

Movement in Raising and Subject Control Constructions*

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1. Introduction

One of the main questions in current syntactic research is how the infinitival subject in obligatory control constructions is licensed. The PRO-based approach (Chomsky and Lasnik (1993) and Landau (1999)) argue that PRO is the subject of control infinitives and that it is Case-marked. On the other hand, the movement approach (Hornstein (1999)) claims that PRO does not exist and proposes that obligatory control constructions are derived from movement to receive a θ -role. The contrast in (1) might raise a problem to these approaches.

- (1) a. They seemed (all) to (all) be happy.
b. They tried (*all) to (all) leave. (Baltin, 1995: 200)

Given Sportiche's (1988) approach to floating quantifiers, this contrast indicates that the infinitival subject in raising constructions moves to Spec non-finite T in the course of the derivation while it does not in control constructions. Both the PRO-based and the movement approaches cannot explain this contrast since they assume that the infinitival subject moves to Spec non-finite T both in raising and control constructions.

The purpose of this paper is to support Hornstein's (1999) movement approach by investigating what causes the contrast between raising and subject control constructions. Assuming that control verbs select a weak CP phase, I will argue that movement into Spec non-finite T is not executed in control constructions. The following discussion is organized as follows. Section 2 is devoted to presenting the previous researches and their problems. Section 3 proposes that CP merged with control verbs is a weak phase and demonstrates how the problem discussed in section 2 can be solved. Section 4 discusses optional agreement in Icelandic control constructions and supports the analysis presented in the previous section. Section 5 examines syntactically different behavior between raising and subject control constructions in French and supports the argument that θ -roles are formal features, which can derive movement. Section 6 concludes the paper.

2. Previous Researches

2.1. PRO-Based Approach - Chomsky and Lasnik (1993), Landau (1999)

Within the government and binding framework, PRO cannot be Case-marked since it is considered to be

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ungoverned under the PRO Theorem. Chomsky and Lasnik (1993, C&L hereafter) notices, however, that there is a contradiction between the PRO Theorem and the Visibility Condition, which states that a chain is visible for θ -marking if it contains a Case position. They argue then that PRO is assigned null Case from the infinitival element. Given Chomsky's (2000) argument that T selected by C has an EPP-feature, PRO always moves to Spec non-finite T to satisfy an EPP-feature.

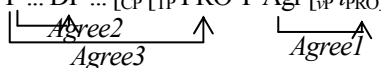
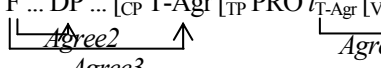
Landau (1999) follows C&L's argument that PRO is the subject of control infinitives but he claims that control constructions should be divided into two classes: Exhaustive Control (EC) in which PRO must be identical to the controller and Partial Control (PC) in which PRO must include the controller. The examples are given in (2a) and (2b), respectively and the lists of predicates of each class are given in (3).¹

- (2) a. Mary knew that John₁ began [PRO₁ to work (*together) on the project]
 b. Mary₁ thought that John₂ didn't know [where PRO₁₊₂ to go together]. (Landau, 1999: 14)
- (3) a. EC verbs are implicative, aspectual, or modal. (e.g., manage, try, begin, need)
 b. PC verbs are factive, propositional, desiderative or interrogative. (e.g., prefer, want, eager, ask)

One of the crucial differences between EC and PC is that the event denoted by the control infinitival clause is temporally dependent on the event in the matrix clause in EC while they are not in PC, as shown in (4).

- (4) a. EC: *Yesterday, John managed to solve the problem tomorrow.
 b. PC: Yesterday, John wanted to solve the problem tomorrow. (ibid.: 15)

Based on this observation, Landau proposes that only in PC, infinitival T moves to C.² Then, he argues that the obligatory control construction is an instantiation of the general operation Agree. Specifically, PRO in EC enters into an Agree relation with non-finite T and matrix T/v*, which agrees with the controller. In contrast, PRO in PC enters into an Agree relation only with non-finite T since the closest goal from matrix T/v* is not PRO but non-finite T in Spec C. In short, it causes the difference between EC and PC whether PRO agrees with matrix T/v* or not, as illustrated below:

- (5) a. EC: [... F ... DP ... [CP [TP PRO T-Agr [VP t_{PRO}]]]] (DP = controller, F = T/v*)

- b. PC: [... F ... DP ... [CP T-Agr [TP PRO t_{T-Agr} [VP t_{PRO}]]]]


¹ See Barrie and Pittman (2004) for a possible approach to interpretive difference between EC and PC under Hornstein's movement approach.
² Landau (1999) argues that C contains some tense information to be checked with embedded T via movement of T to C. See Pesetsky and Torrego (2001) for relevant discussion.

