A Study on the Characteristics of Modal Verbs and Auxiliary Verbs in Syntax

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Abstract: In traditional grammar, two different kinds of T are found: modals and auxiliaries. Modals include words like can, could, must, shall, should, will, would, may, might and so on. Auxiliary verbs include such words as do, have and be, and their inflectional words: did, had, was, were, and showing personal and number’s words; does, has, is, are and so on. Previous studies have analyzed the CP, IP, vP and VP of modal verbs and auxiliary verbs, mainly discussing the attribution of modal verbs and auxiliary verbs. This paper analyzes the syntactic characteristics of modal verbs and auxiliary verbs, discusses the base-generated position and role of modal verbs and auxiliary verbs in syntax, and puts forward own views on the basis of this analysis. It is believed that modal verbs and auxiliary verbs have similarities and differences in syntax.

Keywords: modals, auxiliaries, syntax, base-generated

1. The theoretical basis and research objectives of the study

The main theories adopted in this paper: VP shell hypothesis, extended projection principle EPP, thematic criterion, x-bar theory. VP shell hypothesis: VPs have a complex structure, including an outer vP shell and an inner VP core. Extended projection principle EPP: each sentence must have a subject. thematic criterion: a. Each argument must act as a thematic role. b. Each thematic role must be assigned to a argument; the X-bar theory. The following is an introduction to the X-bar theory:

X-bar theory, phrases and sentences are projected by head in syntax. (Figure 1 below). The head can be verbs, adjectives, prepositions, nouns, etc. This paper mainly discusses the situation that the head is a verb, the head of the verb phrase (VP) is (V), the head of the sentence (IP) is (I), the complement of I is VP, and the syntactic structure of X-bar of the sentence IP (Figure 2 below).

X-bar, X can be verbs, adjectives, prepositions, nouns

Syntax structure:

\[ IP \rightarrow Spec \rightarrow I \rightarrow VP \]

Figure 2

If there are both modal verbs and auxiliary verbs in a sentence, as shown in Figure 3, the modal verbs and auxiliary verbs are located in the position of the head I and V respectively, then the modal verbs and auxiliary verbs have different syntactic positions in the sentence. It can be considered that the position where the modal verbs are basically generated in syntax is below CP, above IP, and the auxiliary verbs are basically generated below IP, above VP. The complement VP1 connected by modal verbs controls (command) V', auxiliary verbs (have), and VP2.

Figure 1
Figure 3: He should have arrived in Beijing by now

Auxiliary verbs have inflections, infinitives, participle forms, changes of person and the number. However, modal verbs have only the past form, no changes of person and the number. Modal verbs occupy the head position I of IP in the surface structure, and the selected complement is the VP projected in the original form (e.g., Example 1), while the auxiliary verbs: have and be”, the selected complement VP depends on different situations. The complement of “be” can be the VP with the present participle as the head (e.g., Example 2), and the complement of passive auxiliary verb “be” and complete auxiliary verb “have” is the VP with the past participle as the head (e.g., Example 3). In summary, the author believes that modal verbs and auxiliary verbs should be classified into different categories for discussion.

Example 1: You must do your homework. ("must" be followed by the verb form phrase “do your homework”)
Example 2: She is eating an apple. ("is" followed by V-ing phrase “eating an apple”)
Example 3: The letter was written by her. ("written by her" after "was")

I have spent all my money. (“have” followed by “spent all my money”)

Objectives of the study:

<table>
<thead>
<tr>
<th>Auxiliary verbs</th>
<th>do, have, be.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modal verbs</td>
<td>can, could, must, shall, should, will, would, may, might</td>
</tr>
</tbody>
</table>

For the auxiliary verbs’ need, dare, ought to, used to”, there are some differences in usage and syntactic performance with the previous auxiliary verbs and modal verbs. They are between auxiliary verbs and content verbs in syntactic performance, so this paper does not discuss them.

2. The definition of modal verbs and auxiliary verbs and their analogy with lexical verbs.

The definition of modal verb: modal verb is defined as a verb that expresses emotion, attitude, and opinion. It has a certain meaning, but cannot be used as a predicate independently. It can only form a predicate together with the original verb. Modal verbs are used before the main verbs to describe the state of the proposition.

