英語の迂言的助動詞doの分布について　―極小主義の立場から―

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On the Distribution of the Periphrastic Auxiliary *do* in English: A Minimalist Account*

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1. Introduction

This study aims to give a principled explanation for the distribution of the periphrastic auxiliary *do* in English, within the framework of the Minimalist Program outlined by Chomsky (1998). The following sentences in (1)-(8) represent the sentence types that will be analyzed. The section numbers in the parentheses indicate the section in which each sentence type will be analyzed.

(1) John likes music.	(Section 2)
(2) John does not like music.	(Section 3)
(3) Does John like music?	(Sections 4.1 and 6)
(4) Who likes music?	(Section 4.2)
(5) What does John like?	(Sections 4.3 and 6)
(6) I wonder {whether/if} John likes music.	(Section 5.1)
(7) I wonder who likes music.	(Section 5.2)
(8) I wonder what John likes.	(Section 5.3)

The descriptive generalization we can make by observing the above sentences is the following. The periphrastic *do* appears in negative sentences (as in (2)), in matrix yes-no questions (as in (3)), and in matrix wh-questions in which the wh-phrase functions as an object (as in (5)). But why does *do* never appear in embedded questions such as

(6)-(8)? Why does *do* not appear in matrix wh-questions when the wh-phrase involved is a subject, as in (4)? What follows is an attempt to answer these and other related questions.

Similar concerns are addressed in the work of Rizzi (1996), and a successful account of the distribution of periphrastic *do* is also given. However, Rizzi's analysis is carried out within the framework of the Government and Binding Theory, using such devices as coindexation, different levels of representation, and X-bar theory, all of which are abandoned in the Minimalist Program. I hope to show that the facts concerning the distribution of *do* can be explained in Minimalist terms, without recourse to some of the typical devices employed in the Government and Binding Theory.

2. Deriving Positive Declarative Sentences

In this section, I will consider how simple positive declarative sentences in English can be derived, given the basic architecture of the Minimalist Program outlined in Chomsky (1998). This section also serves as a brief outline of the version of the Minimalist theory that I assume, which follows the spirit of Chomsky (1998), but contains several assumptions that are distinct from those found in Chomsky (1998).

Consider a simple sentence (9).

(9) John speaks Japanese.

I assume that the derivation of (9) proceeds as follows:

(10) [$_{VP}$ speaks Japanese]

(11) v [$_{VP}$ speaks Japanese]

[Acc] [Acc]

(12) speaks-v [$_{VP}$ speaks Japanese]

(13) [$_{vP}$ John speaks-v [$_{VP}$ speaks Japanese]]

[ϕ] [ϕ]

(14) T [$_{vP}$ John speaks-v [$_{VP}$ speaks Japanese]]

[Nom] [Nom]

(15) [$_{TP}$ John T [$_{vP}$ John speaks-v [$_{VP}$ speaks Japanese]]]

In (11), the light verb v merges to VP, since the verb *speak* is a transitive verb. Following Chomsky (1998), let us assume that v is responsible for checking of the accusative Case, [Acc]. I assume that this Case checking is carried out by what Chomsky (1998) calls Agree. The precise definition of Agree is not given in Chomsky (1998), but the basic characteristics of this operation are clear. Here is my understanding of Agree:

(16) Given two features F_1 and F_2 in a construction, Agree erases the uninterpretable feature(s) among them if F_1 and F_2 satisfy the following conditions.

(i) F_1 and F_2 match; i.e., they are identical features.

(ii) F_1 c-commands F_2.

(iii) There is no F_3 such that F_3 is identical to F_1, and F_1 c-commands F_3 and F_3 also c-commands F_2.

Returning to (11), the [Acc] features of v and *Japanese* can be erased by Agree, in accordance with (16).

At the stage of (12), the main verb *speaks* raises to v. I assume that this movement is motivated by a morphological requirement of v:

v is an abstract affix that needs a host. Following Chomsky (1995, 1998), let us assume that a moved element leaves its copy in its original position, instead of a trace, which was assumed in earlier theories such as the Government and Binding Theory. Such copies are erased in the phonological component so that we do not hear them. However, they receive interpretation at LF.

