1. Introduction

Chomsky (2007, 2008) assumes that phase heads $v^*$ and C have two probes, an edge feature (EF) and an Agree feature (AF), and that the former attracts a wh-phrase to Spec-$v^*$/Spec-C whereas the latter attracts XP to Spec-V/Spec-T. Therefore both A- and A'-movement are triggered by $v^*$ and C.

Along these lines, Chomsky (2008) provides a new account for extraction from subject (ES). Chomsky shows the following contrast between (1), which violates the subject-island condition, and (2), which involves a derived subject that is initially merged as a complement of a passive verb:

(1) a. *It was the CAR (not the TRUCK) of which, [the (driver, picture) $t_i$] caused a scandal.

b. *Of which car, did [the (driver, picture) $t_i$] cause a scandal?

(Chomsky (2008: 147))

(2) a. It was the CAR (not the TRUCK) of which, [the (driver, picture) $t_i$] was found.

b. Of which car, was [the (driver, picture) $t_i$] awarded a prize?

(Chomsky (2008: 147))

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There are two ways of implementing ES in (1b): the PP complement of *which car* is extracted either from the subject in Spec-v*, as illustrated in (3a), or from the subject raised to Spec-T, as in (3b). Here I use traces for lower copies and omit irrelevant details for expository convenience:

(3) a. \[\text{[CP [PP of which car], C [TP ... [v*P [DP the (driver, picture) t_i] v*-cause ...]]]}\]

b. \[\text{[CP [PP of which car], C [TP [DP the (driver, picture) t_i] T ...]}\]

We can rule out (3a), in which *of which car* is embedded in the subject, as a violation of the phase-impenetrability condition (PIC), according to which only the head and the Spec of a phase are accessible to operations outside the phase (Chomsky (2000: 108, 2001: 14)): the PP is extracted to Spec-C beyond the phase v*P. We can rule out (3b) too as a violation of the inactivity condition (IC) (Chomsky (2008: 150, 154)): *driver/picture* has its uninterpretable feature (i.e. Case) deleted under Agree with C-T, so that the subject becomes invisible to further computation, which blocks the PP extraction from it. The same account holds for (1a). Hence we can correctly predict that (1a, b) are deviant.

On the other hand, (2a, b) differ from (1a, b) in that they do not contain an internal phase v*P, under Chomsky’s assumption that a passive verbal phrase does not constitute a phase. Thus even if the EF of C in (2b) triggers extraction of the PP complement from the derived subject in its base position (i.e. complement of v), as illustrated in (4), this extraction does not cross any phase and thus does not yield a PIC violation:

(4) \[\text{[CP [PP of which car], C [TP • • • [vP v-awarded [DP the (driver, picture) t_i] a prize]]]}\]

The same account is applicable to (2a). Consequently we can correctly predict (2a, b) to be grammatical.

Chomsky (2008) applies this account to the possibility of ES in exceptional Case-marking (ECM) constructions:

(5) a. It was the CAR (not the TRUCK) of which, they believe [the (driver, picture) t_i] to have caused a scandal.

b. Of which car, did they believe [the (driver, picture) t_i] to have caused a scandal? ((b) Chomsky (2008: 153))

(5a, b) vary from (1a, b) in that they involve an intermediate infinitival TP headed by an ECM T between two phases, i.e. an internal v*P and a higher

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1 I owe the judgment on (5a) to Andrew Radford (p.c.), Noam Chomsky (p.c.), and Joseph Lauer (p.c.).
v*P. Notice that Chomsky (2000: 105, 2001: 8, 2008: 143, 144) assumes that ECM infinitivals are defective TPs. Thus if the PP extraction in (5b) occurs from the subject raised to the intermediate Spec-T in the course of successive cyclic object raising to Spec-V (i.e. ECM-raising, to use Chomsky’s (2008: 154) term), as schematized in (6), then neither the PIC violation in (3a) nor the IC violation in (3b) arises. It should be noted that the subject in Spec-T in (6) is active with the Case feature of driver/picture remaining unvalued:

(6) \[v^*P [PP of which car]_i \text{they } v^* [VP believe [TP [DP the (driver, picture) }_t_i \text{ to } \ldots]]\]

Similar remarks are true for (5a). This leads us correctly to predict that (5a, b) are as well-formed as (2a, b).

