THE SYNTACTIC STATUS OF CHINESE NEGATORS—*MEI* AND *MEIYOU*

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1.0 Introduction

Chinese negators *meiyou* and *mei*, both of which may be used to denote 'non-completion of an event', are conventionally regarded as synonyms, with *mei* considered as the simplified form of *meiyou* (Chao 1968, See Gebauer 1980, Li and Thompson 1981, Huang 1988, Ernst 1994, Hsieh 1997, among others).

(1) (a)   ta   hai   *meiyou*   lai.
           he   yet   not have   come
           'He hasn't come yet.'

    (b)   ta   hai   *mei*   lai.
           he   yet   not   come
           'He hasn't come yet.'

(2) (a)   ta   zuotian   *meiyou*   lai.
           he   yesterday   not have   come
           'He didn't come yesterday.'

    (b)   ta   zuotian   *mei*   lai.
           he   yesterday   not   come
           'He didn't come yesterday.'

In general, the conventional analysis holds. However, if we scrutinize the behaviors of *meiyou* and *mei* more carefully, we find that they differ in many respects. A number of questions arise as we examine the properties of these negators:

(3) (a)   How do *meiyou* and *mei* differ?

    (b)   What are the properties of *you*?

    (c)   Can the differences between *meiyou* and *mei* be unified by underspecification?

    (d)   What categories do *meiyou* and *mei* belong to?

    (e)   What is the proper way to represent the special properties of *meiyou* and *mei*?

These questions will be answered, one by one, in this paper. The alternative analysis presented herein differs significantly from the conventional analysis in its lexicalist assumptions. In the following sections, several relevant notions will provide a new perspective on the *meiyou/mei* alternation, enabling us to provide a unified account of the asymmetrical behaviors of *meiyou* and *mei* in VP ellipsis and VP fronting.

2.0 Basic assumptions

Head-driven Phrase Structure Grammar (HPSG) is a non-derivational, constraint-based and surface-oriented grammar. In contrast to derivational approaches, in HPSG, distinct levels of syntactic structure are built up not by derivation but by a concrete X' (X-bar) theory, a limited set of universal principles and lexical representations. The following theoretical assumptions and concepts are crucial to the analysis. A complete introduction to the theory is beyond the scope of this paper; consequently, only those aspects that are directly relevant to this research are presented.

2.1 No NegP in Chinese

I assume that *meiyou* is a negative verb head with the feature [+AUX], while *mei* is a modifier. Consequently, I assume that there is no need to motivate a functional projection NegP in Chinese. Negation is

achieved not by derivation nor movement, but by unification, in which different linguistic objects each contribute information to the linguistic expressions in which they occur; compatible information yields legitimate linguistic expressions, while incompatible information yields illegitimate expressions.

2.2   Monotonicity

Following HPSG convention (see Brett 1996), I assume that no information from lexical items or expressions is changed in syntactic combination with other items; this accumulation of information without changing any lexical information is referred to as *monotonicity*. It is based on monotonicity that *meiyou* and *mei* are treated as two distinct lexical entries in consideration of the evidence that they have non-identical usages which cannot be unified through underspecification.
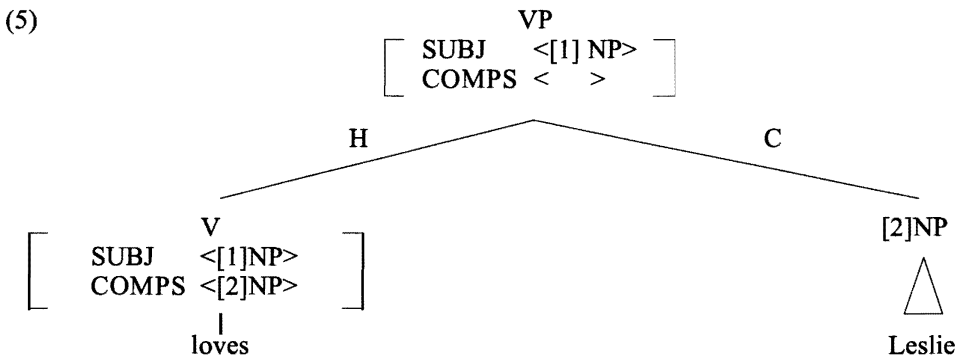
2.3   Head-Complement Schema and Head-Modifier Schema

HPSG has a concrete X′ theory, consisting of three schemata: Head-Specifier, Head-Complement and Head-Modifier (Pollard and Sag 1994, Kim 1996). I will employ the Head-Complement and Head-Modifier schemata in this paper.

