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ABSTRACT
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1966; Hashimoto 1966; Mei 1972; Tai 1973; Teng 1974), it has been
assumed that such NP's have the underlying order of modifier + noun
(M-N, henceforth) with the variant surface order of noun + modifier
(N-M, henceforth) being derived. This paper, however, first argues
that Chinese has the underlying order of N-M and that the variant M-N
order is due to an optional transformation that reorders the N-M
sequence. It is shown that the M-N hypothesis requires a set of
complex constraints on the rule postposing modifiers in order to
account for various surface patterns exhibited by NP's containing
more than one modifier. It will be argued that in the N-M hypothesis
proposed here various surface patterns can best be accounted for by
constraining the N-M inversion rule to the following effect; namely,
it can apply to any NP, either a higher one or a lower one, but only
once within the domain of a possible complex NP. (Author)

NOMINAL MODIFIERS IN MANDARIN CHINESE*

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0. Introduction

In the surface structure of Chinese nominal modifiers (quantifiers, determiners, adjectives, measure phrase, relative clause, etc.) may occur either before or after a modified noun. In most of the transformational studies of Chinese syntax (e.g. Cheng 1966; Hashimoto 1966; Mei 1972; Tai 1973; Teng 1974), it has been assumed that such NP's have the underlying order of modifier + noun (M-N, henceforth) with the variant surface order of noun + modifier (N-M, henceforth) being derived.

This paper, however, first argues that Chinese has the N-M order underlyingly, and that the variant M-N order is due to an optional transformation that reorders the N-M sequence. It is shown that the M-N hypothesis requires a set of complex constraints on the rule postposing modifiers in order to account for various surface patterns exhibited by NP's containing more than one modifier. It will be argued that in the N-M hypothesis proposed here various surface patterns can best be accounted for by constraining the N-M inversion rule to the following effect; namely, it can apply to any NP, either a higher one or a lower one, but only once within the domain of a possible complex NP.

Nominal modifiers in Chinese may also occur either before or after a verb. As opposed to the recent proposal in which such modifiers are to be analyzed as part of the VP (e.g. Li and Thompson 1974; Tai 1973; Teng 1974), this paper also provides and motivates a transformation proposed here as modifier postposing. It is shown that the recent proposal is inadequate because it provides no syntactic and semantic evidence in support of such a hypothesis. It will be argued that such modifiers can be best derived by undergoing a rule of modifier postposing, moving a modifier from a prenominal position to a postverbal position.

1. Nominal Modifiers and Noun Phrases

1.1. M-N Hypothesis vs M-N Hypothesis

In Chinese nominal modifiers (determiners, quantifiers, adjectives, relative clauses, etc.) can occur either before or after a modified noun. This is exemplified in the following sets of sentences.

A. Quantifiers

    (1) a. Qiúanbù xiuéshēng láile.   'All of the students came.'
          all   student   came

        b. Xiuéshēng qiúanbù láile.
          student   all   came

    (2) a. Měiyígè xiuéshēng láile.   'Each of the students came.'
          each   student   came

        b. Xiuéshēng měiyígè láile.
          student   each   came

    (3) a. Mǒxīe xiuéshēng láile.   'Some students came.'
          some   student   came

        b. Xiuéshēng mǒxīe láile.
          student   some   came

    (4) a. Hěnduō xiuéshēng láile.   'Many students came.'
          many   student   came

        b. Xiuéshēng hěnduō láile.
          student   many   came

    (5) a. Yìbǎigì xiuéshēng láile.   'One hundred students came.'
          100   student   came

        b. Xiuéshēng yìbǎigè láile.
          student   100   came

B. Determiners

    (6) a. Nèixīe xiuéshēng láile.   'Those students came.'
          those   student   came

        b. Xiuéshēng nèixīe láile.
          student   those   came

C. Adjective

    (7) a. Tsūngmíngde xiuéshēng láile.   'The intelligent students came.'
          intelligent   student   came

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      b. Xiuésheng tsūngmíngde láile.
         student   intelligent   came

D. Measure Phrase

   (8) a. Ershisueidade xiuéshēng láile.   'The twenty-year-old students
       20-year-old   student   came.   came.'

      b. Xiuéshēng ershisueidade láile.
        student   20-year-old   came

E. Relative Clause

   (9) a. Dài yǐanjing de xiuéshēng láile.   'The students who wear
       wear glasses rel. student came   glasses came.'

      b. Xiuéshēng dài yǐanjing de láile.
        student   wear glasses rel. came

There are in general two ways in which sentences (1)-(9) may be analyzed.
One way is to claim that nominal modifiers such as quantifiers, determiners,
adjectives, measure phrases, and relative clausese in prenominal positions as
shown in (1a)-(9a) are underlying forms, and those in postnominal positions
as shown in sentences (1b)-(9b) are derived forms. Within this type of
analysis, on the one hand, in order to generate sentences (1a)-(9a), a phrase
structure rule such as follows is needed.

   (10)   NP $\longrightarrow$ (M) + N

                             where M = quantifiers,
                                       determiners,
                                       adjectives,
                                       measure phrase,
                                       relative clause, etc.

On the other hand, to derive sentences (1b)-(9b) from (1a)-(9a) respectively,
an optional transformation that moves nominal modifier to a postnominal
position is also needed. The proposed M-N inversion transformation can
be schematized as shown in (11).

$$NP \begin{bmatrix} M & N \end{bmatrix} NP \implies 2 \quad 1$$
$$\quad\; 1 \quad 2$$
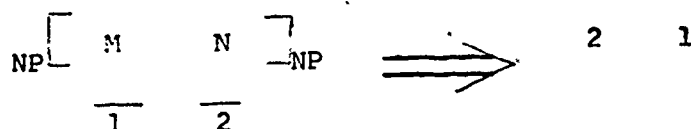
where M = quantifiers,
determiners,
adjectives,
measure phrase,
relative clause, etc.

The other possibility is that we can claim that nominal modifiers in postnominal positions as shown in (1b)-(9b) are underlying forms, and those in prenominal positions as shown in (1a)-(9a) are derived forms. Within this type of analysis, on the one hand, in order to generate sentences (1b)-(9b), a phrase structure rule such as follows is needed:

(12)
$$NP \implies N + (M)$$

where M = quantifiers,
determiners
adjectives,
measure phrase,
relative clause, etc.

To derive sentences (1a)-(9a) from (1b)-(9b) respectively, on the other hand, a transformation that moves modfiers to a prenominal position such as (13) is needed.

(13)   N-M Inversion: $$NP \begin{bmatrix} N & M \end{bmatrix} NP \implies 2 \quad 1$$
$$\quad\; 1 \quad 2$$

In the case of sentences containing one modifier such as (1a)-(9a), these two analyses seem to be equally adequate, since both make correct predictions about surface forms of modified NP in Chinese. Below I would like to show how the proposed hypothesis that Chinese NP has N-M as the underlying order, with M-N being derived, is preferable to the one that it has M-N as the underlying order with N-M being derived. The proposed analysis is superior because it does not need a set of complex constraints on the rule postposing modifiers in accounting for various surface patterns exhibited by NP's containing more than one modifier.

1.2. Noun Phrases Containing Two Modifiers

This section provides a discussion on how the above two analyses can handle cases where NP's containing two nominal modifiers. For the sake of discussion, let us consider the following sets of sentences:

A. Quantifiers and Determiners

(14) a. Qiúanbù xiuéshēng nèixie láile.   'All of those students came.'
      all   student   those   came

     b. Nèixie xiuéshēng qiúanbù láile.
       those student   all   came

     c. Xiuéshēng nèixie qiúanbù láile.
       student   those all   came

     d.* Qiúanbù nèixie xiuéshēng láile.
        all   those   student   came

(15) a. Měiyigè xiuéshēng nèixie láile.   'Each of those students
      each   student   those   came   came.'

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b. Nèixiē xuéshēng měiyígè láile.
   those student each   came

c. Xuéshēng nèixiē měiyígè láile.
   student those each came

d. *Měiyígè nèixiē xuéshēng láile.
   each   those student came

(16) a. Mǒxiē xuéshēng nèixiē láile.   'Some of those students came.'
      some student those came

b. Nèixiē xuéshēng mǒxiē láile.
   those student some came

c. Xuéshēng nèixiē mǒxiē láile.
   student those some came

d. *Mǒxiē nèixiē xuéshēng láile.
   some those student came

(17) a. Hěnduō xuéshēng nèixiē láile.   'Many of those students came.'
      many   student those came

b. Nèixiē xuéshēng hěnduō láile.
   those student many came

c. Xuéshēng nèixiē hěnduō láile.
   student those many came

d. *Hěnduō nèixiē xuéshēng láile.
   many those student came

(18) a. Yìbǎigè xuéshēng nèixiē láile.   'One hundred of those students
      100   student those came   came.'

b. Nèixiē xuéshēng yìbǎigè láile.
   those student 100   came

c. Xuéshēng nèixiē yìbǎigè láile.
   student those 100   came

d. *Yìbǎigè nèixiē xuéshēng láile.
   100   those student came

B. Quantifiers and Adjectives

(19) a. Qiúanbù xuéshēng tsūngmíngde láile.   'All of the intelligent
      all   student intelligent came   students came.'

b. Tsūngmíngde xuéshēng qiúanbù láile.
   intelligent student all   came

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   c. Xiuéshēng tsūngmíngde qiúanbù laíle.
      student   intelligent all   came

   d. *Qiúanbù tsūngmíngde xiuéshēng laíle.
      all   intelligent student came .

(20) a. Meiyíge xiuéshēng tsūngmíngde laíle.   'Each of the intelligent
     each   student intelligent came   students came.'

   b. Tsūngmíngde xiuéshēng meiyíge laíle.
      intelligent student each came

   c. Xiuéshēng tsūngmíngde meiyíge laíle.
      student   intelligent each   came

   d. *Meiyíge tsūngmíngde xiuéshēng laíle.
      each   intelligent student came

(21) a. Mòxie xiuéshēng tsūngmíngde laíle.   'Some of the intelligent
     some student intelligent came

   b. Tsūngmíngde xiuéshēng mòxie laíle.
      intelligent student scme came

   c. Xiuéshēng tsūngmíngde mòxie laíle.
      student   intelligent some came

   d. *Mòxie tsūngmíngde xiuéshēng laíle.
      some intelligent student came

(22) a. Hénduo xiuéshēng tsūngmíngde laíle.   'Many of the intelligent
     many student intelligent came

   b. Tsūngmíngde xiuéshēng hénduo laíle.
      intelligent student many came

   c. Xiuéshēng tsūngmíngde hénduo laíle.
      student   intelligent many came

   d. *Hénduo tsūngmíngde xiuéshēng laíle.
      many   intelligent student came

(23) a. Yibaige xiuéshēng tsūngmíngde laíle.   'One hundred of the intelligent
     100   student intelligent came   students came.'

   b. Tsūngmíngde xiuéshēng yibaige laíle.
      intelligent student 100   came

   c. Xiuéshēng tsūngmíngde yibaige laíle.
      student   intelligent 100   came

   d. *Yibaige tsūngmíngde xiuéshēng laíle.
      100   intelligent student came

C. Quantifiers and Relative Clauses

(24) a. Qiuanbu xiuésheng dai yianjing de laile.　　　　'All of the students
　　　 all　　 student wear glasses rel. came　　　　　 who wear glasses
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　 came.'

　　 b. Dai yianjing de xiuésheng qiuanbu laile.
　　　　wear glasses rel. student all　　 came

　　 c. Xiuésheng dai yianjing de qiuanbu laile.
　　　　student　 wear glasses rel. all　　 came

　　 d. *Qiuanbu dai yianjing de xiuésheng laile.
　　　　 all　　wear glasses rel. student came

(25) a. Meiyige xiuésheng dai yianjing de laile.　　　　'Each of the students
　　　 each　　 student wear glasses rel. came　　　　　 who wear glasses
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　 came.'

　　 b. Dai yianjing de xiuésheng meiyige laile.
　　　　wear glasses rel. student each　 came

　　 c. Xiuésheng dai yianjing de meiyige laile.
　　　　student　 wear glasses rel. each　 came

　　 d. *Meiyige dai yianjing de xiuésheng laile.
　　　　 each　　wear glasses rel. student came

(26) a. Moxie xiuésheng dai yianjing de laile.　　　　'Some of the students
　　　 some student wear glasses rel. came　　　　　　 who wear glasses
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　 came.'

