

Categorial Status of Control Infinitival Complements*

Daisuke Hirai

1. Introduction

Since Chomsky (1981), whether the category of infinitival complements is CP or TP has been discussed, but to my knowledge, satisfactory conclusions with this problem are not reached yet. Especially, with respect to the category of control infinitives with PRO as in (1), various proposals have been presented as the theory of generative grammar develops.

(1) a. John wanted [PRO to drink beer].

b. John tried [PRO to drink beer].

As for this question, two major proposals have been presented. While Chomsky (1981, 1986) and Pesetsky (1992) argue that control infinitives are uniformly CP, Bošković (1997) claims that they are all TP, contrary to the analysis of Chomsky and Pesetsky. However, I will argue that the categorial status of control infinitives differs depending on their matrix verbs, so that the uniform analysis of control infinitives seems to be implausible.

In this paper, I will review Chomsky (1981, 1986) as a typical representative of the CP analysis in section 2, and Bošković (1997) as that of the TP analysis in section 3. Then, in section 4, I will argue that contrary to their uniform analyses, two types of categories of control infinitives exist, depending on their matrix verbs: CP and TP. In section 5, I will show further evidence for my assumption.

2. The CP analysis in Chomsky (1981, 1986)

In this section, let us consider the proposal by Chomsky (1981, 1986) that control infinitives are uniformly CP.¹ Then, I will point out some problems with this analysis.

According to Chomsky (1981), properties of PRO, the subject of a control infinitive, play an important role in the CP analysis. Chomsky claims that PRO has two important properties. One of them is that PRO is a kind of pronoun in that it does not necessarily have its antecedent within the same clause. The other is that PRO behaves like an anaphor in that PRO can be coreferential with its antecedent. Thus, it is assumed that PRO is a pronominal anaphor, and bears features like (2).

- (2) [+pronominal, +anaphor]

If this is correct, PRO must satisfy both Condition A and Condition B of the binding theory.

- (3) Binding Theory

(A) An anaphor must be bound in its governing category.

(B) A pronoun must be free in its governing category.

- (4) The governing category for Y is the minimal NP or IP(TP) containing Y, a governor of Y, and a SUBJECT accessible to Y.

Given this, the contradiction arises immediately that PRO must be both bound and free in the governing category. How can this contradiction be avoided? The only way to avoid it is for PRO not to have a governing category. If PRO does not have a governing category, Conditions A and B can never be applied to PRO, and then the contradiction will disappear. Therefore, PRO can be licensed only in a position where PRO does not have a governing category, namely, in a position where PRO is not governed. Given the discussion above, Chomsky (1981) proposes that the PRO Theorem in (5) to regulate the distribution of PRO.

(5) PRO Theorem

PRO is ungoverned.

The theorem in (5) accounts for the fact that PRO can occur in the subject position of a clause without AGR, namely in the subject position of a control infinitive. In this account, it is crucial that T in control infinitives is not a governor.

- (6) a. *I talked to PRO
 b. *PRO talked to me.
 c. She decided PRO to go home.
 d. George tried PRO to drink beer.

In fact, PRO is governed by the preposition *to* in (6a) and by AGR in (6b), and then, (6a-b) are ruled out. However, PRO in (6c-d) is not governed by T, *to*, in the control infinitive. With the theorem in (5), the distribution of PRO is accounted for straightforwardly.

However, this account is not satisfactory enough to correctly regulate the distribution of PRO. If the category of control infinitives is TP, PRO would be governed by the matrix verb, and then, it would have a governing category. As a result, the same contradiction would arise as discussed above. In order to solve it, Chomsky claims that the category of control infinitives is uniformly CP. Assuming the CP analysis of control infinitives, PRO can never be governed by the matrix verb. This follows from the definitions of Blocking Category and Barrier presented in Chomsky (1986).

(7) Blocking Category

γ is a blocking category (BC) for β iff γ is not L-marked and γ dominates β .
 (Chomsky 1986: 14)

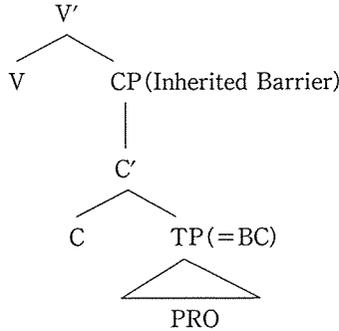
(8) Barrier

γ is a barrier for β iff (a) or (b):

- a. γ immediately dominates λ , λ a BC for β .
 b. γ is a BC for β , $\gamma \neq \text{IP (TP)}$ (op. cit.)