Notice that it is crucial for this approach that PRO moves to Spec non-finite T to satisfy an EPP-feature. If PRO does not move to Spec non-finite T, T/ ν^* enters into an Agree relation with T-Agr in the control infinitival clause both in EC and PC, as illustrated below:

- (6) a. EC: [... F ... DP ... [CP [TP T-Agr [ν P PRO]]]]
 \swarrow Agree2 \nearrow Agree1
 \swarrow Agree3 \nearrow
- b. PC: [... F ... DP ... [CP T-Agr [TP t_{T-Agr} [ν P PRO]]]]
 \swarrow Agree2 \nearrow Agree1
 \swarrow Agree3 \nearrow

Accordingly, we lose the way to explain the difference between EC and PC.

2.2. Movement Approach - Hornstein (1999)

Hornstein (1999) casts doubt on the PRO-based approach. He points out that the Case properties of PRO and non-finite T are constructed to fit the observed facts and claims that this comes close to restating the observations. He then proposes that obligatory control constructions are derived from movement to receive a θ -role, based on the assumption that θ -roles are a formal feature that derives movement, as illustrated below:

- (7) a. John wants to leave.
 b. [_{TP1} John T [_{ν P1} John ν [$u\theta$]+wants [_{VP} wants [_{CP} C [_{TP2} John to [_{ν P2} John leave]]]]]]
 \swarrow Agree1 \nearrow

In (7), *John* first receives a θ -role from *leave* and moves to Spec non-finite T to satisfy an EPP feature. It further moves to Spec ν in the matrix clause to receive a θ -role from *want*. Notice that the second movement violates the Phase Impenetrability Condition (PIC), which states that only the head and the edge of a phase α are accessible to the operation outside α .³ To overcome this problem, Hornstein (2001) proposes that some operation like incorporation can void the CP phase derivationally and assumes that the operation can apply to finite clauses as well as control infinitival clauses unless the matrix clause is passivized.⁴ The following contrast might raise a problem to his analysis.

- (8) a. *Sam, who I know [_{CP} when you said you saw t ,...
 b. Sam, who I know [_{CP} when to try to see t ,... (Frampton, 1990: 69)

It should be possible that the relevant operation voids the CP phase both in (8a) and (8b) since the matrix clause is not passivized. Therefore, it is hard for him to explain this contrast. We will return to this issue later.

³ See Chomsky (2000) for relevant discussion.

⁴ He does not explain the exact mechanism of the relevant operation. I conjecture that the operation in his mind is the incorporation of the embedded C into the matrix V.

2.3. Problems

We have seen that the control infinitival subject is assumed to move to Spec non-finite T to satisfy an EPP-feature in their approaches. The contrast between (9a) and (9b-c) raises a problem to this assumption since the infinitival subject does not seem to move to Spec non-finite T in control constructions while it does in raising constructions.

- (9) a. They seemed all to be happy.
 b. *They tried all to leave. (EC)
 c. *They were eager all to leave at once. (PC)

The ungrammaticality of (9b-c) is problematic especially to Landau's approach. As we have discussed before, it is crucial for his analysis that PRO moves to Spec non-finite T. However, these examples show that the infinitival subject does not move to Spec non-finite T both in EC and PC. Therefore, his account for the contrast between EC and PC cannot be maintained. For this reason, we focus on C&L and Hornstein's approaches in the following discussion.

Suppose that control infinitives do not have an EPP-feature in contrast with finite T and raising infinitives. Then, we can explain why movement to Spec T does not occur in control infinitival clauses. However, we still need to consider why only control infinitives do not have an EPP feature. One might consider that they can be distinguished in terms of the values of some features. Following Martin (2000), let us look at the values of a finite and a tense features.⁵

- | | | | | | | |
|---------|----------------------|-------------------|----|-------------|---|-------------------|
| (10) a. | finite T | [+finite, +tense] | c. | control | $\left\{ \begin{array}{l} \text{EC} \\ \text{PC} \end{array} \right.$ | [-finite, -tense] |
| b. | raising infinitives: | [-finite, -tense] | | infinitives | | [-finite, +tense] |

As shown in (10), it reveals that raising and EC infinitives share the same values despite the fact that a floating quantifier is allowed to precede *to*-infinitives in raising constructions but not in EC. We also find that EC and PC are assigned different values in terms of a tense feature despite the fact that both of them do not allow a floating quantifier to precede *to*-infinitives. Therefore, we need to look elsewhere to explain why only control infinitives do not drive movement to Spec T.