(4)   Head-Complement Schema

        X → Lexical Head-Dtr , Comp-Dtr(s)   [Dtr = daughter]

The Head-Complement Schema analogous to Government-and-Binding theory's X′ rule, $X' \rightarrow X,\ YP$, allows phrases to have a lexical head daughter and any number of complement daughters, as illustrated in (4).

(5)
$$
\begin{array}{c}
\text{VP} \\
\left[\begin{array}{ll} \text{SUBJ} & <[1]\ \text{NP}> \\ \text{COMPS} & <\ > \end{array}\right]
\end{array}
$$

H _____ C

$$
\begin{array}{c}
\text{V} \\
\left[\begin{array}{ll} \text{SUBJ} & <[1]\text{NP}> \\ \text{COMPS} & <[2]\text{NP}> \end{array}\right] \\
| \\
\text{loves}
\end{array}
\qquad
\begin{array}{c}
[2]\text{NP} \\
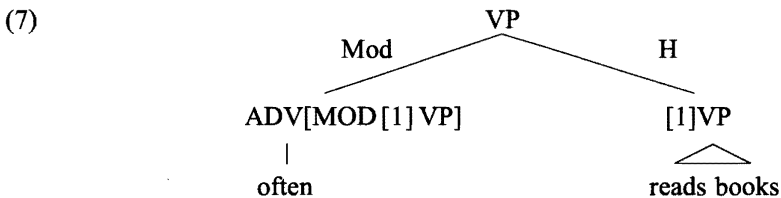\triangle \\
\text{Leslie}
\end{array}
$$

(5) is a well-formed Head-Complement phrase, consisting of a head daughter 'loves' and a complement daughter 'Leslie' selected by the lexical head 'loves'.

(6)   Head-Modifier Schema

        X → Head-Dtr Phrase, Mod-Dtr
           [SYNSEM [1]]   [MOD [1]]

The Head-Modifier Schema allows a phrasal head to combine with a modifier phrase. The modifier has the ability to select for the types of head it combines with, as illustrated in (6). There is no such rule in GB.

(7)
$$
\begin{array}{c}
\text{VP} \\
\text{Mod} \diagdown\diagup \text{H}
\end{array}
$$

$$
\begin{array}{cc}
\text{ADV[MOD [1] VP]} & [1]\text{VP} \\
| & \triangle \\
\text{often} & \text{reads books}
\end{array}
$$

(7) is a Head-Modifier phrase, consisting of a head daughter phrase 'reads books', and a modifier daughter 'often'.

3.0   A comparison of *mei* and *meiyou*

Though *meiyou* and *mei* share the same truth conditions and various syntactic and semantic properties, they are different lexical entities. The differences between the two can be observed in their semantic specification and syntactic distribution.

3.1   Semantic comparison

The semantic properties of *meiyou* and *mei* are not identical, though they are similar in quite a number of ways. As noted in (1) and (2), both *meiyou* and *mei* can be glossed as 'not have', expressing the notion of perfective aspect. It has long been observed (by Chao 1968, Wang 1965, and others) that *meiyou* or *mei* has some intrinsic relationship with the perfective aspect marker *-le*. To negate *-le*, one must use the form *meiyou* or *mei*; moreover, *meiyou/mei* usually cannot co-occur with *-le*.[1]

(8)   (a)   Lisi meiyou / mei chi fan.
           Lisi not have / not eat rice

           'Lisi hasn't had his meal.'

      (b)   *Lisi meiyou / mei chi-le   fan.
           Lisi not have / not eat -ASP   rice

           'Lisi hasn't had his meal.'

      (c)   Lisi chi-le   fan.
           Lisi eat-PERF rice

           'Lisi has had his meal.'

(9)   (a)   ta zuotian meiyou/mei   mai fangzi.
           he yesterday not have / not   sell   house

           'He didn't sell his house yesterday.'

      (b)   *ta   zuotian   *meiyou/mei*   mai -le   fangzi .
           he   yesterday   not have / not   sold-PERF   house

           'He didn't sell his house yesterday.'

