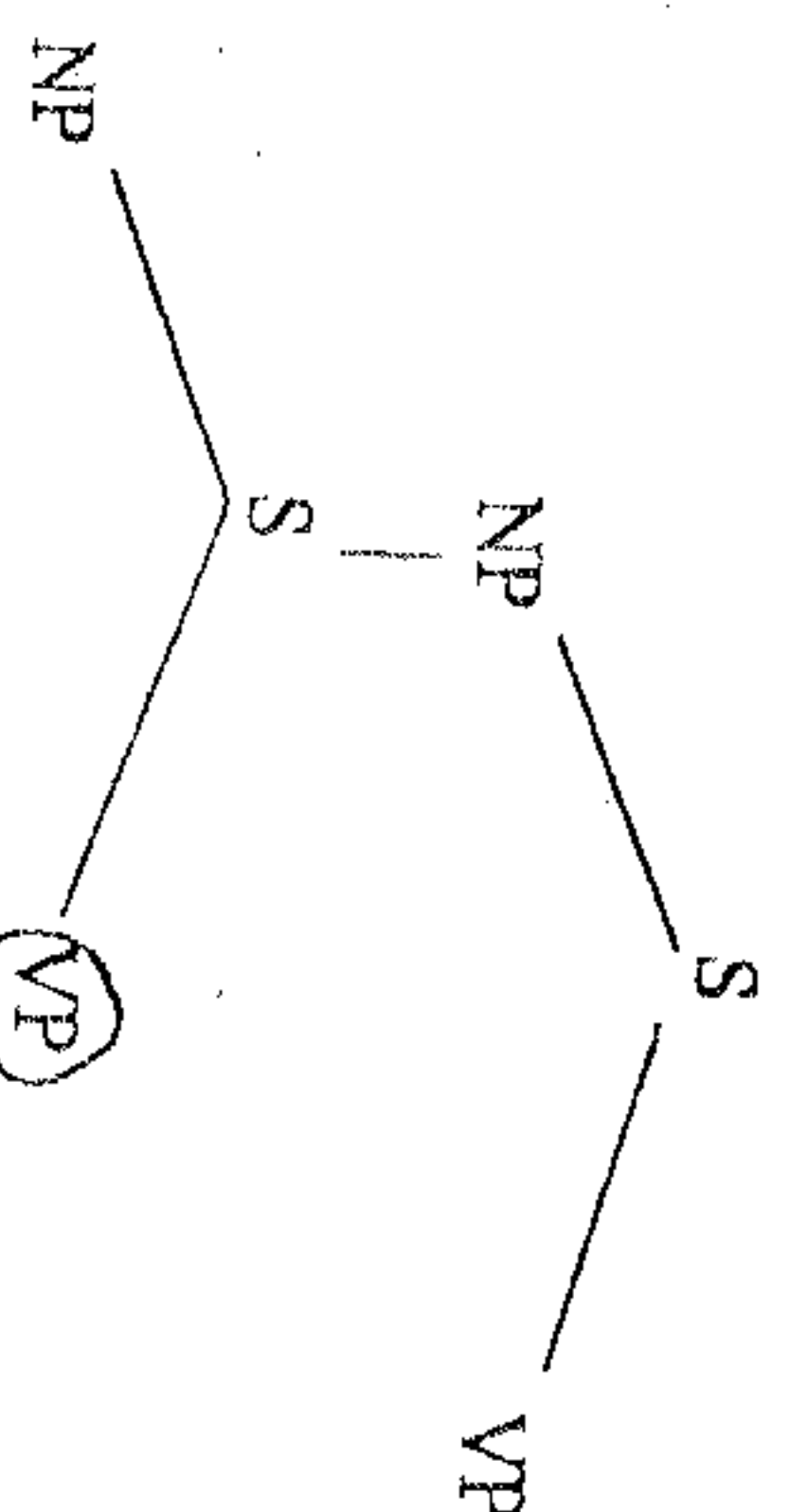
Predicate Placement Constraint (PPC):

If predicate A commands complement predicate B in the underlying structure, A must precede B in the surface structure.<sup>7</sup>

<sup>6</sup>The term 'command' here is used as it is defined by Langacker (1969).

<sup>7</sup>A complement predicate is defined as the predicate of a sentential subject or a sentential object. Thus, all the circled VP's in the following tree representations are complement predicates:

(a)



In addition to the adverbials like those in (1)-(3), which are derived from one-place underlying higher predicates, there are adverbials which, as Lakoff (1965, 1968, 1972) has suggested, can be plausibly derived from two-place or three-place underlying higher predicates. These are respectively represented by the manner adverb *carefully* in (8) and the instrumental adverbial phrase *with a knife* in (9).

(8) He cut the fish carefully.

(9) He cut the fish with a knife.

These adverbials in Chinese can only occur before the main verb, as shown in (10) and (11).

(10) a. *tā xiǎoxīn-de qiē-le yú* (= 8)

(he) (carefully) (cut-asp) (fish)

