

down'. Perhaps instead the eye is 'looking down on an inferior'. Finally, T.B. **gip* 'ten' (Benedict 1972:19) relates to 十 686a *ǰiap* 'ten' (Li: *djap*) 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

James H-Y. Tai

Southern Illinois University at Carbondale

Journal of Chinese Linguistics
1, 3 (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 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.¹

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.² 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.³

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

¹ 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.

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

³ 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.⁴ 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-

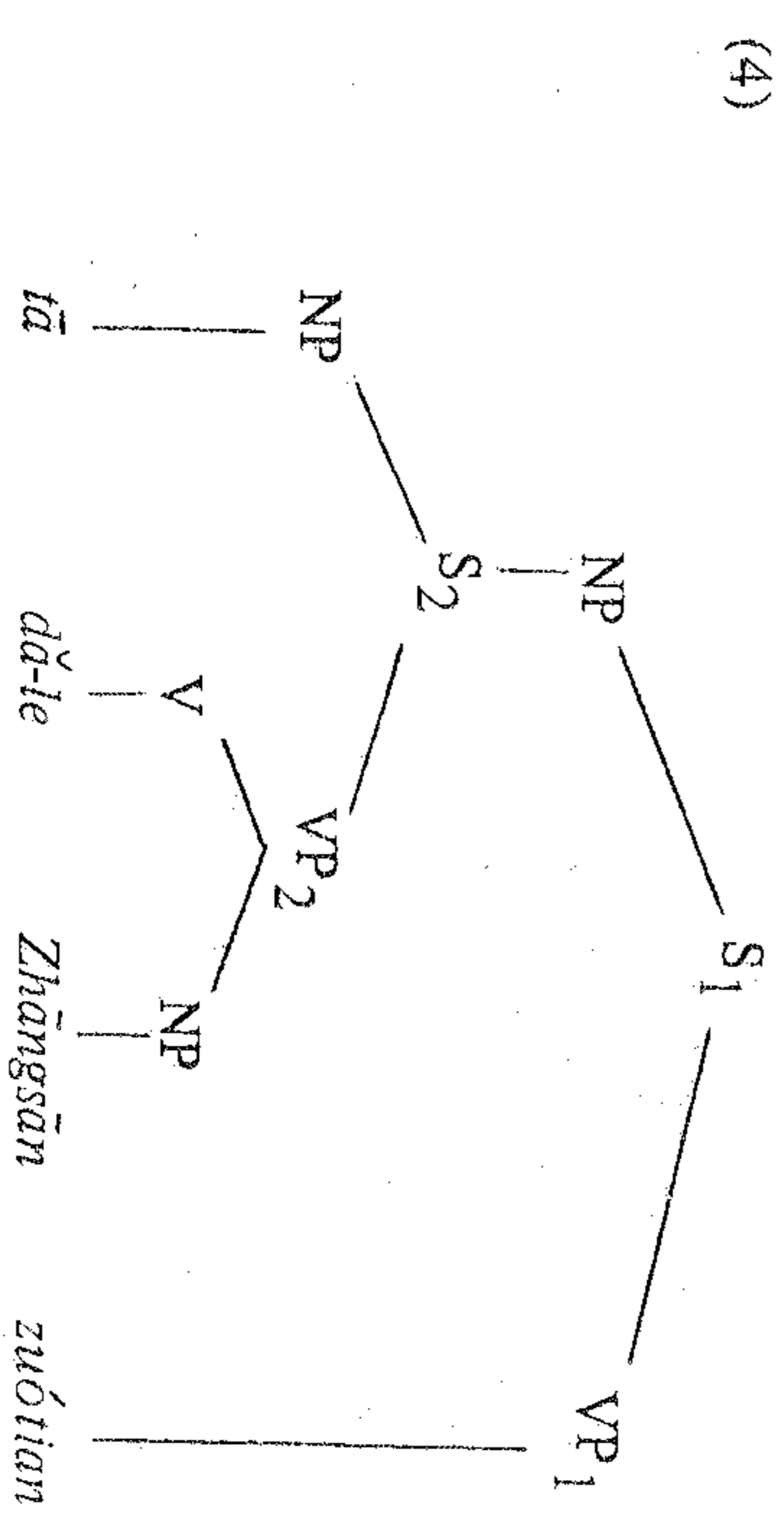
⁴ Generally speaking, logicians have considered the process of modification as the mapping of a property into new property.

