Subextraction and Freezing Effects in It-Clefts

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Articles

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1. Introduction

English it-clefts, which have the "it is/was X that Y" structure, involve the syntactic movement of a focus phrase "X" out of the presuppositional clause "Y." The presence of movement is established by the fact that focalization obeys syntactic constraints. Let us consider examples (1) to (3):

(1) a. *It is [this book]$_i$ that I accept the argument that John should read t_i.
(Chomsky 1977: 95)

b. *It is [this hat]$_i$ that I know the boy who is wearing t_i. (Ross 1967: 393)

(2) *It is [this book]$_i$ that I wonder who read t_i. (Chomsky 1977: 95)

(3) *How$_j$ was it Boris$_i$ that t_i bought the drink t_j? (Reeve 2013: 174)

In (1a, b), the focus DP is extracted from a clause attached to a DP (an appositive clause in 1a and a relative clause in 1b). This extraction interferes with the complex NP constraint. In (2), the displacement of the focus phrase involves movement from a *wh*-island. The left edge of the presuppositional clause is not available for the successive-cyclic movement of the focus DP, and hence the focus DP moves to the matrix clause without landing in the Spec-CP of the presuppositional clause. Consequently, this movement induces the subjacency effect. In (3), given that the focus phrase *Boris* moves to Spec-CP of the presuppositional clause, the extraction of *how* cannot land in the left edge of the presuppositional clause. Consequently, the extraction of the adjunct *how* results in ungrammaticality. The derivations of (1)－(3) are represented in (4)－(6), respectively:

(4) a. … [$_{CP}$ this book$_i$ [$_C$ that] [$_{TP}$ I accept [$_{DP}$ the argument [$_{CP}$ ~~this book$_i$~~ [$_C$ that] [$_{TP}$ John

should read ~~this book$_i$~~]]]]]

b. … [$_{CP}$ this hat$_j$ [$_C$ that] [$_{TP}$ I know [$_{DP}$ the boy$_i$ [$_{CP}$ ~~this hat$_j$~~ [$_C$ who] [$_{TP}$ t_i is wearing ~~this hat$_j$~~]]]]]

(5) … [$_{CP}$ this book$_j$ [$_C$ that] [$_{TP}$ I wonder [$_{CP}$ who$_i$ [$_{TP}$ t_i read ~~this book$_j$~~]]]]

(6) … [$_{CP}$ Boris$_i$ [$_C$ that] [$_{TP}$ ~~Boris$_i$~~ bought the drink ~~how$_j$~~]]

The ill-formedness of extractions from a sentential subject and an adjunct clause also supports the presence of movement of the focus phrase in it-clefts. The following shows that displacement from the islands also results in ungrammaticality:

(7) *It is [John's book]$_i$ that [reading t_i] is a chore.

(8) *It is [John's book]$_i$ that Bill attacked Mary [because she had not read t_i].

(Rizzi 2013: 171)

Given that syntactic movement is involved in the focalization of it-clefts, it is predicted that further extraction from the focus phrase will cause freezing/holting effects. The Freezing Principle, stated in (9), dictates that additional extraction is unconditionally banned if the extraction takes place out of a moved phrase that has already met the requirements for movement and become "frozen." The definition of frozenness is given in (10).

(9) Freezing Principle (FP)

If a node A of a phrase-marker is frozen, no node dominated by A may be analyzed by a transformation. (Wexler and Culicover 1980: 119)

(10) The notion of *frozenness*

If the immediate structure of a node in a phrase-marker is nonbase, that node is *frozen*. (*op. cit.*, p. 119)

The Freezing Principle is recaptured in the current Minimalist Program as *Criterial Freezing* by Rizzi (2006, 2010), defined in (11).

(11) Criterial Freezing

A phrase meeting a criterion is frozen in place. (Rizzi 2006: 112)

The examples in (12) and (13) show the validity of the Freezing Principle/Criterial Freezing. Subextraction (topicalization) is applied to a topicalized phrase in (12a) and *wh*-movement is implemented from a phrase that has undergone topicalization in (12b, c). *Wh*-phrases are extracted from the elements that have undergone a heavy NP shift in (13a, b). All of the *wh*-extractions here are regarded as subextraction out of displaced phrases, and the extractions violate the Freezing Principle/Criterial Freezing.

(12) a. ?? [Vowel harmony]$_j$, I think that [[articles about t_j]$_i$, [you should read t_i carefully]].

b. ?? Who$_j$ do you think that [pictures of t_j]$_i$, John wanted t_i?

(Lasnik and Saito 1992: 101)

c. *Which table$_j$ did you think that [on t_j]$_i$ John put the book t_i? (Bošković 2021: 57)

(13) a. *What$_j$ did you sell t_i to Fred [a beautiful and expensive painting of t_j]$_i$?

(Culicover and Wexler 1977: 21)

b. *[How long]$_j$ did they try to mention t_i to John [the possibility of him remaining there t_j]$_i$? (Postal 1998: 66)

However, additional extraction from a moved element is allowed in certain cleft sentences. In (14a－d), a *wh*-phrase is extracted from the focalized DP without inducing ungrammaticality. Given that focalization involves movement, this additional *wh*-extraction should interfere with the Freezing Principle/Criterial Freezing, as represented in (15).

(14) a. ?Who$_j$ was it [a picture of t_j]$_i$ that he decorated his door with t_i?

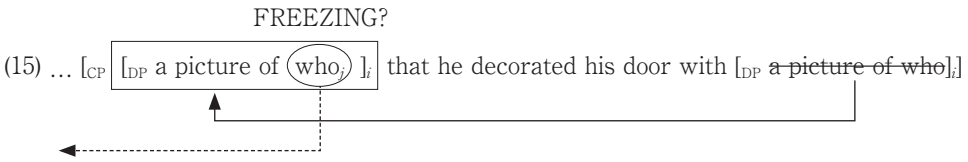
b. ?What$_j$ was it [a review of t_j]$_i$ that they had that argument about t_i?

c. ?Which books$_j$ is it [the covers of t_j]$_i$ that we've got to paste these labels on t_i?

(Pinkham and Hankamer 1975: 440)

d. ?What$_j$ was it [an increase in t_j]$_i$ that the parliament discussed t_i?

(Hartmann 2018: 199)



Therefore, the subextraction from the focus phrase in (14a－d) is inconsistent with the Freezing Principle/Criterial Freezing, which requires an explanation. We can claim that the exemption from the Freezing Principle/Criterial Freezing is restricted in cases where a DP appears in the focus position of it-clefts. It-clefts with a PP-focus are in stark contrast to those with a DP-focus, in the context of freezing effects. In (16a－c), a PP occurs in the focus position, and *wh*-extraction from the focused PP results in ungrammaticality. This shows that the subextraction from a PP-focus obeys the Freezing Principle/Criterial Freezing.

(16) a. *Who$_j$ was it [with a picture of t_j]$_i$ that he decorated his door t_i?
b. *What$_j$ was it [about a review of t_j]$_i$ that they had that argument t_i?
c. *Which books$_j$ is it [on the covers of t_j]$_i$ that we've got to paste these labels t_i?
(Pinkham and Hankamer 1975: 440)

Interestingly, the categorial difference in freezing effects holds only for it-clefts. In (17a, b), subextraction of the *wh*-phrase from a dislocated *wh*-phrase induces freezing effects, not only from a PP *wh*-phrase but also from a DP *wh*-phrase. This indicates that neither PP *wh*-phrases nor DP *wh*-phrases allow subextraction of *wh*-phrases from them.[1]

(17) a. */?? [Whose mouth]$_j$ do you wonder [[PP how far into t_j]$_i$ the dentist stuck his finger t_i]?
b. */?? [Whose book]$_j$ do you wonder [[DP how many reviews of t_j]$_i$ John read t_i]?
(Corver 2017: 1720)

In this paper, I propose that the structural difference causes this dissimilarity in freezing effects regarding subextraction out of the focus phrase between it-clefts with a DP-focus versus a PP-focus. This paper is organized as follows: Section 2 explores the reconstruction/connectivity effects in it-clefts with a DP-focus, and ascertains the presence

of syntactic movement of the focus DP. Section 3 investigates the derivational structures of raising and matching relatives, which are crucial for our analysis of the effects of freezing in it-clefts. Section 4 considers the structures of it-clefts and shows that the proposal for different structures for DP-clefts and PP-clefts can explain the presence or absence of freezing effects regarding *wh*-extraction from a focus phrase. Section 5 analyzes the consequences of the analysis presented in this study. Finally, Section 6 concludes the paper.

2. Reconstruction/Connectivity Effects in It-Clefts with a DP-Focus

Considering that freezing effects are not detected in it-clefts involving a DP-focus (hereafter DP-clefts), unlike it-clefts involving a PP-focus (hereafter PP-clefts), one might argue that this is because DP-clefts are derived without recourse to syntactic movements. However, as we have seen in Section 1, DP-clefts show certain evidence for the presence of focus movement, such as the complex NP constraint, the *wh*-island condition, the sentential subject condition, and the adjunct condition.