The purpose of this paper is to examine whether or not Chomsky’s (2008) account of ES shown above is tenable by considering many other cases with the relevant extraction.

2. Extraction from Perceptual and Causative Infinitival Subjects

If Chomsky’s account of (5a, b) is on the right track, we expect that ES is always possible when a subject lands in its intermediate defective Spec in the course of ECM-raising to its final matrix Spec-V. To see if this is the case, let us explore the possibility of ES in perceptual infinitival complements (p-ICs) and causative infinitival complements (c-ICs). (7) and (8) are cases of p-ICs, and (9) and (10) are cases of c-ICs:

(7) a. Neptune is the planet of which I saw [a picture _t_i] hit the president (when it fell off the wall).
   b. Of which planet did you see [a picture _t_i] hit the president (when it fell off the wall)?

(8) a. It was the president of whom you watched [a picture _t_i] hit the painter on the head.
   b. Of which president did you watch [a picture _t_i] hit the paint-

2 Examples in (7)–(10) are provided by Andrew Radford (p.c.). Noam Chomsky (p.c.) and Joseph Lauer (p.c.) too judge these examples to be acceptable. Actually there is some variation among speakers with respect to the status of this ES (including ES in (2), (5), (15), and (16)). If examples in (7)–(10) are judged to be deviant, they become counterexamples to Chomsky’s (2008) analysis since ES in these examples, like that in (5a, b), does not violate the PIC or the IC. Notice that p-ICs and c-ICs are ECM cases, which Chomsky analyzes as TPs (see fn. 3).
er on the head?

(9) a. This is the car of which i you made [the driver $t_i$] eat humble pie.
   b. Of which cari did you make [the driver $t_i$] eat humble pie?

(10) a. This is the car of which i you made [the driver $t_i$] report himself to the police.
   b. Of which cari did you make [the driver $t_i$] report himself to the police?

The grammaticality of (7)–(10) shows that subjects in p-ICs and c-ICs undergo ECM-raising to a higher Spec-V by way of their intermediate defective Spec, where extraction of the PP complement takes place. This makes it possible to conclude that these p-ICs and c-ICs cannot be v*Ps but TPs (or TP-like defective categories).\(^3\) If they are v*Ps, the PP extraction is blocked for the same reason as in (1a, b). This seems to justify Chomsky's (2008) account.

However a problem arises with regard to binding relations between ECM-raised subjects and matrix elements. As claimed by Lasnik and Saito (1991), these subjects (specifically in believe-type to-infinitival complements (to-ICs)) can c-command anaphors, r-expressions, and negative polarity items (NPIs) within matrix adverbials:

(11) a. ?I believed [those meni to be unreliable] because of each other’si statements.
   b. ?*Joan believes [himi to be a genius] even more fervently than Bob’si mother does.
   c. ?The DA proved [none of the defendants to be guilty] during

\(^3\) Evidence in favor of the TP analysis of the p/c-ICs comes from the fact that they allow sentential AdvPs, as exemplified in (ia, b). Notice that the italicized AdvP is comparable to the sentential adverb in the next sentence:

(i) a. I saw [John probably talking to Mary]—certainly, John was (talking to Mary).
   b. We will make [John definitely go to London]—undoubtedly, John will (go to London).