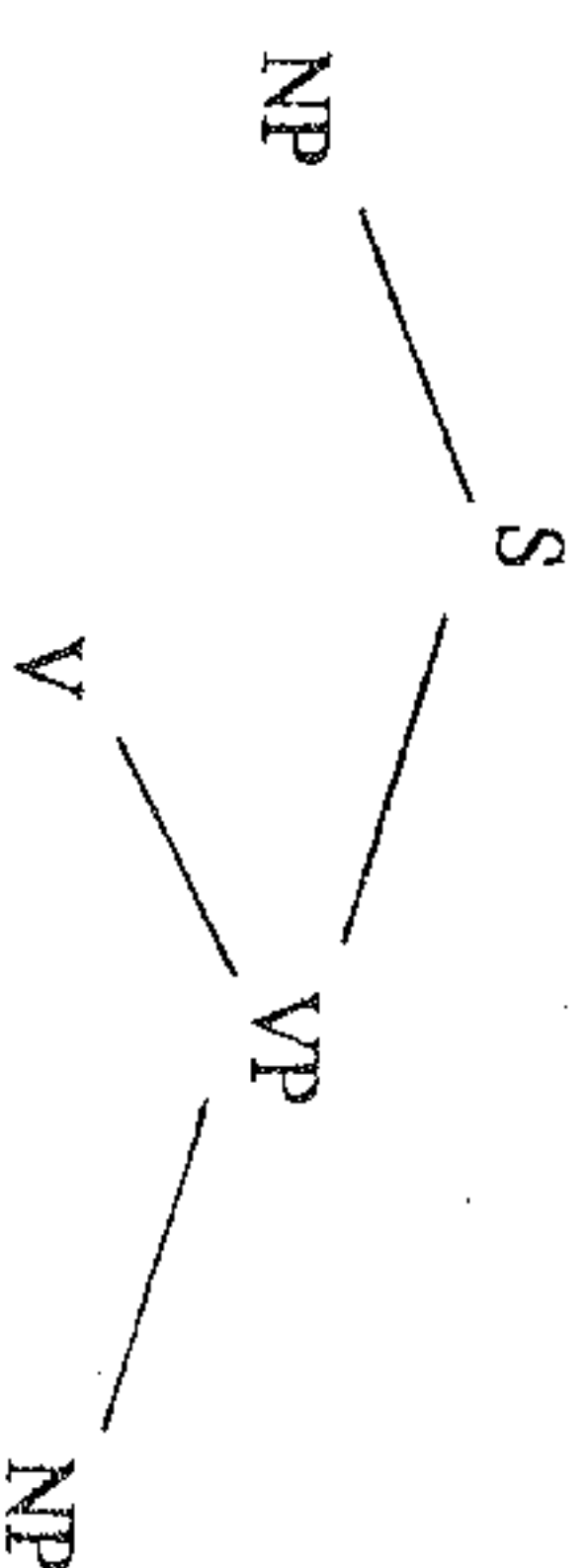
b. \* *tā qiē-le yú xiǎoxīn-de*

(11) a. *tā yòng dāozi qiē-le yú* (= 9)

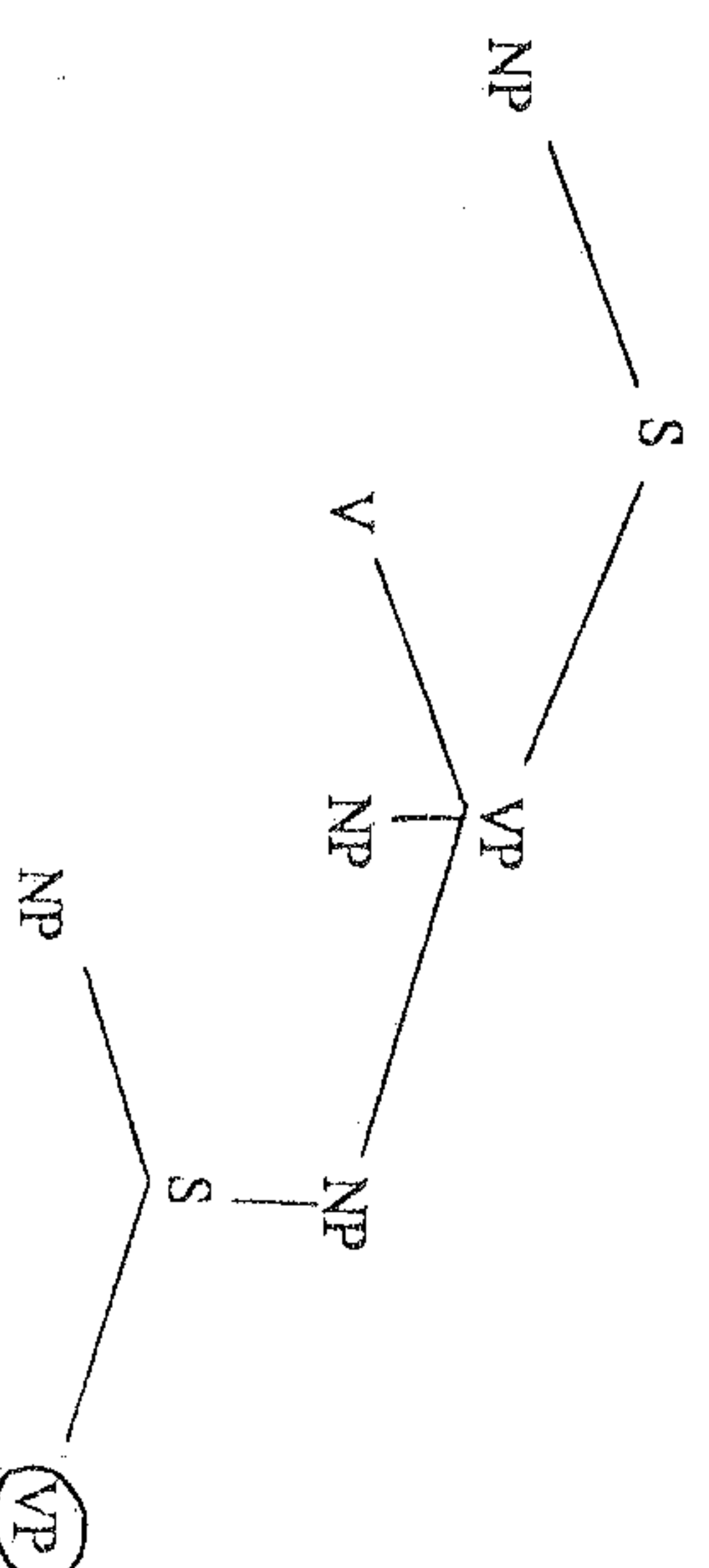
(with a knife)

b. \* *tā qiē-le yú yòng dāozi*<sup>8</sup>

(b)



(c)



The proposed constraint is a global constraint in Lakoff's (1971) definition. I have avoided the term *global*, and leave the question open as to whether PPC has to be defined as a global constraint.

<sup>8</sup>(11b) should not be confused with sentences such as (50) or (51).