　　 b. Dai yianjing de xiuésheng moxie laile.
　　　　wear glasses rel. student some came

　　 c. Xiuésheng dai yianjing de moxie laile.
　　　　student　 wear glasses rel. some came

　　 d. *Moxie dai yianjing de xiuésheng laile.
　　　　 some wear glasses rel. student came

(27) a. Henduo xiuésheng dai yianjing de laile.　　　　'Many of the students
　　　 many　 student wear glasses rel. came　　　　　　 who wear glasses
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　 came.'

　　 b. Dai yianjing de xiuésheng henduo laile.
　　　　wear glasses rel. student many came

　　 c. Xiuésheng dai yianjing de henduo laile.
　　　　student　 wear glasses rel. many came

　　 d. *Henduo dai yianjing de xiuésheng laile.
　　　　 many wear glasses rel. student came

(28) a. Yibaige xiuésheng dai yianjing de laile.　　　　'One hundred of the
　　　 100　　 student wear glasses rel. came　　　　　 students who wear
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　 glasses came.'

　　 b. Dai yianjing de xiuésheng yibaige laile.
　　　　wear glasses rel. student 100　　 came

    c. Xiuéshēng dài   yǐanjing de   yìbǎigè lǎile.
       student   wear glasses rel. 100   came

    d. *Yìbǎige dài   yǐanjing de   xiuéshēng lǎile.
       100   wear glasses rel. student came

D. Quantifiers and Measure Phrases:

(29) a. Qiúanbu xiuéshēng èrshisùidàde lǎile.   'All of the 20-year-old
      all   student 20-year-old   students came.'

    b. Èrshisùidàde xiuéshēng qiúanbu lǎile.
      20-year-old   student   all   came

    c. Xiuéshēng èrshisùidàde qiúanbu lǎile.
      student 20-year-old   all   came

    d. *Qiúanbu èrshisùidade xiuéshēng lǎile.
      all   20-year-old   student   came

(30) a. Měiyigè xiuéshēng èrshisùidàde lǎile.   'Each of the 20-year-old
      each   student 20-year-old   came   students came.'

    b. Èrshisùidàde xiuéshēng měiyigè lǎile.
      20-year-old student   each   came

    c. Xiuéshēng èrshisùidàde měiyigè lǎile.
      student 20-year-old   each   came

    d. *Měiyigè èrshisùidàde xiuéshēng lǎile.
      each   20-year-old   student   came

(31) a. Mǒxie xiuéshēng èrshisùidàde lǎile.   'Some of the 20-year-old
      some student 20-year-old   came   students came.'

    b. Èrshisùidàde xiuéshēng mǒxie lǎile.
      20-year-old student   some came

    c. Xiuéshēng èrshisùidàde mǒxie lǎile.
      student 20-year-old   some came

    d. *Mǒxie èrshisùidade xiuéshēng laile.
      some 20-year-old   student   came

(32) a. Hénduō xiuéshēng èrshisùidade lǎile.   'Many of the 20-year-old
      many   student 20-year-old   came   students came.'

    b. Èrshisùidade xiuéshēng hénduō lǎile.
      20-year-old student   many   came

    c. Xiuéshēng èrshisùidade hénduō lǎile.
      student 20-year-old   many   came

    d. *Hénduō èrshisùidade xiuéshēng lǎile.
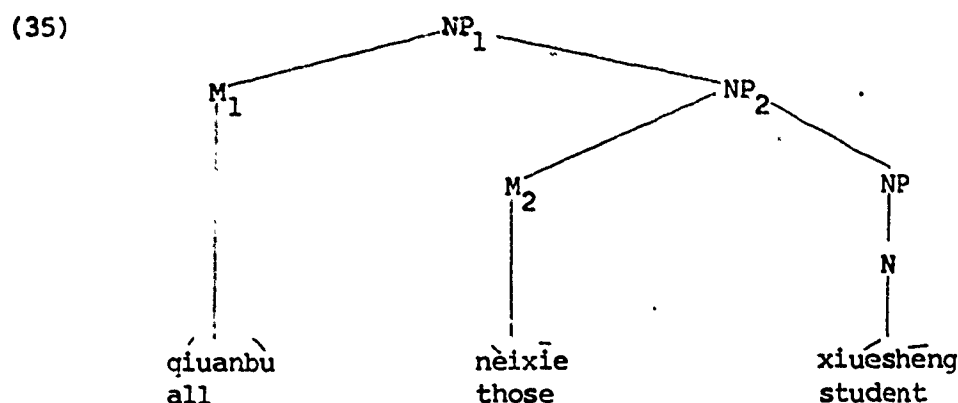   many   20-year-old   student   came

(33) a. Yibáigè xiuéshēng èrshisuidàde láile.   'One hundred of the 20-
        100   student   20-year-old came   year-old students came.'

     b. Èrshishidàde xiuéshēng yibáigè láile.
        20-year-old student   100   came

     c. Xiuéshēng èrshisuidàde yibáigè láile.
        student   20-year-old 100   came

     d. *Yibáigè èrshisuidàde xiuéshēng láile.
        100   20-year-old   student   came

A close examination of sentences (14)-(33) shows that the acceptable and unacceptable sentences fall into the following patterns:

(34) a. $[_{NP_1} M_1 [_{NP_2} N \; M_2]]$ e.g. (14a) - (33a)

     b. $[_{NP_1} [_{NP_2} M_2 \; N] \; M_1]$ (14b) - (33b)

     c. $[_{NP_1} [_{NP_2} N \; M_2] \; M_1]$ (14c) - (33c)

     d. *$[_{NP_1} M_1 [_{NP_2} M_2 \; N]]$ (14d) - (33d)

1.2.1. M-N Hypothesis

Let us first see how the M-N hypothesis can account for the above patterns. Taking the position that the underlying order for Chinese NP is M-N, with N-M being derived by the M-N inversion transformation, then the modified NP in (14), for example, will have the following underlying structure:

(35)

```
                    NP_1
             /              \
         M_1                NP_2
          |              /        \
          |           M_2          NP
          |            |            |
          |            |            N
          |            |            |
       qiuanbu      neixie      xiuéshēng
        all         those        student
```

Given a structure like (35), in order to derive (14a, b, c)-(33a, b, c), but to block (14d)-(33d), a set of complex constraints on the rule of M-N inversion are needed. First, in order to yield the form $\left[\, M_1 \left[\, N \quad M_2 \,\right]_{NP_2} \,\right]_{NP_1}$ (e.g. (14a)-(33a)), it is necessary to constrain the rule of M-N inversion so that only the lower NP (NP_2) can be affected. Second, in order to yield the form $\left[\left[\, M_2 \quad N \,\right]_{NP_2} \quad M_1 \,\right]_{NP_1}$ (e.g. (14b)-(33b)), it is necessary to constrain the rule so that only the higher NP (NP_1) can be affected. Third, to yield the form $\left[\left[\, N \quad M_2 \,\right]_{NP_2} \quad M_1 \,\right]_{NP_1}$ (e.g. (14c)-(33c)) but to block $*\left[\, M_1 \left[\, M_2 \quad N \,\right]_{NP_2} \,\right]_{NP_1}$ (e.g. (14d)-(33d)) it is necessary to constrain the rule so that both the higher and lower NP's (NP_1 and NP_2) can be affected. The first constraint, according to which only the lower NP can be affected by the rule, suggests that the M-N inversion in Chinese is an 'upward bound' rule (Ross 1967:146). However, such a proposal is not valid because it contradicts the second constraint, according to which only the higher NP can be affected by the rule. In other words, the second constraint suggests that the M-N inversion obeys the 'A-over-A' principle (Chomsky 1973:235). According to this principle, the rule of M-N inversion would allow only the maximum NP to be chosen to account for cases such as (14b)-(33b). Again, this proposal is not valid either because if the rule of M-N inversion in Chinese were to obey the 'A-over-A' principle, then it would fail to explain cases such as (14a)-(33a) where the lower NPs are affected by the rule. The third constraint, according to which both higher and lower NPs (NP_1 and NP_2) can be affected by the rule, suggests that the proposed M-N inversion obligatorily applies to every representation that satisfies its structural description. However, such a proposal is not valid either because it does not hold for cases like (14a, b)-(33a, b), according to which only one of the NP's can be affected by the rule.

The major difficulty in this analysis is the problem of how the rule of M-N inversion can be adequately constrained so that only the well-formed sentences can be generated. A close examination of (34) demonstrated that there is a significant relationship between the well-formedness of sentences and the selection of the NP's to which the rule of M-N inversion can apply. On the one hand, a sentence is will-formed if either one or both NP's is affected by the rule. On the other hand, a sentence is ill-formed if none of the NP's is affected by the rule. This clearly suggests that the rule of M-N inversion cannot be interpreted as an optional rule to account for sentences whose NP's containing two modifiers such as (14)-(33). Rather, it must be obligatory in one case, and it must be optional in the other. In other words, to account for cases (14c)-(33c) but to block (14d)-(33d), the rule of M-N inversion applies to all the NP's (NP_1 and NP_2) that satisfies its structural description. On the contrary, to account for cases such as (14a, b)- (33a, b), the same rule obligatorily applies to one of the NP's leaving the other NP unaffected. This means that after the rule of M-N inversion has operated on one of the NP's, the same rule is optionally applied to the other. For example, in order to derive (14a) from (35) we can make the rule of M-N inversion obligatorily apply to NP_2 but leaving NP_1 unaffected by saying that after the rule has applied to NP_2 the same rule is optionally applied to NP_1. To sum up, in order to account for the well-formedness on cases like (14)-(33), the proposed M-N inversion rule as in (11) must be somehow reformulated in the following fashion:

(36) $\quad$ X $\quad$ Y $\quad$ M $\quad$ Z $\quad$ N $\rbrack_{NP}$ $\quad$ W $\quad \Longrightarrow \quad$ 1 $\quad$ 2 $\quad \emptyset \quad$ 4 $\quad$ 5+3 $\quad$ 6

$\qquad \qquad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \qquad \underline{\quad}$

$\qquad \qquad$ 1 $\qquad$ 2 $\qquad$ 3 $\qquad$ 4 $\qquad$ 5 $\qquad \qquad$ 6

Conditions: (i) $\quad$ obligatory if 2 or 4 contains M $\qquad$ M = quantifiers,
$\qquad \qquad \quad$ (ii) $\quad$ optional otherwise $\qquad \qquad \qquad \qquad \qquad$ determiners,
$\qquad \qquad \quad$ (iii) $\quad$ W does not contain an NP $\qquad \qquad \qquad$ adjectives,
$\qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad$ measure phrase,
$\qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad$ relative clause,
$\qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad$ etc.

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The problem in (36) is that the constraints on the rule of M-N inversion is so complex that it would greatly complicate the grammar. Another factor argues against the M-N hypothesis is that starting out with a sequence such as $[_{M_1} [_{M_2} \ N \ ]_{NP}]$ in the underlying structure is syntactically unmotivated since a structure as such never occurs in the surface.

It has been argued in this section that Chinese sentences whose NP's containing two modifiers cannot be explained with an M-N sequence underlyingly unless certain highly complex constraints are implemented into the grammar. Below I will argue that various sruface patterns can be nicely accounted for with an N-M sequence without positing complex constraints on the rule.
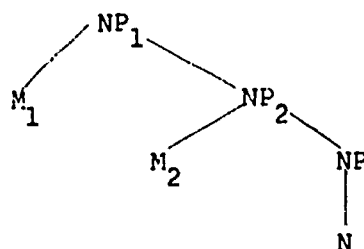
1.2.2. N-M Hypothesis

Starting out with a N-M sequence as the underlying order, the modified NP in (14) will have the following underlying structure:

(37)

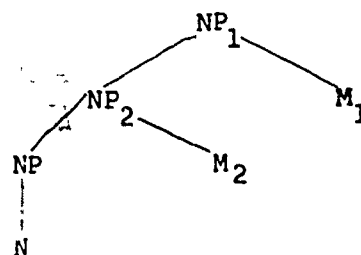|		
xiuesheng	neixie	qiuanbu
student	those	all
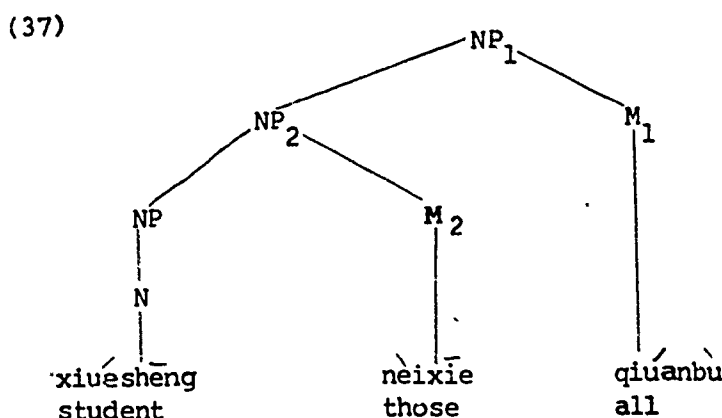
Three facts should be noticed here. First, a structure like (37) is a mirror image of (35). Consider:

(38) a.

b.