In the light of (7-8), CP, which immediately dominates TP, becomes a barrier for the government of PRO by the inheritance of Blocking Category from TP, as illustrated in (9), since TP is not L-marked.

(9)



Given this, as long as the category of control infinitives is always CP, the government of PRO by the matrix verb is blocked by the CP barrier in accordance with PRO Theorem in (5). Consequently, Chomsky concludes that the category of control infinitives is always CP.

However, this analysis involves a number of problems. For example, why is T, *to*, in control infinitives unable to govern PRO? In addition, since the concept of government has been abandoned in the Minimalist Program advocated by Chomsky (1995), it is apparently impossible to appeal to the PRO Theorem which is based on the concept of government. Thus, if PRO Theorem is abandoned, it is not necessary to assume CP to prevent PRO from being governed.

Against the CP analysis by Chomsky, Bošković (1997) argues, in terms of economy, that control infinitives should be uniformly TP. In the following section, I will review Bošković's (1997) analysis.

3. The TP analysis in Bošković (1997)²

Bošković (1997) assumes, following Chomsky and Lasnik (1993) and Martin (1992), that like lexical DPs, PRO has a Case feature, namely Null Case, which can be checked under the Spec-Head relation with a nonfinite T. Moreover, the Case feature of PRO is checked only by the [$-$ Finite, $+$ Tense] features of T in control infinitives. The existence of these features follows from the suggestion by Stowell (1982) that control infinitives denote possible future and bear the tense specification independent of that of the matrix clause.³ With this idea, the derivation of the control infinitive in (1a) is shown as follows.

- (10) a. [_T to [_{VP} PRO [_{v'} v [_{VP} drink beer.]
- b. [_{TP} PRO_i [_T to [_{VP} t_i [_{v'} v [_{VP} drink beer.]
- c. [_{VP} want [_{TP} PRO_i [_T to [_{VP} t_i drink beer.]
- d. [_{VP} John [_{v'} v [_{VP} want [_{TP} PRO_i [_T to [_{VP} t_i drink beer.]
- e. [_{TP} John_j T [_{VP} t_j [_{v'} v [_{VP} want [_{TP} PRO_i [_T to [_{VP} t_i drink beer.]

PRO, base-generated in Spec-*v*P in (10a), moves to Spec-TP to satisfy the Extended Projection Principle (EPP) feature of T in the control infinitive and Null Case of PRO is checked under the Spec-Head relation with T as in (10b).

Since the concept of government is abandoned in the framework of the Minimalist Program, it is quite natural to assume that Null Case of PRO is also checked under a Spec-Head relation like lexical DPs. Furthermore, since the PRO Theorem, which is based on government, is also abandoned, the category of control infinitives does not have to be CP. Thus, even if the category of control infinitives is TP, PRO can be successfully licensed as long as Null Case of PRO is checked by T with the [$-$ Finite, $+$ Tense] features in control infinitives.

In addition, the argument that the category of control infinitives is TP

can also be supported theoretically. Bošković (1997) modifies the proposal by Law (1991) and assumes (1).

(1) The Minimal Structure Principle (MSP)

Provided that lexical requirements of relevant elements are satisfied, if two representations have the same lexical structure and serve the same function, then the representation that has fewer projections is to be chosen as the syntactic representation serving that function.

(Bošković 1997: 25)

The MSP in (1) claims that every functional projection can exist only when it satisfies some lexical requirement(s). Otherwise, it is prohibited.⁴ Therefore, since it is apparent that positing TP with fewer projections is more economical than positing CP, it is concluded that the category of control infinitives is TP; rather it must be TP. Following the economy principle in (1), Bošković (1997) therefore concludes that the category of control infinitives must be uniformly TP.

However, it is doubtful to determine the category of control infinitives only under theoretical and conceptual grounds. In the following section, I will show some empirical evidence and argue that the category of control infinitives can be either TP or CP, depending on their matrix verbs.