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.⁵ This is illustrated in examples (1)-(3).

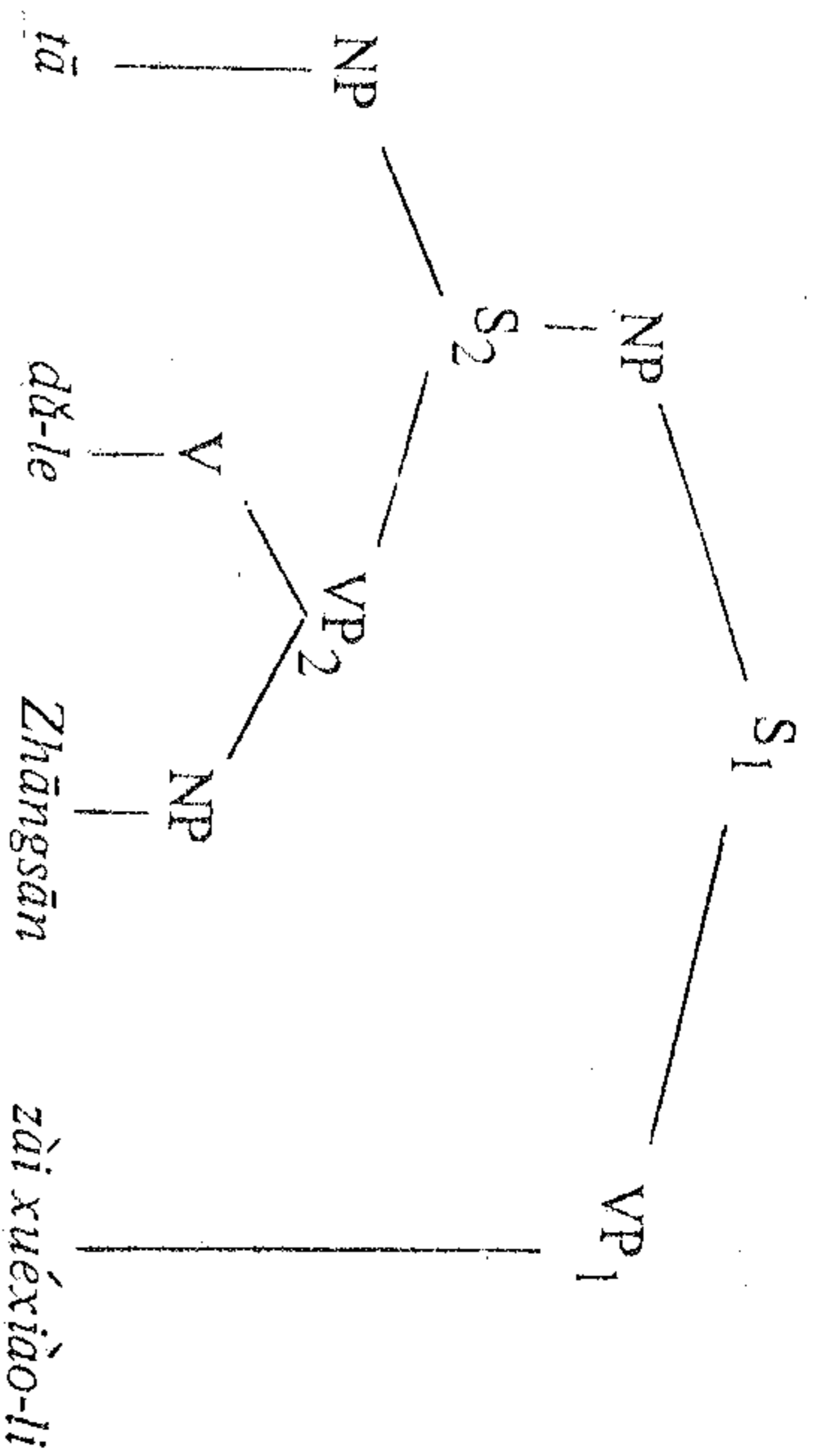
- (1) a. tā zuótiān dǎ-le Zhāngsān
(he) (yesterday) (hit-asp) (John)
He hit John yesterday.
b. zuótiān tā dǎ-le Zhāngsān
c. * tā dǎ-le zuótiān Zhāngsān
d. * tā dǎ-le Zhāngsān zuótiān
- (2) a. tā zài xuéxiào-li dǎ-le Zhāngsān
He hit John in the school.
b. zài xuéxiào-li tā dǎ-le Zhāngsān
c. * tā dǎ-le zài xuéxiào-li Zhāngsān
d. * tā dǎ-le Zhāngsān zài xuéxiào-li
- (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.