(50) *qiē yú yòng dāozi*

One uses a knife to cut fish.

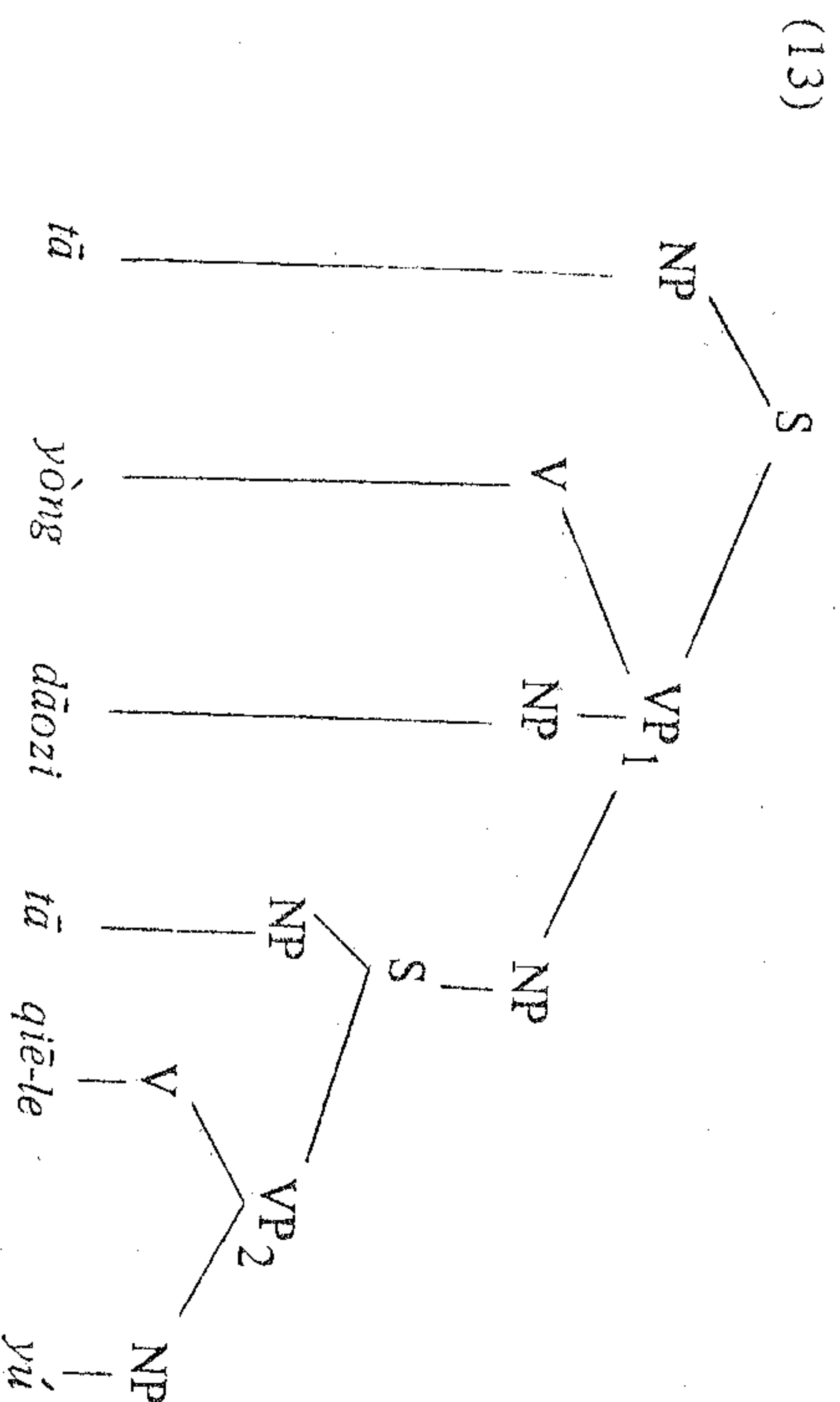
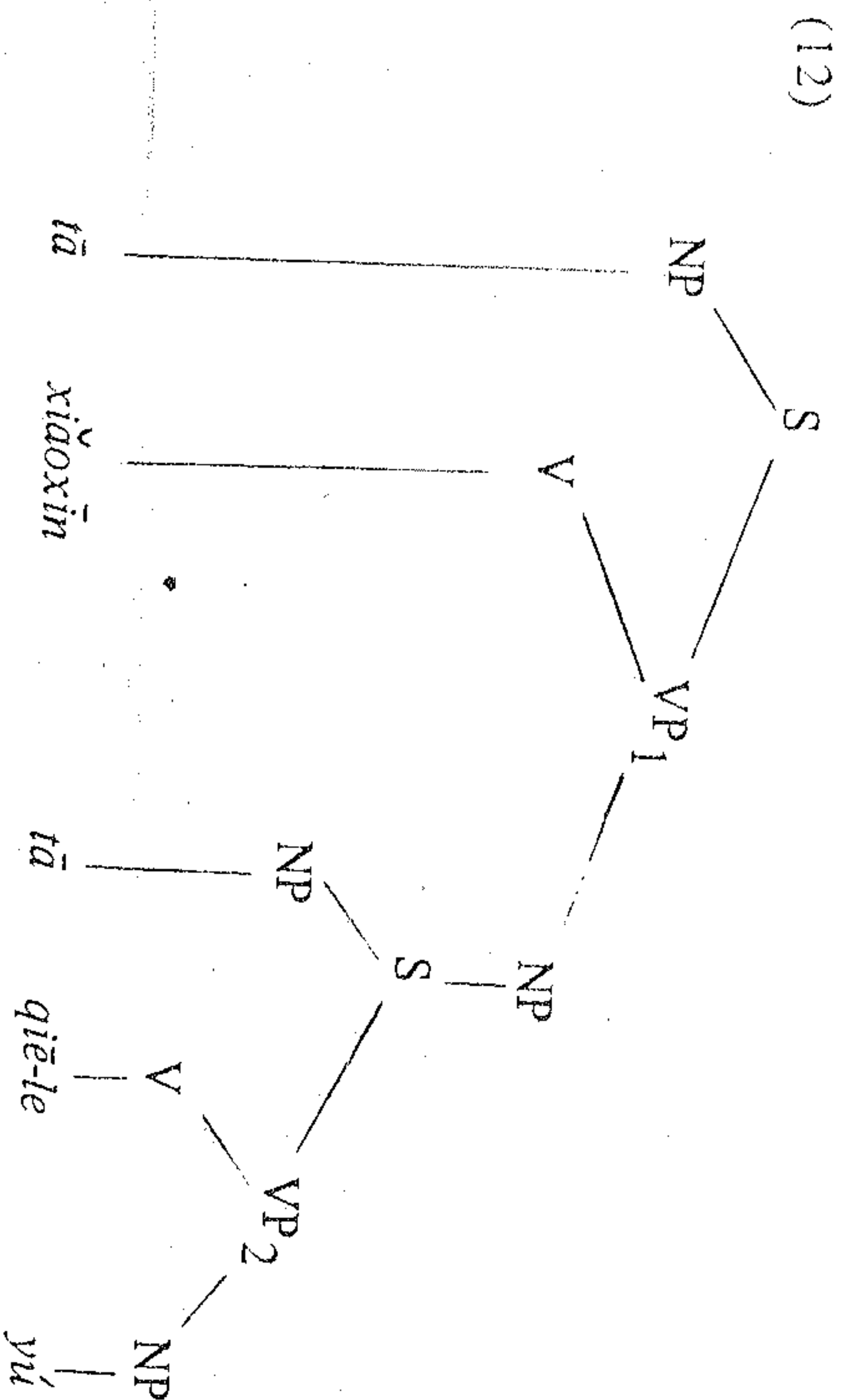
(51) *Zhōngguó rén chī jàn yòng kùnzǐ*