Further supporting evidence relates to the historical fact that in Early Modern English p/c-ICs permitted the infinitival marker to, as in (iia, b):

(ii) a. I saw her coral lips to moue
   (Shakespeare, The Taming of the Shrew I.1.179, cited in Jespersen (1940: 280))
   b. Whose lookes make [this inferiour world to quake]
   (Marlowe, 2 Tamburlaine 2708, cited in Ando (2005: 831))

For further arguments for the TP-analysis of p/c-ICs, see Matsubara (2008a).
any of the trials. (Lasnik and Saito (1991: 337, 327, 329))

What is worth noting here is that this is not the case with ECM-raised subjects in p-ICs and c-ICs, as shown in p-ICs in (12) and c-ICs in (13):^4

(12) a. *I saw [the men] screw up the mission] because of each other's blunders.

b. I saw/heard [him tell a lie/cry] before Bob's mother did.

c. I saw/heard [him tell a lie/cry] even more clearly than Bob’s mother did.

d. *I saw/heard [no applicants complain] after failing any of the tests.

(13) a. ??/*They made [the professor retire] because of poor academic evaluations of himself.

b. I made [him apologize] before Bob’s mother did/although Bob’s mother did not.

c. I let [her read the letter] before Mary’s boyfriend did/although Mary’s boyfriend did not.

d. *I made/let [no applicants complain] after failing any of the tests.

This fact indicates that p-IC and c-IC subjects, unlike believe-type to-IC subjects, do not c-command matrix elements. If they do as a result of ECM-raising to a matrix position, we predict mistakenly that (12a–d) and (13a–d) should have the same status as (11a–c). Hence (12) and (13) demonstrate that p/c-IC subjects do not ECM-raise to the matrix Spec-V but remain in the embedded Spec-T, whereas (7)–(10) demonstrate that these subjects undergo ECM-raising to the matrix Spec-V through the embedded Spec-T. This gives rise to a discrepancy between both cases with regard to ECM-raising. Therefore Chomsky’s analysis of ES, which requires ECM-raising of IC subjects, faces a problem of how to account in a uniform way for the similarities between (5) and (7)–(10) and the differences between (11), on the one hand, and (12) and (13), on the other hand.

^4 (12a, d) and (13a, d) are presented by Andrew Radford (p.c.). I owe the judgments on examples in (12) and (13) to Andrew Radford (p.c.), Kevin Gregg (p.c.), and Peter Skaer (p.c.). Notice that if the because-phrase in (12a) and the after-phrase in (12d) and (13d) are taken to be embedded adjuncts, these examples are well-formed.
3. Extraction from *Want*-Type To-Infinitival Subjects

Chomsky's (2008) analysis raises the same problem as that noted in the above section regarding *want*-type to-IC subjects too. Chomsky (1981), Watanabe (1993), and Bošković (1997) assume that *want*-type to-ICs with a lexical subject are CPs, in which the subject has its Case feature valued by C (for or its null counterpart). Given this, the subject becomes inactive within the CP and thus cannot ECM-raise to a matrix position out of it. This is confirmed by binding facts adduced by Lasnik and Saito (1991) that these subjects, unlike *believe*-type to-IC subjects, do not c-command matrix elements. Compare (14) with (11):

(14)  a. ??*I wanted [those men, to be fired] because of each other's statements.
    b. Joan wants [him, to be successful] even more fervently than Bob's mother does.
    c. ??*I wanted [none of the applicants to be hired] after reading any of the reports. (Lasnik and Saito (1991: 336))

If this is correct, we expect under Chomsky's (2008) analysis that ES should be impossible when *want*-type to-IC subjects are originally merged in an internal phase (i.e. Spec-v*), just as observed in (1a, b)/(3a, b). However this expectation is wrong, as is evident from the grammaticality of (15):

(15)  a. It was the CAR (not the TRUCK) of which, they would have liked (for) [the driver ti] (not) to cause a scandal.
    b. Of which car, would you have liked (for) [the driver ti] (not) to cause a scandal?

Similar ES can obtain in the following *for*-to-ICs as well:

(16)  a. Of which car, did you arrange for [the driver ti] to cause an accident?
    b. Of which car, hadn't you intended for [the driver ti] to cause an accident?

Accordingly, here also, Chomsky’s (2008) account of ES has difficulty accounting uniformly for the differences between (11) and (14) and the similarities between (5), on the one hand, and (15) and (16), on the other hand.