3. Proposals

We have assumed so far that the relevant movement is driven to satisfy an EPP-feature of non-finite T.

⁵ Martin (2000) explains the Case distinction among finite T, raising infinitivals, and control infinitivals as follows: [+tense, +finite] assigns nominative Case, [+tense, -finite] assigns null Case, and [-tense, -finite] does not assign Case at all. However, his analysis cannot explain the contrast in temporal dependence observed in between EC and PC. See the contrast in (4).

Chomsky (2005) proposes, however, that dislocation into Spec T is derived by ϕ -features inherited from C to T (C-T Agree feature). He further states that an Agree feature of C extends to all Ts in the phase by some kind of feature spread and argues that its goal can raise as far as Spec T, at which point it is inactivated, with all features valued. In short, it is not T but C that drives movement to Spec T. Following this, raising infinitives inherit an Agree feature from C in the matrix clause while control infinitives inherit it from C in the control infinitival clause, as schematized below:

- (11) a. They seemed to leave.
 $[_{CP} C [_{TP} \text{they T seemed } [_{TP} \text{they to they leave}]]]$
└──────────┬──────────┘
 Δ Δ
- b. They tried to leave.
 $[_{CP} C [_{TP} \text{they tried } [_{CP} C [_{TP} \text{to } e \text{ leave}]]]]]$
 └───┬───┘
 Δ

This seems to cause different acceptability of the sentence in which a floating quantifier appears in front of *to*-infinitives between raising and control constructions. Actually, the following contrast shows that finite clauses and control infinitival clauses have different properties.

- (12) a. *Sam, who I know $[_{CP}$ when you said you saw *t*,... (=(8))
b. Sam, who I know $[_{CP}$ when to try to see *t*,...

Long distance movement out of finite clauses is not allowed as in (12a) while movement out of control infinitival clauses is grammatical as in (12b). This fact indicates that the CP phase in control infinitival clauses is different from the one in finite clauses in some respect.⁶ Suppose that CP can be divided into two classes in terms of strength of phasehood in analogous with vP. Then, the contrast in (12) can be attributed to difference between a strong phase and a weak phase. Based on this observation, I propose that control verbs select a weak CP phase, whose head is ϕ -incomplete.⁷ Pursuing the parallelism with unaccusative/passive v, I propose further that weak C heads are considered to lack the ability to assign Case and to derive movement. In the following discussion, a strong CP phase is represented as CP* and a weak CP phase, simply as CP.

⁶ One might consider that control infinitival clauses do not project CP. In fact, Bošković (2004) argues that control infinitives not introduced by an overt complementizer must be IPs. However, the following examples show that the control clauses project CP even if they do not have an overt complementizer.

- (i) a. John expected $[_{XP}$ to write a novel] but $[_{CP}$ that it would be a critical disaster]. (Bošković 1996: 133)
b. $[_{XP}$ To write a novel] and $[_{CP}$ for the world to give it critical acclaim] is John's dream.
(Koster and May 1982: 132-133)

XP in (ia-b) should be CP since only identical categories can be conjoined (Radford 1988: 76).

⁷ This proposal is based on Hirai's (2004) argument that there are two types of CP phases. However, I do not adopt his argument that control CP complements are also divided into two classes in terms of whether they are selected by realis or irrealis predicate since both EC and PC do not allow a floating quantifier to precede *to*-infinitives, as discussed in section 2.3. I assume that different grammaticality between CP selected by realis predicate and the one selected by irrealis predicate pertaining to the Heavy DP Shift can be attributed to difference in their edge feature.

The contrast in (1a-b), repeated here as (13a-b), naturally follows from our proposal.

- (13) a. They seemed all to leave.
 b. *They tried all to leave.

The subject of raising infinitives moves to Spec non-finite T since it agrees with a strong Agree feature, which derives movement. The subject of control infinitives, on the other hand, does not move to Spec non-finite T since it agrees with a weak Agree feature, which cannot derive movement. Hornstein’s movement approach does not face any problem under the current approach. He simply needs to state that the control infinitival subject moves into the matrix clause to receive a θ -role without stopping by Spec non-finite T. Notice that movement of *they* to Spec ν P in the matrix clause no longer violate the PIC since embedded CP is not a strong phase but a weak phase. Hence, the problem discussed in section 2.2 can be solved.