      (c)   ta   zuotian   mai -le   fangzi.
           he   yesterday   sell -PERF   house

           'He sold his house yesterday.'

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[1] Generally, *mei* and *meiyou* do not co-occur with the perfective marker *-le*, but there are exceptions in *ba*-constructions or *bei*-constructions:

     (i)   Lisi zuotian *mei/meiyou*   *ba* tade che mai-*le*
           Lisi yesterday not(have)   BA his   car   sell-ASP

           'Lisi didn't sell his car yesterday.'

     (ii)   *Lisi   zuotian   *mei/meiyou*   *ba* tade che mai.
           Lisi   yesterday   not / not have   BA   his   car   sell

           'Lisi didn't sell his car yesterday.'

     (iii)   *Lisi *mei/meiyou*   *bei* jingcha zhua.
           Lisi not / not have   BEI police   capture

           'Lisi hasn't been captured by the police.'

     (iv)   Lisi *mei/meiyou* *bei* jingcha zhua-*le*.
           Lisi not /not have   BEI police   capture-ASP

           'Lisi hasn't been captured by the police.'

Actually, *-le* is obligatory in *ba/bei*-constructions, where the object NP is fronted to the pre-verbal position, and *-le* is required to attach to the verb. The examples are contrary to the general belief that *mei/meiyou* and *-le* are in complementary distribution. So far there is no syntactic or semantic resolution of this issue.

The contrast between the *a* and *b* sentences of (8–9) has led many linguists to believe that the meaning of *meiyou* or *mei* encompasses more than negation. Temporal information is part of the lexical meaning of *meiyou/mei* as well. *Meiyou/mei* carry the same temporal meaning as *-le*, i.e. PERFECTIVE. In addition, in view of the apparent complementary distribution of *meiyou/mei* and *-le*, these scholars claim that *meiyou/mei* and *-le* are allomorphs of the same morpheme.

Generally, *meiyou/mei* and *-le* cannot co-occur in a clause. However, this fact is not sufficient to support the claim that *meiyou/mei* can be considered as variant of *-le*, for they differ morphologically, syntactically and semantically. First, in the standard view, any two forms are allomorphs if and only if they are semantically equivalent and in complementary distribution. Even if *meiyou/mei* and *-le* were in complementary distribution, they are certainly not semantically equivalent: *–le* is not a negator, so the allomorphy hypothesis should be dismissed.[2] Second, while *meiyou* and *mei* are free words, *-le* is a suffix that can only be attached to a verb. As (10) illustrates, *meiyou/mei* can be followed by the adverb *zixi*.

(10) (a)   wo meiyou/mei   zixi   kan zhe-ben shu.
           I   not have/not careful read this-CL book
           'I did not read the book carefully.'

     (b)   wo zixi   kan-le zhe-ben shu.
           I   careful read -ASP this-CL book
           'I read the book carefully.'

Second, as Ross (1995:121) states, *meiyou/mei* and *-le* differ in scope. While *-le* as a suffix has scope over only the preceding verb, *meiyou/mei* negate the entire following VP. For example, (10) does not mean that reading did not occur, but that a careful reading of the book did not occur. Therefore, *meiyou/mei* has scope over the whole VP, not just the verb. In addition, Li and Thompson (1981) provide several examples where *meiyou/mei* cannot negate certain types of sentences where *-le* can occur. (It is beyond the scope of this paper to elaborate on their arguments here.) All the evidence suggests that while *meiyou/mei* and *-le* parallel each other in temporal meaning in many contexts, they are not allomorphs.

Now we return to the focus of this section: the temporal meanings of *meiyou* and *mei*. Do the two negators share the same temporal reference?

Meiyou and *mei* behave differently from each other in future contexts. Both *meiyou* and *mei* (as is the case with *-le*) are incompatible with future temporal adverbials in isolation, as in (11a). However, while *mei* can be salvaged by a future tense marker *yao,* as in (11b), *meiyou* cannot, as in (11c).

(11) (a) *ta mingtian *mei/meiyou*   lai.
          he tomorrow not / not have come
          'He will not come tomorrow.'

     (b)   ta mingtian *mei yao* lai.
           he tomorrow not will come
           'He will not come tomorrow.'