The reconstruction/connectivity effects also support the presence of syntactic movement of the focus phrase. Consider (18) and (19).[2]

(18) a. It was (crumpled up) pictures of herself$_i$ that Katie$_i$ kindled the fire with.
b. It was the portrait of themselves$_i$ that they$_i$ put the mark on.

(19) a. It's close tabs that the FBI kept on his movements.
b. It is quite some headway that a number of developing countries made in fighting hunger and poverty.

In (18a, b), the anaphor in the focus DP takes the subject in the presuppositional clause as its antecedent. In (19a, b), the idiom chunk in the focus DP retains the idiomatic interpretation that is needed to make a constituent with the verb in the presuppositional clause. These facts reveal that the focus DP is reconstructed into the presuppositional clause. This indicates that the focus position and its θ-position in the presuppositional clause are related by a chain of syntactic movements. If the focus DP is interpreted at the position of the lower copy, the anaphor in the lower copy can be bound by its antecedent,

as represented in (20a, b), and the idiom chunk can form a constituent with the verb to create an idiomatic interpretation, as shown in (21a, b).

(20) a. … [$_{CP}$ ~~[(crumpled up) pictures of herself$_i$]$_j$~~ [$_{C}$ that] [$_{TP}$ Katie$_i$ kindled the fire with **[(crumpled up) pictures of herself$_i$]$_j$**]]

b. … [$_{CP}$ ~~[the portrait of themselves$_i$]$_j$~~ [$_{C}$ that] [$_{TP}$ they$_i$ put the mark on **[the portrait of themselves$_i$]$_j$**]]

(21) a. … [$_{CP}$ ~~[$_{DP}$ close tabs]$_i$~~ [$_{C}$ that] [$_{TP}$ the FBI kept on **[$_{DP}$ close tabs]$_i$** on his movements]]

b. … [$_{CP}$ ~~[$_{DP}$ quite some headway]$_i$~~ [$_{C}$ that] [$_{TP}$ a number of developing countries made **[$_{DP}$ quite some headway]$_i$** in fighting hunger and poverty]]

Thus, the focus phrase can be reconstructed into the presuppositional clause and interpreted there. This implies that the focus phrase and its θ-position are related by a syntactic chain.

We then need to determine why the *wh*-phrase in (14a－d) can be extracted from the focus DP, which has undergone syntactic movement. I propose that the non-freezing effects in DP-clefts are caused by their "substitution" structure, which does not involve the type of extraction of the <+wh> feature-checking. I will argue that the derivation based on the substitution structure, particularly the Kaynean-type derivation of *promotion*, allows the subextraction of a *wh*-phrase from the focalized DP in DP-clefts. Before proceeding, let us review the Kaynean model of promotion for restrictive relative clauses by comparing it to the matching model, which is another significant derivational model for restrictive relative clauses.

3. The Difference between Raising Relatives and Matching Relatives

3.1 Raising Relatives

Kayne (1994) suggests that English restrictive relative clauses involve phrasal movement of the relative head from its gap position. He claims that English restrictive relatives have a substitution structure in which the D head takes CP as its complement, and the head NP moves to the specifier position of this CP, as represented in (22). Hence, under the Kaynean model, relative clauses involve raising the head from its θ-position to

the head. As a result of this *head-raising* or *promotion*, the head and its gap (θ-position) are linked by a movement chain. Relative clauses derived by head-raising/promotion are called "raising relatives."[3]

(22) a. the place that Greg visited

b. $[_{DP}\ [_{D}$ the$]\ [_{CP}$ place$_i$ $[_{C'}$ that Greg visited $t_i]]]$

Since the head position and its gap (θ-) position are related by a movement chain, the head NP can be reconstructed into the relative clause. Sauerland (1998, 2000, 2003), Fox (1999, 2002), Bhatt (2002), and Hulsey and Sauerland (2006) claim that the head NP is interpreted only in the relative clause's internal trace position in raising relatives. The LF representation of (22) is illustrated as (23).[4]

(23) the λ x. that Greg visited the$_x$ place (cf. Hulsey and Sauerland 2006: 112)

Thus, the raising structure, which creates the movement chain between the head NP and the gap position, has a clear advantage in terms of providing an explanation for the reconstruction/connectivity effects. Let us consider Condition A effects of the binding theory and the interpretation of idioms.

(24) a. The portrait of himself$_i$ that John$_i$ painted is extremely flattering.

b. The interest in each other$_i$ that John and Mary$_i$ showed was fleeting.

(Schachter 1973: 32-33)

(25) a. The *headway* that we made was satisfactory. (Brame 1968)

b. The careful *track* that she's keeping of her expenses pleases me. (Schachter 1973: 32)

The raising structure gives the following interpretation of binding and idioms:

(26) a. The portrait of himself$_i$ that John$_i$ painted is extremely flattering.

b. [the λ x. that John$_1$ painted the$_x$ portrait of himself$_1$] is extremely flattering

(27) a. The headway that we made was satisfactory.

b. [the λ x. that we made the$_x$ headway] was satisfactory

As seen in (26b) and (27b), the head NP is interpreted within the relative clause. Hence, the anaphor *himself* in (26b) is bound by its antecedent *John*, and the idiom chunk *headway* in (27b) is able to retain an idiomatic interpretation with the verb *made*. Thus, the substitution structure, which involves a syntactic chain between the head NP and its θ-position, can provide the correct binding and idiom interpretation to the head NP.

3.2 Matching Relatives

There is another derivation for relative clauses, that is, matching structure. In the matching structure, an operator moves to the left edge of the relative clause, creating an operator-variable relation in the relative clause. It is important to note that the operator does not move beyond the relative clause CP to land in the position of the head NP. The head NP merges with the relative clause CP via External Merge (EM), and forms a relation with the operator in Spec-CP of the relative clause by the *matching* relation, that is, the predication or the identification between the externally merged head NP and the operator in Spec-CP of the relative clause. Relative clauses derived by the matching operation are called "matching relatives."

In the old model of the matching structure (Carlson 1977, Chomsky 1977, among others), the operator occurring in the relative clause was an empty/null operator. This empty/null operator in gap position moves to the left periphery of the relative clause, and then enters into the matching relation with the head NP. This is shown in (28a, b).

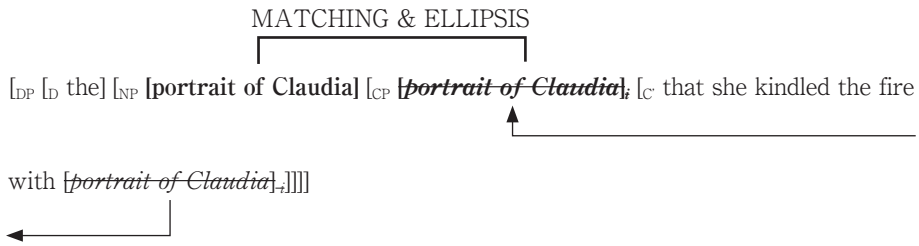
(28) a. the portrait of Claudia that she kindled the fire with

MATCHING

b. [$_{DP}$ [$_{D}$ the] [$_{NP}$ **[portrait of Claudia]** [$_{CP}$ ***OP***$_i$ [$_{C'}$ that she kindled the fire with t_i]]]]

The new model of the matching structure, which was proposed in correspondence to the copy theory of the Minimalist Program, retains the same concept, but a head-like NP occurs in the gap position instead of an empty/null operator. This head-like NP moves to the left periphery of the relative clause and remains there. The head NP merges with the relative clause CP, and the head-like NP on the left edge of the relative clause CP is elided under identity with the head NP (Sauerland 1998, 2000, 2003, Fox 1999, 2002, Bhatt 2002, Aoun and Li 2003, Cecchetto 2005, among others). The structure based on this new matching structure model is presented in (29b).

(29) a. the portrait of Claudia that she kindled the fire with



b. [$_{DP}$ [$_{D}$ the] [$_{NP}$ **[portrait of Claudia]** [$_{CP}$ ~~[*portrait of Claudia*]~~$_{i}$ [$_{C'}$ that she kindled the fire with [~~*portrait of Claudia*~~]$_{+}$]]]]

In the matching relatives, the head NP is interpreted outside the relative clause, since, unlike the raising structure, the head NP does not occur in the relative clause but directly merges with the relative clause CP. The matching relatives provide the following LF representation.

(30) a. the portrait of Claudia that she kindled the fire with

b. the portrait of Claudia$_1$ λ x. she$_1$ kindled the fire with the$_x$ portrait of her$_1$

(cf. Hulsey and Sauerland 2006: 112)

This matching structure can give a correct interpretation of the lack of reconstruction/connectivity effects regarding Condition C of the binding theory in restrictive relative clauses. Consider (31a－c).