- (14) a. $[_{C^*P} C^* [_{TP} \text{they } T [_{\nu P} \text{seemed} +\nu [_{TP} \text{they to they leave}]]]]$
 b. $[_{C^*P} C^* [_{TP} \text{they } T [_{\nu P} \text{they tried} +\nu [_{CP} C [_{TP} \text{to they leave}]]]]]]$

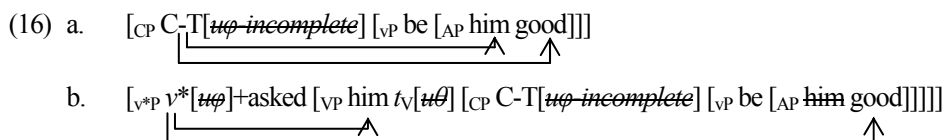
C&L, on the other hand, still need to explain how null Case is assigned to PRO since the weak C head lacks the ability to assign Case. Even if we assume that φ -incomplete C can assign Case only to PRO, it is still unclear why movement to Spec T is not required in this case. Therefore, I argue that the subject of control infinitival clause is not Case-marked and that obligatory control constructions are derived by movement.

4. Optional Agreement in Icelandic

This section provides supporting evidence to the analysis presented in the previous section by investigating why optional agreement is allowed in Icelandic control constructions. The adjective in control infinitival clauses can show either nominative agreement or accusative agreement when the controller is assigned accusative Case, as illustrated in (15a). It always shows nominative agreement when the controller is assigned nominative Case, as shown in (15b).

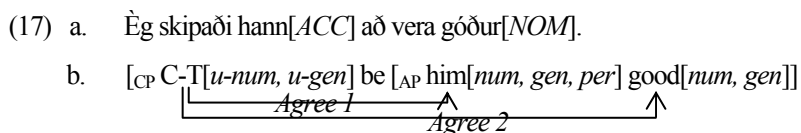
- (15) a. Èg skipaði hann að vera góður/góðan.
I asked him-ACC Comp be-INF good-masc.sg.NOM/ACC
 “I asked him to be good.”
 b. Èg lofaði honum að vera góður/*góðum/*góðan.
*I promised him-DAT Comp be-INF good-masc.sg.NOM/*DAT/*ACC*
 “I promised him to be good.” (Anderson, 1990: 263)

If we follow C&L's argument that the control infinitival subject is PRO and assume that it is assigned nominative Case in Icelandic, we cannot explain why the adjective can show agreement with the controller. Agreement between the adjective and the controller should not be allowed since PRO intervenes between them. The analysis presented here, on the other hand, can easily account for this fact. The adjective shows nominative agreement when it agrees with the weak C-T Agree feature, which agrees with *him* in Spec A, as shown in (17a).⁸ The adjective shows accusative agreement when it agrees with *v** in the matrix clause, which agrees with *him* in Spec V, as shown in (16b).



This analysis implies that the timing of adjectival agreement is optional at least in Icelandic. Specifically, adjectives can agree with a probe either before or after movement of DP to receive a θ -role.

It is crucial for this analysis that a weak C-T Agree feature is not enough for *him* to be assigned Case but it is enough for the adjective to show agreement with it. Notice that Icelandic adjectival predicates agree in case, number and gender but not in person. Based on this fact, I argue that the C head of a weak CP phase lacks a person feature. Specifically, Case valuation does not occur in *Agree 1* in (17b) since C, which lacks a person feature, cannot derive full matching and valuation of ϕ -features. In contrast, Case valuation is possible in *Agree 2* since the weak C head has enough features for the adjective, which also lacks a person feature.



This analysis can be maintained only if we assume that the control infinitival clause is a weak phase. If it were a strong phase, the element inside it should be invisible from the probe in the next phase. Therefore, optional agreement in Icelandic control constructions strongly supports our proposal in previous section.

5. Driving Force of Movement

We have assumed that it is a θ -feature that derives movement in control constructions. Chomsky (2005), however, claims that Internal Merge should be driven only by an edge feature or an Agree feature of phase heads. If transmission of an Agree feature is a property of phase heads in general, it could be possible that the driving force of movement in control constructions is not a θ -feature but is an Agree feature. This section

⁸ Words in this representation and the followings are translated into English for expository purpose. This change has no crucial influence on the analysis in this paper.

discusses which one of these features derives movement in control constructions by examining the contrast between raising and subject control constructions in French.

It is well known that movement across a dative object is allowed in English but not in French, as the contrast in (18) shows.

- (18) a. John seemed to Mary to have talent.
 b. Jean a semblé (*à Marie) avoir du talent.⁹
Jean has seemed to Marie have-INF of-the talent

If both raising and control constructions are derived by movement, subject control constructions including a dative object should be ungrammatical as well in French. On the contrary, (19) shows that movement across a dative object is allowed in control constructions in French.