At stage (13), *John* merges to vP to satisfy the θ-theoretic requirement of v. At this stage, I assume that the uninterpretable ϕ-features of *speaks* can be checked by the interpretable ϕ-features of *John*, by virtue of Agree.

Merging T with vP yields (14). Assuming that T contains the nominative Case feature [Nom], it is reasonable to suppose that [Nom] of *John* gets erased by Agree at this stage. Let us assume so. Chomsky (1998) takes structural Case to be a reflex of an uninterpretable ϕ-set. If so, T in (14) should contain an uninterpretable ϕ-set that is responsible for checking [Nom] of *John*. Here I am assuming that ϕ-feature checking and Case feature checking are distinct operations. This assumption simplifies the checking mechanisms in structures like (14) for the following reason. If [Nom] of *John* must be checked by an uninterpretable ϕ-set, then T in (14) should contain a ϕ-set, which in turn must be checked by the ϕ-set of the verb *speaks*. In our assumptions, on the other hand, T in (14) does not contain a ϕ-set, so there is no need for ϕ-feature checking between T and V. It is also worth noting that Alexiadou and Anagnostopoulou (1999) have argued that there is evidence that ϕ-feature checking and Case checking should be separate operations in Greek.

Returning to the stage (14) of our derivation, it seems reasonable, at first glance, to propose that the derivation stop here, since T in (14) is phonologically empty. If this proposal is tenable, we may be able to

dispense with the EPP feature of T. However, there is evidence that the derivation should not stop here. Consider (17).

(17) John can speak Japanese.

If there is no EPP of T, and the derivation can be completed at the point where the [Nom] feature of a subject is checked, then we expect that the derivation of (17) can stop at (18).

(18) can [$_{vP}$ John speak-v [$_{VP}$ speak Japanese]]
[Nom] [Nom]

In (18), the auxiliary verb *can* occupies T position. In our assumptions, *can* contains [Nom], and Agree should be able to erase the [Nom] features of both *John* and *can*. But if the derivation stops here, we do not get the correct word order shown in (17).

Hence, let us assume, following Chomsky (1995, 1998), that T contains an EPP feature that forces movement of a subject DP/NP to Spec-T. The final stage of our derivation represented in (15) shows the result of such a movement driven by EPP.

3. Deriving Negative Sentences

Next let us consider negative sentences. Take (19), for example.

(19) John does not speak Japanese.

Assuming that *not* is a head that projects NegP, (19) should have the following structure.

(20) [$_{TP}$ John does [$_{NegP}$ not [$_{vP}$ John speak-v [$_{VP}$ speak Japanese]]]]

In (20), all the uninterpretable features are checked: [Acc] of *Japanese* is checked by v; the [Nom] features of *John* and *does* are checked by each other; the ϕ-set of *does* is checked by that of *John*. Thus, the derivation converges, correctly.

The question that has to be answered is why (20) should contain the auxiliary *does*. In other words, we have to explain why the structure in (21) is ill-formed, where a phonologically empty T with the present tense feature [Pres] is chosen instead of an overt T, *does*.

(21) *[$_{TP}$ John T [$_{NegP}$ not [$_{vP}$ John speak-v [$_{VP}$ speak Japanese]]]]
[Pres]

An obvious difference between (20) and (21) is that the tense-bearing head is phonologically overt in (20), but not so in (21). Notice that in the positive counterpart of sentence (19), given in (22), a tense feature is contained in the main verb *speaks*: the [Pres] feature of *speaks* is checked against the same feature of T, as illustrated in (23).

(22) John speaks Japanese.

(23) [$_{TP}$ John T [$_{vP}$ John speaks-v [$_{VP}$ speaks Japanese]]]
[Pres] [Pres]

In (23), T is empty, but another head containing a tense feature, namely V, is phonologically overt. In (21), on the other hand, V does not contain a tense feature, since V is infinitival.[1] And the only head containing a tense feature, namely T, is phonologically empty. Given these observations, it seems that the following condition is at work.