(31) a. [the picture of Bill$_i$]$_j$ that he$_i$ likes t_j (Munn 1994: 402)

b. [The accident of John$_i$'s]$_j$ that he$_i$ will never forget t_j is the one that affected him$_i$

first. (Cecchetto 2005: 26)

c. [A picture of John$_i$]$_j$ which he$_i$ was very proud of t_j was recently stolen.
(Safir 1999: 614)

The examples in (31) demonstrate that English restrictive relatives do not show reconstruction/connectivity effects with respect to Condition C. If the relative head is reconstructed into the gap in the relative clause, as in (32), the R-expression in the head NP is c-commanded by the co-indexed pronoun, and (31a－c) should be deemed ungrammatical.

(32) ~~[the picture of Bill$_i$]$_j$~~ that he$_i$ likes **[the picture of Bill$_i$]$_j$**

Under the matching structure, (31a) can be interpreted through the LF interpretation, as in (33).

(33) the picture of Bill$_1$ λ x. he$_1$ likes the$_x$ picture of him$_1$

The matching structure (33) gives the correct interpretation for (31a). In the matching structure, a syntactic chain is formed between an empty/null operator or a head-like NP in Spec-CP and the gap position. The externally merged head NP and the gap position are not directly related by a syntactic chain. The relationship between the head NP and the raised element in Spec-CP is formed by *matching*. Therefore, the head NP cannot be reconstructed into the gap position in the relative clause. This lack of reconstruction cannot give rise to a structure in which a subject pronoun would c-command an R-expression in the head NP of the relative clause.

Thus, matching relatives involve a syntactic computation of matching/predication between the externally merged head NP and the operator (an empty/null operator or a head-like NP). The crucial point is that matching relatives do not involve the promotion of the head NP to the Spec-CP that the D head takes as its complement, which is the structure assumed in raising relatives.

As we have seen in this section, the structures of raising and matching relatives can yield proper syntactic interpretations regarding idioms and Condition A and Condition C

facts in restrictive relative clauses. With these raising and matching structures in mind, let us now examine the derivational structures of DP-clefts and PP-clefts, and consider the presence or absence of freezing effects regarding subextraction from a focus phrase of it-clefts.

4. The Structures of It-Clefts and the Presence or Absence of Freezing Effects

4.1 The Presence or Absence of Freezing Effects Revisited

As shown above, the presence or absence of freezing effects in it-clefts depends on the category of the focus phrases. DP-clefts do not yield freezing effects; a *wh*-phrase can be extracted from the focalized DP. On the other hand, PP-clefts exhibit freezing effects, that is, a *wh*-phrase cannot undergo movement from the focalized PP. The difference in freezing effects is shown in examples (14) and (16), reproduced here as (34) and (35), respectively.

(34) a. ?Who$_j$ was it [a picture of t_j]$_i$ that he decorated his door with t_i?

b. ?What$_j$ was it [a review of t_j]$_i$ that they had that argument about t_i?

c. ?Which books$_j$ is it [the covers of t_j]$_i$ that we've got to paste these labels on t_i?

(Pinkham and Hankamer 1975: 440)

d. ?What$_j$ was it [an increase in t_j]$_i$ that the parliament discussed t_i?

(Hartmann 2018: 199)

(35) a. *Who$_j$ was it [with a picture of t_j]$_i$ that he decorated his door t_i?

b. *What$_j$ was it [about a review of t_j]$_i$ that they had that argument t_i?

c. *Which books$_j$ is it [on the covers of t_j]$_i$ that we've got to paste these labels t_i?

(Pinkham and Hankamer 1975: 440)

I propose that the structural difference causes the presence or absence of freezing effects in the extraction from the focused phrase between DP-clefts and PP-clefts. To explore the validity of this analysis, we first consider the structure of DP-clefts.

4.2 The Structure of DP-Clefts: The Raising Structure

As seen above, extraction from the focused position does not induce freezing effects in DP-clefts. In addition, the existence of island effects seen in Section 1 shows that syntactic movement is involved in the formation of focus phrases in DP-clefts.

I propose that the raising structure enables a *wh*-phrase to move from the focus DP without inducing freezing effects. I claim that DP-clefts are derived by the remodeled Kaynean structure, which involves a raising constituent from the embedded clause. In raising relatives, a phrasal relative head occurs in the gap position and then is promoted to the head position, namely Spec-CP, that D takes as its complement. This derivation is shown in (36a, b).

(36) a. two physics books that John borrowed at the library

b. $[_{DP}\ [_{D}$ two$]\ [_{CP}\ [_{NP}$ physics books$]_i$ that $[_{TP}$ John borrowed ~~$[_{NP}$ physics books$]_i$~~ at the library$]]]$

Thus, an NP *physics books* occurs in the gap position and undergoes movement to the Spec-CP that the D head *two* takes as its complement.[5]

I suggest that DP-clefts also involve the promotion of a focus phrase from its θ-position. However, unlike raising relatives, I claim that a DP, not an NP, occurs in the θ-position in the presuppositional clause, and it undergoes raising to Spec-CP that the head R takes as its complement. I argue that the promotion/focus-raising takes place via *Free Merge* (Chomsky 2004); that is, the raised phrase is not attracted by the focus- or Q-feature in C in the presuppositional clause, but the displacement comes "free" (Chomsky 2004: 116). I claim that no feature-sharing occurs between the raised phrase and the C head, and hence a *wh*-phrase can be extracted from the raised phrase, namely from the focus DP without inducing freezing effects.

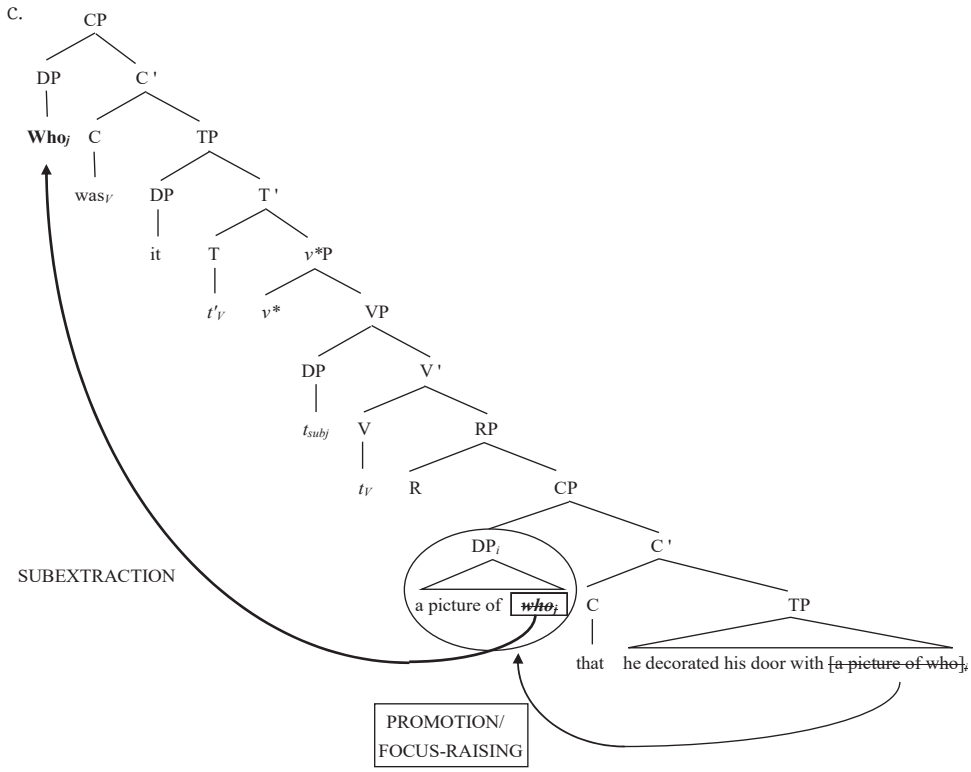
The structural layer of RP plays a role of relating the two clauses—in simple terms, the "matrix" clause and the "embedded" clause. Note that the focus phrase is promoted to the focus position, namely, the CP-Spec of the presuppositional clause that R takes as its complement, in the raising/promotion strategy. Therefore, the RP does not divide a DP-cleft into two "totally-separate" parts. Rather, R serves the same function as D in the

Kaynean structure for raising relatives. Thus, I claim that R takes CP as its complement and the clefted DP moves to the Spec of this CP. Thus, DP-clefts form a substitution structure. This structure described here is illustrated below:

(37) a. ? Who$_j$ was it [a picture of t_j]$_i$ that he decorated his door with t_i?

b. [$_{CP}$ **Who$_j$** was$_V$ [$_{TP}$ it t'_V [$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ a picture of ~~**who$_j$**~~]$_i$ that [$_{TP}$ he decorated his door with ~~[$_{DP}$ a picture of who]$_i$~~]]]]]]]

c.