Second, the selection of the NP's to which the rule inversing modifiers and nouns of these two structures are in complementary distribution. For example, to derive (14a) within the M-N hypothesis, it is necessary to apply the rule of M-N inversion to NP_2 but not to NP_1, whereas in this analysis the rule of N-M inversion must affect NP_1 but not NP_2. To obtain (14b) within the M-N hypothesis, it is necessary to apply the rule of M-N inversion to NP_1 but not to NP_2, whereas in this analysis it is necessary to apply the rule of N-M inversion to NP_2 but not to NP_1. To obtain (14c) within the M-N hypothesis, it is necessary to apply the rule of M-N inversion to both NP_1 and NP_2, whereas in this analysis none of the NP's is affected by the rule of N-M inversion. Third, the acceptability of (14a, b)- (33a, b) and the unacceptability of (14d)-(33d) are related to the selection of the NP's to be affected by the rule of N-M inversion; namely a sentence is well-formed if only one NP is affected by the rule within the domain of a complex NP. Otherwise a sentence is ill-formed. Consider the following table:

(39)

surface form	sentence	NP's are affected by the N-M inversion	well-formedness
$[M_1 [N \ M_2 \ ]_{NP_2} \ ]_{NP_1}$	(14a-33a)	NP_1	well-formed
$[[M_2 \ N \ ]_{NP_2} \ M_1 \ ]_{NP_1}$	(14b-33b)	NP_2	well-formed
$[[N \ M_2 \ ]_{NP_2} \ M_1 \ ]_{NP_1}$	(14c-33c)	$\emptyset$ (generated by phrase structure rules in the base)	well-formed
$*[M_1 [M_2 \ N \ ]_{NP_2} \ ]_{NP_1}$	(14d-33d)	NP_1, NP_2	ill-formed

The above demonstrates that we can account for the well-formedness of (14a, b, c, d)-(33a, b, c, d) by constraining the rule of N-M inversion in such a way it can apply to any NP, either a higher one or a lower one, but only once within the domain of a possible complex NP.[1] In other words, in the following underlying structure:

(40)
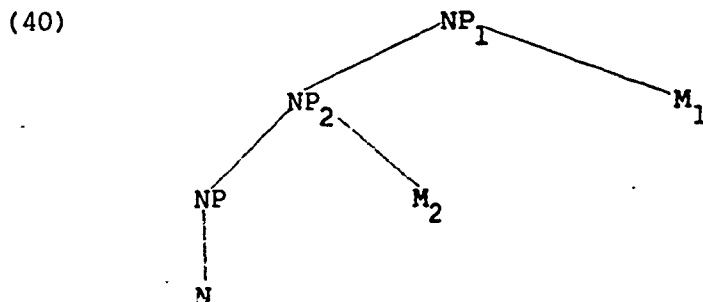
The rule of N-M inversion can apply to either NP_1 or NP_2, but only one of them can be affected. For example, if NP_1 is chosen, then NP_2 cannot be chosen; and if NP_2 is chosen, then NP_1 cannot be chosen. The proposed constraint on the rule of N-M inversion can be summarized as follows:

(41) N-M inversion can apply to any NP that satisfies its
      structural description but only once within the domain
      of a possible complex NP.

Comparing this analysis based on our N-M hypothesis with the one based on the M-N hypothesis, we conclude that the former is more desirable than the latter because it provides a nice account of various surface patterns without positing highly complex constraints on the rule.

1.3. NP's Containing Three Modifiers

Another set of sentences that provide support for the proposed N-M hypothesis is to be found in the following:

(42)a. Qiúanbù xiuésheng nèixie dài yianjing de   laile. 'All of those
       all   student those wear glasses rel. came   students who
                                                            wear glasses
                                                            came.'

   b. Dài yianjing de   xiuésheng nèixie qiúanbù laile.
      wear glasses rel. student   those all   came

   c. Nèixie xiuésheng dài yianjing de   qiúanbù laile.
      those student   wear glasses rel. all   came

   d. Xiuésheng nèixie dài yianjing de   qiúanbù laile.
      student   those wear glasses rel. all   came

   e. *Dài yianjing de   nèixie xiuésheng qiúanbù laile.
       wear glasses rel. those student   all   came

   f. *Qiúanbù nèixie xiuésheng dai yianjing de   laile.
       all   those student wear glasses rel. came

   g. *Qiúanbù dài yianjing de   xiuésheng nèixie laile.
       all   wear glasses rel. student   those came

   h. *Qiúanbù dài yianjing de   nèixie xiuésheng laile.
       all   wear glasses rel. those student   came

1.3.1. M-N Hypothesis

Let us first take a look at how the proposed M-N hypothesis can handle

sentences above. Starting out with a M-N sequence underlyingly, NP in (42)

will have the following underlying structure:

(43)

$$
\begin{array}{c}
\text{NP}_1 \\
\end{array}
$$

                              NP$_1$
                      /   \
                   M$_1$ NP$_2$
                    | /   \
                    | M$_2$ NP$_3$
                    | | /   \
                    | | M$_3$ NP
                    | | /   \ |
                    | | /   \   N
                    | | /   \ |
                 qiúanbù   nèixie dài yianjing de   xiuésheng
                 all   those   wear glasses rel. student
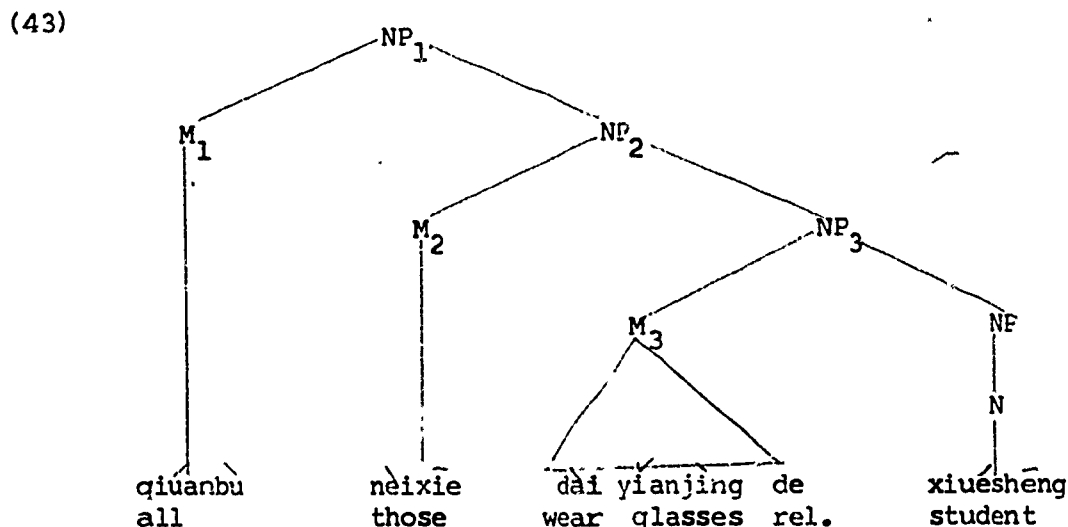
For the sake of convenience, consider the patterns as exhibited in (42):

(44) a. $[\,[M_1[\ N\ M_3\,]_{NP_3}\ M_2\,]_{NP_2}\,]_{NP_1}$ e.g. (42a)

b. $[\,[M_2[\ N\ M_3\,]_{NP_3}\,]_{NP_2}\ M_1\,]_{NP_1}$ (42b)

c. $[\,[[M_3\ N\,]_{NP_3}\ M_2\,]_{NP_2}\ M_1\,]_{NP_1}$ (42c)

d. $[\,[[N\ M_3\,]_{NP_3}\ M_2\,]_{NP_2}\ M_1\,]_{NP_1}$ (42d)

e. $*[\,[M_2[\ M_3\ N\,]_{NP_3}\,]_{NP_2}\ M_1\,]_{NP_1}$ (42e)

f. $*[\,[M_1[\ M_3\ N\,]_{NP_3}\ M_2\,]_{NP_2}\,]_{NP_1}$ (42f)

g. $*[\ M_1[\ M_2[\ N\ M_3\,]_{NP_3}\,]_{NP_2}\,]_{NP_1}$ (42g)

h. $*[\ M_1[\ M_2[\ M_3\ N\ ]_{NP_3}\,]_{NP_2}\,]_{NP_1}$ (42h)

and the table indicating the relationships between the well-formedness of the sentences and the selection of the NP's to which the rule of M-N inversion can apply.

(45)

surface form	sentence	NP's are affected by the M-N inversion rule	NP's are not affected by the M-N inversion rule	well-formedness
$[[M_1[\ N\ M_3\,]_{NP_3}\ M_2\,]_{NP_2}\,]_{NP_1}$	e.g.(42a)	$NP_2,\ NP_3$	NP_1	well-formed
$[[M_2[\ N\ M_3\,]_{NP_3}\,]_{NP_2}\ M_1\,]_{NP_1}$	(42b)	$NP_1,\ NP_3$	NP_2	well-formed
$[[[M_3\ N\,]_{NP_3}\ M_2\,]_{NP_2}\ M_1\,]_{NP_1}$	(42c)	$NP_1,\ NP_2$	NP_3	well-formed
$[[[N\ M_3\,]_{NP_3}\ M_2\,]_{NP_2}\ M_1\,]_{NP_1}$	(42d)	$NP_1,\ NP_2,\ NP_3$	$\emptyset$	well-formed
$*[[M_2[\ M_3\ N\,]_{NP_3}\,]_{NP_2}\ M_1\,]_{NP_1}$	(42e)	NP_1	$NP_2,\ NP_3$	ill-formed
$*[[M_1[\ M_3\ N\,]_{NP_3}\ M_2\,]_{NP_2}\,]_{NP_1}$	(42f)	NP_2	$NP_1,\ NP_3$	ill-formed

$*[_{M_1}[_{M_2}[_N \ M_3]_{NP_3}]_{NP_2}]_{NP_1}$ (42g) NP_3 NP_1, NP_2 ill-formed

$*[_{M_1}[_{M_2}[_{M_3} \ N]_{NP_3}]_{NP_2}]_{NP_1}$ (42h) (generated $\emptyset$ ill-formed
by phrase
structure rules
in the base)

The above table demonstrate that in order to derive well-formed sentences (e.g. 42 a, b, c, d), but to block ill-formed ones (e.g. 42 e, f, g, h), a number of complex constraints on the rule of M-N inversions are needed.

First, to derive the form $[[[_N \ M_3]_{NP_3} \ M_2]_{NP_2} \ M_1]_{NP_1}$ (e.g. 42d) but to block the form $*[_{M_1}[_{M_2}[_{M_3} \ N]_{NP_3}]_{NP_2}]_{NP_1}$ (e.g. 42h) it is necessary to constrain the rule of M-N inversion so that it must apply to every NP, moving M_1, M_2, and M_3 to a postnominal position. Second, to obtain the form

$[[_{M_1}[_N \ M_3]_{NP_3} \ M_2]_{NP_2}]_{NP_1}$ (e.g. 42a), $[[_{M_2}[_N \ M_3]_{NP_3}]_{NP_2} \ M_1]_{NP_1}$

(e.g. 42b), $[[[_{M_3} \ N]_{NP_3} \ M_2]_{NP_2} \ M_1]_{NP_1}$ (e.g. 42c), but to block the forms

$*[[_{M_2}[_{M_3} \ N]_{NP_3}]_{NP_2} \ M_1]_{NP_1}$ (e.g. 42e), $*[[_{M_1}[_{M_3} \ N]_{NP_3} \ M_2]_{NP_2}]_{NP_1}$

(e.g. 42f), and $*[_{M_1}[_{M_2}[_N \ M_3]_{NP_3}]_{NP_2}]_{NP_1}$ (e.g. 42g), it is necessary

to constrain the rule so that it must apply to every NP that satisfies its structural description but at least one of those NP's must not be affected by the rule.