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5 Noam Chomsky (p.c.) maintains the CP analysis of these *want*-type to-ICs.
6 Examples in (15) and (16) are presented by Andrew Radford (p.c.). Joseph Lauer (p.c.) too judges these examples acceptable. As mentioned in fn. 2, this kind of ES involves some judgment variation among speakers.
What is important to note in (15) and (16) is that since the (for-)to-IC subject in Spec-T is inactive with its Case feature valued by \( C \), ES has to be applied before the subject occupies Spec-T; otherwise an IC violation arises. However there is no intermediate defective Spec for the subject to land in between Spec-T and the internal Spec-\( v^* \), where ES is possible. Recall that if ES is applied to the subject in Spec-\( v^* \), this causes a PIC violation. Hence, in order to derive examples in (15) and (16) under Chomsky (2008), it is necessary to assume a structure like the following with a certain defective category (which I label as FP (= functional category)) between Spec-T and Spec-\( v^* \):

\[
(17) \quad \text{[CP for [TP to [FP [v*P [DP the driver of which (car)] v*-cause ...]]]}\]

Given (17), we can say that when the subject DP passes through Spec-F, ES is applicable without violating the IC or the PIC. Further (17) also enables us to account for the binding fact in (14) since it does not induce want-type (for-)to-IC subjects, which are inactive in Spec-T, to ECM-raise into a matrix clause. However it is clear that (17) raises new crucial problems: i) why do only want-type (for-)to-ICs involve an additional FP, ii) do they always require FP to be structured, iii) what is the status of FP, etc. Without resolving these problems, we cannot accept a structure like (17). Consequently we wonder how Chomsky (2008) can account for ES in examples like (15a, b) and (16a, b).\(^7\)

\(^7\) According to Chomsky, Lasnik and Saito, Watanabe, Bošković, among others, want-type for-less to-IC subjects do not undergo ECM-raising into a matrix clause. If so, however, we have to account for why they behave in the same way as believe-type to-IC subjects concerning superiority effects, as in (i) and (ii), where when is an adjunct modifying the matrix clause:

(i) a. Who did John prove to be guilty when?
   b. ?When did John prove who to be guilty?

(adapted from Bošković (2002: 178, 210))

(ii) a. Who did John want to fix the radio when?
   b. ?When did John want who to fix the radio?

Bošković (2002) claims that (ia) indicates that who is higher than when as a result of ECM-raising to a matrix position, satisfying the superiority condition. If so, however, the same account should hold for (iia), which makes it reasonable to say that want-type for-less to-IC subjects ECM-raise to a matrix position in the same fashion as believe-type ones. Therefore the parallel between (ia) and (iia) poses a problem for the non-ECM-raising analysis of want-type for-less to-IC subjects. For further arguments for the ECM-raising of these subjects, see Matsubara (2008b). I leave this issue of the ECM-raising vs. the non-ECM-raising to future research.
4. Further Discussion

There are more empirical problems with Chomsky’s (2008) analysis of ES. As we have seen, Chomsky (2008) depends only on the PIC and the IC for the (im)possibility of ES. This means that ES is always allowed as long as both conditions are satisfied regardless of the categorial status of an extracted element. Hence Chomsky’s account should extend to extraction of a DP from subject, as in (18a, b), cited from his earlier works:

(18) a. *Whoi was [a picture of ti] taken by Bill?

(Chomsky (1995: 328))

b. *Whoi did [stories about ti] terrify John?

(Chomsky (1977: 106))

Chomsky’s (2008) analysis of (2a, b)/(4) allows extraction from a derived subject (in its base position) due to the absence of an internal phase (i.e. ν*P). If so, this leads us incorrectly to predict that (18a, b) are well-formed with a licit extraction of a DP from subject. A similar point is made by Broekhuis (2005: 66, fn. 3). Notice that psych-verbs like terrify in (18b) are analyzed as unaccusative verbs with their derived subjects initially merged in Complement-v (Belletti and Rizzi (1988)).