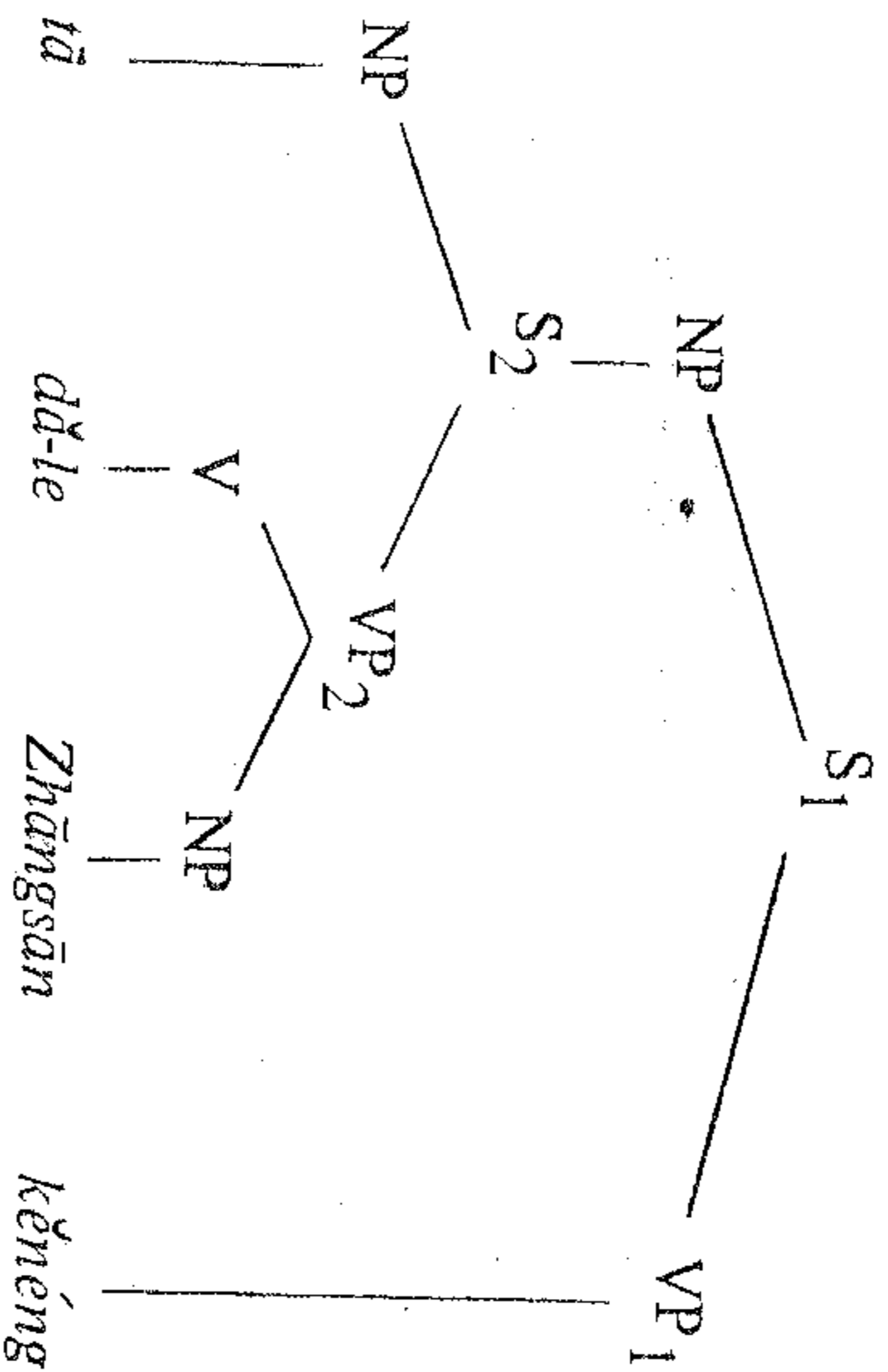


⁵ Locative adverbial phrases can also occur after the main verb. However, preverbal locative adverbials and postverbal locative adverbials have different semantic functions. This is to be illustrated and discussed in sentence (18).

(5)



(6)