Chinese use chopsticks to eat meals.

*yòng* phrases in (50) and (51) are main predicates rather than adverbial phrases. (50) and (51) are sentences with generic interpretations and can be paraphrased into (50)' and (51)' respectively.



If we follow Lakoff's suggestions for the treatment of adverbials like *carefully* and *with a knife*, we can consider (12) and (13) as underlying representations for (10) and (11) respectively.



With (12) and (13) representations, it is not difficult to see that the PPC also serves to block ungrammatical sentences like (10)b and (11)b.<sup>9</sup>

For purposes of discussion, we will refer to the class of Chinese adverbials

(50)' When one cuts fish, one uses a knife.

(51)' When Chinese eat meals, they use chopsticks.

That (50) and (51) involve a structure different from that of (11a) can further be evidenced by the ungrammaticality of (52) and (53).

(52) \**qiē-le yú yòng dāo-zi*

(53) \**Zhōngguó rén chī-le fàn yòng kuàizi*

<sup>9</sup>In (12) and (13) tree structures, VP<sub>2</sub> is included in VP<sub>1</sub>. In order for PPC to apply to place VP<sub>1</sub> before VP<sub>2</sub> in surface structure, we have to consider the main verb and the object (if any) immediately dominated by VP<sub>1</sub> as the actual VP<sub>1</sub> which PPC will refer to.

which can only occur before the main verb as preverbal adverbials and to the class of Chinese adverbials which can only occur after the main verb as postverbal adverbials. Roughly speaking, the class of preverbal adverbials consists of time adverbs (as in (1)), locative adverbial phrases (as in (2)), modal adverbs (as in (3)), manner adverbs (as in (10)), and instrumental adverbs (as in (11)).

From the examples given above, it can be seen that in English, however, the equivalents of Chinese preverbal adverbials can occur after the verb. This systematic difference between Chinese and English can be explained by means of the proposed PPC, if we assume that both Chinese and English have the same underlying representations for these preverbal adverbials, and that while Chinese observes the PPC, English doesn't.

The class of postverbal adverbials consists of resultative adverbials, adverbs of duration, adverbs of frequency, and descriptive adverbs.<sup>10</sup> They are illustrated in (14)-(17) sentences respectively.

(14) a. *tā pīn-duì-le zhèige zì*

(he) (spell-correct-asp) (this) (word)

He spelled this word correctly.

b. \* *tā duì-pīn-le zhèige zì*

c. \* *duì tā pīn-le zhèige zì*

(15) a. *tā shuì-le sān tiān*

(he) (sleep-asp) (three) (day)

He has slept for three days.

b. \* *tā sān tiān shuì-le*

c. \* *sān tiān tā shuì-le*

(16) a. *tā lái-le sān cì*

(he) (come-asp) (three) (time)

He has come three times.

b. \* *tā sān cì lái-le*

c. \* *sān cì tā lái-le*

(17) a. *láo-hu pǎo de kuài*

(tiger) (run) (de-marker) (fast)

The tiger runs fast.

b. \* *láo-hu kuài de pǎo*

c. \* *kuài láo-hu pǎo*

Although the sources for these postverbal adverbials cannot be well deter-

<sup>10</sup>Adverbs such as *kuài* 'fast' in (17a) have often been labelled as manner adverbs. In this paper, I have restricted the term **manner adverb** to those adverbs which express the state of mind of the participant of an action, and called those which help to describe the property of the action indicated by the verb **descriptive adverbs**. Thus, while *carefully* in (10a) is a manner adverb, *fast* in (17a) is a descriptive adverb.