4. Is a control infinitive TP or CP ?

I have reviewed the arguments by Chomsky (1981, 1986) and Bošković (1997) that control infinitives are uniformly CP or TP. However, as Matsuyama (1998) points out, the transparency of control infinitives differs, depending on their matrix verbs. Then, I will argue that this difference leads to the conclusion that the category of control infinitives can be either CP or TP. As for the transparency of control infinitives, Matsuyama (1998) presents the examples in (12-13).

(12) agree, claim, promise

a. *I didn't claim to like a play, but I did ϕ a novel.

(ϕ = claim to like)

b. *I didn't agree/promise to write a play, but I did ϕ a novel.

(ϕ = agree/promise to write)

(13) try, expect, want, hope

a. I didn't expect to like a play, but I did ϕ a novel.

(ϕ = expect to like)

b. I didn't try/want to write a play, but I did ϕ a novel.

(ϕ = try/want to write)

(Matuyama 1998: 102)

These are the examples of pseudo-gapping. They show that while the matrix verbs in (13) can be included in gapped elements, it is impossible with the matrix verbs in (12). In addition, with respect to PP extraposition and Heavy DP Shift, the same contrast can be found. Matsuyama also gives (14-15) as the examples of PP extraposition and (16-17) as those of Heavy DP Shift.

(14) a. *The editor agreed [to publish many reviews] when we pressed him [about this book] . (Reinhart 1991: 365)

b. *The editor claimed [to hate a review] for many years [of Chomsky's exciting book] .

(15) a. The editor has wanted/trying [to publish a review] for many years [of Chomsky's exciting book] .

b. I have expected [to read books] for a long time [about the remarkably elusive Rosa Luxembourg] . (Nakajima 1986: 15)

(16) a. *The editor has claimed [to hate] for many years [a harshly critical review of Chomsky's exciting book.]

b. ?*The editor has promised [to publish] for many years [a harshly critical review of Chomsky's exciting book.]

- (17) a. The editor has wanted/tried [to publish] for many years [a harshly critical review of Chomsky's exciting book.]
 b. I have expected [to find] since 1986 [the treasure said to have been buried on that island] . (Postal 1974 : 93)

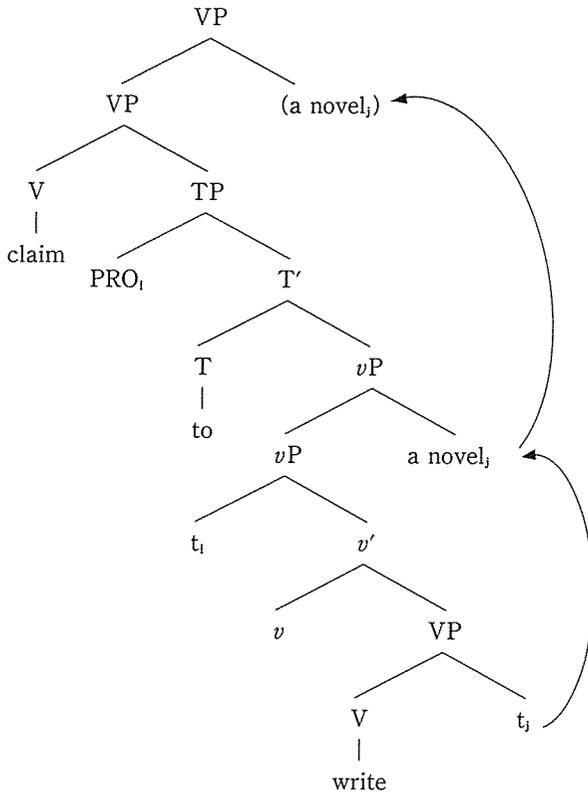
As the examples above show, a PP in the complements of the matrix verbs in (12) cannot be extraposed over adverbial phrases modifying the matrix clause as in (14), and nor can a heavy embedded object be shifted over such adverbial phrases as in (16). On the other hand, a PP in the complements of the matrix verbs in (13) can be extraposed over the adverbial phrases modifying the matrix clause as in (15), and a heavy embedded object can also be shifted to the matrix clause as in (17).

I will claim that this difference of transparency provides evidence that the category of control infinitives behaves differently depending on their matrix verbs. What does this difference shown above reflect? Matsuyama (1998) analyses this difference in terms of whether the embedded verb can be incorporated into its matrix verb or not. First, let us consider the analysis of pseudo-gapping in (12-13) discussed by Matsuyama. Following Jayaseelan (1990), he assumes that pseudo-gapping is derived by deleting the VP after the DP *a novel* adjoins to the VP, undergoing A-Movement. That is, after the DP adjoins to the VP, the VP [_{VP} write t_i] is deleted. See (18).