Evidence for DP-raising instead of NP-raising can be found in the difference in the interpretation of exhaustivity between restrictive relatives and it-clefts. É. Kiss (1999) argues that a quantifier in the embedded subject position in it-clefts can have a matrix scope, whereas one in the relative clause cannot. Consider (38a, b).

(38) a. <u>it-cleft</u>

It was some paper by Chomsky that everybody wanted to read for the exam.

(*some paper* > *everybody*) (*everybody* > *some paper*)

b. *that*-relative

I have some paper by Chomsky that everybody wanted to read.

(*some paper* > *everybody*) (**everybody* > *some paper*)

(É. Kiss 1999: 218)

As shown in (38a), *everybody* in the subject position of the presuppositional clause can take scope over the focus phrase *some paper by Chomsky* in it-clefts. However, this interpretation is not available in the case of restrictive relative clauses. As indicated in (38b), *everybody* in the subject of the relative clause cannot take scope over the relative head *some paper by Chomsky*.

With this in mind, we now examine (38a). Suppose that only the NP [*paper by Chomsky*] occurs in the gap position in the presuppositional clause and the D [*some*] appears in the matrix clause, as represented in (39). Under this derivation, we cannot obtain the scope relation "*every* > *some*" because *some* does not occur in the presuppositional clause throughout the derivation. Hence, *some* should take scope over *everybody*.

(39) [$_{TP}$ It was$_V$ [$_{v*P}$ v* [$_{VP}$ t_{subj} t_V [$_{DP}$ **[$_D$ some]** [$_{CP}$ [$_{NP}$ paper by Chomsky]$_i$ that [$_{TP}$ **everybody** wanted to read ~~[$_{NP}$ paper by Chomsky]$_i$~~ for the exam]]]]]]

However, in our analysis, the DP-focus [*some paper by Chomsky*] occurs in the gap position of it-clefts and it is promoted to the focus position, as indicated in (40a). Hence, there is a derivational point at which D [*some*] appears in the presuppositional clause. Suppose that the focus DP gets scope interpretation in the position of the lower copy, as represented in (40b). Then, we can correctly yield the scope interpretation "*every* > *some*."

(40) a. [$_{TP}$ It was$_V$ [$_{v*P}$ v* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ some paper by Chomsky]$_i$ that [$_{TP}$ everybody wanted to read ~~[$_{DP}$ some paper by Chomsky]$_i$~~ for the exam]]]]]]

b. [$_{TP}$ It was$_V$ [$_{v*P}$ v* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ ~~[$_{DP}$ some paper by Chomsky]$_i$~~ that [$_{TP}$ **everybody** wanted to read [$_{DP}$ **some** paper by Chomsky]$_i$ for the exam]]]]]]

On the other hand, in the relative clause (38b), D [*some*] and the head NP [*paper by*

Chomsky] occur separately. The D [*some*] occurs in the matrix clause, while the head NP [*paper by Chomsky*] occurs in the gap position in the embedded clause. The head NP undergoes head-raising to the edge of the CP, which the D takes as its complement, as represented in (41). Thus, the quantifier *some* does not occur within the relative clause, and hence we can account for the unavailability of the scope interpretation "*every* > *some*."[6]

(41) [$_{DP}$ **[$_{D}$ some]** [$_{CP}$ [$_{NP}$ paper by Chomsky]$_i$ that [$_{TP}$ **everybody** wanted to read [~~$_{NP}$ paper by Chomsky]$_i$~~ for the exam]]]

Thus, the raising structure involving an R and the raising of a DP-focus can account for the exhaustivity in it-clefts; that is, a quantifier in the subject of the presuppositional clause can take scope over a quantifier in the focus DP.

Our analysis provides a straightforward answer to the island effects with regard to the focus movement in DP-clefts that we have seen in Section 1. Since the structure involves promotion/raising of the focus DP to Spec-CP of the complement of RP, this focus movement obeys island constraints. Let us examine how the focus-raising structure can capture these island effects.

(42) a. *It is [this book]$_i$ that I accept the argument that John should read t_i.

b. [$_{TP}$ It is$_V$ [$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ this book]$_i$ that [$_{TP}$ I accept [$_{DP}$ the argument [$_{CP}$ [~~$_{DP}$ this book]$_i$~~ that [$_{TP}$ John should read [~~$_{DP}$ this book]$_i$~~]]]]]]]]

In (42a), the raising of the focus DP targets the Spec-CP that R takes as its complement. However, as represented in (42b), it cannot move to the target position directly, as this movement interferes with the Phase Impenetrability Condition (PIC; Chomsky 2000). The PIC is defined as follows:

(43) The Phase Impenetrability Condition (PIC)

In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations. (Chomsky 2000: 108)

As determined in (43), only the head and edge positions are accessible from the next phase

cycle in the course of the derivation. Therefore, even if the focus DP moves to the target position via Free Merge, which we assume in the structure of DP-clefts, the raised focus DP must be raised to the edge of a phase in order to access the next phase.

Chomsky (2021: 18－19) suggests that phases are verbal and clausal (v^*P and CP), and possibly nominal (nP)[7]. Here, I assume that v^*P does not form a phase in the structure involving promotion/raising. The head of the chain, namely the landing site of the focus DP, is the Spec of the CP that the RP takes as its complement. Given that a v^*P is a phase, the raised focus must adjoin to a v^*P before landing in the final site, namely Spec-CP of the complement of RP. Consequently, the raising chain contains the head of the chain, which is a complement position, and the intermediate positions of the chain, which are "adjoined" to v^*Ps. This complies with a movement chain involving elements in phase-edge positions with different syntactic characters. Hence, I contend that CPs form phases, whereas v^*Ps do not, in the raising structure.[8]

Now, let us examine the raising of the focus DP in (42b). The DP [*this book*] is first raised to CP-Spec in the appositive clause in view of the PIC. This DP is then raised to the Spec of the CP of the presuppositional clause that R takes as its complement. This derivational step induces a subjacency effect, and the resulting structure is deemed ungrammatical.

Similarly in (44a), the *wh*-island effect can be captured in this raising structure.

(44) a. *It is [this book]$_i$ that I wonder who read t_i.

b. [$_{TP}$ It is$_V$ [$_{v^*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ this book]$_i$ that [$_{TP}$ I wonder [$_{CP}$ who$_j$ [$_{TP}$ ~~who$_j$~~ [$_{v^*P}$ v^* [$_{VP}$ ~~who$_j$~~ read [~~$_{DP}$ this book$_i$~~]]]]]]]]]

As represented in (44b), the focus DP [*this book*] targets the Spec-CP of the embedded clause to avoid violating the PIC. However, this phase edge is occupied by *who*. The focus DP is then raised to the Spec-CP of the presuppositional clause that R takes as its complement in one fell swoop. Consequently, this raising interferes with the PIC.

The extraction of an adjunct in (45a) is illustrated in (45b).

(45) a. *How$_j$ was it Boris$_i$ [that t_i bought the drink t_j]?

b. [$_{CP}$ How$_j$ was$_V$ [$_{TP}$ it t'_V [$_{v^*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ Boris]$_i$ that [$_{TP}$ [~~$_{DP}$ Boris~~]$_i$ [$_{v^*P}$ v^*

[$_{VP}$ [~~$_{DP}$ Boris~~]$_i$ bought the drink ~~how~~$_j$]]]]]]]]

The focus DP [*Boris*] is the subject of the presuppositional clause. Hence, it undergoes subject-raising to Spec-TP, and then moves to the edge of the CP of the presuppositional clause. The adjunct *how* is attracted to the sentence-initial position to check the Q-feature of the matrix C. However, the embedded CP-Spec is not available because of the presence of the focus DP. Consequently, the adjunct targets the matrix CP-Spec. This adjunct movement causes the violation of the PIC.[9]

The extractions of the focus DP from the sentential subject and adjunct clause, which are (46a) and (47a), can also be captured in the analysis presented here. The raising structures give the representations shown in (46b) and (47b). The focus DP is still extracted from a sentential subject in (46b) and from an adjunct CP in (47b) in the raising structures, and hence these focus-raisings cause their derivations to crash.