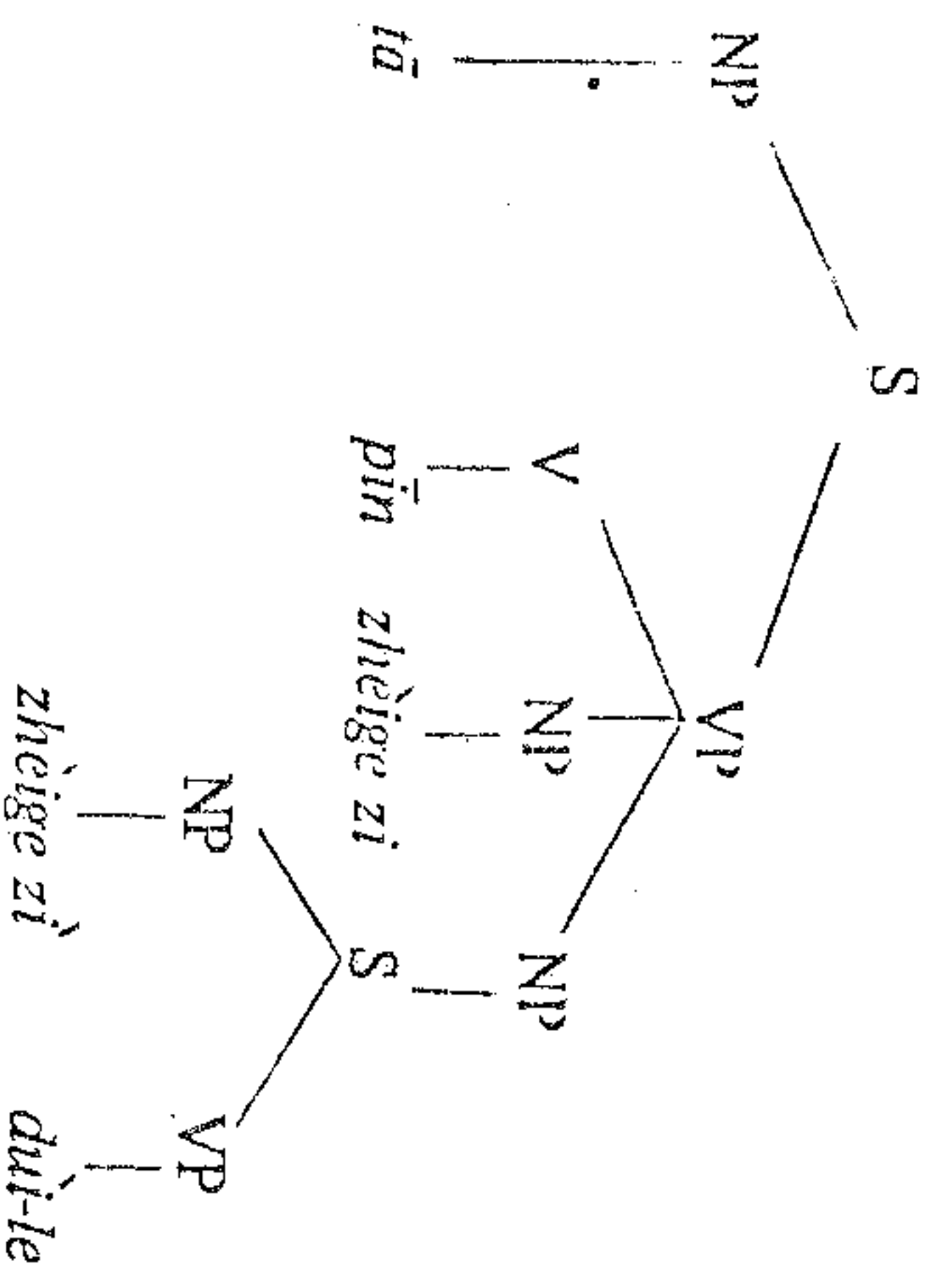


mined,<sup>1</sup> the observation can be made that while a preverbal adverbial in Chinese expresses a qualification or restriction on the occurrence of an event (as in (1)-(3)) or the circumstance or manner in which the actor performs the action (as in (10)-(11)), a postverbal adverbial expresses the result of an action (as in (14)), the extent to which an action has performed (as in (15) and (16)) or a further characterization of the action indicated by the verb (as in (17)).<sup>12</sup> Thus, the function of preverbal adverbials is clearly different from that of postverbal adverbials. For purposes of discussion, it seems proper that we refer to preverbal adverbials as having a function of modifying the main verb, and to a postverbal adverbial as having a non-modification function on the main verb.

(18) a. *tā bǎ zì xiě zài zhuōzi-shàng*

(he) (obj. marker) (character) (write) (at) (table) (on)  
He wrote characters on the surface of the table.

<sup>11</sup> Anne Yue Hashimoto (1966) has convincingly shown that resultative adverbials can be derived from predicate of underlying verbal complement sentences. For example, the underlying structure of (14) can be represented as:



The fact that resultative adverbials are ordered after the main verb can be accounted for by the proposed PPC, and the assumption that resultative adverbials are derived from underlying subordinate predicates. If it can be shown that all postverbal adverbials are derived from underlying predicates which are subordinate to the main verb, PPC can also account for the placement of adverbials in (15)-(17) sentences.

<sup>12</sup>The function of descriptive adverbs can be seen more clearly through the analysis of this type of adverbs by logicians. For example, the sentence *x moves slowly* is analyzed by Reichenbach (1947) as *there is a specific motion-property which x has and which is slow*. Thus, in Reichenbach's analysis, *slowly* is a predicate which describes the property of the main verb *move*.

- b. *tā zài zhuōzi-shàng bà zì xiě-lè*  
He wrote the characters (on papers) at the table.
- (19) a. *tā wáir de hěn gāoxìng*  
(he) (play) (de-marker) (very) (happy)  
He is very happy from playing.
- b. *tā hěn gāoxìng de wánrzhè*  
He is playing very happily.
- (20) a. *tā zǒu de hěn kuài*  
(he) (walks) (de-marker) (very) (fast)  
He walks very fast.
- b. *tā hěn kuài de zǒu-kāi*  
He walked away very fast.