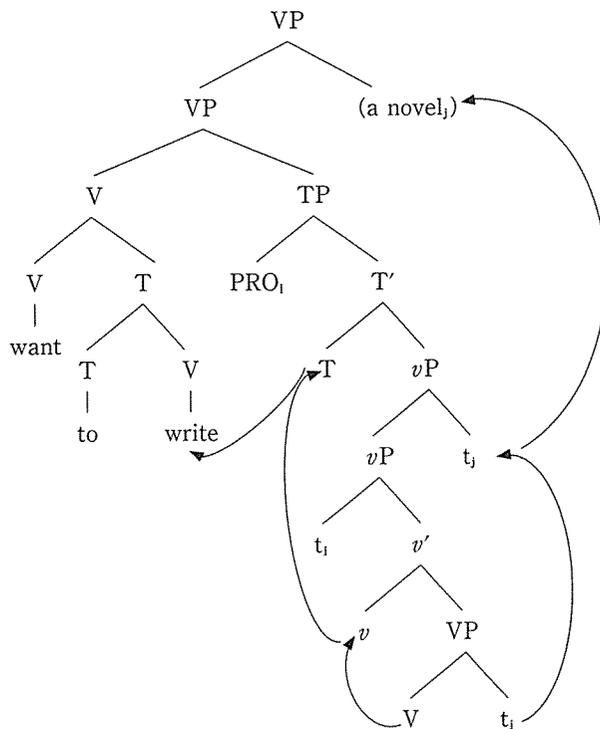
- (18) I don't write a play, but [I do [_{VP} [_{VP} ~~write t_i~~] [a novel]_i]]
 (Matsuyama 1998 : 104)

Given this analysis of pseudo-gapping, (12-13) are schematized as in (19-20), respectively.

(19)



(20)



Matsuyama argues that in (19), first the DP *a novel* is adjoined to the embedded *vP*, and then, it moves to the position adjoined to the matrix VP crossing PRO in the embedded Spec-TP. However, this A-movement is blocked by Relativized Minimality since PRO exists in Spec-TP. On the other hand, if the embedded verb can be incorporated into the matrix verb as in (20), the minimal domain is extended to the matrix VP. Then, PRO and the VP adjoined position will be equidistant from the trace of *a novel* adjoined to the embedded *vP*. Therefore, the DP *a novel* can be adjoined to the matrix VP crossing PRO.

The (un)grammaticality of (14-17) is accounted for in the same way.

Following Nakajima (1984), Matsuyama (1998) assumes that PP extraposition behaves like A-Movement, and argues that since the embedded verb is not incorporated into the matrix verb in (14), the extraposed PPs cannot adjoin to the matrix VP crossing PRO, because this movement results in violating Relativized Minimality. However, in (15), where the embedded verb can be incorporated into the matrix verb, the extraposed PPs can adjoin to the matrix VP without violating Relativized Minimality. Moreover, Matsuyama claims that the same analysis is applied to the (un)grammaticality of (16-17) as long as heavy DPs undergo rightward A-movement to the matrix VP and finally to the matrix vP .⁵

However, two questions arise immediately here. One is why embedded elements move to the matrix clause in pseudo-gapping, Heavy DP Shift, and PP extraposition, as in (19-20). The other is why the matrix verbs in (12), (14), and (16) do not allow the embedded verbs to be incorporated into them, while those as in (13), (15), and (17) do. With respect to these questions, no explicit explanation is not presented yet. As for the former question, I will argue that embedded elements move to the matrix vP in the relevant operations for checking of P(eriphery)-features in the sense of Chomsky (1998), and as for the latter, I argue that the difference in the possibility of verb incorporation follows from the categorial status of control infinitives. That is, against the traditional arguments by Chomsky (1981, 1986) and Bošković (1997) that all control infinitives are uniformly CP or TP, I will claim that depending on their matrix verbs, the category of control infinitives is different: either TP or CP. Therefore, I argue that an embedded verb may or may not be incorporated into the matrix V-head, depending on the category of control infinitives.