(46) a. *It is [John's book]$_i$ that [reading t_i] is a chore.

b. [$_{TP}$ It is$_V$ [$_{v*P}$ v* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ John's book]$_i$ that [$_{TP}$ [reading [~~$_{DP}$ John's book~~]$_i$]$_j$ is$_V$ [$_{v*P}$ v* [$_{VP}$ [~~reading [$_{DP}$ John's book~~]]$_j$ t_V a chore]]]]]]]

(47) a. *It is [John's book]$_i$ that Bill attacked Mary [because she had not read t_i].

b. [$_{TP}$ It is$_V$ [$_{v*P}$ v* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ John's book]$_i$ that [$_{TP}$ Bill attacked Mary [$_{CP}$ [~~$_{DP}$ John's book~~]$_i$ because she had not read read [~~$_{DP}$ John's book~~]$_i$]]]]]]]

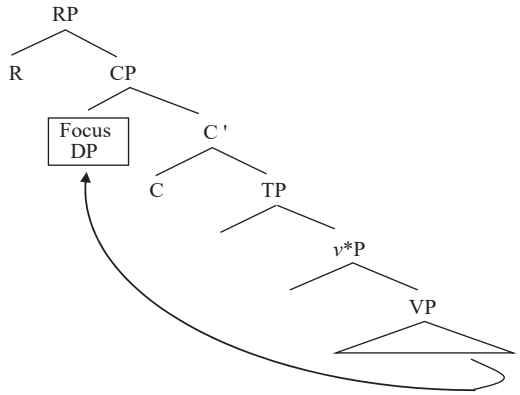
The raising structure can explain the reconstruction/connectivity effects in DP-clefts that we have seen in Section 2, reproduced as part of the examples here, in (48) and (49).

(48) It was (crumpled up) pictures of herself$_i$ that Katie$_i$ kindled the fire with.

(49) It's close tabs that the FBI kept on his movements.

The raising structure forms a substitution structure, such as in (50); the focus DP is promoted to the Spec-CP of the presuppositional clause that R takes as its complement.

(50)



Hence, the focus DP can be reconstructed into a presuppositional clause and interpreted in the gap position at LF.[10] Thus, we can capture the reconstruction/connectivity effects of the DP-focus.

(51) a. It was (crumpled up) pictures of herself$_i$ that Katie$_i$ kindled the fire with.

b. the λ x. that Katie λ y. y kindled the fire the$_x$ (crumpled up) pictures of y

(52) a. It's close tabs that the FBI kept on his movements.

b. the λ x. that the FBI kept the$_x$ close tabs on his movements

The substitution structure can also account for weak crossover effects (WCO effects) in DP-clefts.

(53) a. ?? It was [[every boy]$_i$'s mother]$_j$ that he$_i$ saw t_j first.

b. It was [his$_i$ mother]$_j$ that [every boy]$_i$ saw t_j first. (Percus 1997: 344)

The DP-cleft in (53a), which involves a quantifier co-indexed with the subject of the presuppositional clause in the focus, shows degraded grammaticality. On the other hand, the DP-cleft in (53b), where a bound pronoun co-indexed with the quantifier in the subject position of the presuppositional clause appears in the focus DP, is deemed grammatical.

In our analysis, a DP-focus, not an NP, occurs in its θ-position and is raised to the embedded Spec-CP that R takes as its complement, as in (54a, b). Due to the presence of this movement chain, this focus DP can be reconstructed into the presuppositional clause

at LF. The unacceptability of (53a) is captured, in that the pronoun *he* binds *every boy* at LF, as shown in (55a). On the other hand, in (53b), the pronoun *his* is bound by *every boy* in the θ-position, where the focus DP is reconstructed, as indicated in (55b), and no binding problem arises.

(54) a. ?? It was [[every boy]$_i$'s mother]$_j$ that he$_i$ saw t_j first.

[$_{TP}$ It was$_V$[$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ [every boy]$_i$'s mother]$_j$ that [$_{TP}$ he$_i$ [$_{v*P}$ v^* [$_{VP}$ saw ~~[$_{DP}$ [every boy]$_i$'s mother]$_j$~~ first]]]]]]]]

b. It was [his$_i$ mother]$_j$ that [every boy]$_i$ saw t_j first.

[$_{TP}$ It was$_V$[$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ his$_i$ mother]$_j$ that [$_{TP}$ [every boy]$_i$ [$_{v*P}$ v^* [$_{VP}$ saw ~~[$_{DP}$ [his$_i$ mother]$_j$~~ first]]]]]]]]

(55) a. ?? It was [[every boy]$_i$'s mother]$_j$ that he$_i$ saw t_j first.

the λ x. every boy λ y. **he(y)** saw **y**'s mother$_x$ first

b. It was [his$_i$ mother]$_j$ that [every boy]$_i$ saw t_j first.

the λ x. every boy λ y. **y** saw his**(y)** mother$_x$ first

Thus, the proposed substitution structure can account for the differences in exhaustivity/scope interactions between restrictive relatives and it-clefts. In addition, it can explain the island effects, reconstruction/connectivity effects, and WCO effects in DP-clefts. The substitution structure involves R, which links the focus part X and the presuppositional clause Y in the form of *it is/was* X *that* Y. The R takes CP as its complement, and the focus DP occurring in the θ-position in the presuppositional clause is promoted to Spec-CP of the presuppositional clause via Free Merge. There is no feature-sharing/feature-checking between the head of CP (C^0) and the Spec of CP (the focus DP) in the presuppositional clause. Hence, in this theoretical model, the displaced focus DP is not frozen. Consequently, subextraction from this focus DP does not induce violation of the Freezing Principle/Criterial Freezing. Thus, the exemption from freezing effects as in (34a－d) is derived by their substitution structure.

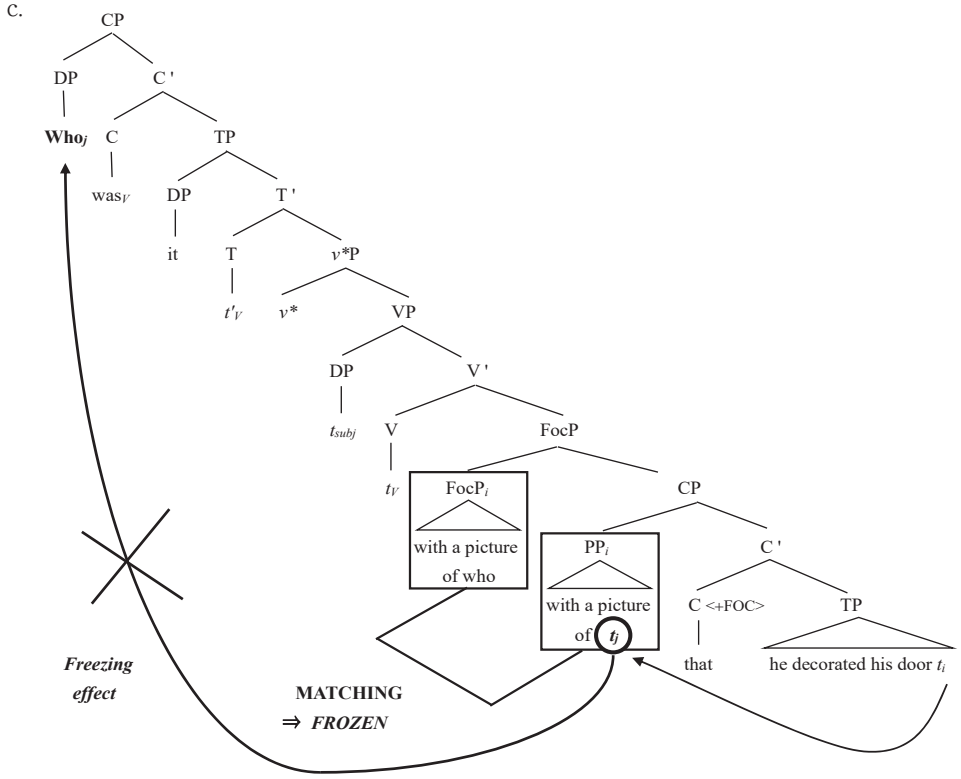
4.3 The Structure of PP-Clefts: The Adjunction Structure

Next, we examine the structure of PP-clefts. I claim that PP-clefts cannot form a substitution structure that involves promotion/raising of the focus phrase and propose that PP-clefts are derived by the "matching" strategy. An "internal" focus PP occurring in the gap position is attracted by the <+FOC> feature in C of the presuppositional clause and is displaced in the Spec of the presuppositional CP.[11] Then the "external" focus PP adjoins to the presuppositional CP. The internal and external PPs enter into the matching relation and share the <+FOC> feature. I suggest that this feature-checking/feature-sharing renders the raised PP frozen, and that (sub)extraction from this raised PP induces freezing effects. This structure is represented as follows:

(56) a. *Who$_j$ was it [with a picture of t_j]$_i$ that he decorated his door t_i?

b. [$_{CP}$ **Who$_j$** was$_V$ [$_{TP}$ it t'_V [$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{FocP}$ **[$_{FocP}$ with a picture of who]$_i$** [$_{CP}$ **[$_{PP}$ with a picture of who$_j$]$_i$** C $_{<+FOC>}$ that [$_{TP}$ he decorated his door [~~$_{PP}$ with a picture of who$_j$~~]]]]]]]

c.



This structure can account for the difference in the scope of negation between PP-clefts and DP-clefts. PP-clefts cannot occur in the focus position with negation, as in (57a－c), whereas DP-clefts allow negation in the focus position, as in (58a－c).