In the (4), (5), (6) representations, VP₁ commands VP₂.⁶ In (1), (2), (3) sentences VP₁ is always ordered before VP₂. To account for the placement of adverbials derived from higher predicates which take sentential subjects, we can thus propose the following constraint:

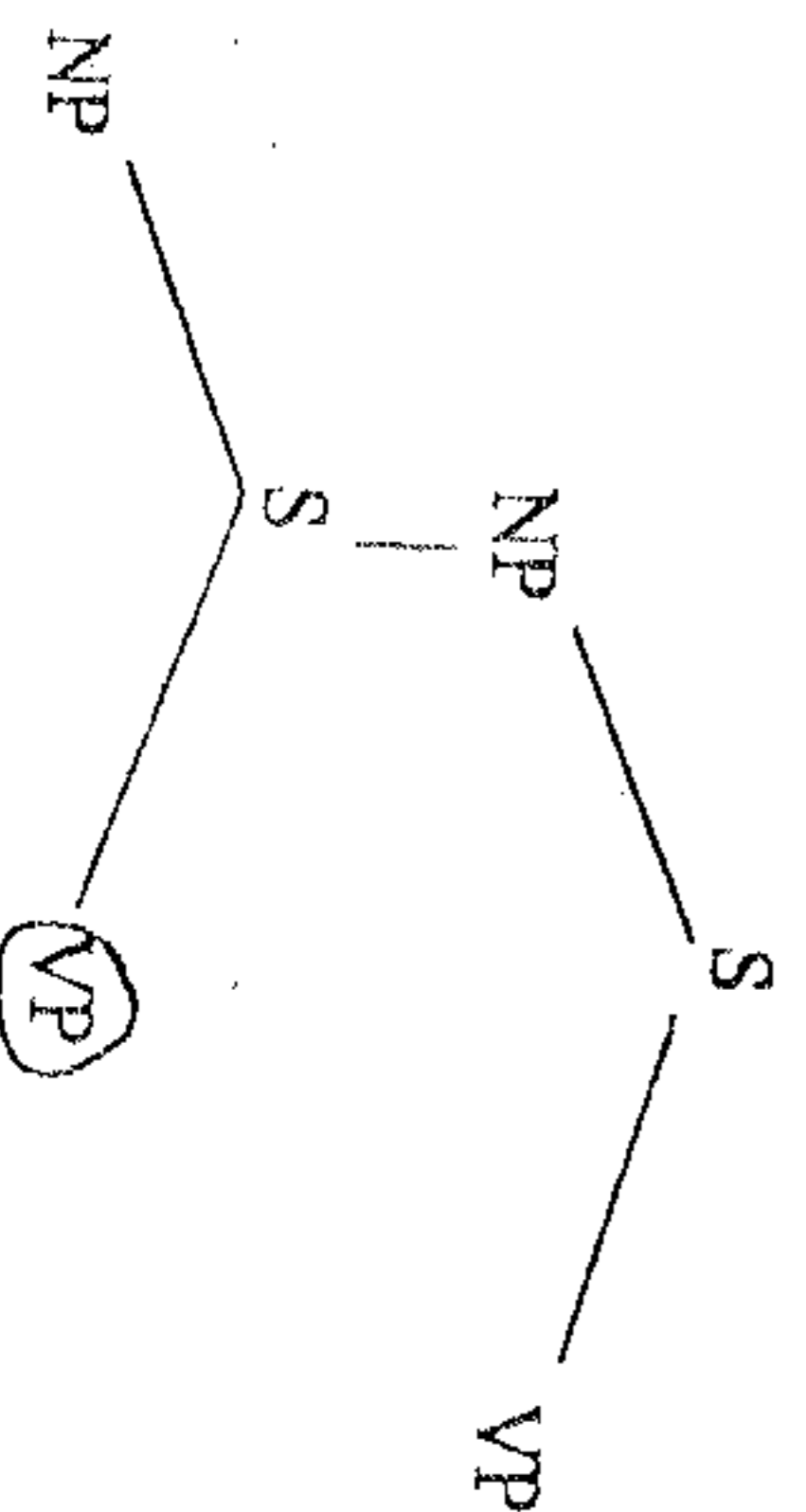
Predicate Placement Constraint (PPC):