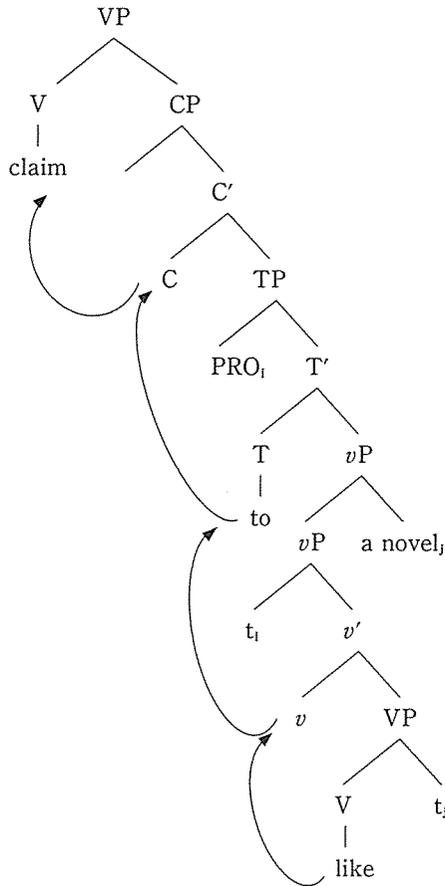
To begin with, let us consider how embedded elements move to the matrix vP in pseudo-gapping, Heavy DP Shift, and PP extraposition. Note that such elements are necessarily focused. Chomsky (1998) assumes that

the *v*-head can be assigned an uninterpretable P-feature like focus, topic, force, etc. The *v*-head can also have an EPP feature, which pied-pipes an element to its specifier position. Therefore, it is possible to assume that the relevant elements move and adjoin to the matrix *v*P to check P-and EPP features.

The second question is when verb-incorporation is allowed. Let us consider (12) again, where pseudo-gapping including the matrix verb is ruled out. If we assume that the verbs in (12) select CP as their infinitival complements, the ungrammaticality of (12) is immediately accounted for. I repeat (12a) and its tree diagram as (21a-b) respectively.

(21) a . *I didn't claim to like a play, but I did ϕ a novel. (ϕ = claim to like)

b.



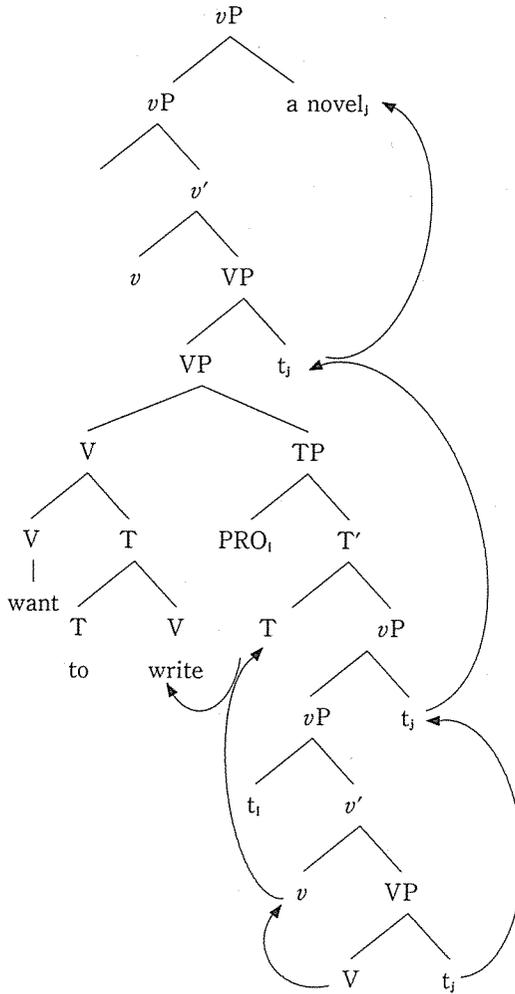
If the category of the embedded infinitive in (21) is CP, when the embedded verb is incorporated into the matrix verb, it will move through the C-head. However, this will result in improper movement. Roberts (1992) and Bošković (1997) argue that the A/A' distinction can be applied to both X^0 and XP. An embedded verb which undergoes incorporation moves from the V-head of the embedded infinitive which is assumed to be an A-position to

the V-head in the matrix clause which is also an A-position. Thus, this kind of movement is A-movement. On the other hand, the embedded verb must move through every head position to observe the Head Movement Constraint. However, because there is CP between the embedded infinitive and the matrix clause in (21b), the embedded verb has to move to the C-head which is considered to be an A'-position, and then, it raises from the C-head to the matrix V-head which is an A-position.⁶ This results in improper movement, according to Bošković (1997) and Saito (1994). Moreover, if the embedded verb moves directly to the matrix V-head without landing in the C-head, it will violate the Head Movement Constraint. Therefore, if the category of the control infinitive is CP in (21), the movement of the embedded verb to the matrix V-head is necessarily ruled out. If the movement is blocked, no elements can be extracted across PRO to the matrix clause, because the minimal domain cannot be extended to the matrix clause. See the discussion of (20) above.