(57) a. *It wasn't with Paul that Mary went to the movies.
b. *It wasn't with a hammer that he repaired this lock—there aren't any dents.
c. *I know it wasn't from his vest pocket that he pulled the pistol—he was wearing his two-piece suit.

(Pinkham and Hankamer 1975: 436-437)

(58) a. It wasn't Paul that Mary went to the movies with.
b. It wasn't a hammer that he repaired this lock with—there aren't any dents.
c. I know it wasn't his vest pocket that he pulled the pistol from—he was wearing his two-piece suit.

(*op. cit.*, pp. 436-437)

In the structure of PP-clefts, the internal PP being extracted to the left edge of the presuppositional clause by the <+FOC> feature in C stays in the position, namely Spec-CP, and the external PP is adjoined to the presuppositional CP. As discussed above, the external element adjoined to the CP and the internal element in Spec-CP form a matching/predication relation. The movement chain links the internal element in Spec-CP and its gap position in the presuppositional clause. However, the external element adjoined to the CP and the gap position in the presuppositional clause are not linked by the movement chain.

We can explain the difference in grammaticality between (57a－c) and (58a－c) in terms of the presence or absence of reconstruction. In (57a－c), the focus PP cannot be reconstructed into the presuppositional clause due to their "matching" structure. Hence, sentential negation applies only to the focused element in the external position; in other words, it cannot be interpreted in the presuppositional clause. On the other hand, in (58a－c), the focused DP can be reconstructed into the presuppositional clause due to the presence of a movement chain created by their "raising" derivation. Therefore, the negation can be interpreted in the presuppositional clause. Thus, the structural difference

between DP-clefts and PP-clefts presented here can explain the grammaticality difference in the co-occurrence of negation with the focus element.

The proposed structure involves the movement of a PP within the presuppositional clause CP, and the PP in the Spec-CP and its gap position form an operator-variable relation. The following supports the movement of the PP within the presuppositional CP:

(59) a. *It's [$_{PP}$ of potatoes]$_i$ that [$_{DP}$ a pound t_i] costs $1.90.

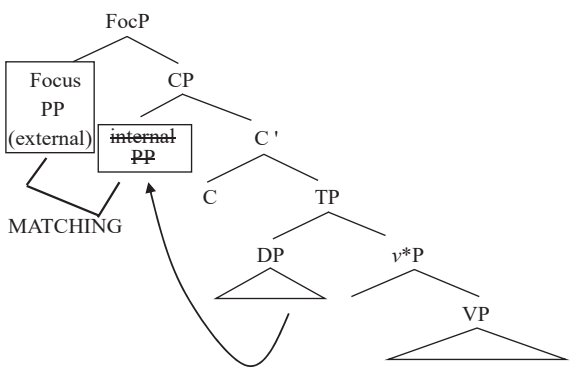
b. *It's [$_{PP}$ about roses]$_i$ that [$_{DP}$ a book t_i] would sell enough copies to break even.

c. *It was [$_{PP}$ from Philadelphia]$_i$ that [$_{DP}$ a man t_i] was standing on the podium and waving his hands.

(Wexler and Culicover 1980: 325)

A PP appears in the focus position in (59a－c) and the it-clefts are thus deemed ungrammatical. The gap of this PP is located in the subject DP in the presuppositional clause. In the presented analysis, the internal focus PP is extracted from the subject DP and displaced in the Spec-CP in the presuppositional clause. Then, the external focus PP is adjoined to the presuppositional clause CP, and it enters into a matching relation with the internal focus PP in Spec-CP. Thus, the displacement in the presuppositional clause forms an operator-variable relation between the internal focus PP in Spec-CP and its gap position.

(60)



The ungrammaticality of (59a－c) is explained by the violations of the subject condition (Chomsky 1973) and the Condition on Extraction Domain (CED; Huang 1982). The subject

condition defined in (61) dictates that elements cannot be extracted from subjects. The CED, as stated in (62), suggests that extraction occurs only from a properly governed domain. Complements are properly governed domains, but subjects and adjuncts are not. Hence, the extraction from subjects results in a violation of the CED.[12]

(61) Subject Condition

No rule can involve X, Y in the structure

$\ldots X \ldots [_{\alpha} \ldots Y \ldots] \ldots$

where (a) α is a subject phrase properly containing MMC(Y)[13]

and (b) Y is subjacent to X (Chomsky 1973: 250)

(62) Condition on Extraction Domain (CED)

A phrase A may be extracted out of a domain B only if B is properly governed.

(Huang 1982: 505)

Thus, the adjoined structure of PP-clefts can explain the scope of negation over the focus element and extraction from subjects. It involves the movement of the internal PP within the presuppositional clause, but the focus PP is adjoined to the presuppositional CP and this focus PP cannot be reconstructed into the presuppositional CP. Hence, no reconstruction effects of the focus PP with negation and movement constraints, such as the subject condition and CED, can be captured by the proposed adjunction structure for PP-clefts.

To summarize, PP-clefts are derived by the matching strategy. The internal element of the focus PP occurs in the gap position and is extracted by the <+FOC> feature in C to the Spec-CP of the presuppositional clause. Then, the external element of the focus PP is adjoined to the presuppositional clause CP, and it enters into a matching relation with the internal PP in Spec-CP and shares/checks the <+FOC> feature. As a result of this feature-sharing/checking, the moved internal focus PP is frozen, and subextraction of a *wh*-phrase from this focus PP, as in (35a－c), is not allowed.

5. Consequences

5.1 Further Movement of Raised Phrases

In this paper, we proposed that DP-clefts have a similar structure to raising relatives. In raising relatives, a head NP occurs in the gap position in the relative clause and is promoted to the head position, which is in Spec of the relative clause CP. The D head takes this CP as its complement and creates a substitution structure. In it-clefts with a DP-focus, a focus DP (not an NP) occurs in the gap position of the presuppositional clause, and it is raised to the Spec-CP of its clause. The R head takes this presuppositional clause CP as its complement, forming a substitution structure. The focus-raising to Spec-CP of the presuppositional CP takes place via Free Merge. No feature-checking between the raised focus and the C head is implemented; hence, subextraction from the focus DP is allowed without inducing freezing effects.

We have seen cases in which a *wh*-phrase is sub-extracted from a raised focus DP. However, if our analysis is on the right track, it is predicted that the raised phrase itself, not a sub-element of it, can undergo further movement because the C head and the raised focus do not share features and the raised DP-focus has not been frozen. We can find such a case in the operation of topicalization. Let us examine (63), which involves the toplicalization of the focus phrase of the it-cleft.

(63) ? Bill, it may have been who I talked to. (McCawley 1981: 106)

In (63), the focus DP occurs in the gap position in the presuppositional clause and is promoted to the Spec of CP that R takes as its complement via Free Merge as in (64).

(64) [$_{TP}$ it may have been [$_{v^*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ **[$_{DP}$ Bill]$_i$** who [$_{TP}$ I talked to [~~$_{DP}$ Bill~~]$_i$]]]]]]

The DP *Bill* is not frozen because feature-sharing does not occur between the raised element and C head. Topicalization then applies to *Bill*, and this DP is displaced in the sentence-initial position, as represented in (65). Thus, the presence of further movement of the raised focus can be validated by the substitution structure, which involves promotion of the focus DP via Free Merge.

(65) [$_{TopP}$ [$_{DP}$ Bill]$_i$ TOP [$_{TP}$ it may have been [$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ ~~Bill~~]$_i$ who [$_{TP}$ I talked to [$_{DP}$ ~~Bill~~]$_i$]]]]]]]

Considering that the proposed analysis is based on the structure of raising relatives, it is predicted that the raised relative head can also undergo further movement. The example in (66) indicates that this prediction is tenable. In (66), the relative head undergoes topicalization. Given that this relative clause is derived by a raising structure, we can claim that the raised element has undergone further movement in this example.[14]

(66) ? Many Americans there have always been who distrust politicians. (*op. cit.*, p. 106)

The following *wh*-interrogatives also show that the raised DP-focus can undergo further movement. Consider (67a, b).

(67) a. What was it that she fixed the lock with?
b. Who was it that he was telling stories about? (Pinkham and Hankamer 1975: 439)

In (67a, b), the fronted *wh*-phrases are the focused elements in it-clefts. The *wh*-phrases are categorized as DP, and the focus DP occurs in the presuppositional clause and is promoted to the Spec-CP of the presuppositional CP that R takes as its complement. The raised focus DP has a <+Q>/<+wh> feature and is then attracted by the <+Q>/<+wh> feature in the matrix C. The derivations are presented in (68a, b). Thus, (67a, b) indicate that the raised focus can undergo further movement without inducing freezing effects.