The definition of auxiliary verb: before the main verb, also known as auxiliary verb, assist the main verb to complete the grammatical function. Auxiliary verbs have grammatical meaning, no lexical meaning, can not be used as predicates alone, no corresponding Chinese translation. For example, she doesn’t like Chinese. ("do" is an auxiliary verb, meaningless; “like” is the main verb with meaning).

There are great differences in the characteristics between modal verbs and lexical verbs. For example, Tom should not agree with Lily. Modal verb “should” is before the negative word “not”, while the lexical verb “agree” is after the negative word “not”. The position of modal verbs and lexical verbs in the sentence indicates that the two have obvious differences. Modal verbs cannot be attributed to lexical verbs. There are also many problems to attribute modal verbs to auxiliary verbs, so modal verbs are neither auxiliary verbs nor lexical verbs. Since auxiliary verbs and lexical verbs also have different connotations and denotations, their roles in sentences are also different.

Auxiliary verbs: “have, do, be” are lexical verbs in some sentences and have the usage of lexical verbs. For example, I have a pen (“have” is lexical verb), I did my homework (“do” is a lexical verb), I want to be a teacher (“be” is lexical verb). However, modal verbs do not have this usage. Modal verbs must form predicate phrases together with other predicate verbs. For example: I should
do my homework. This shows that modal verbs and auxiliary verbs are different. In addition, the auxiliary “Do, have” can be used as a light verb, they can be free morpheme, such as: have a rest, do a sport, in this structure, the light verb is apparent. This is another difference between modal verbs and auxiliary verbs.

3. Discussion on the base-generated location and attribution of modal verbs and auxiliary verbs.

Is the position where modal verbs and auxiliary verbs are base-generated the same? I think some cases is the same, some cases are different in sentences. For example: a. She may not be enjoying stories. b. She is not enjoying stories. In a sentence, it can be considered that “may” is in the head position T of TP, “be” in the scope of \(<T, V>\), and “enjoying” is in the head position V in VP. In the b sentence, the “is” is base-generated head AUX position of in the AUXP, after raising, “is” is in head T position of the TP in the surface structure. c. She may not have done it. d. She has not done it. In the c sentence, “may” is in the head T of TP; “have” is in the scope of \(<T, V>\), such as the head AUX of AUXP; “done” in the centre V of VP. In the d sentence, “has” is base-generated head AUX position of in the AUXP, after raising, in the surface structure head T position of in the TP. The perfect aspect of the auxiliary verb “have” or “be” as an auxiliary verb and copula may be base-generated position after the negative word “not”. They may be in the position of V or within the scope \(<T, V>\), and then ascend to the head T position of TP. The modal verb “may” is base-generated on the position head T of TP. In this case, the base-generated positions of modal verbs and auxiliary verbs are different.

The base-generated location of an auxiliary verb is within the scope of \(<T, V>\) and contained the possibility in the location of T or V. Are there any possibilities for modal verbs other than those base-generated location on T? Will it be at the head C of CP? According to * If will you marry me? This sentence is ungrammatical, indicating that “will” is not in place C, because CP’s head word C has been occupied by the complementiser “IF”, and there is no space left for “will”, so this time “will” be squeezed here, resulting in a sentence illegal. It shows that the word “will” is not base-generated in place C. According to the examples e. It’s vital that John should show an interest. f. It’s vital for John to show an interest. In the sentences “e and f”, “that” and “for” are the complementisers. In the f sentence, “to” is head I of IP, and “should” in the e sentence is also at head I of IP according to analogy. So the base-generated position of modal verbs is also in a range of \(<C, I>\), and contains I, excluding C. Although the modal verb’s base-generated position is not at the head C of CP, it can be moved to C by movement. For example, the inversion of modal verb “should” in the subjunctive clauses, g. if she should come. h. should she come. In the g sentence, “should” is at the head T of TP. In the h sentence, “should” is at the head C of CP. Since “should” and “if” cannot appear at the same time, the word “if” is deleted. According to the word “come” is the original form, but not the word “comes”, indicating that the base-generated position of “should” is at T. After the movement, there is a trace between “she” and “come”. This trace is an empty category form without phonetic content, but it has the same head’s characteristics, specifier’s characteristics and complement characteristics as “should”. According to the trace theory, the movement component is the antecedent of the trace, and the antecedent of the empty trace is used to bind the trace to determine the characteristics of the trace. Before the movement, “should” c-commands “come”, so the trace left after the movement of “should” also c-commands “come”. although “should” is far away from “come” after the shift, the trace left still governs “come”, “come” still appears in the original form after the movement of “should”.