     (c) *ta mingtian *meiyou yao* lai.
          he tomorrow not have will come
          'He will not come tomorrow.'

The future tense marker *yao* 'will' is compatible with *mei*, but not with *meiyou*. This asymmetrical behavior between *mei* and *meiyou* may be explained by the different temporal specifications of *meiyou* and *mei*. It seems that *mei* is relatively neutral in terms of tense/aspect, in view of its compatibility with *yao*, while *meiyou* is strictly perfective/past. We have to ask why *mei* differs from *meiyou* in this fashion. As a hypothesis, we may attribute the difference to the temporal meanings of *you*. Though *you*, used as a past tense or perfective aspect marker in affirmative sentences, does not exist in Mandarin, this usage is available in other Chinese dialects, such as Cantonese and Taiwanese. The incompatibility of *meiyou* and *yao* stems from the clash in meaning between *you*

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[2] Perhaps the two negatives can be considered as portmanteau morphs, which combine both negation and aspect. In this sense, one might say that the aspectual part of *meiyou* and *mei* is an allomorph of *–le*.

and *yao*. Thus, we can infer that *meiyou* and *mei* carry different temporal specifications. This prediction is again borne out in the context of the progressive aspect marker, *zai*.

The behavior of *meiyou* and *mei* with the progressive aspect marker *zai* parallels that described above with the future tense marker *yao*: *mei* can co-occur with *zai*, while *meiyou* cannot (See Gebauer 1980), as shown in (12).

(12) (a)   ta   *mei zai*   kan   shu.
           he   not PROG   read   book

           'He is not reading a book.'

    (b)   *ta   *meiyou zai*   kan   shu.
            he   not have PROG   read   book

            'He is not reading a book.'

(12) provides some support for our contention that *meiyou* and *mei* have different temporal specifications. While *meiyou* is strictly PERFECTIVE, *mei* is only conditionally 'PERFECTIVE'. It may be that the perfective meaning of *mei* is a default temporal specification; when tense aspect auxiliaries co-occur with *mei*, the perfective aspect meaning can be neutralized, making *mei* a pure negator with no temporal specification of its own. By contrast, *meiyou* cannot occur in these contexts as a variant of *mei*, largely due to the perfective connotation inherent in *you* 'have' (See Gebauer 1980). As I interpret it, the temporal meaning of *meiyou* is specified as a feature in the lexical entry of *meiyou*, and cannot be changed in syntactic processes. By contrast, the default temporal meaning of *mei* is not a lexical feature, consequently, its alternation with other aspectual meanings is expected.

3.2   Syntactic comparison

This section concerns the syntactic properties of *meiyou* and *mei*. The distributional possibilities of the two negators with respect to other elements in a sentence are not identical, though they overlap in many respects. Their different behaviors in the VP ellipsis construction, the VP fronting construction, the question formation and the A-not-A construction suggest that the two negators belong to different categories. In these constructions, *mei* behaves like an adverb, parallel to *bu*, while *meiyou* behaves like a head.

3.2.1   Similarities

In general, if we assume that SVO is the canonical word order in Chinese, both of the negators in question can occur between the subject and the verb phrase, i.e. Subject + *meiyou/mei* + Verb Phrase, as shown in (13).

(13) (a)   Lisi   *mei/meiyou*   kan   zhei-zhong shu.
           Lisi   not / not have   read   this-CL   book

           'Lisi has not read / does not read this type of book.'

    (b)   Lisi   zuotain   *mei/meiyou*   lai .
           Lisi   yesterday   not / not have   come

           'Lisi didn't come yesterday.'

However, in Chinese, SOV word order alternates with the canonical SVO. When SOV order occurs, the negators always follow the displaced object, as shown in (14a).

(14) (a)   Lisi zhei-zhong shu$_i$ *mei/meiyou*   kan   t$_i$.
           Lisi   this-CL   book   not (have)   read

           'Lisi has not read / does not read this type of book.'

    (b)   *Lisi   *mei/meiyou*   zhei-zhong shu$_i$ kan t$_i$.
           Lisi   not (have)   this-CL   book read

           'Lisi has not read / does not read this type of book.'

In (14a), the object 'this type of book' is fronted to the preverbal position, located between the subject and the negator(s). (14b) indicates that neither *meiyou* nor *mei* can occur before the fronted object. In this respect, their behavior is the same.