(24) *The Matrix Tense Condition*

One of the tense features of a matrix clause must be contained in a phonologically overt head.

Given (24), the only way to salvage the ill-formed (21) is to use a phonologically overt element that contains the [Pres] feature (=*does*) in place of the phonologically empty T, as in (20).

Of course, (21) could also be salvaged if it were possible to have an inflected main verb in negative sentences. In fact, as is well known, Early Modern English allowed inflected main verbs in negative sentences, as illustrated in (25), taken from Shakespeare's writings.

(25) He heard not that.

(from *Two Gentlemen of Verona*, Ⅳ. Ⅱ, cited in Radford (1997: 116))

However, Moderm English does not allow an inflected V to cooccur withe *not*, due to the selectionel restriction of *not*. Hence, to use *does* instead of the empty T is the only way for (21) to satisfy the Matrix Tense Condition.

A standard analysis of Early Modern English sentences like (25) posits overt verb movement to T, crossing *not*. Adopting the standard analysis, we still have to answer the question of why overt V-*v* to T movement is not allowed in Modern English. Suppose that overt head movement takes place only when the target head is morphologically an affix that requires a hosting morpheme. Given this, and assuming that the empty T in Modern English is not affixal, it follows that the empty T of Modern English does not trigger movement of a V-*v* complex. In Early Modern English sentences like (25), on the other hand, I assume

that T was affixal, and triggered overt V movement.[2]

4. Deriving Matrix Questions

This section examines the derivations of matrix interrogative sentences. We first investigate matrix yes-no questions in section 4.1. We then consider matrix wh-questions in section 4.2 and section 4.3.

4.1. Matrix yes-no questions: initial analysis

Consider the following yes-no question.

(26) Does he speak English?

In our assumptions, the derivation of (26) should proceed as follows:

(27) [$_{VP}$ speak English]
(28) v [$_{VP}$ speak English]
(29) speak-v [$_{VP}$ speak English]
(30) [$_{vP}$ he speak-v [$_{VP}$ speak English]]
(31) does [$_{vP}$ he speak-v [$_{VP}$ speak English]]
(32) [$_{TP}$ he does [$_{vP}$ he speak-v [$_{VP}$ speak English]]]
(33) Q [$_{TP}$ he does [$_{vP}$ he speak-v [$_{VP}$ speak English]]]
(34) does-Q [$_{TP}$ he does [$_{vP}$ he speak-v [$_{VP}$ speak English]]]

The checking of uninterpretable features such as Case features and ϕ-features is successfully carried out in this derivation, in the manner explained in the previous sections. What distinguishes matrix yes-no questions from other types of matrix sentences is that the former contains an abstract question morpheme Q. In assuming the abstract element Q for questions, I am following the long tradition in generative

grammar. However, as we will see, my characterization of Q is different from other conceptions of Q that I know of.

Now, let us consider why *does* has to appear in (26). In terms of the stages of derivation, the question can be rephrased as: why can't empty T merge at stage (31)? The answer we propose is the following. Suppose that an empty T has merged in (31), instead of *does*. Then, instead of the final structure (34), we would have the structure in (35). (The verb *speak* is changed into a finite form *speaks* in (35) in order to avoid a violation of the Matrix Tense Condition.)

(35) T-Q [$_{TP}$ he T [$_{vP}$ he speaks-v [$_{VP}$ speaks English]]]

Suppose that Q is morphologically an affix that needs an overt host, just like the light verb v. Then, we have an explanation for the ill-formedness of (35), as opposed to the well-formedness of (34): in (34), Q is hosted by an overt T, but in (35), it is hosted by a covert T. To rephrase our explanation for the ill-formedness of (35) in functional terms, if T is phonologically empty as in (35), what we hear is (36), and (36) is indistinguishable from a declarative sentence in terms of segmental phonology.

(36) He speaks English.