On the other hand, let us assume that the verbs in (13) select TP as their infinitival complements. In this case, the embedded verb can be successfully incorporated into the matrix verb. Since there is no A'-position between the matrix V-head and the embedded V-head, the embedded verb can move through every head position successive-cyclically. Let us consider (13) and (20) again. They are repeated in (22a-b), respectively.

(22) a. I didn't want to like a play, but I did ϕ a novel. (ϕ = want to like)

b.



The verb *write* arises from its base-generated position (A-position) to the embedded *v*-head, then moves to the embedded *T*-head that is also an A-position, and finally lands in the matrix *V*-head. This results in A-movement obeying the Head Movement Constraint. If so, the minimal

domain is extended to the matrix VP. Thus, PRO and the VP-adjoined position will be equidistant from the trace of *a novel* adjoined to the embedded *v*P, and then the elements in the embedded infinitive can move across PRO without violating Relativized Minimality. Then, the DP *a novel* moves to the matrix *v*P to check P- and EPP features. In the light of Jayaseelan (1990) and Matsuyama (1998), the pseudo-gapping is derived by deleting the VP. (See Matsuyama (1998) and Jayaseelan (1990) for details.)

If this analysis is correct, the examples in (14-17) can also be accounted for in the same way. The verb incorporation is impossible in (14) and (16) since the category of the control infinitive is CP as in (12), so that the movement of the embedded verb results in the Improper Movement Constraint. Consequently, (14) and (16) are ruled out for the same reason as (12) because the extraposed PP and shifted heavy DP which undergo A-Movement crossing PRO violates Relativized Minimality.

On the other hand, the incorporation of the embedded verb into the matrix verb is possible in (15) and (17), because there is no C-head (A'-position) between them. As a result, the extraposed PP and shifted heavy DP can move to the matrix *v* to satisfy its P- and EPP features without violating Relativized Minimality. Therefore, the (un)grammaticality of all the examples is accounted for straightforwardly.

Given this discussion, it is plausible to assume that the verbs in (12) take CP complements and those in (13) TP complements. In fact, there is evidence that the category of control infinitives is different, depending on their matrix verbs, which I will discuss in the next section.

5. Evidence for the CP/TP Analysis

So far, I have explained the transparency of control infinitives, based on the assumption that the category of control infinitives can be either CP or

TP. In this section, I will present further evidence for this assumption.

As shown above, I have argued that the infinitival complements of the verbs in (12) are CP, while those of the verbs in (13) are TP. An important thing to be noticed is that the behavior of these two kinds of verbs is the same in the possibility of finite complements. As shown in (23-25), the verbs in (12) which take CP as their complements can take a finite complement with an overt complementizer *that*.

- (23) a. He claimed that he had been working late.
 b. He claimed [PRO to have been working late].
- (24) a. I agreed that I should go early.
 b. I agreed [PRO to go early].
- (25) a. He promised [PRO to help].
 b. He promised that he would help.

Since these verbs can take CP as their infinitival complements, it seems natural that they can select finite complements with an overt complementizer *that* which is assumed to occupy the C-head. Given this, the categories of both infinitival and finite complements of these verbs in (23-25) are CP.

However, the verbs in (13) which take TP as their infinitival complements, cannot select finite complements as in (26-27) even without an overt complementizer *that*.

- (26) a. I want [PRO to drink beer].
 b. *I want (that) I would drink beer.
- (27) a. I tried [PRO to drink beer].
 b. *I tried (that) I would drink beer.