It can be seen from the English translations that while in (18a) *zài zhuōzi shàng* 'on the table' indicates the location of the characters written, in (18b) it indicates the location where the action of writing characters has taken place. Thus, in (18a) the characters are written on the surface of the table, in (18b) the characters can be written on paper or on something else, and not necessarily on the surface of the table. In (19a), *hěn gāoxìng* 'very happy' denotes the result of the action, in (19b) it expresses the state of the mind in which the actor has performed the action. Similarly, while in (20a) *hěn kuài* 'very fast' describes the speed of the action, in (20b) it states the manner in which the actor has performed the action. It should be noted that while in (19b) and (20b) the actor can have the volition on the circumstance or the manner in which he has performed the action, in (19a) and (20a) the actor himself cannot determine the result or the extent of the action. Thus, while in (19b) the actor can choose to perform the action in a happy mood, in (19a) the actor feels happy either after he has started or after he has finished performing the action. Similarly, in (20b) the actor can be a person who walks slow yet who chose to walk as fast as he could manage in this particular incident. In (20a), however, the actor cannot be a slow walker, and it is implied that he is able to walk very fast, and that he habitually walks very fast.

Based on the observation that a preverbal adverbial has the function of modification, which is not observed in the case of postverbal adverbials, we seem to be justified in claiming that in Chinese a preverbal adverbial is always understood as having the main verb in its scope, while a postverbal adverbial is never understood in this way. In the present analysis, the fact that a preverbal adverbial cannot occur after the main verb is automatically explained by the proposed PPC, and the independently motivated assumption that semantic scope is universally characterized by the asymmetrical command relation in the underlying structure.

3. **ADVERBIAL SCOPE.** If the assumed characterization of adverbial scope and the proposed ordering constraint are both valid, it would then be expected that when there is more than one preverbal adverbial in a Chinese sentence, the



linear order of these adverbials reflects their relative heights in the underlying structure. This expectation is, in fact, correct. Thus, in Chinese, if adverbial X is semantically in the scope of adverbial Y, then X is always ordered after Y. For example, in (21) *yǒushíhòu* 'sometimes' is always ordered after *qùnián* 'last year'.

(21) a. *wǒ qùnián yǒushíhòu kànjian tā*

(I) (last year) (sometimes) (see) (him)

I saw him sometimes last year.

b. \* *wǒ yǒushíhòu qùnián kànjian tā*

(22) a. *wǒ zài měiguó hěn duō dìfāng zhù-guo*

(I) (at) (U.S.A.) (very) (many) (place) (live-asp)

I have lived in many places in U.S.A.

b. \* *wǒ hěn duō dìfāng zài měiguó zhù-guo*

The impossibility of ordering 'sometimes' before 'last year' is due to the non-existence of an underlying structure in which 'sometimes' is a higher predicate for the sentence 'I saw him last year'. This deep structure constraint is consistent with the fact that 'last year' has a wider scope than 'sometimes' in every possible semantic interpretation. (22) represents a parallel situation in the case of space.

Our expectation is also verified by the fact that whenever both X-Y and Y-X orders are possible for a pair of Chinese adverbials, there is either a contrast of meaning related to differences in scope, or there is no sentence in which either of these two adverbs can be understood to be in the scope of the other. Thus, (23a) asserts 'yesterday' with respect to the act of my hitting him and can be paraphrased as 'it was yesterday that I hit him intentionally', while (23b) asserts 'intentionally' with respect to the act which took place yesterday and can be paraphrased as 'my act of hitting him yesterday was done intentionally'.

(23) a. *wǒ zuótiān gùyì dǎ-le tā*

(I) (yesterday) (intentional) (hit-asp) (him)

It was yesterday that I intentionally hit him.

b. *wǒ gùyì zuótiān dǎ-le tā*

My act of hitting him yesterday was done intentionally.

The contrast between (23a) and (23b) can also be seen by the fact that while (23a) can serve as an answer to the question (24), (23b) cannot.

(24) a. *nǐ shénmo shíhòu gùyì dǎ-le tā*

(You) (what) (time) (intentionally) (hit-asp) (him)

(25) a. *tā zài chúfáng-lǐ yòng dāozi qiē yú*

(he) (at) (kitchen) (inside) (use) (knife) (cut) (fish)

He is cutting fish in the kitchen with a knife.

b. *tā yòng dāozi zài chúfáng-lǐ qiē yú* (= 25a)

(25a) and (25b) can serve as an example of cases in which both X-Y and Y-X orders are possible, yet in which there is no contrast of meaning related to any differences in adverbial scope. The ordering relation of the pair of

adverbials in (25) is not incompatible with the present treatment, since the semantic relation between 'in the kitchen' and 'with a knife' with respect to the main verb seems clearly of a coordinate nature. It is a well-known fact that the conjuncts of a genuine coordinate structure can always have free ordering.

If my arguments so far are correct, an interesting question should be raised concerning the fact that in Chinese, time adverbials always have to be ordered before locative and instrumental adverbials.<sup>13</sup> It is illustrated by (26) and (27).

(26) a. *tā zuótiān zài chúfáng-lǐ qiē-le yú*

(he) (yesterday) (at) (kitchen) (inside) (cut-asp) (fish)

He cut fish yesterday in the kitchen.

b. \* *tā zài chúfáng-lǐ zuótiān qiē-le yú*

(27) a. *tā zuótiān yòng dāozi qiē-le yú*

(he) (yesterday) (with) (knife) (cut-asp) (fish)

He cut fish with a knife yesterday.

b. \* *tā yòng dāozi zuótiān qiē-le yú*

It is not obvious that locative and instrumental adverbials should be within the scope of the time adverbials when they are referring to an action identified by the same verb. I do not know of any significant syntactic evidence which can support the claim that time adverbials should always be represented as predicates higher than locative and instrumental adverbials in the underlying structure. Such evidence should exist, however, if the proposed ordering principle for Chinese adverbials is correct.

I have shown that PPC can explain the ordering relations among those Chinese adverbials which have the function of defining scope for the main verb. From the above discussion, it should be clear that PPC also explains the differences between English and Chinese with respect to the ordering among adverbials themselves. Although Lakoff (1971) has given some English examples which are parallel to our Chinese example represented in (23), it is not the case that the placement of multiple adverbials in English also observes PPC.<sup>14</sup> This can be seen from the English translation sentences in (21) and

<sup>13</sup> Related to this is the fact that to many native speakers of Mandarin Chinese, sentences involving the preposing of locative or instrumental adverbs to the initial position are not as normal as sentences with time adverbials preposed to the initial position. In fact, these three types of adverbials form a scale of grammaticality in regard to the preposing to the sentence initial position. The order of ranking is (1) time, (2) locative, and (3) instrumental. Thus, for example, (2b) is not as colloquial as (1b), and the sentence *yòng dāozi wǒ qiē-le yú* (with a knife I cut fish) is not normal as (2b).