To recapitulate, our explanation for the appearance of *do* in matrix yes-no questions appeals to the affixal nature of the Q morpheme. Metaphorically speaking, Q needs an overt host in order to indicate its existence. Since Modern English does not allow V-v to T movement, the derivation has to choose an appropriate form of *do* when it reaches a point where T merges to vP.

I have not yet characterized the nature of the abstract Q morpheme. What is its categorial status? What feature(s) does it have? I will come back to these questions in section 6.

4.2. Matrix subject-wh-questions

Let us consider next matrix wh-questions in which the wh-phrase functions as a subject. An example of such sentences is given in (37), and its derivation, in (38)-(43).

(37) Who speaks English?
(38) [$_{VP}$ speaks English]
(39) v [$_{VP}$ speaks English]
(40) speaks-v [$_{VP}$ speaks English]
(41) [$_{vP}$ who speaks-v [$_{VP}$ speaks English]]
(42) T [$_{vP}$ who speaks-v [$_{VP}$ speaks English]]
(43) [$_{TP}$ who T [$_{vP}$ who speaks-v [$_{VP}$ speaks English]]]
[Q]

I assume, following Chomsky (1998), that a wh-phrase has an interpretable [Q] feature. Contra Chomsky (1998), however, I assume that a wh-phrase does not have an uninterpretable feature [wh-]. Not assuming the uninterpretable [wh-] in wh-phrases gives us the advantage of not having to posit a head with the same uninterpretable feature for checking. This, in turn, enables us to assume that sentences like (37) are TP, not CP. For Chomsky (1998), the [wh-] feature bearing head is C. Thus, all wh-questions are CP for him. But if the [wh-] feature does not exist, then there is no need to merge C to TP in (43). Since *who* in (43) bears the interpretable [Q] feature, no problem arises for interpretation.

In (43), *who* has moved to Spec-T to satisfy EPP of T. By moving

to Spec-T, *who* also satisfies the following requirement that I assume is a legibility condition at the C-I interface.

(44) *The [Q] Legibility Condition*

A phrase containing an interpretable [Q] feature must be hierarchically at the highest position of a clause for the clause to be interpreted as interrogative.

The need for (44) cannot be seen by looking at sentences like (37), but its significance will become clear in the next section where we examine wh-questions in which the wh-phrase functions as an object.

4.3. Matrix object-wh-questions

Consider the following matrix wh-questions where the wh-phrase is an object.

(45) Who does John like?

In our assumptions, the derivation proceeds as follows.

(46) [$_{vP}$ like who]
(47) v [$_{vP}$ like who]
(48) like-v [$_{vP}$ like who]
(49) [$_{vP}$ John like-v [$_{vP}$ like who]]
(50) does [$_{vP}$ John like-v [$_{vP}$ like who]]
(51) [$_{TP}$ John does [$_{vP}$ John like-v [$_{vP}$ like who]]]
(52) Q [$_{TP}$ John does [$_{vP}$ John like-v [$_{vP}$ like who]]]
(53) does-Q [$_{TP}$ John does [$_{vP}$ John like-v [$_{vP}$ like who]]]
(54) [who does-Q [$_{TP}$ John does [$_{vP}$ John like-v [$_{vP}$ like who]]]]

There are two things we need to consider about this derivation: (i) Why can't empty T merge in (50), instead of *does*?; (ii) What drives the movement of *who* in (54)?

Consider question (i) first. Suppose that empty T has merged instead of *does* in (50), yielding (55).

(55) T [$_{vP}$ John likes-v [$_{VP}$ likes who]]

The derivation would continue as follows:

(56) [$_{TP}$ John T [$_{vP}$ John likes-v [$_{VP}$ likes who]]]
(57) Q [$_{TP}$ John T [$_{vP}$ John likes-v [$_{VP}$ likes who]]]
(58) T-Q [$_{TP}$ John T [$_{vP}$ John likes-v [$_{VP}$ likes who]]]

At stage (58), the derivation crashes since Q, an affix that needs an overt host, is attached to a covert T. For the derivation to converge, an overt host, *does*, has to merge as in (50), so that Q can eventually be hosted by it, as in (53).