Likewise Chomsky’s (2008) analysis of (5a, b)/(6), which allows ES to apply to an subject in its intermediate Spec-T, causes us mistakenly to predict (19a–c) to be grammatical in the same way as (5a, b) ((19a) is taken

8 Chomsky’s analysis predicts that the Japanese counterpart to (5b) should be grammatical, but this is not the case:

(i) ??*[pp Dono kuruma-no]i karera-wa [[dp ti untenshu-o/ga]
which car-of they-TOP driver-ACC/NOM
oshokujiken-o okoshi-ta to] shijniteita noka
scandal-ACC caused-have COMP believed [Q] COMP

The same holds for ES in Japanese p-ICs and c-ICs. For the limited space of this paper, I provide only the Japanese equivalent to (7b):

(ii) ??*[pp Dono wakusee-no]i anata-wa [[dp ti e-o/ga]
which planet-of you-TOP picture-ACC/NOM
daitooryoo-ni ataru noo] mita noka
president-DAT hit COMP saw [Q] COMP

Notice that a phonetic pause after the extracted PP in (i) and (ii) increases the degree of acceptability slightly. The deviance of (i) and (ii) makes it clear that Chomsky’s (2008) analysis of ES cannot apply to Japanese cases at least.

9 It should be noted that even if Agree holds between of/about and who in situ in (18a, b), this does not make who inactive since it still has an uninterpretable feature [wh] (Chomsky (2000: 128)) (cf. Who did you take [a picture of ti]?).
from Chomsky (1977: 106) and (19b, c) from Postal (1974: 191, 189)):

19)  a. *Whoi do you expect [stories about ti] to terrify John?
    b. *Whoi did you believe [pictures of ti] to be on sale in Tunisia?
    c. *Whoi did the police prove [stories about ti] to be in Zelda’s files?

Chomsky (1995: 328) accounts for the ill-formedness of (18a) by saying that “passive precedes wh-movement,” which results in a violation of Huang’s (1982) condition on extraction domain (CED). Chomsky also claims that if passive follows wh-movement, “the derivation is canceled by violation of strength of T (EPP).” Further Chomsky (1995: 328) points out that economy conditions might be relevant for choosing between the competing derivations: “passive is the same in both; wh-movement is “longer” in the illicit one in an obvious sense, object being more “remote” from [Spec, CP] than subject in terms of number of XPs crossed.” Similar remarks will hold for (18b) and (19a–c). If this is correct, however, we erroneously predict that examples like (2a, b) are ruled out as a violation of the CED, or of strength of T, or of economy conditions. By the same token, (20a, b) are counted as counterexamples to Chomsky’s (1995) account:

20)  a. Which planet did you see [a picture of ti] appear on your computer screen?
    b. Which presidenti did you watch [a picture of ti] burn in the wastebasket? (Basilico (2003: 5))

Given the above economy conditions, in addition, examples in (5), (7)–(10), (15), and (16) cannot be derived since their deviations involve a longer wh-movement than their competing derivations.

Now we can see that Chomsky’s (2008) analysis of extraction of a PP from subject cannot readily extend to extraction of a DP from subject and that Chomsky’s (1995) analysis of the DP extraction cannot readily extend to the PP extraction either. If Chomsky’s (2008) analysis is applicable to the DP extraction, we wonder how to account for the contrasts between (2) and (18), between (5) and (19), and between (18) and (20). As a result several problems remain, including whether to deal with both extraction cases in a uniform way, how to account uniformly for them if we need to, and so forth.

5. Conclusion

This paper has explored whether or not Chomsky’s (2008) analysis of ES
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is appropriate. His analysis forces an ECM subject to undergo object shift to a matrix Spec-V. However a closer examination of the possibility of ES in p-ICs, c-ICs, and want-type to-ICs has revealed that his approach cannot account for correlations between ECM-raising and binding facts exhibited by ECM-raised subjects nor can it account for the possibility of ES in want-type cases. Further I have shown that Chomsky (2008) has difficulty accounting for extraction of a DP from subject in terms of the PIC and the IC in the same fashion as that of a PP from subject. This leads us to reach the conclusion that Chomsky’s (2008) analysis of ES cannot be supported without some modification or revision.

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