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

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

⁷A 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)

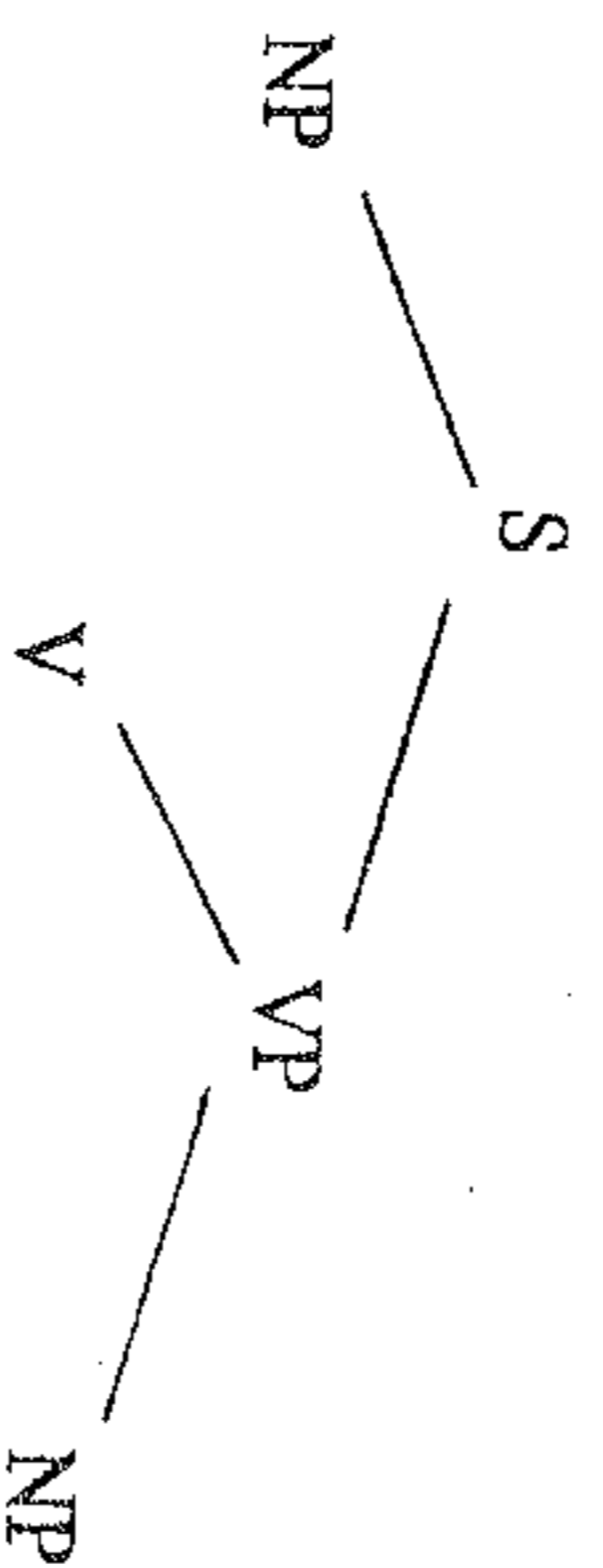