Consider next question (ii). In (54), there is already an abstract question morpheme Q. If the [Q] feature contained in Q is interpretable, then there is no reason for *who* to move to the clause-initial position: the legibility condition (44) is satisfied by the presence of Q. The fact that *who* has to move, then, suggests that the [Q] feature of the question morpheme Q is not interpretable. In (53), only *who* has the interpretable [Q]. Hence, it has to move in order to satisfy the [Q] Legibility Condition in (44).

In terms of the mechanism of the C_{HL} (and using the terminology introduced by Chomsky (1998)), movement of *who* in (54) is driven by the

uninterpretable [Q] feature of the probe (=Q), which makes the goal (=*who*) active, and implements the operation Move. Once this movement takes place, the uninterpretable [Q] feature of Q gets checked off by the interpretable [Q] feature of *who* as illustrated in (59).

(59) $[_{CP}$ who does-Q $[_{TP}$ John does $[_{vP}$ John like-v $[_{VP}$ like who]]]]
[Q] [Q]

5. Deriving Embedded Questions

5.1. Embedded yes-no questions

We now consider embedded yes-no questions, examples of which are given in (60) and (61).

(60) I wonder [whether John plays the guitar]
(61) I wonder [if John plays the guitar]

Let us assume that both *whether* and *if* are a head C. The derivation for (60) should proceed as follows:

(62) $[_{VP}$ plays the guitar]
(63) v $[_{VP}$ plays the guitar]
(64) plays-v $[_{VP}$ plays the guitar]
(65) $[_{vP}$ John plays-v $[_{VP}$ plays the guitar]]
(66) T $[_{vP}$ John plays-v $[_{VP}$ plays the guitar]]
(67) $[_{TP}$ John T $[_{vP}$ John plays-v $[_{VP}$ plays the guitar]]]
(68) whether $[_{TP}$ John T $[_{vP}$ John plays-v $[_{VP}$ plays the guitar]]]]
(69) $[_{CP}$ Op whether $[_{TP}$ John T $[_{vP}$ John plays-v $[_{VP}$ plays the guitar]]]]
$[Q_{Y/N}]$ $[Q_{Y/N}]$

In (69), I am assuming that *whether* and *if* have an uninterpretable yes-no question feature [$Q_{y\text{-}n}$]. Thus, there must be another [$Q_{y\text{-}n}$] feature in the sentence to check off the uninterpretable [$Q_{y\text{-}n}$] of *whether* or *if*. It has often been suggested in the literature that yes-no questions contain a null operator, Op.[3] Let us assume so. Then we can say that Op has an interpretable [$Q_{y\text{-}n}$] feature, which enters into a checking relation with the [$Q_{y\text{-}n}$] of *whether* or *if*. Thus, in (69), the uninterpretable [$Q_{y\text{-}n}$] of *whether* erases by virtue of feature matching with the [$Q_{y\text{-}n}$] of Op.

The account just outlined for embedded yes-no questions leads us to extend the null operator analysis to matrix yes-no questions as well. Assume that the Q morpheme we posited for matrix yes-no questions in section 4.1 also has the uninterpretable [$Q_{y\text{-}n}$] feature. Then, the null operator merges at the clause-initial position, as illustrated in (70).

(70) [Op does-Q [$_{TP}$ he does [$_{vP}$ he speak-v [$_{VP}$ speak English]]]]
[$Q_{y\text{-}n}$] [$Q_{y\text{-}n}$]

In this way, we can say that yes-no questions, matrix or embedded, always contain Op. Notice that (70) satisfies the [Q] Legibility Condition: Op with the interpretable [Q] feature is in the highest position in (70). Given the [Q] Legibility Condition, the appearance of the Q morpheme, which only has an uninterpretable [Q], begins to make sense. Although Q is not needed for interpretation, it serves a purpose of creating a slot for Merge of Op. Op is needed for legibility, but Spec-T of (70) is already occupied. Since English does not allow multiple Specs, some head must merge to TP so that Op can be introduced into the derivation. Q plays the role of such a head.