- (19) Jean a promis à Marie de partir.
Jean has promised to Marie Comp leave-INF
 “John promised Mary to leave.”

Therefore, we need to consider what causes the contrast between raising and subject control constructions in French.

Let us first consider what causes the contrast in (18). What derives movement of the infinitival subject in raising constructions should be an Agree feature since it does not receive a θ -role within the matrix clause. Therefore, the contrast in (18) indicates that the dative object blocks agreement between a C-T Agree feature and the infinitival subject in French but not in English. If we assume that it is an Agree feature that derives movement in control constructions, then we wrongly predict that (19) is ungrammatical since a dative object again intervenes between an Agree feature and the infinitival subject, as shown below:

- (20) a. Jean a promis à Marie de partir.¹⁰
 b. $[_{CP} C^*[u\phi] [_{TP} T [_{vP1} promis+v [_{VP} [_{PP} \text{à Marie}] t_V [_{CP} C[u\phi] [_{TP} \text{to} [_{vP2} \text{Jean partir}+v]]]]]]]$
-

Furthermore, it is unclear how *Jean* receives a θ -role from *promise*. Therefore, it should not be an Agree feature but a θ -feature that derives movement in control constructions.

Suppose that a dative object is visible from an Agree-feature but is invisible from a θ -feature.¹¹ Then, we

⁹ The example in (18b) is cited from Chomsky (1995: 305).

¹⁰ I assume that $vP1$ is a weak phase because its head does not assign accusative Case and that the same can hold of English subject control constructions. See Hornstein (2001) for an argument that complement of *promise* is not a direct object but an indirect object in English.

correctly predict the grammaticality of the sentence. The control infinitival subject first moves to Spec ν in the matrix clause under agreement with a θ -feature of ν . At this point, nothing intervenes between a C-T Agree feature and *Jean*, as illustrated in (21c).

(21) Jean a promis à Marie de partir.

- a. $[_{VP1} \text{promis} + \nu [u\theta] [_{VP} [_{PP} \text{à Marie}] \text{promis} [_{CP} C [_{TP} \text{to } [_{VP2} \text{Jean partir} + \nu]]]]]$ ¹²
- b. $[_{VP1} \text{Jean promis} + \nu [u\theta] [_{VP} [_{PP} \text{à Marie}] \text{promis} [_{CP} C [_{TP} \text{to } [_{VP2} \text{Jean } \nu + \text{partir}]]]]]$
- c. $[_{C*P} C^* [u\theta] [_{TP} T [_{VP} \text{Jean promis} + \nu [u\theta] [_{VP} [_{PP} \text{à Marie}] \text{promis} [_{CP} C [_{TP} \text{to } [_{VP} \text{Jean } \nu + \text{partir}]]]]]]]]]$

In short, a dative object intervenes between an Agree feature and the infinitival subject in raising constructions while it does not in subject control constructions in French. This causes the contrast between raising and control constructions. It is crucial in this analysis that the infinitival subject in subject control constructions moves higher than a dative object before C-T is introduced into derivation. This suggests that θ -roles are formal features and therefore, are capable of driving movement. Consequently, I argue that it is not an Agree feature but a θ -feature that drives movement of the infinitival subject in obligatory control constructions.

6. Conclusion

This paper has shown that the infinitival subject enters into an Agree relation with a strong C-T Agree feature in raising constructions while it agrees with a weak C-T Agree feature in control constructions. The weak C-T Agree feature does not drive movement and therefore, the control infinitival subject moves into the matrix clause without stopping by Spec non-finite T. It has also proved that the driving force of movement in control constructions is not an Agree feature but a θ -feature. Thus, the analysis presented here strongly supports Hornstein's argument that obligatory control constructions are derived from movement to receive a θ -role.

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¹¹ This contrast might be attributed to the difference in the landing site for movement driven by each feature. See footnote 12 below. See also Ishikawa (2006) for further discussion.

¹² One might suppose that a dative object blocks agreement between $u\theta$ of ν and *Jean* in (21a). There are two possibilities for $u\theta$ of νP_1 to be deleted in this example. One of them is to attribute to agreement under Spec-head relation with *Jean* in (21b). This option is not available in (18b) because ν does not have a θ -feature to drive movement of *Jean* to Spec νP . Hence, the different grammaticality between the two can be accounted for. The other possibility is to attribute to the landing site for movement under agreement with a θ -feature. Suppose that Spec νP of *promise*-type verbs is not a θ -position and that subject of infinitival clause moves to Spec VP to receive a θ -role from the subject control verb. Then, $u\theta$ of ν can be deleted under agreement with the DP in Spec VP. See Ishikawa (2006) for relevant discussion.

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