The above demonstrates not only that our analysis based on the M-N hypothesis is not desirable because of the complication involved with the derivation, but also that, if sentences like (42a-42d) are assumed to have an underlying structure like (43), then the only way to derive these sentences but to block (42e-42h), is to implement a set of complex constraints as in (36) on the rule of M-N inversion, thereby complicating the grammar. For example,

to derive (42a), the rule of M-N inversion obligatorily applies to NP_2 and NP_3 but optionally to NP_1. On the other hand, to derive (42d), the same rule obligatorily applies to NP_1, NP_2, and NP_3. Constraints as such, as I have argued earlier, is not desirable because it would greatly complicate the grammar.

1.3.2. N-M Hypothesis

Following the N-M hypothesis proposed earlier, starting out with a N-M sequence the modified NP in (42) will have the following underlying structure:

(46)
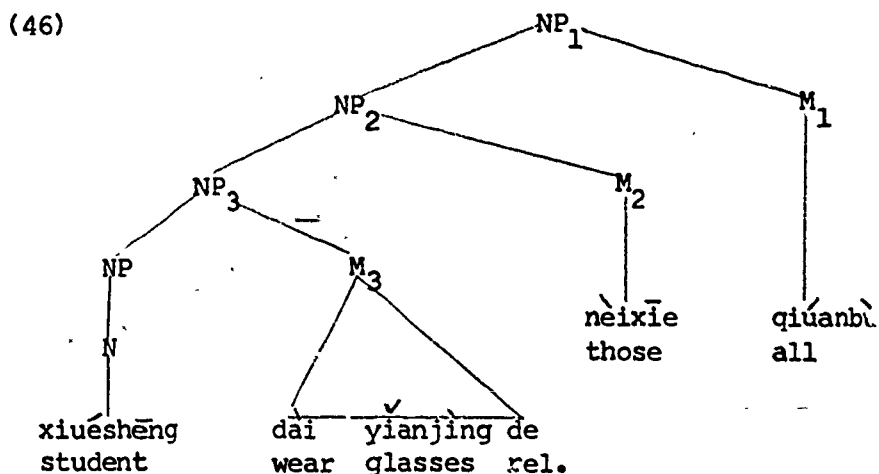
It is relatively easy to show that previously·proposed constraint as in (41) on the rule of N-M inversion holds here. In order to demonstrate that we have to show that the significant relationship between the well-formedness of sentences of (42) and the selection of the NP's to which the rule of N-M inversion can apply hold cases like (42). Consider the following table:

(47)

surface form	sentence	NP's are affected by the N-M inversion rule	NP's are not affected by the N-M inversion rule	well-formedness
$[[_{M_1}[_N \ M_3 \ ]_{NP_3} \ M_2 \ ]_{NP_2} \ ]_{NP_1}$	e.g. (42a)	NP_1	NP_2, NP_3	well-formed
$[[_{M_2}[_N \ M_3 \ ]_{NP_3} \ ]_{NP_2} \ M_1 \ ]_{NP_1}$	(42b)	NP_2	NP_1, NP_3	well-formed

$[[[_{M_3} N]_{NP_3} M_2]_{NP_2} M_1]_{NP_1}$	(42c)	NP_3	NP_1, NP_2	well-formed
$[[[_N M_3]_{NP_3} M_2]_{NP_2} M_1]_{NP_1}$	(42d)	$\emptyset$	(generated by phrase struc- ture rules in the base)	well-formed
$*[[_{M_2}[_{M_3} N]_{NP_3}]_{NP_2} M_1]_{NP_1}$	(42e)	NP_2, NP_3	NP_1	ill-formed
$*[[_{M_1}[_{M_3} N]_{NP_3} M_2]_{NP_2}]_{NP_1}$	(42f)	NP_1, NP_3	NP_2	ill-formed
$*[_{M_1}[_{M_2}[N M_3]_{NP_3}]_{NP_2}]_{NP_1}$	(42g)	NP_1, NP_2	NP_3	ill-formed
$*[_{M_1}[_{M_2}[_{M_3} N]_{NP_3}]_{NP_2}]_{NP_1}$	(42h)	NP_1, NP_2, NP_3	$\emptyset$	ill-formed

The above table demonstrates that there is a significant relationahip between the well-formedness of sentences and the selection of the NP's to which the rule of N-M inversion can apply. The fact is that the acceptability of (42a, b, c, d) and the unacceptability of (42e, f, g, h) are related to the selection of the NP's to which the rule of N-M inversion can apply. A sentence is well-formed if one or no NP is affected by the rule. Otherwise a sentence is ill-formed. This clearly shows that the constraint on N-M inversion proposed earlier as in (41) not only holds for cases whose NP's containing two modifiers, but also holds for cases whose NP's containing three modifiers such as (42). The argument is that we can account for the well-formedness of sentences (42a-d) by constraining the rule of N-M inversion as in (41). For example, there is only one NP chosen to which the rule of N-M inversion applies in the forms $[[_{M_1}[N M_3]_{NP_3} M_2]_{NP_2}]_{NP_1}$ (e.g. 42a), $[[_{M_2}[N M_3]_{NP_3}]_{NP_2} M_1]_{NP_1}$ (e.g. 42b), and $[[[_{M_3} N]_{NP_3} M_2]_{NP_2} M_1]_{NP_1}$ (e.g. 42c). Thus they are well-formed. On the other hand, there are two NP's chosen to which the rule applies in the forms $*[[_{M_2}[_{M_3} N]_{NP_3}]_{NP_2} M_1]_{NP_1}$ (e.g. 42e),

$$\cdot\left[\left[M_1\left[M_3 \quad N\right]_{NP_3} \quad M_2\right]_{NP_2}\right]_{NP_1} \quad \text{(e.g. 42f)} \quad \text{and} \quad \cdot\left[M_1\left[M_2\left[N \quad M_3\right]_{NP_3}\right]_{NP_2}\right]_{NP_1}$$

(e.g. 42g). Thus they are ill-formed. Similarly, there are three NP's chosen

to which the rule applies in the form $\cdot\left[M_1\left[M_2\left[M_3 \quad N\right]_{NP_3}\right]_{NP_2}\right]_{NP_1}$

(e.g. 42h). Thus it is ill-formed.

Comparing this analysis based on our N-M hypothesis with the one based on

the M-N hypothesis, we can conclude again, that the former is more desirable

because it provides a nice account of various surface patterns without positing

complex constraints on the rule.

1.4. NP's Containing Four Modifiers

Another set of sentences that provide further support for the proposed

N-M hypothesis is to be found in the following:

(48)a. Qiúanbu xiuéshēng dài   maúz de   dài yǐanjìng de gāu de láile.
       all   student wear hat re. wear glasses rel. tall rel. came
       'All of the tall students who wear hats who wear glasses came.'

b. Gāude xiuéshēng dài   màuz de dài yǐanjìng de qiúanbù láile.
   tall student   wear hat rel. wear glasses rel. all   came

c. Dài yǐanjìng de   xiuéshēng dai màuz de gāude qiúanbù láile.
   wear glasses rel. students wear hat rel. tall all   came

d. Dài màuz de xiuéshēng dài yǐanjìng de gāude qiúanbù láile.
   wear hat rel. student wear glasses rel. tall all   came

e. Xiuéshēng dài màuz de dài yǐanjìng de gāude qiúanbù láile.
   student   wear hat rel. wear glasses rel. tall all   came

f. •Gāude dài yǐanjìng de · dài màuz de xiuéshēng qiúanbù láile.
   tall   wear glasses rel. wear hat rel. student   all   came

g. •Qiúanbù dài yǐanjìng de dài màuz de xiuéshēng gāude láile.
   all   wear glasses rel. wear hat rel. student tall came

h. •Qiúanbù gāude dài màuz de xiuéshēng dài yǐanjìng de láile.
   all   tall wear hat rel. student wear glasses rel. came

i. •Qiúanbù gāude dài yǐanjìng de xiuéshēng dài màuz de láile.
   all   tall wear glasses rel. student   wear hat rel. came

j. •Qiúanbù gāude dài yǐanjìng de dài màuz de xiuéshēng láile.
   all   tall wear glasses rel. wear hat rel. student   came

1.4.1. M-N Hypothesis

Starting out with a M-N sequence the underlying structure for the NP in (48) will be something like the following:

(49)

qiúanbù	gāude	dài màuz de	dài yianjing de	xiuéshēng
all	tall	wear hat rel.	wear glasses rel.	student
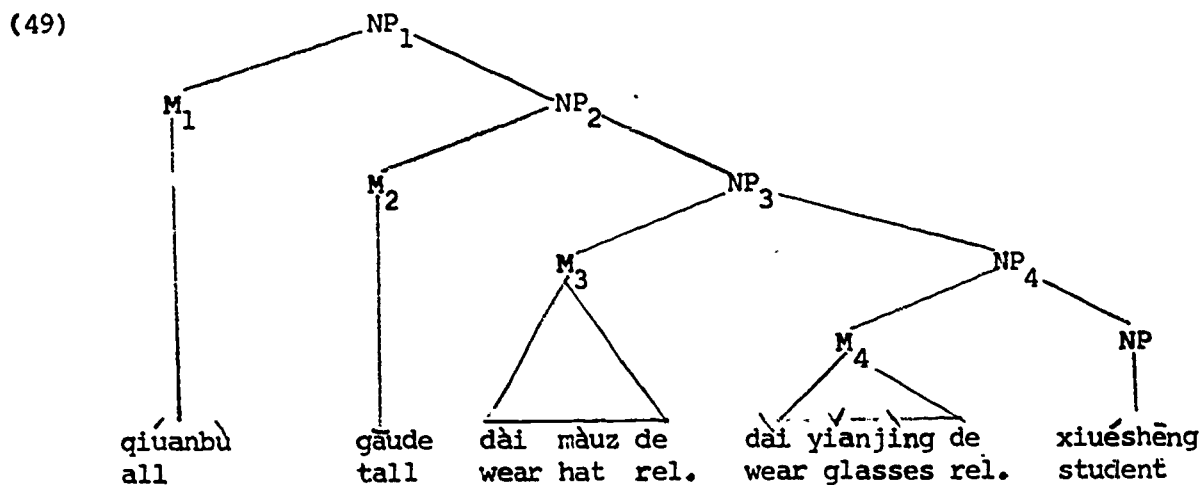
Consider the table indicating the sentence patterns as exhibited by sentence (48) as in (50)

(50) a. $[[[M_1[N \ M_4 \ ]_{NP_4} \ M_3 \ ]_{NP_3} \ M_2 \ ]_{NP_2} \ ]_{NP_1}$ (48a)

b. $[[M_2[N \ M_4 \ ]_{NP_4} \ M_3 \ ]_{NP_3} \ ]_{NP_2} \ M_1 \ ]_{NP_1}$ (48b)

c. $[[[M_3 \ N \ ]_{NP_3} \ M_4 \ ]_{NP_4} \ M_2 \ ]_{NP_2} \ M_1 \ ]_{NP_1}$ (48c)

d. $[[[M_4 \ N \ ]_{NP_4} \ M_3 \ ]_{NP_3} \ M_2 \ ]_{NP_2} \ M_1 \ ]_{NP_1}$ (48d)

e. $[[[N \ M_4 \ ]_{NP_4} \ M_3 \ ]_{NP_3} \ M_2 \ ]_{NP_2} \ M_1 \ ]_{NP_1}$ (48e)

f. $*[[M_2[\ M_3[\ M_4 \ N \ ]_{NP_4} \ ]_{NP_3} \ ]_{NP_2} \ M_1 \ ]_{NP_1}$ (48f)

g. $*[[M_1[\ M_3[\ M_4 \ N \ ]_{NP_4} \ ]_{NP_3} \ M_2 \ ]_{NP_2} \ ]_{NP_1}$ (48g)

h. $*[[M_1[\ M_2[\ M_4 \ N \ ]_{NP_4} \ M_3 \ ]_{NP_3} \ ]_{NP_2} \ ]_{NP_1}$ (48h)

i. $*[\ M_1[\ M_2[\ M_3[\ N \ M_4 \ ]_{NP_4} \ ]_{NP_3} \ ]_{NP_2} \ ]_{NP_1}$ (48i)

j. $*[\ M_1[\ M_2[\ M_3[\ M_4 \ N \ ]_{NP_4} \ ]_{NP_3} \ ]_{NP_2} \ ]_{NP_1}$ (48j)

and the table indicating the relationships between the well-formedness of sentence and the selection of NP's to which the rule of M-N inversion can apply as in (51).