Notice also that we have an explanation for the fact that *do* appears in matrix yes-no questions (as in (70)), but not in embedded

yes-no questions (as in (69)). In (69), the presence of an overt complementizer *whether* clearly indicates that Op is present. In (70), on the other hand, if an empty T is chosen instead of *does*, there is no way to tell the existence of Op, since both Op and Q are silent. Thus, *does* serves to indicate the existence of Op in matrix yes-no questions. The same role is played by *whether* or *if* in the case of embedded questions. Hence, there is no need for *do* to appear in embedded questions.

5.2. Embedded subject-wh-questions

Consider next subject-wh-embedded questions. Take (71) for example.

(71) I wonder [who loves John]

The derivation of (71) proceeds as follows:

(72) $[_{VP}$ loves John]
(73) v $[_{VP}$ loves John]
(74) loves-v $[_{VP}$ loves John]
(75) $[_{vP}$ who loves-v $[_{VP}$ loves John]]
(76) T $[_{vP}$ who loves-v $[_{VP}$ loves John]]
(77) $[_{TP}$ who T $[_{vP}$ who loves-v $[_{VP}$ loves John]]]
(78) C $[_{TP}$ who T $[_{vP}$ who loves-v $[_{VP}$ loves John]]]
(79) $[_{CP}$ who C $[_{TP}$ who T $[_{vP}$ who loves-v $[_{VP}$ loves John]]]]
[Q_{wh}] [Q_{wh}]

Suppose that embedded questions are invariably CP, as is standardly assumed. CP was originally created to express the category of a complement clause. Thus, embedded clauses are prototypical CPs. Let us

assume that the interrogative C, which is selected by a verb like *wonder*, contains an uninterpretable wh-question feature [Q_{wh}].

In our discussions of section 4.2, we assumed that wh-phrases contain an interpretable [Q] feature. Let us now say that, in fact, wh-phrases have an interpretable [Q_{wh}], so that it can match with the uninterpretable [Q_{wh}] feature of an interrogative C. These specifications are necessary in order to bar structures such as the following.

(80) *I wonder [who whether [John met]]
[Q_{wh}] [$Q_{y\text{-}n}$]

(81) *I wonder [Op C [John loves Mary]]
[$Q_{y\text{-}n}$] [Q_{wh}]

If the [Q] feature were not subdivided into [Q_{wh}] and [$Q_{y\text{-}n}$], then we have no explanation for the ungrammaticality of (80) and (81). By recognizing the distinction between [Q_{wh}] and [$Q_{y\text{-}n}$], the facts we observe in (80) and (81) follow.

The recognition of two types of [Q] makes sense semantically as well. Thus, we may assume that the interpretable [Q_{wh}] and the interpretable [$Q_{y\text{-}n}$] receive the interpretations given in (82).

(82) [Q_{wh}]: For which x, . . .
[$Q_{y\text{-}n}$]: Is it true or not that . . .

In this way, embedded subject-wh-questions can be correctly derived given that the interrogative C, which is phonologically empty, contains an uninterpretable [Q_{wh}] feature. Unlike the abstract Q morpheme we posited for matrix questions, we assume that the interrogative C is not affixal, hence does not need an overt head to attach to it. This explains

why *do* appears in many of the matrix questions, but not at all in embedded questions. In the next section, we will see that the account presented here can successfully account for embedded object-wh-questions as well.

5.3. Embedded object-wh-questions

Consider the following embedded question in which the wh-phrase functions as an object.

(83) I wonder [who John saw]

The embedded clause of sentence (83) should derive in the following manner.

(84) $[_{vP}$ John saw-v $[_{VP}$ saw who]]
(85) T $[_{vP}$ John saw-v $[_{VP}$ saw who]]
(86) $[_{TP}$ John T $[_{vP}$ John saw-v $[_{VP}$ saw who]]]
(87) C $[_{TP}$ John T $[_{vP}$ John saw-v $[_{VP}$ saw who]]]
(88) $[_{CP}$ who C $[_{TP}$ John T $[_{vP}$ John saw-v $[_{VP}$ saw who]]]]
$[Q_{wh}]$ $[Q_{wh}]$

Again, since the interrogative C is morphologically independent, no overt element needs to attach to it. Hence, the derivation converges, without the appearance of *do*.