(68) a. [$_{CP}$ [$_{DP}$ What]$_i$ was$_V$ [$_{TP}$ it t'_V [$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ ~~what~~]$_i$ that [$_{TP}$ she fixed the lock with [$_{DP}$ ~~what~~]$_i$]]]]]]]
b. [$_{CP}$ [$_{DP}$ Who]$_i$ was$_V$ [$_{TP}$ it t'_V [$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [$_{DP}$ ~~who~~]$_i$ that [$_{TP}$ he was telling stories about [$_{DP}$ ~~who~~]$_i$]]]]]]]

There is a clear difference in grammaticality regarding further movement of the focus elements between DP-clefts and PP-clefts. The PP-clefts equivalent to (67a, b) yield ungrammatical outcomes, as in examples (69) and (70).[15]

(69) a. *What was it with that she fixed the lock?

b. *Who was it about that he was telling stories? (*op. cit.*, p. 439)

(70) a. *With what was it that she fixed the lock?

b. *About who(m) was it that he was telling stories?

The examples in (69) are similar to the subextraction data in (35a－c), because a *wh*-phrase is extracted from the focus PP. However, in the examples in (70), the entire focus PP is displaced in the sentence-initial position. These extractions also result in ungrammaticality. Thus, DP-clefts and PP-clefts display a sharp contrast in the availability of further movement from the focus position. Our analysis provides a solution for this contrast. PP-clefts are derived by the matching strategy; hence, the feature-sharing/checking between the adjoined PP-focus and the moved internal PP renders the moved PP-focus frozen and it halts in the position.

Thus, our analysis correctly predicts that the raised focus phrase itself can undergo further movement without inducing freezing effects in DP-clefts. This can also account for the unavailability of further movement of a focus PP from the focus position.

5.2 Argument PPs in the Focus Position

Our analysis explains the presence or absence of freezing effects between DP-clefts and PP-clefts. However, the question of binding data on PP-clefts still remains. Consider the following.[16, 17]

(71) a. It was to her_i city of residence that [every participant]$_i$ of the conference gave a donation.

b. It was to his_i mother that [every boy]$_i$ sent a letter.

c. It was to his_i achievements that [every researcher]$_i$ referred in his speech.

PPs appear in the focus position in (71a－c). According to our analysis, it is predicted that (71a－c) are derived by the matching strategy, which is a structure for PP-clefts. Since the PP-focus is adjoined to the presuppositional CP and the identification of the external PP-focus with the internal PP-focus relies on matching/predication, there is no

syntactic chain between the external PP-focus and the gap position in the presuppositional clause. Therefore, no reconstruction occurs, and the PP-focus is interpreted in the focus position at LF (cf. (31a－c) and (57a－c)). The unavailability of reconstruction of the PP-focus predicts that (71a－c) should be ill-formed because the bound pronouns are not bound by the intended antecedents. However, the grammaticality status in (71a－c) implies that the PP-focus is reconstructed into the presuppositional clause, and the pronoun in the PP-focus receives the bound interpretation.

I attempt to analyze the binding interpretation of (71a－c) by focusing on the nature of PPs. The PPs in (71a－c) have the characteristics of arguments or argument-like nature. Hence, I suggest that the PPs in (71a－c) have become an Extended Projection in the sense of Grimshaw (2000, 2005). Grimshaw (2000, 2005) argues that the feature <+wh> projects through the transparent DP to a dominating PP in pied-piping *wh*-sentences as follows:

(72) a. To whom did they give the job?
b. Under which stone did they find a note? (Grimshaw 2005: 23)

Grimshaw (2005: 24) claims that it follows from positing an extended nominal projection including PP that if D (or N) is <+wh>, this feature will project to PP. She argues that PPs are indeed a kind of nominal—the biggest kind there is—under Extended Projection.

Following Grimshaw's idea of Extended Projection, I suggest that the argument PP in (71a－c) makes an extended projection PP, and it can undergo movement like nominals. This grammatical status of extended projection enables PP-focus to be derived by the raising structure, and it can be promoted to Spec-CP of the presuppositional clause that R takes as its complement. The derivations of (71a－c) based on the Extended Projection are represented as in (73a－c).

(73) a. [$_{TP}$ It was$_V$ [$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [***PP*** to her city of residence]$_i$ that [$_{TP}$ every participant of the conference gave a donation ~~[***PP*** to her city of residence]$_i$~~]]]]]]
(***PP***: Extended Projection PP)
b. [$_{TP}$ It was$_V$ [$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [***PP*** to his mother]$_i$ that [$_{TP}$ everybody sent a letter ~~[***PP*** to his mother]$_i$~~]]]]]]
c. [$_{TP}$ It was$_V$ [$_{v*P}$ v^* [$_{VP}$ t_{subj} t_V [$_{RP}$ R [$_{CP}$ [***PP*** to his achievements]$_i$ that [$_{TP}$ every researcher

referred [~~*PP* to his achievements~~]$_i$ in his speech]]]]]]

The raising structure allows the reconstruction of the focus PP, and the PP is interpreted at the position of the lower copy. The interpretation of the focus part of (71a－c) is roughly represented in (74a－c), respectively.

(74) a. every participant λ y. [the λ x. **y** gave a donation to$_x$ **her**$_{(y)}$ city of residence]
b. every boy λ y. [the λ x. **y** sent a letter to$_x$ **his**$_{(y)}$ mother]
c. every researcher λ y. [the λ x. **y** referred to$_x$ **his**$_{(y)}$ achievements in his speech]

As represented in (74a－c), the head PP is interpreted within the presuppositional clause and the bound pronoun is bound by the co-indexed antecedent.

Thus, the presented analysis can capture reconstruction effects on argument PPs by applying Grimshaw's (2000, 2005) idea of Extended Projection. The example in (75) provided by É. Kiss (1998) provides evidence that our analysis is on the right track. Given that (75) is derived by the raising structure, the argument PP *to a boy* is interpreted at the lower copy at LF, yielding the WCO violation (cf. (53)－(55)).

(75) ?? It was [to a boy]$_i$ that his$_i$ mother spoke t_i. (É. Kiss 1998: 254)

However, I would claim that it-clefts with the argument PP are not always derived by the raising structure. The examples in (76) imply that it-clefts with an argument PP can be derived by the matching strategy.[18]

(76) a. ? It was [to a paper of John('s)]$_i$ that she referred t_i in her presentation.
b. *Who$_j$ was it [to a paper of t_j]$_i$ that she referred t_i in her presentation?

Given that (76a, b) are derived by the matching strategy, the ungrammaticality of (76b) can be explained in the analysis presented in this paper. The internal PP [*to a paper of who*] is attracted to the left periphery of the presuppositional clause and remains there. The focus PP (external PP) [*to a paper of who*] adjoins to the presuppositional clause CP and shares the <+FOC> feature with the internal PP. This feature-sharing renders the moved PP

frozen. As a result, it is not possible to extract *who* from the PP.

I provisionally suggest that PP-clefts are basically derived by the matching strategy, even if the focus PP is an argument PP. However, as restrictive relatives are derived by both the raising strategy and the matching strategy according to the binding phenomena, which we have seen in Section 3, I claim that PP-clefts can be derived by the substitution structure/raising strategy if the focus PP is an argument PP. Further research is required to validate this analysis.

6. Conclusion

In this paper, I have argued that it-clefts differ in the presence or absence of freezing effects on subextraction from the focus element between DP-clefts and PP-clefts. I have attributed this dissimilarity to their structural differences. It-clefts with a DP-focus are derived by a substitution structure that involves promotion of the focus DP from the presuppositional clause. The raised DP is promoted to the focus position via Free Merge. Hence, the focus is not frozen and subextraction from the focus DP is available. On the other hand, it-clefts with a PP-focus are derived by the adjunction structure/matching strategy. An internal PP occurs in the gap position in the presuppositional clause, and is attracted by the <+FOC> feature in C and displaced in the Spec-CP of the presuppositional clause. Then, the focus PP/external PP adjoins to the presuppositional clause CP, and the focus PP and the internal PP share their <+FOC> feature by the matching operation. Due to this feature-sharing, the moved internal PP is frozen, and subextraction is not possible from this PP.

I have also shown that the presented analysis can explain the difference in scope interaction/exhaustivity between *that*-relatives and it-clefts, island effects, WCO effects, reconstruction/connectivity effects of DP-clefts, the scope of negation between DP-clefts and PP-clefts, and the subject condition/CED effects in PP-clefts. Finally, I have also shown that the presented analysis can explain peculiar binding facts in it-clefts with argument PPs.

Footnotes

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1 What causes the ill-formedness of (17a, b) is the extraction out of moved elements. This ungrammaticality is not due to the nature of the subextraction itself. The following examples show that subextraction can check the <+wh> feature in C of the embedded clause.