In some articles, only modal verbs are classified as T category, auxiliary verbs are classified as lexical verb V, and auxiliary verbs are combined with lexical verbs to form a verb phrase (VP). Some articles attribute modal verbs to the category of auxiliary verbs, and some articles attribute “modal verbs and main verbs” to T. In short, there is no unified classification of modal verbs and auxiliary verbs. This paper holds that the base-generated position of modal verbs and auxiliary verbs is in a certain range in a sentence, and their attribution changes with the change of sentence structure. their attribution also are in a certain range as in \(<C, I>\).
4. The syntactic generation mechanism of modal verbs and auxiliary verbs in declarative sentences, Yes-no questions and Wh-questions.

Modal verbs and auxiliary verbs are both behind the subject and before the substantive verbs in the surface structure of the declarative sentence. For example: She should go home. She didn’t go home. Emotional verbs and auxiliary verbs can form Yes-no questions, Wh-questions, and can give a brief answer to Yes-no questions. For example: Can you play football? Yes, I can. Does she go shopping? Yes, she does. In the declarative sentence, if it contains modal verbs and auxiliary verbs, it becomes a yes-no question and can directly move the modal verbs and auxiliary verbs at the beginning of the sentence. For example: He can swim. It becomes Yes-no question: Can he swim? the declarative sentence: They are watching TV now. It becomes Yes-no questions: Are they watching TV now? In the declarative sentence, if it contains modal verbs and auxiliary verbs, it becomes a negative sentence. In most cases, it can be directly added “not” after the modal verbs and auxiliary verbs. Such as: Declarative sentence: She can write well. Let it become a negative sentence: She can not write well. Declarative sentence: She is reading a book. Let it turn into a negative sentence: She is not reading a book. In wh-questions, wh-questions containing modal verbs and auxiliary verbs have the same word order, which are: special interrogative words + auxiliary verbs / modal verbs + subject + predicate.

The movement of English auxiliary verbs and modal verbs is syntactically similar. As mentioned above: a declarative sentence containing modal verbs and auxiliary verbs, it can be transformed into yes-no questions, and the modal verbs and auxiliary verbs can be directly moved to the beginning of the sentence. In the transformed yes-no questions, the auxiliary verbs and modal verbs are located before the subject. Obviously, the movement of auxiliary verbs and modal verbs occurs in yes-no questions, which is called’ head-to-head movement’ in generative grammar. Head-to-head movement refers to the syntactic process of moving the head from one head position to another head location. The most common head movement in English is the movement of auxiliary verbs or modal verbs from head I to C.

As follows:

Modal verb “can” moves from the position of I to the position of C, which is the transformation from a declarative sentence to yes-no questions. Obviously, modal verbs play an important role in the formation of interrogative sentences. So how to turn a declarative sentence without modal verbs and auxiliary verbs into yes-no questions? With the help of auxiliary verbs “do, did, or does”, generative grammar scholars call this operation’ Do-support’. The essence of’ Do-support’ in English is’ insert’, which is different from movement. Taking “She watched TV last night” as an example, the tense feature’-ed’ occupies the head I. ‘-ed’ is an adhesive morpheme, which cannot exist alone. The C-position it wants to move to is an empty category, and there is no entity attached to’-ed’. At this time, the auxiliary verb’do’ is needed. First, insert the auxiliary word “do” in the position of the head I, and “do” is merged with’-ed’ in the position of head I to form “did”, and then move from the position of head I to the position of the head C to form inversion and generate yes-no questions. This shows that the movement of modal verbs and auxiliary verbs plays an important role in the generation of English yes-no questions. Even if there is no auxiliary verb, it is necessary to use’ Do-support’.