In terms of scope relations, *meiyou* and *mei* are also identical.

(15) (a)   Lisi meiyou/mei ouer   chouyan.
           Lisi not have / not occasionally smoke

           'It is not the case that Lisi occasionally smoked.'

        (b)   Lisi ouer   meiyou/mei chouyan.
           Lisi occasionally not have / not smoke

           'It is occasionally that Lisi did not smoke (He smoked almost all the time).'

In (15a), both negators have scope over the following VP, 'occasionally smoked'. In (15b), both take scope over 'smoke'.

3.2.2   Differences

3.2.2.1   Negation and modal verbs

In spite of these similarities examined above, there are properties which distinguish *meiyou* on the one hand, from *mei* and *bu* on the other, in terms of VP ellipsis, VP fronting, modal verb selection and so on. While *mei* behaves exactly like an adverb, *meiyou* behaves in the opposite fashion, showing strong head properties.

Meiyou exhibits a high degree of selection with respect to its complements, while *mei* exhibits a low degree of selection with respect to the heads it modifies. In addition to their different behaviors with auxiliary verbs (as discussed in Section 3.1), *meiyou* and *mei* demonstrate different selective properties with respect to modal verbs. While *mei* can co-occur with some, though not many, modal verbs, *meiyou* is excluded from this usage. Teng (1973:21) observes that modal verbs can be negated by *mei,* as in (16a), but not by *meiyou*, as shown in (16b).

(16) (a)   wo zuotian **meiyou*   neng lai.
           I yesterday not have   can come

           'I couldn't come yesterday.'

        (b)   wo zuotian *mei* / bu neng lai.
           I yesterday not / not can   come

           'I couldn't come yesterday.'

        (c)   Lisi *mei/bu* / *meiyou gan lai.
           Lisi not / not / not have dare come

           'Lisi dared not come.'

There are quite a number of modal verbs in Chinese. Generally, these verbs are negated by the negator *bu* 'not'. While *bu* can negate all the modals, and *mei* is restricted to a few of them, *meiyou* simply cannot negate any. In (16), *neng* and *gan* are examples of modals that can be negated by *mei* or *bu*, but not by *meiyou*. The asymmetrical behaviors of *meiyou* and *mei* may be interpreted as a consequence of the different selectional properties associated with the two words. While *mei* selects both auxiliary (including modals) and lexical verbs, *meiyou* selects only lexical verbs. This selectional distinction is largely due to the syntactic role played by *you*. In other Chinese dialects such as Cantonese or Taiwanese, *you* is construed as an auxiliary head. While *you* is not used this way in Mandarin, the head-modifier property persists in the combination of *you* and *mei*, and ultimately derives from the head status of *you* in other dialects.

3.2.2.2   Question constructions

Meiyou and *mei* contrast in A-not-A question formation. *Mei* can occur in A-not-A questions, while *meiyou* cannot. A-not-A questions are formed by reduplication of the questioned element and an infixation of the negator *bu* or *mei* between the reduplicant and the base. The element A in an A-not-A question can be an adjective, a preposition or a verb. (See Zhang 1996.) The following examples are typical A-not-A constructions.

(17) (a)   Lisi lai-mei-lai?
           Lisi come-not-come

           'Has Lisi come yet?'

(17) (b) *Lisi   lai-meiyou-lai?
         Lisi   come-not have-come

         'Has Lisi come yet?'

     (c) Lisi   lai-bu-lai?
         Lisi   come-not-come

         'Will Lisi come or not?'

     (d) Lisi   neng-bu-neng lai?
         Lisi   can-not-can come

         'Can Lisi come or not?'

     (e) Lisi   yao-mei-yao lai?
         Lisi   will-not-will come

         'Will Lisi come or not?'

     (f) Lisi   you-mei-you gei ni   qian?
         Lisi   have-not-have give you money

         'Has Lisi given you any money?'

The behavior of *mei* parallels *bu* in this context, though *mei* and *bu* have different temporal meanings, as shown in the glosses of (17a) and (c). *Meiyou* cannot occur in this construction, as shown in (17b).[3] As observed above, *mei* and *bu* behave similarly with respect to modal verbs, while *meiyou* demonstrates an independent property. This pattern reveals itself again in the A-not-A formation. Even though *you* used as a perfective marker does not exist in Mandarin Chinese, *you* can appear in the A-not-A form (17f), paralleling the behavior of modal verbs in these constructions (17d–e). Therefore, we can infer that the verbal status of *meiyou* is likely connected with *you*.