Since the verbs in (26-27) take control infinitives which are TP, the verbs do not allow finite clauses which are CP.⁷

6. Conclusion

Although it has been traditionally assumed that the category of control infinitives is uniformly CP or TP, I have claimed against the uniform analyses by Chomsky (1981, 1986) and Bošković (1997) that the category of control infinitives can be either CP or TP, depending on their matrix verbs. Given this claim, the transparency of control infinitives in pseudo-gapping, PP extraposition, and Heavy DP Shift can be accounted for by appealing to the Improper Movement Constraint and Relativized Minimality. I also provided the evidence for this analysis to the effect that only CP-taking verbs can select finite complements which are CP, but TP-taking verbs cannot.

In this paper, the transparency of control infinitives is mainly examined. In order to provide a more adequate analysis, it is also required to examine further the transparency of Exceptionally Case-Marked (ECM) constructions, raising constructions, and finite clauses (with and without *that*). I will leave this problem open for further study.

Notes

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¹ Although S' and S are used to represent a clause in the GB framework, here I will use CP and TP instead of S' and S, respectively, following the current framework.

² What I have to note here is also a terminological problem. I will use TP instead of IP, although Bošković (1997) uses the term IP.

³ Martin (2001) claims that control infinitives have independent tense even when control infinitives do not denote possible future. See Martin (2001) for further discussion.

⁴ Bošković (1997) also argues for suggestions by Grimshaw (1994) and Chomsky (1995) that projections must be as minimal as possible in favor of the principle of economy.

⁵ Nishikawa (1990) claims that Heavy DP Shift is treated as movement to the position which agrees with AGR-O, and is considered to be an instance of A- (rightward) movement. I assume, following the current framework, that the shifted DP is adjoined to the *v*P. See also Nishihara (1997).

⁶ Bošković (1997) assumes that C is an A'-position while T and V are A-positions. For arguments for this assumption, see also Roberts (1992) and Nishikawa (1990).

⁷ I have argued that whether the category of control infinitive is CP or TP depends on their matrix verbs. However, some problems remain unsolved. First, in the framework where *c*-selection is not assumed any more, how can this categorial difference be dealt with? As it stands, my analysis dictates that a verb should *c*-select its complements. Second, some TP-taking verbs such as *hope* and *expect* actually allow finite complements as in (i-ii). If so, my arguments must be reconsidered. I will leave these matters open for future research.

- (i) a. I hope to win the race.
- b. I hope that I could win the race.
- (ii) a. I expect to find a good job.
- b. I expect that I would find a good job.

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Synopsis

Categorial Status of Control Infinitival Complements

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Since Chomsky (1981), what the category of control infinitives is has been discussed. Two major proposals have been presented with respect to this question. While Chomsky (1981, 1986) claims that the category of control infinitives is uniformly CP, Boškovic (1997) argues that it is uniformly TP.

However, as Matsuyama (1998) points out, the difference of transparency in control infinitives exists.

- (1) a. *The editor has claimed [to hate] for many years [a harshly critical review of Chomsky's exciting book.]
 b. The editor has wanted/tried [to publish] for many years [a harshly critical review of Chomsky's exciting book.]

(Matsuyama 1998: 102)

In this paper, I argue that this effect of transparency follows from the categorial difference of control infinitives. I point out that since the matrix verb takes CP in (1a), the embedded verb cannot be incorporated into the matrix verb. When it moves to the matrix verb, it moves through the C-head which is an A'-position to the matrix V-head which is an A-position. This movement violates the Improper Movement Constraint and is ruled out. Then, if the embedded verb does not rise, extraposing the embedded elements violates Relativised Minimality, for the movement crosses the embedded subject PRO in Spec-TP. On the other hand, the matrix verb in (1b) takes TP. If so, the embedded verb can be incorporated into the matrix verb without violating the Improper Movement Constraint. Since the embedded verb can be incorporated into the matrix verb, the minimal domain will be extended to the matrix VP, and the heavy DP in the embedded clause can be shifted and adjoined to the matrix clause across PRO. Therefore, Relativized Minimality is never violated.

Furthermore, I provide evidence for this TP/CP analysis. CP-taking verbs as in (1a) in fact select a finite complement with a complementizer *that*, which is CP as shown in (2a-b). However, TP-taking verbs as in (1b) cannot select a finite complement as given in (2c-d).

- (2) a. He claimed that he had been working late
- b. I agreed that I should go early.
- c. *I want (that) I would drink beer.
- d. *I tried (that) I would drink beer.

Given this, I argue that the category of control infinitives differs, depending on the matrix verb and can be either CP or TP.