(i) a. I wonder [[whose books]$_i$ John read [$_{DP}$ several reviews of t_i]].
b. I wonder [[which son]$_i$ John was [$_{AP}$ very proud of t_i]].
c. I wonder [[whose mouth]$_i$ the dentist stuck his finger [$_{PP}$ too far into t_i]]. (Corver 2017: 1720)

2 The grammaticality of (18a, b) and (19a, b) is assessed by native speakers of English.

3 The rudiments of this "promotion" model for English restrictive relatives were introduced by Brame (1968), Schachter (1973), and Vernaud (1974). Kayne (1994) elaborated on this derivational model within the framework of the Minimalist Program and proposed the "substitution" structure in his *Antisymmetry* theory.

4 The notation *the$_x$ place* may be understood as a shorthand for 'the λ y. (x=y and place(y))'. See Fox (1999, 2002) and Hulsey and Sauerland (2006) for details.

5 In this derivational model, the nominal phrase occurring in the gap position in the relative clause is regarded as NP. Borsley (1997) criticizes the idea of the occurrence of an NP in the gap position instead of a DP by insisting that noun phrases without a determiner cannot normally occur in the object position of a VP in English. However, Bianchi (2000) and Cecchetto and Donati (2015) propose that their amended theoretical models do not induce this problem. Bianchi (2000) proposes that a DP with an empty D, instead of an NP, occurs in the gap position and moves to Spec-CP. The external D is incorporated into the empty D in the raised DP that is adjacent to the external D, and these Ds become a unified entity.

(i) [$_{DP}$ [$_D$ the] [$_{CP}$ [$_{DP}$ ϕ book] [$_{C'}$ that [$_{IP}$ John read [~~$_{DP}$ ϕ book~~]]]]]

The issue that the nominal phrase in the gap position lacks a determiner remains in this analysis, but Bianchi (2000) attempts to capture the problem with the occurrence of NP in the gap position.

Cecchetto and Donati (2015) suggest that NP occurs with the relative pronoun *that*, forming a DP. This DP is raised to Spec-CP of the relative clause, and the NP *book* moves out of the DP. This NP-movement gives the CP label to the phrase [that ~~book~~], where *that* remains. In other words, the demonstrative *that* is turned into a complementizer after the extraction of *book*. These derivations are represented in (ii a-c).

(ii) a. the book that John read
b. [$_{DP}$ the [$_{CP}$ [$_{DP}$ that book] John read ~~that book~~]]

c. [$_{DP}$ the [$_{NP}$ book [$_{CP}$ that ~~book~~] John read ~~that book~~]]

The exemption from freezing effects regarding the extraction of [$_{NP}$ book] out of [$_{CP}$ that book] needs explanation, and the status of *that*, which involves the change of syntactic nature, is controversial. However, Cecchetto and Donati (2015) thus provide a solution to the issue raised by Borsley (1997).

6 Thus, head NPs take scope over quantifiers within the relative clause in restrictive relatives. However, Doron (1982) and Sharvit (1999) point out that there is a case in which a quantifier in the subject of the relative clause takes scope over the relative head. In (i), a "multiple-individual" interpretation is available in addition to a "single-individual" one. The former is a so-called pair-list reading in that a woman whom each man loves differs from person to person, while the latter is the single-list reading in that every man loves the same woman.

(i) The woman every man loves is his mother.

Sharvit (1999) explains this multiple-individual reading by adopting Chierchia's (1993) analysis of pair-list reading. Sharvit proposes a rule of absorption, which converts the relative operator and quantifier into a single constituent (… [Op [QNP …. → [Op QNP] …). In this model, the DP that contains the relative clause inherits the syntactic properties of the quantifier and is scoped out locally.

To incorporate Sharvit's functional analysis into the analysis presented in this paper, we may assume that the raised head NP *woman* could carry the Q-feature of "every" that is checked at LF in the course of derivation. The pair-list interpretation is then obtained by a semantic interpretation in the sense of Sharvit (1999). Further research is required to validate this analysis.

7 Chomsky (2021) does not provide a specific example of the phasehood of nominals (*n*P). The definiteness effect, as in (i), can be captured if we consider that this nominal phrase forms a phase.

(i) *Who$_i$ did you see [$_{nP}$ John's pictures of t_i]?

8 I am grateful to an anonymous *Literary Symposium* reviewer who raised the question of the phasehood of *v**P. I leave a thorough analysis of the phasehood of raising structures for future research.

9 It would be possible to argue that the adjunct *how* does not target the Spec-CP of the presuppositional clause, since this *wh*-phrase is not a focus DP and does not need to form a substitution structure. In other words, the syntactic nature of the adjunct *how* does not match that of the Spec of the CP that R takes as its complement. However, given the PIC, we must suppose that every CP edge is available for the landing of a phrase with the *wh*-feature. Hence, I also argue that *how* potentially needs to land in the CP of the presuppositional clause in order to avoid violating the PIC.

10 I owe the semantic notations of (51b) and (52b) to Hulsey and Sauerland (2006).

11 In the structure of PP-clefts, I also assume that *v**P does not form a phase. However, I claim that my analysis can still be captured in the model that *v**P forms a phase. In that case, the internal PP-focus with the uninterpretable <+FOC> feature first moves to the edge of the *v**P of the presuppositional clause. It is then attracted to the Spec-CP of the presuppositional clause by the <+FOC> feature in C. It is then deleted via matching with the external PP-focus adjoined to the

CP. Consequently, this matching/feature-checking renders the PP-focus frozen.

12 Likewise, *wh*-interrogatives obey the subject condition and CED. (i a-b) are examples of the subextraction of a PP from a subject, and the extraction results in ungrammaticality.

(i) a. *[Of which car]$_i$ did [the driver t_i] cause a scandal? (Chomsky 2008: 147)

b. *[Of what]$_i$ did [those pictures t_i] upset him? (Haegeman et al. 2014: 93)

However, if subextraction is taken from the subject of a passive/unaccusative predicate, PP-subextraction is deemed grammatical, as shown in (ii a-b).

(ii) a. [Of which car]$_i$ was [the driver t_i] awarded a prize? (Chomsky 2008: 147)

b. [Of which cars]$_i$ were [the hoods t_i] damaged by the explosion? (Ross 1967: 242)

13 MMC(Y) = the minimal major category containing Y.

14 In (66), the relative pronoun *who* appears instead of the relative pronoun *that*. Aoun and Li (2003) argue that *wh*-relatives are not formed by a raising structure but are derived by the matching strategy. However, a number of scholars have different views on this topic. Among them, Kayne (1994) suggests that *wh*-relatives are also derived by the raising structure. I also examine (66) based on the raising structure.

However, we may need to give additional thought to this example. As discussed in Section 3.1 and Section 4.2, an NP, not a DP, occurs in the gap position of the head in the raising relatives, and the head NP is promoted to the Spec-CP that the D head takes as its complement, as represented in (i).

(i) there have always been [$_{DP}$ [$_{D}$ many] [$_{CP}$ [$_{NP}$ Americans] who [$_{TP}$ [$_{NP}$ ~~Americans~~] distrust politicians]]]

Given that the DP, which involves the raised NP *Americans*, undergoes topicalization, the relative clause should be pied-piped in this raising structure. Example (ii) shows that the topicalization of the relative head with the relative clause has much degraded grammaticality.

(ii) ?? Many Americans who distrust politicians there have always been. (McCawley 1981: 106)

Considering this fact, *many* is rather regarded as an adjectival in (66), and occurs with the head NP in the gap position, as in (iii).

(iii) there have always been [$_{DP}$ D [$_{CP}$ [$_{NP}$ [$_{AP}$ many [$_{NP}$ Americans]]] who [$_{TP}$ [$_{NP}$ [$_{AP}$ ~~many~~ [$_{NP}$ ~~Americans~~]]] distrust politicians]]]

I leave for future research the extensive analyses needed of the relationships among quantifiers, adjectival elements, and nominal elements.

15 The grammaticality of (70a, b) is assessed by native speakers of English.

16 The grammaticality status of (71a－c) is judged by native speakers of English.

17 A certain number of scholars provide data on PP-focus as well as DP-focus with the preposition *to* being stranded in the presuppositional clause in it-clefts with the ditransitive verb *give* (Akmajian 1970, Delahunty 1981, 1984, among others).

(i) a. It was to Bill that I gave a nasty look.

b. It was Bill that I gave a nasty look to. (Delahunty 1981: 87)

However, it is known that there are native English speakers who do not accept the PP-focus version (i-a) or prefer the DP-focus (i-b) to the PP-focus (i-a). The grammaticality of (71a－c) was

assessed by native English speakers who allow the (i-a) type of it-clefts with ditransitive verbs.

18 The grammaticality of (76a, b) is assessed by native speakers of English. The availability of [*to NP*] in the focus position in it-clefts with the predicate *refer* is supported by the following example by Huddleston (1984).

(i) It was [to Ed] that she was referring. (Huddleston 1984: 460)

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