      Meiyou and *mei* also contrast in another type of question construction, where *meiyou* can occur while *mei* cannot. *Meiyou* occurs at the end of a sentence as a question marker (or operator):

(18) (a) Ni chi-(le) fan *meiyou*?
         You eat-ASP rice not-have

         'Have you had your meal?'

     (b) *Ni chi-(le) fan *mei*?
         You eat-ASP rice not

         'Have you had your meal?'

(18b) is unacceptable to most native speakers, while (18a) is acceptable to all.

3.2.2.3   VP Ellipsis

      A more striking property that differentiates *meiyou* from *mei* lies in VP ellipsis (VPE). In Chinese as well as in many other languages, it is generally held that only certain heads license VPE. As shown in (19), VPE is not permitted immediately after adverbs like *always* or *often* (Postdam 1997, Hsieh 1997, among others).

(19) (a) *Lisi zongshi chi - dao, Zhangsan ye zongshi ∅.   (VP Ellipsis)
         Lisi   always late come   Zhangsan also always

         'Lisi always comes late; so does Zhangsan.'

     (b) Lisi zongshi chi dao, Zhangsan ye   zongshi chi-dao.
         Lisi   always late come   Zhangsan also always   late-come

         'Lisi always comes late; so does Zhangsan.'

     (c) *ta   neng manmande chi,   wo ye   neng manmande ∅.
         he   can   slowly   eat   I also can   slowly

         'He can eat slowly; I can, too.'

(19) (d) ta   neng manmande chi,   wo ye   neng ∅.

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[3] Zhang (1996) among others suggests that there is a morphophonological constraint on the prosodic shape of the infix, that is, the infix of the reduplicated A-not-A must be consistently monosyllabic. This is one reason, but there may be others.

he   can   slowly   eat   I   also   can
'He can eat slowly; I can, too.'

(19a) and (c) show that VPE is not allowed immediately following an adverb such as *zongshi* 'always' or *manmande* 'slowly', while VPE is permitted following the modal verb head, as shown in (19d).

   Meiyou behaves differently from *mei* in this respect: VPE is possible immediately following *meiyou*, but not *mei*.

(20) (a) *Zhansan *mei* chi fan, Lisi ye *mei* ∅.   (*VP Ellipsis)
            Zhangsan not eat rice Lisi also not
            'Zhangsan did not have his meal; Lisi didn't, either.'

      (b) Zhansan *mei/meiyou*   chi fan, Lisi ye *meiyou* ∅.
           Zhangsan not have   eat rice Lisi also not have
           'Zhangsan did not have his meal; Lisi didn't, either.'

      (c) *Zhansan *bu hui* shuo yingyu, Lisi ye *bu* ∅.   (*VP Ellipsis)
           Zhangsan not can speak English Lisi also not
           'Zhangsan cannot speak English; Lisi cannot, either.'

      (d) Zhansan *bu hui* shuo yingxu, Lisi ye *bu hui* ∅.
           Zhangsan not can speak English Lisi also not can
           'Zhangsan cannot speak English; Lisi cannot, either.'

      (e) ta meiyou manmande chi,   wo ye meiyou ∅.
           he not have slowly   eat   I also not have
           'He didn't eat slowly; I didn't, either.'

(20a) indicates that *mei* cannot be stranded after VP ellipsis. By contrast, *meiyou* can stand alone, as in (20b). As shown in (19b), *mei* and *meiyou* are interchangeable in the first part of the sentence, but not in the latter part, where only *meiyou* is permissible in the VP ellipsis construction. In this case, the behavior of *mei* is again parallel to *bu*, as in (20c). (20d) demonstrates that *bu* must be supported by a modal, just as *mei* has to be supported by *you*. In this sense, *you* is parallel to a modal verb, as seen in comparing (19d) with (20e).

3.2.2.4 VP Fronting

   Stranding can be seen as a test for heads. Generally speaking, only heads can be stranded, while modifiers cannot. From VPE, we can see that there is a parallelism between *meiyou* and verb heads on the one hand, and between *mei*, *bu* and adverbs on the other. More evidence of this distinction in terms of stranding can also be found in VP preposing constructions, as in (21).