Not only yes-no questions, but also wh-questions are inseparable from the movement of auxiliary verbs or modal verbs. For example: “Who did John meet?” The sentence had two steps’ movements: i) “did” moved from the IP head position to the front of the subject; (ii) Move...
wh-word from the verb complement position to the beginning of the clause.

The specific movement syntax diagram is as follows:

The reasons why wh-word with the feature of [+ wh] must be moved from the position of verb complement to the beginning of the clause: i) specifier-head agreement; ii) Feature checking. Feature checking must be in a local range, so wh-component in English must be moved, but wh-movement is not universal. For example: “你去哪儿?” The wh-component ‘哪儿’ is not moved in Chinese. The head movement and wh-movement are two different types of movement. The head movement involves the movement of verbs, while the wh-movement is the movement of nouns.

5. If modal verbs or auxiliary verbs are raising verbs, control verbs, light verbs?

Do “modal verbs” belong to “control verbs” or “raising verbs” or “light verbs”? What are the characteristics of “modal verbs” consistent with “control verbs”, “raising verbs” and “light verbs”? The following section will be discussed.

5.1 The characteristics of raising and controlling structures, the characteristics of raising and control verbs

Raising structure and control structure to explain the assignment of theta roles. The raising structure includes subject-object Raising and subject-subject Raising. The control structure includes subject control structure and object control structure.

The common raising verbs, raising adjectives and control verbs in English are shown as follows:

<table>
<thead>
<tr>
<th>Raising verbs</th>
<th>seem, appear, happen to, turn out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raising adjectives</td>
<td>be likely to, be certain</td>
</tr>
<tr>
<td>Control verbs</td>
<td>persuade, try, want, hope, expect, believe</td>
</tr>
</tbody>
</table>

In the raising structure and the control structure, the sentence surface structure is similar, but the deep structure is different, such as: a. John seemed to understand the sentence. b. John tied to understand the sentence. The surface structures of “a and b” are similar, but the deep structures are different. The deep structure analysis of “a and b” are as follows:

a1. John seemed [t1 to understand the sentence].
b1. John tied [PRO1 to understand the sentence].

In sentence a1, “seem” is a raising verb, and subject “John” is raised from the subject position of the small clause to the subject position of the main clause in order to obtain the nominative case. let “seem” meet the EPP features. the entire sentence gets the subject. The subject “John” is assigned the agent role by “understanding” and has a semantic relationship with “understanding”, while the subject’s nominative case is given by head I in the syntactic position of “seem” and has a syntactic relationship and no semantic relationship with “seem”. The subject of the raising clause does not obtain case and can obtain the theta role in the in-situ of the deep structure. However, for case, it will move. The omission of the raising verb “seem” does not affect the verb “understand” towards the assignment of John’s thematic role, which is also similar to that of modal verbs. The omission or retention of modal verbs does not affect “major verbs” towards the assignment of NP thematic roles.

In b1 sentence, the verb “try” is a controlling verb. The
subject “John” has a semantic relationship with both the small clause verb “understanding” and the main clause’s verb “try”, PRO itself has no denotive meaning, as a controlled language, gets the theta role from the verb “understanding”. Control verbs are mostly similar to subjective assumptions, ideas, propositions, which are similar to the dynamic modal verbs mentioned later.

Raising verbs can be divided into raising structure and non-raising structure in sentences. In non-raising sentences, the subject can be the expletives “it, there”, which is an expletive subject. For example: c₁. It seemed that John loved Lily. d₁. John seemed to love Lily.