(51)

surface forms	sentences	NP's are affected by M-N Inversion	NP's are not affected by M-N Inversion	well-formedness
$[[[_{M_1}[_N \ M_4 \ ]_{NP_4} \ M_3 \ ]_{NP_3} \ M_2 \ ]_{NP_2} \ ]_{NP_1}$	(48a)	NP_2, NP_3, NP_4	NP_1	well-formed
$[[[_{M_2}[_N \ M_4 \ ]_{NP_4} \ M_3 \ ]_{NP_3} \ ]_{NP_2} \ M_1 \ ]_{NP_1}$	(48b)	NP_1, NP_3, NP_4	NP_2	well-formed
$[[[_{M_3} \ N \ ]_{NP_3} \ M_4 \ ]_{NP_4} \ M_2 \ ]_{NP_2} \ M_1 \ ]_{NP_2}$	(48c)	NP_1, NP_2, NP_4	NP_3	well-formed
$[[[[_{M_4} \ N \ ]_{NP_4} \ M_3 \ ]_{NP_3} \ M_2 \ ]_{NP_2} \ M_1 \ ]_{NP_1}$	(48d)	NP_1, NP_2, NP_3	NP_4	well-formed
$[[[[_N \ M_4 \ ]_{NP_4} \ M_3 \ ]_{NP_3} \ M_2 \ ]_{NP_2} \ M_1 \ ]_{NP_1}$	(48e)	NP_1, NP_2, NP_3, NP_4	$\emptyset$	well-formed
$*[[_{M_2}[_{M_3}[_{M_4} \ N \ ]_{NP_4} \ ]_{NP_3} \ ]_{NP_4} \ M_1 \ ]_{NP_1}$	(48f)	NP_1	NP_2, NP_3, NP_4	ill-formed
$*[[_{M_1}[_{M_3}[_{M_4} \ N \ ]_{NP_4} \ ]_{NP_3} \ M_2 \ ]_{NP_2} \ ]_{NP_1}$	(48g)	NP_2	NP_1, NP_3, NP_4	ill-formed
$*[[_{M_1}[_{M_2}[_{M_4} \ N \ ]_{NP_4} \ M_3 \ ]_{NP_3} \ ]_{NP_2} \ ]_{NP_1}$	(48h)	NP_3	NP_1, NP_2, NP_4	ill-formed
$*[_{M_1}[_{M_2} M_3[_N \ M_4 \ ]_{NP_4} \ ]_{NP_3} \ ]_{NP_2} \ ]_{NP_1}$	(48i)	NP_4	NP_1, NP_2, NP_3	ill-formed
$*[_{M_1}[_{M_2}[_{M_3} M_4 \ N \ ]_{NP_4} \ ]_{NP_3} \ ]_{NP_2} \ ]_{NP_1}$	(48j)	(generated by phrase structure rules in the base)	$\emptyset$	ill-formed

with a N-M sequence, the modified NP in (48a) will have the following structure:

(52)

xiúeshēng	dài yiānjing	de	dài màuz	de
student	wear glasses	rel.	wear hat	rel.

gāude — tall
qiúanbù — all

Again, it is relatively easy to show that the proposed constraint as in (41) also holds here. In order to show that (41) is capable of accounting for cases such as (48), it is necessary to demonstrate the relationship between the well-fromedness of sentences and the selection of NP's to which the rule of N-M inversion can apply. Consider the following table:

(53)

surface form	sentence	NP's are affected by N-M Inversion	NP's are not affected by N-M Inversion	well-formedness
$[[[M_1[\, N \, M_4 \,]_{NP_4} \, M_3 \,]_{NP_3} \, M_2 \,]_{NP_2} \,]_{NP_1}$	(48a)	NP_1	NP_2, NP_3, NP_4	well-formed
$[[[M_2[\, N \, M_4 \,]_{NP_4} \, M_3 \,]_{NP_3} \,]_{NP_2} \, M_1 \,]_{NP_1}$	(48b)	NP_2	NP_1, NP_3, NP_4	well-formed
$[[[M_3 \, N \,]_{NP_3} \, M_4 \,]_{NP_4} \, M_2 \,]_{NP_2} \, M_1 \,]_{NP_1}$	(48c)	NP_3	NP_1, NP_2, NP_4	well-formed
$[[[M_4 \, N \,]_{NP_4} \, M_3 \,]_{NP_3} \, M_2 \,]_{NP_2} \, M_1 \,]_{NP_1}$	(48d)	NP_4	NP_1, NP_2, NP_3	well-formed

$$[[[[_N \; M_4]_{NP_4} \; M_3]_{NP_3} \; M_2]_{NP_2} \; M_1]_{NP_1}$$ (48e)

generated by the base rule $\emptyset$ well-formed

$$\ast [_{M_2} [_{M_3} [\; M_4 \; N]_{NP_4}]_{NP_3}]_{NP_2} \; M_1]_{NP_1}$$ (48f)

NP_2, NP_3, NP_4 NP_1 ill-formed

$$\ast [_{M_1} [_{M_3} [\; M_4 \; N]_{NP_4}]_{NP_3} \; M_2]_{NP_2}]_{NP_1}$$ (48g)

NP_1, NP_3, NP_4 NP_2 ill-formed

$$\ast [_{M_1} [_{M_2} [\; M_4 \; N]_{NP_4} \; M_3]_{NP_3}]_{NP_2}]_{NP_1}$$ (48h)

NP_1, NP_2, NP_4 NP_3 ill-formed

$$\ast [_{M_1} [_{M_2} [_{M_3} [\; N \; M_4]_{NP_4}]_{NP_3}]_{NP_2}]_{NP_1}$$ (48i)

NP_1, NP_2, NP_4 NP_3 ill-formed

$$\ast [_{M_1} [_{M_2} [_{M_3} [\; M_4 \; N]_{NP_4}]_{NP_3}]_{NP_2}]_{NP_1}$$ (48j)

NP_1, NP_2, NP_3, NP_4 $\emptyset$ ill-formed

The above shows that there is a significant relationship between the well-formedness of sentences and the selection of the NP's to which the rule of N-M inversion can apply. The acceptability of (48a, b, c, d, e) and the unacceptability of (48f, g, h, i, j) clearly show that the well-formedness of sentences are related to the selection of the NP's to which the rule of N-M inversion can apply. A sentence is well-formed if either one or no NP chosen for the rule of N-M inversion to apply. Otherwise a sentence is ungrammatical. This clearly shows that the proposed constraint as in (41) not only holds for sentence whose NP's containing two and three modifiers, but also holds for sentences whose NP's containing four modifiers such as (48). The argument is that we can account for the well-formedness of (48) in the following way. For example, there is either one or no NP chosen to which the rule applies in the forms

$$M_1 [\; N \; M_4]_{NP_4} \; M_3]_{NP_3} \; M_2]_{NP_2}]_{NP_1}$$ (e.g. 48a), $$[[[_{M_2} [\; N \; M_4]_{NP_4}$$

$$M_3]_{NP_3}]_{NP_2} \; M_1]_{NP_1}$$ (e.g. 48b), $$[[[_{M_3} \; N]_{NP_3} \; M_4]_{NP_4} \; M_2]_{NP_2} \; M_1]_{NP_1}$$

(e.g. 48c) $[[[_{M_4} \quad N]_{NP_4} \quad M_3]_{NP_3} \quad M_2]_{NP_2} \quad M_1]_{NP_1}$ (e.g. 48d),

$[[[_N \quad M_4]_{NP_4} \quad M_3]_{NP_3} \quad M_2]_{NP_2} \quad M_1]_{NP_1}$ (e.g. 48e). Thus they are well-

formed. On the contrary, there are more than one NP chosen to which the rule

applies in the forms $*[[_{M_2}[\quad M_3[\quad M_4 \quad N]_{NP_4}]_{NP_3}]_{NP_2} \quad M_1]_{NP_1}$ (e.g. 48f)

$*[_{M_1}[\quad M_3[\quad M_4 \quad N]_{NP_4}]_{NP_3} \quad M_2]_{NP_2}]_{NP_1}$ (e.g. 48g), $*[[_M[\quad M_2[\quad M_4 \quad N]_{NP_4}$

$M_3]_{NP_3}]_{NP_2}]_{NP_1}$ (e.g. 48h), $*[\quad M_1[\quad M_2[\quad M_3[\quad N \quad M_4]_{NP_4}]_{NP_3}]_{NP_2}]_{NP_1}$

(e.g. 48i), $*[_{M_1}[\quad M_2[\quad M_3[\quad M_4 \quad N]_{NP_4}]_{NP_3}]_{NP_2}]_{NP_1}$ (e.g. 48j).

This section together with section 1.1., 1.2., and 1.3. has been an attempt

to argue against a M-N sequence, but for a N-M sequence as the underlying order

for a modified NP in Chinese. The argument has been twofold: on the one

hand, it has been demonstrated that various surface patterns of NP's containing

more than one modifier cannot be adequately accounted for within the M-N hypothesis,

since it complicates the grammatical description by requiring a set of complex

constraints on the rule of M-N inversion; on the other hand, it has been shown

that such patterns can best be accounted for within the N-M hypothesis, since

it simplifies the grammatical description by constraining the rule of N-M

inversion in such a way that it can apply to any NP, either a higher one, or

a lower one, but only once within the domain of a possible complex NP.

2. Preverbal Nominal Modifier

2.1. Preverbal Nominal Modifiers

In Chinese nominal modifiers can occur in preverbal position. Consider:

A. Quantifiers

(54)a. Xuésheng   qúanbù láile.   'All of the students came.'
      student   all   came

b. (Guānyú) xiuéshēng, qiúanbu láile.
   As for   student   all   came
                                  'As for the students, all of them came.'

(55) a. Xiuéshēng měiyigè láile.
      student   each   came
                                  'Each of the students came.'

b. (Guānyú) xiuéshēng, měiyigè láile.
   As for   student   each   came
                                  'As for the students, each of them came.'

(56) a. Xiuéshēng mōxie láile.
      student   some   came
                                  'Some of the students came.'

b. (Guānyú) xiuéshēng, mōxie láile.
   As for   student   some   came
                                  'As for the students, some of them came.'

(57) a. Xiuéshēng hénduo láile.
      student   many   came
                                  'Many of the students came.'

b. (Guānyú) xiuéshēng, hénduo láile.
   as for   student   many   came
                                  ' As for the students, many of them came.'

(58) a. Xiuéshēng yìbáige láile.
      student   100   came
                                  'One hundred of the students came.'

b. (Guānyú) xiuéshēng, yìbáigè láile.
   as for   student   100   came
                                  'As for the students, one hundred of them came.'

B. Determiners

(59) a. Xiuéshēng zhèixie láile.
      student   these   came
                                  'These students came.'

b. (Guānyú) xiuéshēng, Zhèixie láile.
   as for   student   these   came
                                  ' As for the students, these came.'

C. Adjective

(60) a. Xiuéshēng tsūngmíngde láile.
      student   intelligent came
                                  'The intelligent students came.'

b. (Guānyú) xiuéshēng, tsūngmíngde láile.
   as for   student   intelligent came
                                  'As for the students, the intelligent ones came.'

D. Measure Phrase

(61) a. Xiuéshēng ershisuìdàde láile.
      student   20-year-old   came
                                  'The twenty-year-old students came.'

b. (Guānyú) xiuésheng, ershisuìdàde láile.
   as for   student   20-year-old   came
                                  'As for the students, the 20-year-old ones came.'

E. Relative Clause

(62) a. Xiuéshēng, dai yìanjing de láile.
      student   wear   glasses   rel.   came
                                  'The students who wear glasses came.'

b. (Gūanyú) xiuéshēng, daì yīanjīng de láile.   'As for the students,
   as for   student   wear glasses rel. came   the ones who wear
                                     glasses came.'