6. Matrix Questions Revisited

Now, let us return to matrix questions, considering more closely the nature of the Q morpheme we assumed. Our explanation for the appearance of *do* in some matrix questions is correlated to the appearance of

Q in such sentences. In turn, our explanation for the non-appearance of *do* in embedded questions appealed to the morphological independence of the interrogative C. Thus, it seems natural to assume that Q does not belong to the category type C. Then, what is its syntactic category? Consider again the structure of a matrix yes-no question given in (89).

(89) Op does-Q [$_{TP}$ he does [$_{vP}$ he speak-v [$_{VP}$ speak English]]]
[$Q_{Y/N}$] [$Q_{Y/N}$]

Intuitively, the role of Q is to create a position that Op can occupy. Two possibilities come to mind: (i) Q belongs to the category of Q, and the entire clause of (89) is QP; (ii) Q belongs to the category of light T, which is similar to the light verb v in the sense that the light T ("τ" hereafter) is an affix that needs to be hosted by the head of its complement clause, namely, T.

Either option (i) or (ii) can correctly account for the facts, but (ii) seems to be a more promising approach for the following reason: if QP exists, it is not clear why some matrix questions can be simply TP, as in (43).

The intuitive rationalization for the appearance of τ is the following: For (89) to be interpreted as interrogative, Op must exist at the left periphery of the clause due to the [Q] Legibility Condition; Since English does not allow multiple Specs, a new Spec position must be created. Since (89) is a matrix question, C, which we assume can only head an embedded clause, cannot be used to create such a position; thus, τ — a TP extender, so to speak — is used.

Notice that once we accept the existence of τP, we can say that matrix questions are always τP or TP. For example, a matrix object-wh-question has a structure like the following:

(90) [$_{\tau P}$ who does-τ [$_{TP}$ John does [$_{vP}$ John like-v [$_{VP}$ like who]]]]
[Q_{wh}] [Q_{wh}]

As (90) indicates, what we have called the abstract morpheme Q is in fact a light tense τ with the [Q_{wh}] or [$Q_{y\text{-}n}$] feature, according to our view. (Note that τ has [$Q_{y\text{-}n}$] when the sentence contains Op.)

If my analysis is correct, we can say that matrix questions are invariably τP or TP, while embedded questions are always CP. This eliminates a conceptual unnaturalness, however minor, of calling a matrix question a "complementizer" phrase when in fact it is not a complement of any head at all.

7. Main Verbs *Be* and *Have*

Finally, a remark is in order regarding a special class of main verbs that have properties of auxiliary verbs. As is well-known, *be* and *have* act like auxiliaries in that they can be preposed to sentence-initial position in interrogatives and that *do* does not appear in negative sentences. Consider the following examples.

(91) Is John here?
(92) John is not here.
(93) Have you a car? (British English)
(94) You have not a car. (British English)

Since *be* and *have* are the only main verbs in English that show the relevant properties of auxiliaries, we may assume that these are marked cases. In our assumptions, *be* and *have* are marked as a special class of verbs that need to raise to T; once this raising takes place, they act exactly like regular auxiliaries. This fact is learnable by children, once

they encounter sentences like (91)-(94), which would supply them positive evidence that *be* and *have* need to raise to T. Of course, children acquiring American English can conclude that *have* in their dialect does not belong to this special class of verbs, since they hear sentences like *"Do you have a car?"* in their environment.

8. Summary

To recapitulate our entire discussion, my main concern in this study was to give a principled explanation for the appearance and non-appearance of the periphrastic auxiliary *do* in negative and interrogative sentences within the framework of Chomsky's (1998) Minimalist Program. My main proposals are the following.