Sentence c₁ is a non-raising structure. The NP “It” is an expletive subject, meaningless, and only plays a syntactic role in the sentence. In order to follow the extended projection principle (EPP), the expletive subject is supplemented. Sentence d₁ is a raising structure. Small clause: “to love Lily”’ s subject “John” moves to the subject position of the main sentence to pass the case test. In addition, it can also follow the extended projection principle (EPP), that is, each sentence must have a subject. If the NP “John” remains in the subject position of the small clause, it cannot pass the case test, because the verb infinitive’ to love has no ability to assign case. By moving “John”, the raising process can follow the syntactic rules such as the theta criterion, EPP, and case test.

The raising verb is one place predicate, and the controlling verb is generally a binary predicate or a ternary predicate. The raising verb is a non-object verb, which has no limitation on the subject of the sentence. It can be both an animate noun and an inanimate noun, or even a function word: “it or there”. However, the control verb, has the request to the sentence subject, the subject needs to have an animate noun. For example, The man try to work hard. (man is an animate noun, and the sentence conforms to grammar). * The machine try to work hard. (machine is an inanimate noun, and the sentence is ungrammatical). Control verbs are mostly words expressing emotional attitudes, which are related to subjective imagination and affect sentence meaning in sentences. Naturally, there are restrictions and requirements on the choice of subjects.

The raising structure can be passive. The new sentence semantics formed after passiveness is basically the same as that before passiveness. The control structure cannot be passive. The sentences formed after passiveness do not conform to grammar, and some can be passive. However, the new sentence semantics formed after passiveness is different from that before passiveness. For example: The boy seems to help that girl. = That girl seems to be helped by the boy. (raising structure, passive, semantics are the same). The doctor to examine Lily. ≠ Lily asked to be controlled by the doctor. (control structure, passive, semantics are different). Sometimes after the control structure is passive, the sentence is ungrammatical. For example: The workers tried to build the cinema. Control structure, passive sentences: * The cinema tried to be built by the workers. (Control structure, passive, sentence is ungrammatical).

5.2 Discussion on whether modal verbs and auxiliary verbs are raising verbs or controlling verbs.

Ross (1969) believed that the root modal verb was equivalent to the transitive verb, and two thematic roles could be assigned. The epistemic modal verb was equivalent to the intransitive verb, and only one thematic role was assigned to the following infinitive.

The root modal verb has a deontic modal verb, which means “permission”, such as: “may” is interpreted as the meaning of “permission”. There are dynamic modal verbs, such as: “can” is interpreted as “capacity”, which expresses ability. There are cognitive modal verbs, such as: “may” is interpreted as “possible”, which expresses speculation.

In a sentence with an raising verb, the subject of the sentence can be an expletive reference: “it or there”, the subject of a sentence is the expletive reference “it or there” with a modal verb “may”; as follows, there may be dancing but no singing on my premises. (expresses possible). This example sentence shows that the structure containing epistemic modal verbs can be dominated by the function word “there”, which is the characteristic of raising verbs. The raising structure can be passive, and the meaning of the passive sentence is the same as that of the sentence before passive. Let’s look at the passive situation.
of the object after the modal verb “may”, as follows: The cake may be eaten by John. This sentence is interpreted as the possibility that the cake may be eaten by John, and “may” is used as an epistemic modal verb in the sentence. This sentence proves that epistemic modal verbs are raising verbs. “may” in this sentence can also be interpreted as ‘allow’, which is a deontic modal verb, indicating that deontic modal verbs also belong to raising verbs.

The following is a discussion of dynamic modal verbs. Take the modal verb “can” as an example. e. John can raise the heavy table. g. *There can raise the heavy table for John. f. The heavy table can be raised by John. The dynamic modal verb of the example sentence g cannot use the function word “there” as the subject, which is the feature of the control verb. The control verb is selective to the subject. However, the object behind the dynamic modal verb of the example sentence f can be passive, which does not seem to conform to the characteristics of the control verb. One of the characteristics of the control verb is that the infinitive object behind “can” cannot be passive, and The sentence does hold after the object behind “can” is passive. However, after careful investigation of the f sentence, it is found that “can” is no longer a dynamic modal verb. After passive, it has been transformed into a cognitive modality, and the sentence meaning has changed. Therefore, the object after the dynamic modal verb cannot be passive fundamentally. Dynamic modal verbs express ability and can only use animate nouns as its subject. Therefore, we have reason to believe that English dynamic modal verbs are control verbs.