Perhaps, also related is the fact that while sentences such as *tā zài chúfáng-lǐ* (he is in the kitchen) and *tā yòng dāozi* (he uses a knife) are grammatical, the sentence *tā zuótiān* (he yesterday) is ungrammatical.

<sup>14</sup> For example, the contrast between (55a) and (55b).

(55) a. John evidently had *carefully* sliced the bagel *quickly*.  
b. John evidently had *quickly* sliced the bagel *carefully*.



(22). In fact, there are many cases in English which represent exactly the reverse situation of (23) in Chinese.

- (28) a. I beat my wife in public often.  
b. I beat my wife often in public.

(28) can serve as an example for discussion.<sup>15</sup> In (28a), 'often' is higher than 'in public' in the underlying structure, yet 'often' is ordered after 'in public'. In (28b), 'in public' is higher than 'often', yet again, the higher one is ordered after the lower one. The Chinese sentence corresponding to (28), however, shows that contrast between (28a) and (28b) in Chinese is predictable in terms of PPC.

- (29) a. *wǒ cháng zài dàzhòng miànrán dǎ wǒ qīzi*  
(I) (often) (at) (public) (before) (hit) (my) (wife) (= 28a)  
b. *wǒ zài dàzhòng miànrán cháng dǎ wǒ qīzi* (= 28b)

It is not my concern at present to determine what principles govern the placement of adverbials in English. As far as the systematic differences between Chinese and English in adverbial placement are concerned, however, it seems sufficient to assume that Chinese observes PPC, while English does not.

4. **PREDICATE PLACEMENT.** The assumption that PPC holds for Chinese, but not for English can also explain the systematic differences between these two languages in the placement of other constituents which can be appropriately derived from underlying higher predicates. Thus, consider the placement of negatives in Chinese.

- (30) a. *tā méi yǒu qián*  
(he) (not) (have) (money)  
He has no money.  
b. \* *tā yǒu méi qián*  
(31) a. *tā méi dǎ rén*  
(he) (not) (hit) (person)  
He didn't hit anyone.  
b. \* *tā dǎ méi rén*  
(32) *méi rén dǎ wǒ*  
(not) (person) (hit) (I)  
Nobody hit me.

(30) illustrates the fact that the negative cannot occur after the main verb. (31) and (32) show that although there is a rule of Negative Incorporation in Chinese, the negative is not allowed to be attached to an NP after the main verb.<sup>16</sup> The ungrammaticality of sentences like (30b) and (31b) can be explained by the proposed constraint and the assumption that in both English and Chinese, the negative in (30) and (31) originates from the main verb of the higher sentence.

<sup>15</sup>I have borrowed this example from Lakoff (1965).

<sup>16</sup>For a detailed discussion of the rule of Negative Incorporation see Klima (1964) and Robin Lakoff (1969b).

The proposed PPC also explains the fact that in Chinese, the negative cannot be raised out from complement sentences and placed before the main verb. Thus, while there is a rule of Negative Transportation in English, there is none in Chinese.<sup>17</sup> This can be exemplified by (33).

- (33) a. *wǒ xiǎng Zhāngsān fēidào míngtiān bú huì lái*  
(I) (think) (John) (until) (tomorrow) (not) (will) (come)  
I think John won't come until tomorrow.  
b. \* *wǒ bú xiǎng Zhāngsān fēidào míngtiān huì lái*  
I don't think that John will come until tomorrow.

The explanatory value of the proposed PPC can be further seen from the fact that while in English a lower predicate can be raised and placed in front of the higher predicate, in Chinese this can never happen. Thus, while one can derive (34b) from (34a) in English, the Chinese correspondent of (34b) is ungrammatical.<sup>18</sup> This is shown in (35).

- (34) a. It seems that John can't finish this job.  
b. John can't seem to finish this job.  
(35) a. *Zhāngsān hǎoxiàng bìnéng zuòwán zhèjiàn shìqìng*  
(John) (seem) (can't) (finish) (this) (job) (= 34a)  
b. \* *Zhāngsān bìnéng hǎoxiàng zuòwán zhèjiàn shìqìng* (= 34b)  
Similarly, the contrast between English and Chinese in sentences like (36) and (37) is again predictable in terms of PPC.  
(36) a. It is not the case that he may go. (permission)  
b. He may not go.  
(37) a. *tā bù kěyǐ qù*  
(he) (not) (may) (go) (= 36a)  
b. \* *tā kěyǐ bù qù*<sup>19</sup> (= 36b)

In Chinese, it is not only the lower predicate itself which cannot be placed before the higher predicate, but also any constituents which include the lower predicate. This is illustrated by examples (38)-(43).

- (38) a. This thing is possible.  
b. *zhèjiàn shìqìng kěnéng*  
(this) (affair) (possible)  
(39) a. That he has cheated John is possible.  
b. \* *tā piàn-le Zhāngsān kěnéng*<sup>20</sup>

<sup>17</sup>For a detailed discussion of Negative Transportation rule see Robin Lakoff (1969a).

<sup>18</sup>According to Langendoen (1970), (34b) is derived from (34a) through a *can't* raising transformation.

<sup>19</sup>With the interpretation *he is permitted not to go*, (37b) is grammatical. The contrast in meaning between (37a) and (37b) as a grammatical sentence further confirms the validity of PPC in the placement of auxiliaries.

<sup>20</sup>Some of our informants can tolerate (39b). A careful examination reveals that those informants have mixed (39b) with (56).