b. * *tā qiē-le yú xiǎoxīn-de*

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

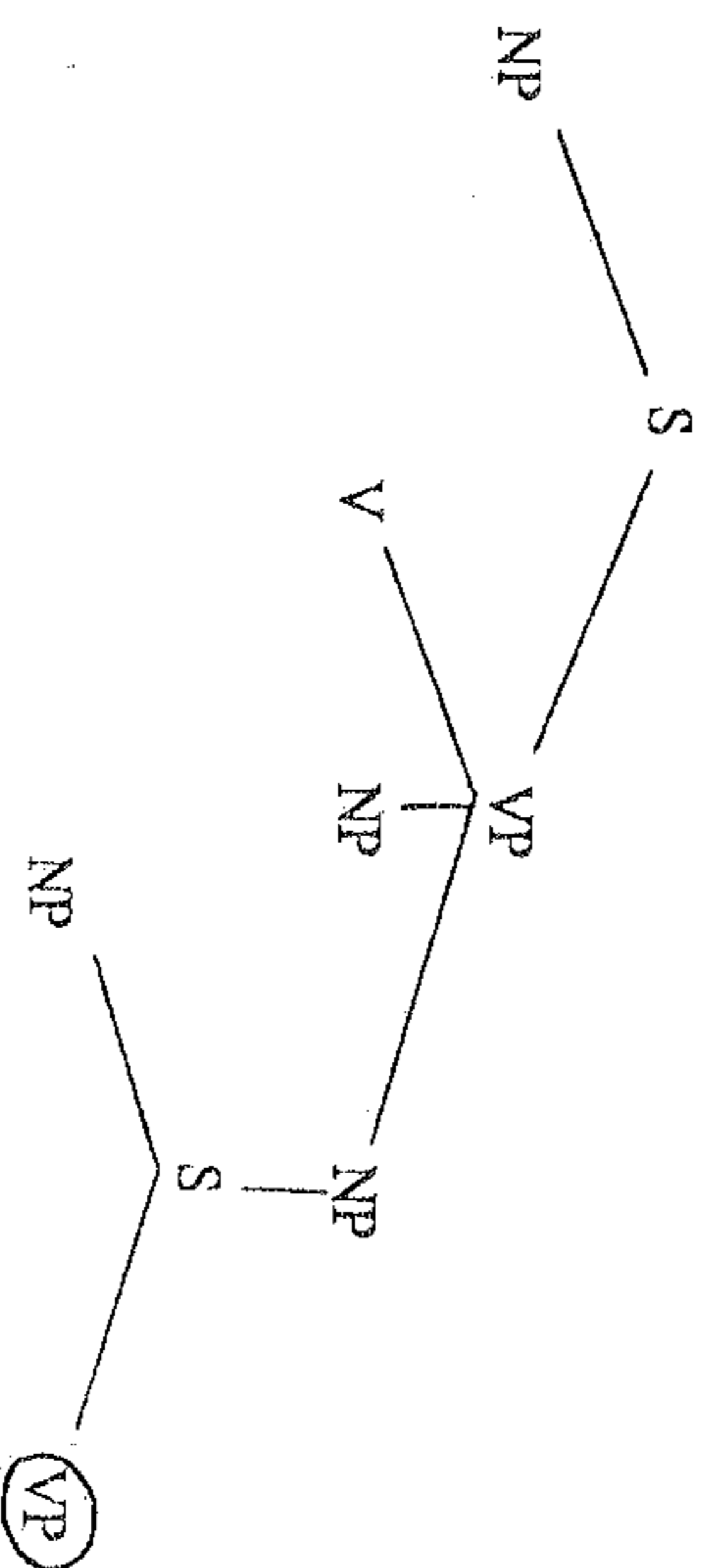
(with a knife)

b. * *tā qiē-le yú yòng dāozi*⁸

(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.