(95) *Main proposals of this study*

i. Case feature checking and ϕ-feature checking are distinct operations; the phonologically empty T does not have ϕ-features.

ii. One of the tense features of a matrix clause must be contained in a phonologically overt head. (*The Matrix Tense Condition*)

iii. Overt head movement is triggered only when the target head is affixal and needs an overt head to host it.

iv. English interrogative sentences invariably contain an operator (either a wh-phrase or Op) that contains an interpretable [Q] feature.

v. The interpretable [Q] feature has two types: a wh-question feature [Q_{wh}], and a yes-no question feature [$Q_{y\text{-}n}$].

vi. A phrase containing an interpretable [Q] feature must be hierarchically at the highest position of a clause for the clause to be interpreted as interrogative. (*The [Q] Legibility Condition*)

vii. The complementizers *whether* and *if* contain an uninterpretable

[$Q_{y\text{-}n}$] feature that needs to be checked off by Op that has an interpretable [$Q_{y\text{-}n}$] feature.

viii. The phonologically empty interrogative complementizer C has [Q_{wh}], which is uninterpretable and must be erased by an interpretable [Q_{wh}] feature of a wh-phrase.

ix. In matrix questions, the light tense τ is merged to TP in order to create a slot for Op or a wh-phrase, which has an interpretable [Q] feature, and hence, needs to be at the left periphery in order to satisfy the [Q] Legibility Condition. The light tense τ contains either [Q_{wh}] or [$Q_{y\text{-}n}$], both of which are uninterpretable. The category τ enters into the derivation only when an extra Spec position is needed to host a question operator. Thus, in matrix subject-wh-questions, in which a wh-phrase is already in the highest Spec (=Spec-T) satisfying the [Q] Legibility Condition, τ does not appear.

I have shown that the above set of proposals/ assumptions conspire to yield the sentence patterns of English found in examples (1)-(8) given at the outset of this paper.

Notes

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[1] I assume that the Neg head *not* selects VP (via *v*P) whose head is infinitival.

[2] Early Modern English also allowed negative sentences that contained a periphrastic *do*. Thus, more needs to be said about the account of negative sentences in Early Modern English. I will not pursue the issue here since the scope of this study is limited to Modern English.

[3] See, for example, Roberts (1993) and Grimshaw (1997).

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論文要約

英語の迂言的助動詞doの分布について
― 極小主義の立場から ―

吉本　靖

本稿の目的は、Chomsky（1998）によって提示された最近の極小主義プログラムの枠組みを基本的に使って、英語の迂言的助動詞doの分布に関して原理的な説明を与えることである。迂言的助動詞 do は、否定文や疑問文に現れるが、疑問文においては、埋め込み疑問文には現れず、母型 wh- 疑問文でも wh 句が主語の場合には現れない。このような事実に対し、以下のような制約または仮定を設けることにより、統一的な説明ができることを示したい。

(1) 主節の時制素性の一つは、音韻的に明示的な主要部に含まれていなければならない。("The Matrix Tense Condition")

(2) 英語の疑問文は、解釈可能な［Q］素性を持つ wh 句または Op のいずれかの演算子を必ず含んでいなければならない。

(3) 解釈可能な［Q］素性には、wh 疑問素性の［Q_{wh}］と、yes-no 疑問素性の［$Q_{y\text{-}n}$］の 2 種類ある。

(4) ある節が疑問文として解釈されるためには、解釈可能な［Q］素性を持つ句が、その節の中で階層的に最も高い位置になければならない。("The［Q］Legibility Condition")

(5) 補文標識の whether と if は、解釈不可能な［$Q_{y\text{-}n}$］素性を持つ。この素性は、解釈可能な［$Q_{y\text{-}n}$］素性を持つ Op によって削除されなければならない。

(6) 音韻的に空の疑問補文標識Cは、解釈不可能な［Q_{wh}］を持ち、この素性は、wh 句の持つ解釈可能な［Q_{wh}］によって削除されなければならない。

これらと、他の補助的な仮定を採用することで、迂言的助動詞 do の分布について説明が与えられると思われる。