(56) *tā piàn-le Zhāngsān de zhèjiàn shìqìng (yǒu) kěnéng*



- (40) a. *wǒ fāxiàn-le zhèjiàn shìqíng*  
I have discovered this affair.  
b. *zhèjiàn shìqíng bèi wǒ fāxiàn-le*  
This affair has been discovered by me.
- (41) a. *wǒ fāxiàn-le tā shā-le Zhāngsān*  
I discovered that he killed John.  
b. \* *tā shā-le Zhāngsān bèi wǒ fāxiàn-le*  
That he killed John was discovered by me.
- (42) a. *wǒ xiāngxìn zhèjiàn shìqíng*  
I believe this affair.  
b. *zhèjiàn shìqíng wǒ xiāngxìn*  
This affair, I believe.
- (43) a. *wǒ xiāngxìn tā shā-le Zhāngsān*  
I believe that he killed John.  
b. \* *tā shā-le Zhāngsān, wǒ xiāngxìn*  
He killed John, I believe.

(38) and (39) show that the Chinese correspondents of English sentences like (38a) is grammatical, yet the Chinese correspondents of English sentences like (39a) is ungrammatical. The ungrammaticality of (39b) in Chinese can be explained by PPC, which requires that the higher predicate *kěnéng* 'possible' be always placed before the lower predicate *dǎ* 'hit'. Similarly, PPC can explain why in Chinese an ordinary object can be passivized or preposed to the front of a sentence, while a sentential object cannot.<sup>21</sup> The ungrammaticality of (41b) and (43b) can thus be explained as due to the violation of PPC. Therefore, the contrast between English and Chinese with respect to the presence of sentential subjects in surface structures can be again explained by the assumption that while Chinese observes PPC, English does not.

It should be noted that the data of (38)-(43) also serves to justify the pro-

The grammaticality of (56) doesn't constitute a counterexample to PPC, since the subject of (56) is not a sentential subject, but a noun phrase with a relative clause.

However, sentences like (57) seem to constitute counterexamples to PPC.

- (57) *yòng máobǐ xiě zì hěn nán*  
To write with a writing brush is very hard.

<sup>21</sup> It was pointed out by Benjamin K. T'sou (personal communication) that in Chinese, a sentential object can be topicalized for the purpose of contrast. For example,

- (58) *nǐ lái, wǒ tóngyi; tā lái, wǒ bù tóngyi*  
You come, I agree; he comes, I don't agree.

It is not necessary that (58) be derived from (59) through the preposing of sentential objects

- (59) *wǒ tóngyi nǐ lái; wǒ bù tóngyi tā lái*  
I agree that you come; I don't agree that he comes.

The semantic interpretation of (58) is closer to (60) than to (59).

- (60) *yàoshi nǐ lái, wǒ tóngyi; yàoshi tā lái, wǒ bù tóngyi*  
If you come, I agree; if he comes, I don't agree.

Since *yàoshi* 'if' is often omitted in a Chinese sentence, it is quite reasonable to assume that (58) is derived from (60) by a rule of *yàoshi* deletion.

posed PPC in another important way. The data of (1)-(37) can be equally well accounted for by a less general constraint to the effect that if predicate A commands complement predicate B in the underlying structure, and if A does not command B in the surface structure, then A must precede B in the surface structure.<sup>22</sup> However, this weaker version of PPC would prevent the interesting facts in (38)-(43) from being explained.

As indicated in footnote 7, the terms 'complement predicate' does not refer to the predicate of a relative clause, in spite of the fact that such predicates are always commanded by the main verb. Since a relative clause in Chinese can never be separated from its head noun, the ordering relation between the main predicate and the predicate in a relative clause is completely predictable from the ordering relation between the head noun and the main predicate. This is illustrated in (44) and (45).

- (44) *zuótiān dǎ nǐ de nèige rén xīhuan nǐ*  
(yesterday) (hit) (you) (rel-marker) (that) (man) (like) (you)  
The man who hit you yesterday likes you.
- (45) *wǒ xīhuan zuótiān dǎ nǐ de nèige rén*  
I like the man who hit you yesterday.

The exclusion of predicates of relative clauses from the proposed constraint seems to be entirely natural in view of the fact that while there is no selectional restriction between the main verb and the verb in a relative clause, there are co-occurrence restrictions between the main verb and verbs in non-relative complement sentences. It seems that the notion command must refer not only to phrase markers but also to syntactic units which are capable of referring to each other semantically.

5. CONCLUSION. In conclusion, I have proposed the PPC, which has been shown to be capable of accounting for the placement of adverbials and other Chinese constituents which can be appropriately derived from underlying predicates.<sup>23</sup> By assuming that PPC holds for Chinese, but not for English, we have been able to provide a systematic explanation of a number of superficially unrelated differences between Chinese and English. These include facts about the occurrence and co-occurrence of various patterns of adverbial placement, negative placement, lower predicate preposing, and sentences as superficial subject. The present research thus further confirms the hypothesis proposed by Sanders and Tai that 'languages differ in syntax chiefly as a result of differences in rule-independent derivational constraint and not as a result

<sup>22</sup> This is, in fact, a global constraint which Lakoff (1971) has proposed for the ordering relationship between negatives and quantifiers in the surface structure. What this constraint states is that when the asymmetrical **command**-relationship breaks down during the course of derivation, **precede**-relationship must take effect.

<sup>23</sup> I have not discussed the application of PPC to the placement of quantifiers in Chinese, for I feel that deriving quantifiers from underlying predicates is rather controversial.



of presence and absence of particular rules'. (Sanders and Tai 1972:198) It is significant to note that in both Sanders and Tai and the present research, Chinese has been seen to have more general, and thus tighter, constraints than English. It is highly interesting to see if future researches in English and Chinese syntax show the same result.<sup>24</sup>

In discussing the placement of Chinese adverbials, I have also briefly touched upon the problems of modification and semantic scope. The result of the present study suggests certain lines of further investigations of Chinese adverbials which will hopefully lead us to a better understanding of the function of modification and the notion of the semantic scope in natural languages.

<sup>24</sup>In my recent researches in this line (Tai, 1973, forthcoming), Chinese has been shown to have tighter grammatical constraints than English with respect to movement transformations.

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