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

(50) *qiē yú yòng dāozi*

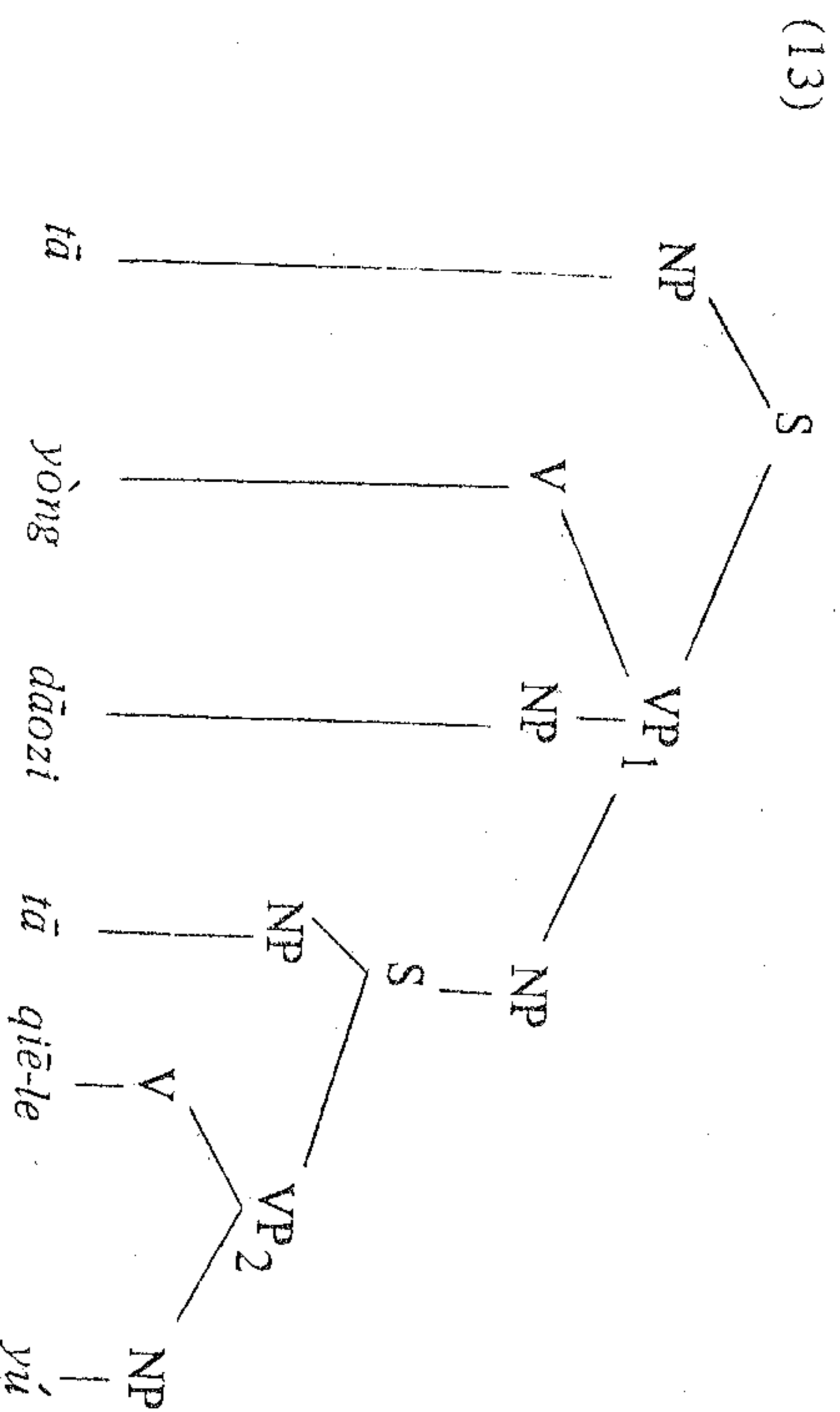
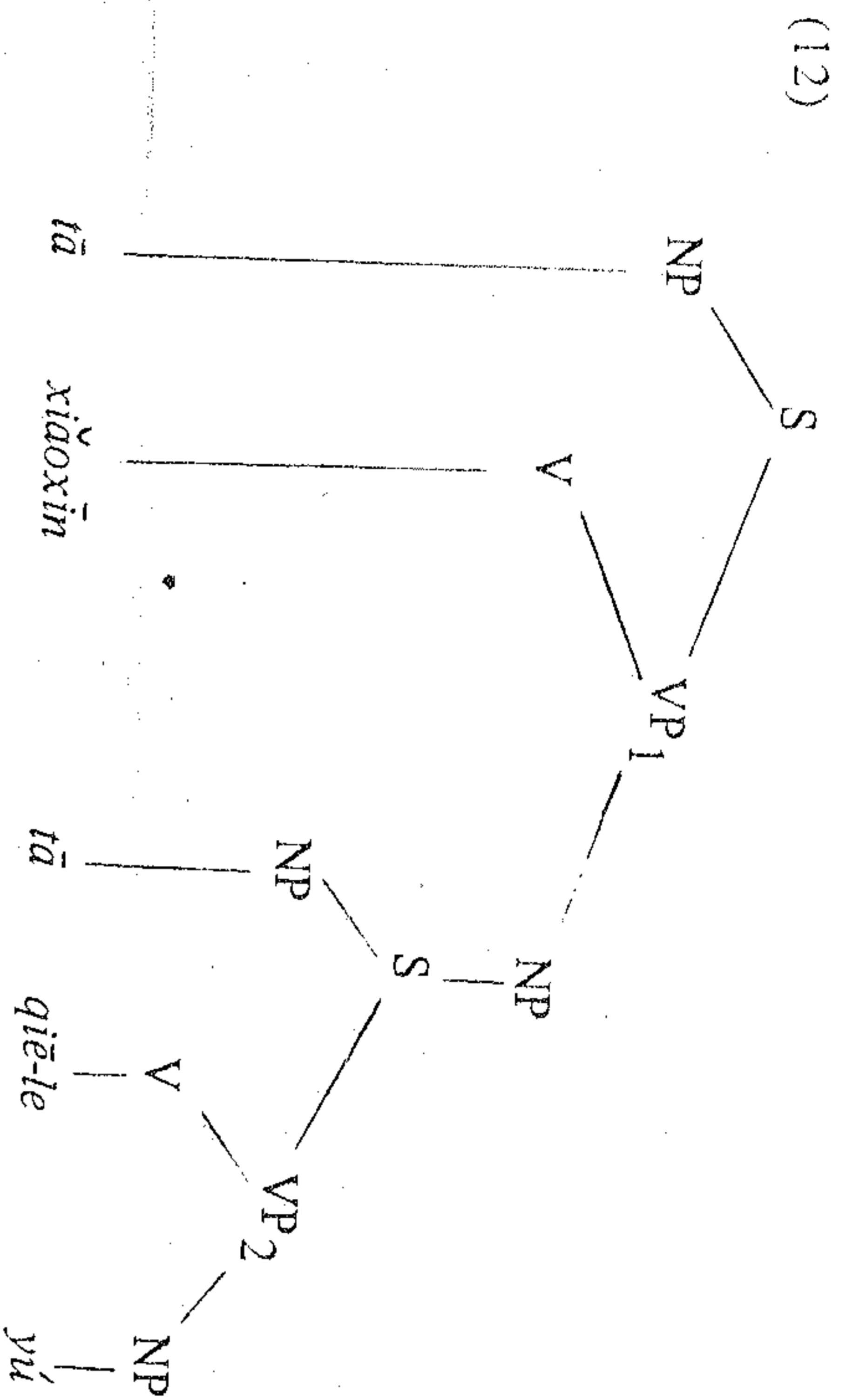
One uses a knife to cut fish.

(51) *Zhōngguó rén chī jàn yòng kǎnzi*

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.⁹

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 ungrammaticlicity of (52) and (53).

(52) * *qiē-le yú yòng dāozi*

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

⁹In (12) and (13) tree structures, VP₂ is included in VP₁. In order for PPC to apply to place VP₁ before VP₂ in surface structure, we have to consider the main verb and the object (if any) immediately dominated by VP₁ as the actual VP₁ 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.¹⁰ They are illustrated in (14)-(17) sentences respectively.

(14) a. *tā pīn-dù-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. *lǎohu pǎo de kuài*

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

The tiger runs fast.

b. * *lǎohu kuài de pǎo*

c. * *kuài lǎohu pǎo*

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

¹⁰Adverbs 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.