(21) (a) ta lian kan Lisi yi yan$_i$ ye meiyou t$_i$.
           he even look Lisi one glimpse also not have
           'He didn't even throw a glimpse at Lisi.'

      (b) *ta lian kan Lisi yi yan   ye *mei*.
           he even look Lisi one glimpse also not
           'He didn't even throw a glimpse at Lisi.'

      (c) *ta lian kan Lisi yi yan   ye *bu*.
           he even look Lisi one glimpse also not
           'He didn't even throw a glimpse at Lisi.'

In (21a), when the VP is preposed, *meiyou* becomes stranded. By contrast, neither *mei* nor *bu* can be stranded, as shown in (21b–c). The facts can be captured by my claim that *meiyou* is a head, while *bu* and *mei* are modifiers. Otherwise, the asymmetrical behaviors of the negators with respect to stranding cannot be explained.

   Meiyou is more or less the negative form of the auxiliary verb *you*, though *you* in this sense does not exist in Mandarin Chinese, as I have discussed. This observation supports my claim that *meiyou* is a head, while *mei* and *bu* are modifiers.

4.0   Lexical entries for *meiyou* and *mei*

Given the asymmetrical behaviors of *meiyou* and *mei* in terms of semantic interpretation and syntactic distribution, we claim that *meiyou* and *mei* belong to two distinct categories, i.e. *meiyou* is a head and *mei* is a modifier. I take the negative auxiliary *meiyou* to have the following minimal lexical information:

(22)

meiyou :

$$
\begin{bmatrix}
\text{HEAD} & \begin{bmatrix} verb \\ +\text{AUX} \end{bmatrix} \\
\text{SUBJ} & < \text{NP} > \\
\text{COMPS} & < \text{VP: } [-\text{AUX}] > \\
\text{CONT} & \begin{bmatrix} not\text{-}rel \\ Perfective \end{bmatrix}
\end{bmatrix}
$$

This lexical entry specifies that *meiyou* is a verbal head with [+AUX] value. The [−AUX] value in the COMPS list indicates that the complement verb cannot be an auxiliary. The evidence for this specification is seen in the incompatibility of *meiyou* and other auxiliary verbs, as mentioned in Section 3. With respect to semantic information, the *not-rel* value indicates that *meiyou* is a negator, while the *Perfective* value suggests that *meiyou* is encoded with lexical perfective aspect meaning that cannot change in the syntactic process. By contrast, this feature does not exist in *mei*'s lexical entry, since perfective aspect meaning is a default meaning only. Based on the principle of monotonicity, PERFECTIVE is not a legitimate feature in the lexical entry of *mei*.

Given that *mei* is an adverb-like element, we may assume that *mei* is an independent word modifying a phrasal unit, i.e. a VP, and assume its lexical entry is something like (23):

(23)   *mei* :

$$
\begin{bmatrix}
\text{HEAD} & \begin{bmatrix} adv \\ \text{MOD VP} \end{bmatrix} \\
\text{CONT} & [\ not\text{-}rel\ ]
\end{bmatrix}
$$

Some explanations are necessary for this entry. According to Pollard and Sag (1994:55–57), adjuncts with the MOD feature can select the heads with which they will combine. The modified VP may contain auxiliary verbs and/or lexical verbs, to accommodate the *mei* + *auxiliary verb* combinations mentioned above (e.g., *mei neng* 'could not', *mei yao* 'will not', *mei gan* 'dare not', and so forth). Further concern with this analysis arises from the scope of *mei* in coordination. If *mei* is a VP modifier, it should show wide scope over a VP coordination. This prediction is borne out, as shown in (24).

(24)   Lisi mei chang-ge, tiao-wu.
        Lisi not sing (-song), dance

        'Lisi did not sing a song, nor dance.'

        *'Lisi did not sing a song, but danced.'

        *'Lisi sang a song but did not dance.'

In both sentences, *mei* has scope over the whole coordination, which is expected from the present analysis.