To sum up, cognitive modal verbs and deontic modal verbs are mostly raising verbs, and dynamic modal verbs are control verbs. Auxiliary verb “be” together with adjective “likely and certain” constitutes a raising adjective.

5.3 The syntactic structure vP (light verb phrase) analysis of whether modal verbs and auxiliary verbs are light verbs

Light verbs have explicit and implicit, implicit without phonetic form. Light verbs were first proposed by linguist Jespersen to explain the Virtualization of verb meaning in English’ verb + noun phrase’ structure. For examples:

<table>
<thead>
<tr>
<th>Light verbs</th>
<th>examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>have</td>
<td>have a look, have a break, have a rest</td>
</tr>
<tr>
<td>make</td>
<td>make a joke, make a call, make a visit</td>
</tr>
<tr>
<td>take</td>
<td>take a walk, take a advice, take a rest</td>
</tr>
<tr>
<td>do</td>
<td>do an exercise, do a practice, do a job</td>
</tr>
<tr>
<td>give</td>
<td>give a smile, give a speech, give a lecture</td>
</tr>
</tbody>
</table>

Light verbs: have, make, take, do, give. These light verbs are overt in this structure and must appear in a light verb structure. Here, the light verb has features, which do not appear alone, but are combined with another word. At this time, the usages of light verbs and auxiliary verbs are similar.

In addition, Grimshaw & Mester believes that light verbs in some languages do not assign semantic roles, but only absorb the case of predicates, with slight semantic meaning but strong functional meaning. Chomsky absorbed Larson’s VP shell theory and set light verbs in the’ minimalistic program’ to explain the allocation of theta roles in trivalent verbs with double objects. In a sentence: John gave a book to Lily. Verb “gave” first merges with the indirect object “to Lily” to form V’ (gave to Lily), then V’ merges with NP “a book” to form VP. The structure below:

Light verbs can also concretize the abstract syntactic meaning and explain some ambiguities. According to Stechow (1996) and Beck & Johnson (2004), the following sentences are ambiguous, for example: John opening the door again. According to the principle of modification and the split VP hypothesis. This sentence has the following two explanations: i) The door was opened before by others (anyone). Now due to John’s behavior, the door opened again, and John opened the
door. ii ) John opened the door before, and then he opened it again. In this example sentence, light verbs have no phonetic form, and light verbs are implicit. When the adjunct (again) modifies the small v (Light verb), the meaning of the example sentence is the second explanation, and when the adjunct (again) modifies large V (Main verb), this example sentence is the first explanation. The usage of light verb theory can also explain the same meaning but different word order sentences, can also explain the same word order but different sentence meaning. When the light verb is invisible, this sentence is similar to that of omitting modal verbs, which does not seem to exist, actually exists, and affects the sentence. For example: She can have left, and he have stayed. According to the sentence, there is modal verb “can” behind him, just invisible. If there is no modal verb “can”, the verb “have” behind the NP “he” should be “has”, otherwise it is not grammatical. This is the Null Auxilary phenomenon. The sentence: She could have left, and he’ve stayed. (Not grammatical). According to the Cliticization principle, it is possible to attach adjacent morphemes, which indicates that “he” and “have” are not adjacent and proves again that the second parallel sentence omits the modal verb “can”. So, when light verbs are invisible, this is similar to the sentence that omits modal verbs

6. Conclusion

Modal verbs and auxiliary verbs have many commonalities and individuality in syntax. There are also many similarities in other aspects of linguistics, the base-generated location of the auxiliary verb is within the scope <T, V> and contained the possibility in the location of T or V. The base-generation position of modal verbs is also in a range, only in the scope <C, I>, and contains I, excluding C. Dynamic modal verbs belong to control verbs, cognitive modal verbs and deontic modal verbs belong to raising verbs, some auxiliary verbs are similar to light verbs. In the process of research, we should not only pay attention to the similarities between modal verbs and auxiliary verbs, but also pay attention to the differences between them, which is more conducive to grammar teaching and grammar learning.

References