2.2. Preverbal Nominal Modifiers and Topicalization

In Hou (1974a) I propose that in Chinese there is a topicalization transformation which moves NP's to the front of a sentence as schematized in (63).

(63) $\underline{X}$ $\underline{NP}$ $\underline{Y}$ $\Longrightarrow$ 2 # $_S[$ 1 $\emptyset$ 3
           1   2   3

This transformation relates (a), (b) and (c) in the following sentences:

(64)a. Xiuéshēng láile.   'The students came.'
       student   came

   b. (Gūanyú) xiuéshēng, láile.   'As for the students, they came.'
      as for   student   came

(65)a. Xiuéshēng maile shū.   'The students bought the books.'
       student   bought book

   b. (Gūanyú) xiuéshēng, maile shū.   'As for the students, they bought
      as for student   bought book   the books.'

   c. (Gūanyú) shū,   xiuéshēng maile.   'As for the books, the students
      as for   book   student   bought   bought.'

We can account for (54b)-(62b) by reformulating the proposed rule of topicalization so that it can either move the whole noun phrase to the front of a sentence or move only the noun, leaving the modifier behind. The reformulation of topicalization can be schematized as in (66).

(66) Topicalization:

SD: $\underline{X}$ $\underline{N}$ $\underline{M}$ $\rceil_{NP}$ $\underline{Y}$ $\Longrightarrow$
      1   2   3   4

SC: (a) 2 + 3 # $_S[$ 1 $\emptyset$ $\emptyset$ 4

      (b) 2 # $_S[$ 1 $\emptyset$ 3 4   M = Quantifiers,
                                              Determiners,
                                              Adjectives,
                                              Measure Phrase,
                                              Relative Clause, etc.

Thus, we can derive (5 b) in the following fashion:

(67)
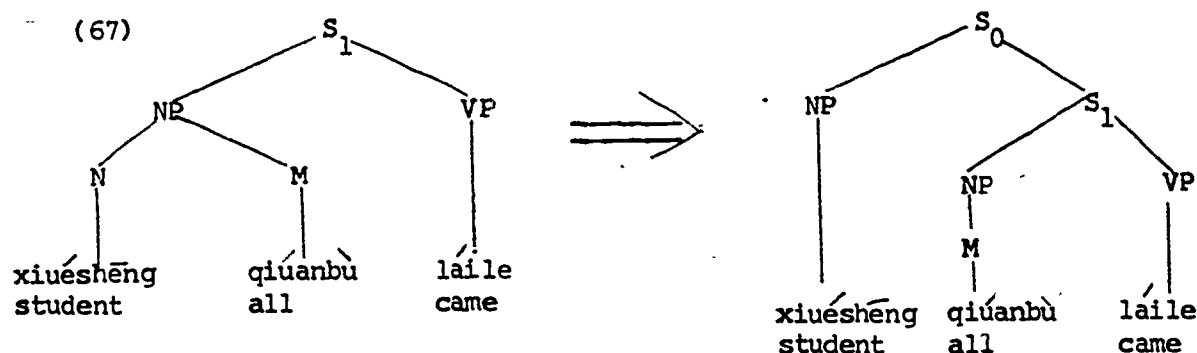
However, this analysis is inadequate because there are topicalized

sentences in Chinese whose structure cannot be derived from the application of

movement transformation. For example, the following topicalized   sentences

have no non-topicalized counterparts.

(68) Hūa   méiguèi zuèi hǎukàn.   'As for flowers, roses are most
     flower rose   most beautiful   beautiful.'

(69) Jīaoyù   Max bù tóngyì Russell. 'As for education, Max does agree
     education   not agree   with Russell.

(70) Yǔianxiúe yúfa zuè: líouxing.   'As for linguistics, syntax is
     linguistics syntax most popular   most popular.'

(71) Hǎi   Tàipíngyáng   zuèi dà.   'As for ocean, the Pacific is the
     ocean Pacific Ocean most large   largest.'

(72) Jūngguó tsài Max xǐhwān kǎoyà.   'As for Chinese food, Max
     Chinese food like roast duck   likes roast duck.'

2.3. Teng's Analysis

Teng (1974) suggests that sentences such as (54b)-(62b) are double nominative

constructions and are to be generated directly by phrase structure rules in the

base. That is, the noun in the initial position and the noun and nominal

modifier in preverbal position are both nominatives in the underlying structure.

In other words, both are interpreted as topics. For example, (54b) will have

the following underlying structure in Teng's framework:

(73)

```
                        S₁
            ┌───────────┴──────────┐
           NP                      VP₁
            │                       │
            │                       S₂
            │              ┌────────┴────────┐
            │             NP₂                 VP₂
            │          ┌───┴───┐               │
            │          M       N               │
         xiuéshēng  qiúanbù  xiuéshēng       láile
          student     all     student        came
```
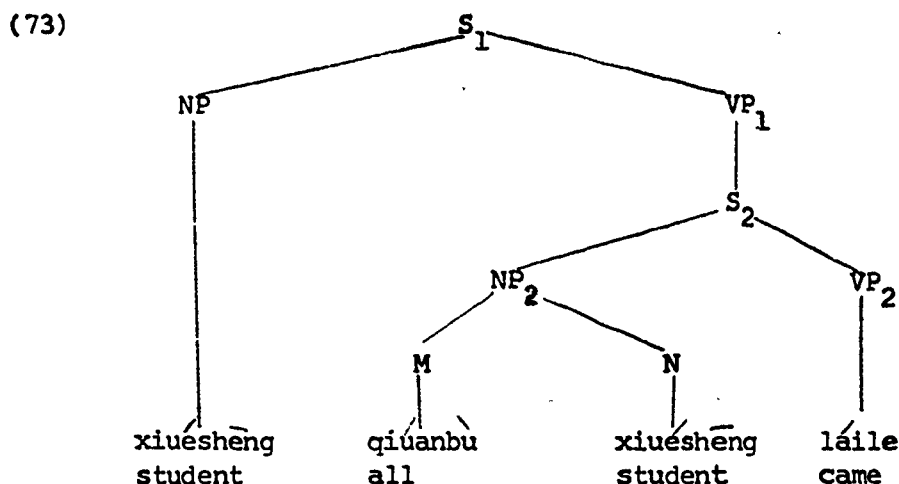
In order to derive (54b) from a structure like (73) Teng claims that the only

transformation needed is a rule deleting the repeated element--xiuéshēng 'student'

in NP₂ of S₂ yielding the correct surface form.

There are two factors that argue against Teng's proposal. The first concerns

the validity of the structure (73). In general an S can be dominated by a VP

as a complement as shown in (74).

(74) (a)
```
        VP
     ┌──┼──┐
     V  NP  S
```
(b)
```
        VP
     ┌──┼──┐
     V  PP  S
```
(c)
```
        VP
     ┌──┼──┐
     PP  V  S
```
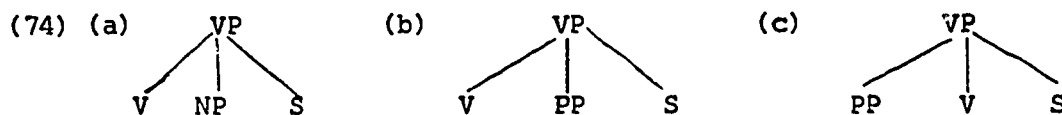
(a), (b), and (c) are very common and can be found in many languages. For

example, (a) and (b) are found in English, whereas (a), (b), and (c) are found

in Chinese. However, in (73) we find that an S is immediately dominated by a

VP. What Teng suggests is that in the base there is a rule which says a VP

can be expanded as an S.   Such a proposal is unjustified because there are

no evidence which indicate such a relation does exist in natural language.

Another factor against Teng's proposal concerns the placement of the negative

adverb bù 'not'. There is a general rule in Chinese which states that negative

adverb bù 'not' occurs before the verb except in the case of double nominative

construction, where bù 'not' can occur either before a verb or before a noun

which is followed by a verb. For example, bù 'not' is placed before the verb in

a non-double nominative sentence such as (75).

(75) a. Max xīhuān Měigwó fàn.   'Max likes American food.'
              like   American food

    b. Max bù xīhuān Měigwó fàn.   'Max does not like American
           not like   American food   food.'

However, <u>bù</u> 'not' is placed either before the verb or before the noun in a

double nominative sentence such as (76).[2]

    (76) a. Max tóu téngle.   'Max has a headache.'
            head painful

    b. Max tóu bù téngle.   'Max does not have a headache.'
          head not painful

    c. Max bù tóu téngle.   'Max does not have a head-
         not head painful   ache.'

As an illustration, consider sentences (54b) and (62b). If these sentences

were double nominatives, then their negative counterparts should be the

following:

    (77)a. Xiuéshēng qiuánbù bù láile.   'All of the students didn't
        student   all   not came   come.'

    b. Xiuesheng bù qiuánbù láile.   'Not all of the students
        student   not all   came   came.'

    (78)a. Xiuéshēng dài yīanjing de bù láile.   'The students who wear
        student   wear glasses rel. not came   glasses didn't come.'

    b. Xiuéshēng bù dài yīanjing de láile.   'Students who didn't
        student   not wear glasses rel. came   wear glasses c me.'

Since the negative counterparts of (54b) and (62b) are (77a) and (78a),

but not (77b) and (78b) respectively and since (77a) and (78a) and (77b) and

(78b) are not synonymous with each other, we must conclude the following:

sentences such as (54)-(62) are not double nominative constructions and they

should be derived from different logical structure.

2.4. The Underlying Structure of Topicalized Sentences: A Proposal

    Based on the fact that all types of topicalized sentences such as

(54b)-(62b) and cases like (68)-(72) should be derived from the same kind of

logical structure, I propose that sentences like (54b) has the following under-
lying structure:[3]

(79)

```
                              S
               Top                        NP
                |                          |
               NP                          S
                |                   NP            VP
            xiuésheng             /    \           |
            student              N      M          |
                           xiuésheng  qiúanbu    laile
                           student    all        came
```
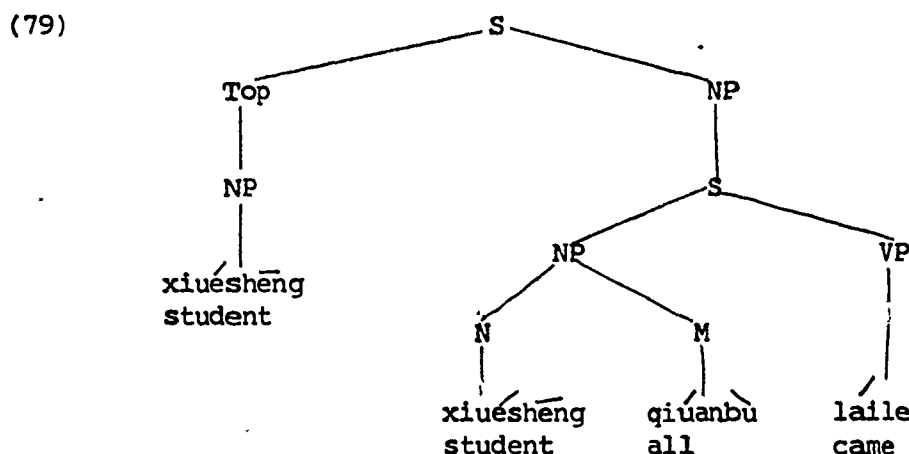
    To derive (54b) from (79), the only transformation we need is a rule that
deletes the repeated element--xiuésheng 'student'. There are three factors
arguing for this analysis. First, it provides a nice common source for all types
of the topicalized sentences by generating them directly in the base by phrase
structure rules. Second, it captures the semantic relation between the
notions such as topic and comment in a explicit manner. Third, it provides an
explanation for the relationship between a modified noun and its modifier.
That is, the close relationship between modifiers and nouns with which they
are associated is nicely explicated by treating them as clause mates in the
same constituent in the underlying structure.

3. Postverbal Nominal Modifiers

3.1. Postverbal Modifiers

    Nominal modifiers in Chinese can also occur in postverbal position. This
is exemplified in (80)-(88).

A. Quantifier

    (80)a. Xiuésheng qiúanbu laile.   'All of the students came.'
           student   all   came

      b. Xiuésheng (lítou), laile qiúanbu.   'As for the students, all of
           student   among   came   all   of them came.'

(81)a. Xiuésheng méiyigè láile.   'Each of the students came.'
      student   each   came

    b. Xiuésheng (lĭtou), láile méiyigè.   'As for the students, each of
      student   among came each   . them came.'