5.0   VP Ellipsis lexical rule and VP Fronting lexical rule

The assumption that *meiyou* is a head and *mei* a modifier is necessary empirically, since no further specification with respect to stranding is needed for the COMPS features of *meiyou*, nor for the MOD(ified) features of other non-head negators, since they follow more general universal constraints such as the VP Ellipsis Lexical Rule (Kim 1996:125) and the VP Fronting Lexical Rule (Kim 1996:135). *Meiyou* as a negative auxiliary head is subject to these rules, which do not apply to non-head negators.

(25)   VP Ellipsis Lexical Rule (Kim 1996:125)

$$
\begin{bmatrix}
\text{HEAD} & \begin{bmatrix} verb \\ \text{AUX+} \end{bmatrix} \\
\text{COMPS} & <\text{VP}>
\end{bmatrix}
\Rightarrow
\begin{bmatrix} \text{COMPS} < \ > \end{bmatrix}
$$

The lexical rule requires VP ellipsis to apply only to an auxiliary verb head selecting a VP complement. Given that *meiyou* is a negative auxiliary verb, VPE can be applied to *meiyou*, but not to non-head negators. The input of VPE is an auxiliary verb; the output is another lexical entry whose VP complement is not realized syntactically.[4]

The VP Fronting Lexical Rule (Kim 1996) has the same impact in Chinese. It can be modified and applied to Chinese.

(26)   VP Fronting Lexical Rule (VPFLR) (Kim 1996:135)

$$
\begin{bmatrix}
\text{HEAD} & \begin{bmatrix} verb \\ \text{+AUX} \end{bmatrix} \\
\text{SUBJ} & <[1]\text{NP}> \\
\text{COMPS} & <\text{VP [LOC[3]]}> \\
\text{AGR-S} & <[1], [2]>
\end{bmatrix}
\Rightarrow
\begin{bmatrix}
\text{COMPS} & < \ > \\
\text{AGR-S} & <[1],[2][\text{SLASH}\{[3][\text{-ASP}]\}]>
\end{bmatrix}
$$

The input of (26) is an auxiliary verb taking a VP complement, and the output is another auxiliary verb whose VP complement is not realized syntactically. This lexical rule requires VP fronting to apply only to an auxiliary verb head whose input COMPS has a VP element. This rule can be used to account for the VP fronting facts, as in (20). The feature [−ASP] is introduced to the lexical rule to exclude the English auxiliaries *have* and *be* from the SLASH elements in the output. Therefore, though *have* and *be* are auxiliaries, they are not subject to the rule. Similarly in Chinese, if we consider the pre-verbal progressive aspect marker *zai* as an auxiliary, then the feature [−ASP] is also necessary in Chinese, since *zai* cannot be stranded.

(27)   *ta lian chi-fan*[i] *dou mei zai* t[i].
        he   even eat-rice DOU   not ASP
        'He is not even eating.'

6.0   Final remarks

The syntactic status of a lexical entry is a component of HPSG signs, necessary information for any analysis. On the status issue, we are immediately confronted with three hypotheses: Chinese negators are heads,

---

[4] (25) can be more generalized to accommodate the following VP ellipsis facts:

(i)   wo jide   huan-le   nei-bi qian,   Lisi ye jide Ø.
        I   remember repay-ASP   that-CL money, Lisi also remember

        'I remember paying back the money; Lisi remembers, too.'

(ii)   Lisi qitu taobao, Zhangsan ye qitu Ø.
        Lisi intend escape   Zhangsan also tend

        'Lisi intended to escape; Zhangsan intended, too.

In Chinese, 'remember' or 'intend' is not an auxiliary, but can have its complement VP deleted, as shown in (i). However, (25) cannot generate (i). The same is true with (ii). Therefore, I may suggest a revision of (25) to eliminate the feature [+AUX] from the sign. At the time being, this idea is only a hypothesis.

modifiers, or complements. Chinese negators cannot be complements, given their position with respect to possible verbal heads, so it is not necessary to discuss this possibility. With respect to the other possibilities, I have argued that *meiyou* is a head, while *mei* is a modifier. The differences in their semantic specification and syntactic distribution cannot be unified by underspecification. This head-modifier distinction is more elegant than a unitary analysis, since it is compatible with other universal constraints (as shown in Section 5), and helps simplify our analysis. This lexical analysis differs significantly from derivational analysis. It implies that there is no need to motivate a functional category NegP in Chinese.

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