(82)a. Xiuésheng mòxie láile.   'Some of the students came.'
      student   some came

    b. Xiuésheng (lĭtou), láile mòxie.   'As for the students, some of
      student   among came some   them came.'

(83)a. Xiuésheng hénduō láile.   'Many of the students came.'
      student   many   came

    b. Xiuésheng (lĭtou), láile hénduō.   'As for the students, many of
      student   among came many   them came.'

(84)a. Xiuésheng yibaige láile.   'One hundred of the students
      student   100   came   came.'

    b. Xiuésheng (lĭtou), láile yibàige. 'As for the students, one
      student   among came 100   hundred of them came.'

B. Determiners

(85)a. Xiuésheng nèixie láile.   'Those students came.'
      student   those came

    b. Xiuésheng (litou), láile nèixie.   'As for the students, these
      student   among came those   came.'

C. Adjectives

(86)a. Xiuésheng tsūngmingde láile.   'The intelligent students came.'
      student   intelligent came

    b. Xiuésheng (lĭtou), láile tsūngmingde. 'As for the students, the
      student   among came intelligent intelligent ones came.'

D. Measure Phrases

(87)a. Xiuésheng èrshisùidade láile.   'The 20-year-old students
      student   20-year-old came   came.'

    b. Xiuésheng (lĭtou), laile èrshisùidade. 'As for the students, the
      student · among came 20-year-old 20-year-old ones came.'

E. Relative Clauses

(88)a. Xiuésheng dài yianjing de láile.   'The students who wear
      student wear glasses rel. came   glasses came.'

    b. Xiuésheng (litou), láile dài yianjing de. 'As for the students,
      student   among came wear glasses rel. the one who wear glasses
                                          came.'

3.2. Tai's Analysis

In Tai (1973) it is proposed that sentences like (80b)-(88b) can be related to (80a)-(88a) by what he called NP-V inversion transformation. He proposes that sentence (80b) has the following structure:

(89)

```
                    S
          NP                   VP
                        NP            V
                        |
                        M
       xiuéshēng     qiúanbù        láile
       student       all            came
```
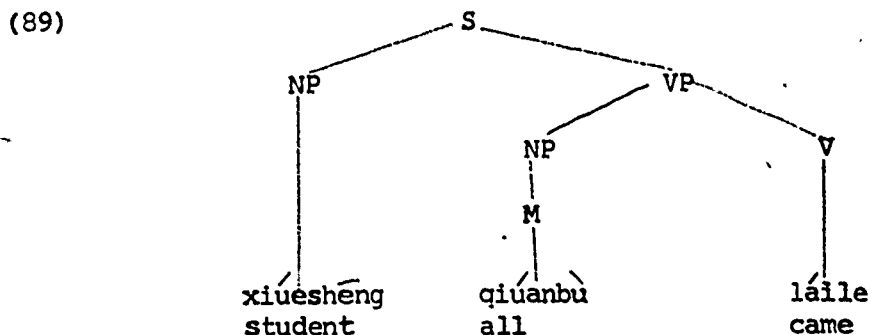
Then (80b) can be derived from (89) by undergoing the NP-V inversion transformation which is schematized as in the following derivation:

(90)

```
         S                                    S
    NP        VP                          NP        VP
          NP       V          ====>            V        NP
          |                                             |
                                                        M
  xiuéshēng qiúanbù  láile                 xiuéshēng láile  qiúanbù
  student   all      came                  student   came   all
```
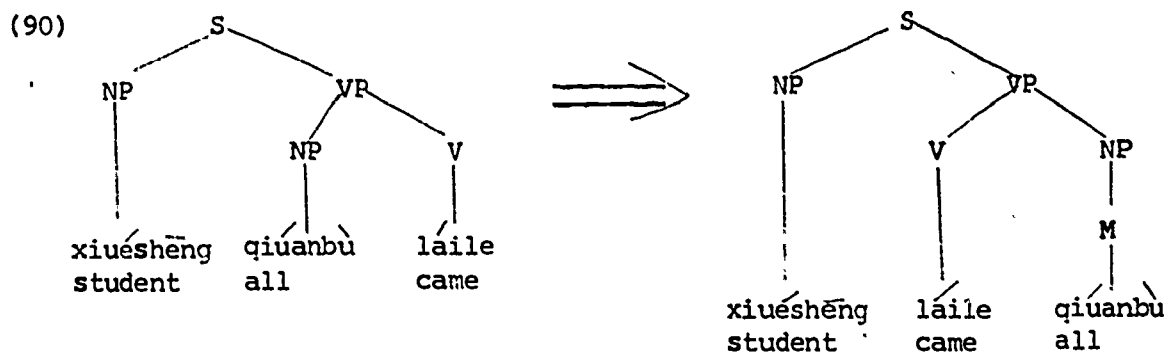
Tai's analysis is unjustified, because, as I have argued earlier, it treats nominal modifiers as part of the VP although they are closely related to the nouns they modify. The result of this is that the modifiers are associated with the VP in the underlying structure, causing problems in explaining the semantic relation between the NP in subject position and the modifier in VP.

3.3. Li and Thompson's Analysis

Li and Thompson (1974) suggests that sentences such as (80b) is derived directly by phrase structure rule in the base component with a structure as shown in (91):

(91)

```
                          S
                _____/ _____
              NP                     VP
              |              _____/ _____
              |             V                 NP
              |             |                 |
              |             |                 M
              |             |                 |
          xiuésheng       láile           qiúanbu
          student         came              all
```
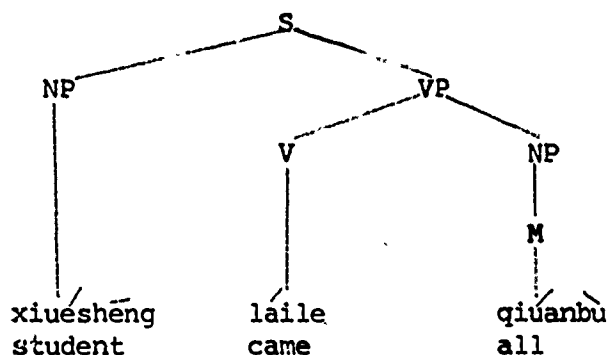
The problem in this analysis, again, is that it would complicate the grammar if the nominal modifiers were to be analyzed as part of the VP constituent in the underlying structure. Below is one argument against such an analysis.

In general the negative adverb bù 'not' is placed before a verb which is followed by a noun. For example:

(92) a. Max xǐhwān pǐnggǔo.   'Max likes apple.'
         like   apple

     b. Max bù   xǐhwān pǐnggǔo.   'Max does not like apple.'
         not like   apple

Consider sentences (80b)-(88b). If nominal modifiers in these sentences were to be analyzed as part of the VP constituent, then their negative counterparts should be exactly the same as (92). However, the situation in these sentences is different. For example, the negative counterparts of sentences (80b) and (88b) are not (93a) and (94a), but rather (93b) and (94b) respectively.

(93) a. *Xiuésheng bù láilc qiúanbu.   'All of the students did not
          student   not came all   come.'

     b.   Xiuésheng bù   qiúanbu láile.
          student   not all   came

(94) a. *Xiuésheng bù laile dai   yiánjing de.   'The students who did not
          student   not came wear glasses rel.   wear glasses came.'

     b.   Xiuésheng bú dài   yiánjing de   láile.
          student   not wear glasses rel. came

On the one hand, the acceptability of (93b) and (94b) clearly indicates that the nominal modifiers in these sentences are closely related to nouns with

which they are associated. On the other hand, the unacceptability of (93a) and (94a) indicates that nominal modifiers in these sentences cannot be analyzed as part of the VP constituent. The argument is that, if the modifiers in these sentences were to be analyzed in the VP constituent in underlying structure, then the complication involved with the placement of the adverb bù 'not' will result, namely the modifier must be preposed next to the noun with which they are associated before the bù is placed before the verb in order to derive (93b)-(94b). To accomplish that a rule that moves the modifiers to a preverbal position is eventually needed just in case bù occurs before the verb. Li and Thompson's treatment is not desirable because it would complicate the grammar by introducing new rules.

3.4. Modifier Postposing Transformation

Another way to account for (80b)-(88b) is by assuming that there is a modifier postposing rule in Chinese that moves modifiers out of the NP's with which they are associated to a postverbal position. For example, sentence (80b) will have the following derivation:

(95)
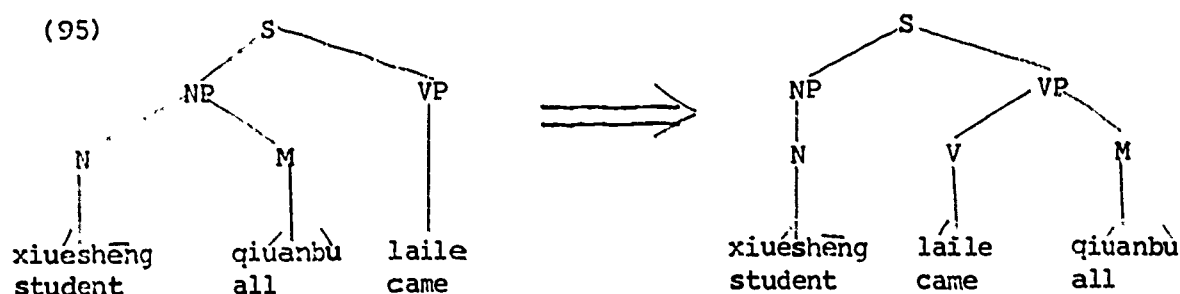
The problem in this analysis concerns the placement of the modifiers. Consider the rule of modifier postposing which moves modifiers to a post verbal position. If such a rule is built into the grammar of Chinese and if we allow it to apply freely, then the difficulty confronting us is that there is no way to prevent nominal modifiers, and quantifiers in particular, from moving to an improper position, thereby conveying different semantic interpretations.
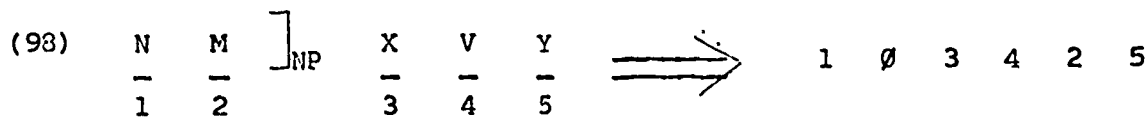
Consider the following sentences:

(96)a.   Xiúeshēng qiúanbù máile shū.   'All of the students
         student   all   bought book   bought books.'

    b.   Xiúeshēng, máile qiúanbù shū.   'The students bought all
        student   bought all   book   of the books.'

Sentence (96b) is a perfectly good Chinese sentence and it could be derived
by the application of the rule of modifier postposing. That is, if we allow
modifier postposing to apply freely, then this rule could convert (96a) into
(96b). The fact is that (96a) is not synonymous with (96b) as we can see in
the English translation. They differ in meaning because in (96a) modifier
modifies the subject, and in (96b) modifier modifies the object. For example,
(96a) has the reading: <u>All of the students bought the books</u>; while (96b) has
the reading: <u>The students bought all of the books.</u> Another set of sentences
which could be generated by the modifier postposing transformation are found in
the following:

(97)a. Aí   háiz hē   tāng.   'The short boy eats the soup.'
       short boy   drink soup

    b. *Haiz hē   ai   tāng.
       boy   drink short soup

There are two alternatives that can be used as a blocking device to
constrain the proposed modifier postposing transformation so that only well-
formed sentences can be generated. On the one hand, we can prevent cases like
(96b) and (97b) from being generated by constraining the modifier postposing rule
in the following fashion:

(98) $\left. \overline{\underset{1}{N}}\quad \overline{\underset{2}{M}}\right]_{NP}\quad \overline{\underset{3}{X}}\quad \overline{\underset{4}{V}}\quad \overline{\underset{5}{Y}}\quad\Longrightarrow\quad 1\quad \emptyset\quad 3\quad 4\quad 2\quad 5$

Condition: $Y \neq NP$

The solution above is not a desirable one because it would rule out perfectly
acceptable sentences such as (96b). The other posibility is that we can account
for cases such as (96b) and (97b) by positing a perceptual constraint as in (99):

(99)   Associate a nominal modifier with the nearest possible NP.

What (99) claims is that there is a general tendency that in Chinese a nominal

modifier tends to modify the nearest possible NP. The function of this constraint

is to provide an account for the improper placement of nominal modifier in cases

like (96b) and semantic anomaly in cases like (97b). Now let us take a

closer look at how cases such as (96b) and (97b) can be accounted for by the

proposed constraint as in (99). One way to explain why   (96b) should not

be derived from (96a) through a rule of modifier posposing as in (98) is to

say that if it so derived it would convey a different semantic interpretation

according to (99). This mea..s that (96b) must be interpreted as: The students

bought all of the books but not All of the students bought the books according

to (99). What this demonstrates is that (96b) cannot be derived from (96a)

through a rule of modifier postposing. Rather, it would be derived from

different structure. Similarly we can explain the semantic anomal/ of (97b)

by saying if it is so derived it would violate the constraint as in (99).

The fact   that .   (97b) is semantic anomalous is because there is no

semantic compatibility between the nominal modifier ǎi 'short' and

the noun   tāng 'scup'. Therefore, ǎi 'short' cannot be interpreted

as the modifier modifying tāng 'soup' although the tāng 'soup' is the nearest

NP. This alternative is more desirable over the first one because the

proposed perceptual constraint as in (99) provides a nice functional explanation

for sentences such as (96b) and (97b).

4. Discontinuous Nominal Modifiers

Consider the following sentences:

(100) [Sānbǎige xuéshēng (lǐtou)]$_{NP}$ [láile [wǔshige.]$_{NP}$
300 student among came 50
'Out of the three hundred students, fofty came.'

(101) [Nèixiē xuéshēng (lǐtou)]$_{NP}$ láile [dài yǎnjìng de.]$_{NP}$
those student among came wear glasses rel.
'Out of those students, the ones who wear glasses came.'

(102) [Měiguó wǔshí zhōu (lǐtou)]$_{NP}$ Max dàoguo [bāi zhōu.]$_{NP}$
U.S. 50 state among have been 8 state
'Out of the fifty states of U.S., Max has been to eight of them.'

(103) [Shíqīge xuésheng (lǐtou)]$_{NP}$ Max rènshi [liǎngge.]$_{NP}$
17 student among know 2
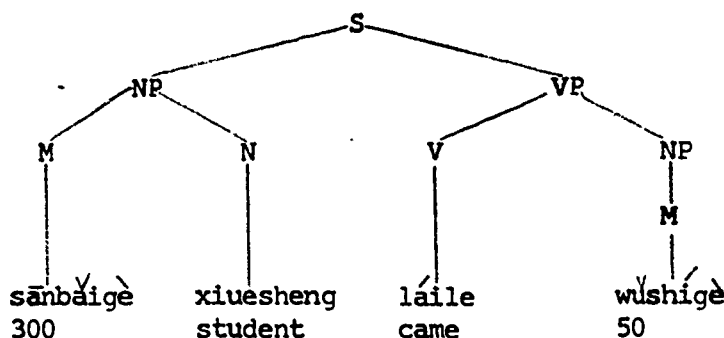'Out of the seventeen students, Max knows two of them.'

One property that characterizes the above sentences is that in these
sentences the two nominal expressions separated by the verb denotes a set versus
subset relation. The first bracketed NP denotes a total set that is greater
than that of the second bracketed NP. Another property exhibited by these
sentences is that the NP denoting the universe set or the whole cannot be
interchanged with the NP denoting the subset or the part. That is, interchanging
the two bracketed NPs would make the sentences unacceptable. For example, the
following sentences are unacceptable:

(104) * Wǔshige xuésheng (lǐtou) láile sānbǎige.
50 student among came 300

(105) * Bāi zhōu (lǐtou) Max dàoguo Měiguó wǔshí zhōu.
8 state among have been U.S. 50 state.

(106) * Liǎngge xuéshēng (lǐtou) Max rènshi shíqìge.
2 student among know 17

4.1. Li and Thompson's Analysis

Li and Thompson (1974) proposes that sentences such as (100) has
an underlying structure as shown in (107):

(107)

```
                               S
                  ┌────────────┴────────────┐
                 NP                          VP
              ┌───┴───┐                 ┌────┴────┐
              M       N                 V         NP
              │       │                 │         │
                                                  M
              │       │                 │         │
          sānbǎigè  xiuésheng         láile     wǔshígè
            300      student           came       50
```

What (107) claims is that sentences whose NP containing discontinuous modifiers
such as (100)-(103) are directly derived by phrase structure rules in the base
component.

One major problem in this analysis is that it fails to provide an account
for the systematic relationship among transformationally related sentences. That
is, this analysis provides no explanation for how sentences (103)-(106) can be
related to their synonymous counterparts as shown below:

(108) Sānbǎigè xiuéshēng (lǐtou), wǔshígè láile.   'Out of the three
       300   student   among   50   came   students, fifty came.'

(109) Nèixie xiuéshēng (lǐtou) dài yǎnjìng de láile.
       those student   among wear glasses rel. came
       'Out of those students, the ones who wear glasses came.'

(110) Max dàoguò   Měiguó wǔshí zhōu (lǐtou)   bāi zhōu.
       have been   U.S.   50   state among   8   state
       'Out of the fifty states of the U.S., Max has been eight of them.'

(111) Max rènshi shíqīgè xiuéshēng (lǐtou) liǎnggè.
       know 17   student among   two
       'Out of the seventeen students Max knows two of them.'

Here, sentences (100)-(103) are synonymous with (108)-(111) respectively and
these sentences should be derived from a common source. This analysis is
inadequate because it fails to explicate such relationship among these systematic
related sentences. Another factor arguing against this analysis is that there
is a strong evidence showing that the second modifier must be associated with
the first modifier, but not with the VP in the underlying structure.
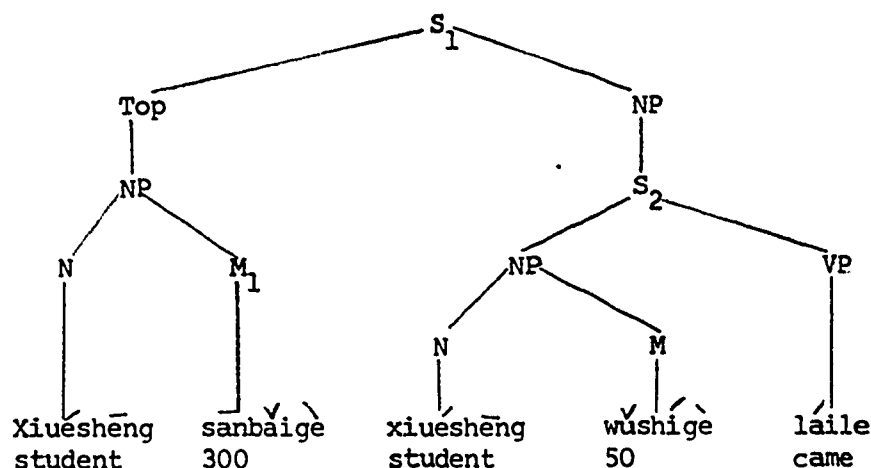
Consider the following sentences:

(112)a. *Nèixiē xuéshēng (lǐtou) bù láile dài yǎnjìng de.
those student among not came wear glasses rel.
'Those students who wear glasses did not come.'

b. Nèixiē xuéshēng (lǐtou) dài yǎnjìng de bù láile.
those student among wear glasses rel. not came

(113)a. *Shíqīgè xuéshēng (lǐtou) Max bù rènshi liǎnggè.
17 student among not know two
'Out of the seventeen students Max does not know two.'

b. Shíqīgè xuéshēng (lǐtou) liǎnggè Max bù rènshi.
17 student among two not know

Note that the negative counterparts of (101) and (103) are 11 b) and (113b)
respectively, but not (112a) and (113a). This means that the second modifiers
in these sentences are closely related to the first modifier of the first
bracketed NP, but not to the VP constituent. This demonstrates that the second
nominal modifiers in sentences such as (100)-(103) should not be analyzed as
part of the VP in underlying structure. The argument is that, if the second
modifiers in these sentences were to be introduced as part of the VP, then
the complication involved with the placement of adverbs such as bù 'not'
For example, in order to derive (112b)-(113b), but to block (112a)-(113a),
the second modifiers must be preposed next to the nouns with which they are
associated before the adverbs are placed before the verb, thereby complicating
the grammar.

4.3. Discontinuous Modifiers and Topicalization

Based on the fact that sentences whose NPs containing discontinuous
nominal modifiers are closely related to the nouns, the fact that sentences
(100)-(103) are transformationally related to sentences such as (108)-(111),
and the fact that (100)-(103) are topicalized sentences, I propose that
sentences like (100) has the following underlying structure:

(114)

```
                              S₁
                 Top                        NP
                  |                           S₂
                  NP                   NP            VP
               N      M₁           N        M        |
          Xiuéshēng  sanbǎigè   xiuéshēng  wǔshigè  láile
           student     300       student      50    came
```

To derive (100) from (114), two transformations are needed. First, a rule deletes the repeated element – xiuéshēng 'student' in S_2. Second, the modifier postposing moves the M of S_2 to a postverbal position yielding the correct surface form of (100)

There are two factors arguing for this analysis. First, it provides an explicit account of the semantic relationship between the topic and comment as exhibited by sentences such as (100)-(103). Second, it provides a nice common source for all the transformationally related sentences. For example, we can derive (108) from (114) simply by applying the rule that deletes the repeated element to NP of S_2, namely the rule deletes xiuésheng of S_2 yielding the correct surface form of (108).

5. Conclusion

This paper has been an attempt to argue against a M-N sequence, but for a N-M sequence as the underlying order for a modified NP in Chinese. The argument has been twofold: on the one hand, it has been demonstrated that various surface patterns of NP's containing more than one modifier cannot be adequately accounted for within the M-N hypothesis, since it complicates the grammatical description by requiring a set of complex constraints on the rule of M-N inversion; on the other hand, it has been shown that such patterns can best be accounted for within the N-M hypothesis, since it simplifies the grammatical

description by constraining the rule of N-M inversion in such a way that it can apply to any NP, either a higher one, or a lower one, but only once within the domain of a possible complex NP.

It has also been demonstrated in this study that nominal modifiers in preverbal or postverbal position are not part of the VP constituent, but rather as part of the NP with which they are associated. It has been first shown that such modifiers cannot be adequately accounted for by way of phrase structure rules, since there is no significant syntactic and semantic evidence in support of such a hypothesis. It has also been shown in this section that such modifiers cannot be adequately accounted for by the application of the proposed modifier postposing transformation alone. Rather, a perceptual constraint in Chinese which states that associate a modifier to the nearest possible NP must be implemented into the grammar so that semantic anomaly and the improper placement of nominal modifiers can be nicely explained.

FOOTNOTES

I am grateful to Professors Gilles Fauconnier, James Heringer, and Masayoshi Shibatani for their comments on an earlier version of this paper.

[1]The term 'complex NP' here is defined as it refers to cases where a noun is modified by more than one nominal modifiers (e.g. quantifiers, determiners, adjectives, measure phrase, relative clause, etc.)

[2]Notice that one property characterizes the Chinese double nominative construction is that the second nominative is always referring to inalienable possessions or body parts. Some examples:

   (1) a. Max yá   téngle.   'Max has a toothache.'
               tooth painful

       b. Max yá   bù   téngle.   'Max does not have a toothache.'
              tooth not painful

       c. Max bù   yá   téngle.
              not tooth painful

   (2) a. Max jiǎo suānle.   'Max's feet become sore.'
              foot   sore

       b. Max jiǎo bù   suānle.   'Max's feet do not become sore.'
              foot not sore

       c. Max bù   jiǎo suanle.
              not foot sore

   (3) a. Max tuǐ   málе.   'Max's legs become numb.'
              leg   numb

       b. Max tuǐ bù   málе.   'Max's legs do not become numb.'
              leg not numb

       c. Max bù   tuǐ   málе.

The sentences above seem to constitute further evidence against analyzing sentences such as (54 -(62 as double nominatives.

[3]The structure (79) is interpreted as the underlying structure for all the topicalized sentences in Chinese. That is, in the base component, we have the following expensions:

    (1)   S ⟶ $\left\{ \begin{array}{l} NP \ + \ VP \\ Top \ + \ NP \end{array} \right\}$

    (2)   NP ⟶ $\left\{ \begin{array}{l} N \ + \ (M) \\ S \end{array} \right\}$

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