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A Synchronic and Diachronic Study of *That*-clauses in English

(英語における That 節に関する共時的・通時的研究)

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A Synchronic and Diachronic Study of *That*-clauses in English

by

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Dissertation Submitted to the Graduate School of Letters

in Partial Fulfillment of the Requirements

for the Degree of

DOCTOR OF LITERATURE

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Abstract

It goes without saying that an embedded clause is different from a matrix one in many respects. Most striking is that in English, only the former can be introduced by the complementizer *that*. It has been reported by many linguists that the (un)grammaticality of certain constructions depends on whether *that* is present or not. The main purpose of this thesis is to present a principled account of a number of constructions involving *that*-clauses and their historical changes in English.

Chapter 1 shows main aims and the organization of this thesis.

Chapter 2 proposes a new clausal architecture based on the syntactic cartography, in which all functional heads of a phase do not split and function as a single head if some criteria

and features are satisfied by the movement of an element simultaneously. It is shown that the proposed analysis can capture the asymmetries between a subject *wh*-question and an object *wh*-question and account for the syntactic properties of the Locative Inversion Construction.

Chapter 3 investigates the distribution of *that*-clauses and *that*-less clauses in the history of English by employing the historical corpora. It is proposed that the complementizer *that* retained its demonstrative status until a certain period of early English, and that the null complementizer changed its status from a syntactic affix to a PF one in the course of time.

Chapter 4 proposes a principled account of the *that*-trace effect under the cartographic approach. It is shown that the proposed analysis can account for its related phenomena in English and other languages. This chapter also offers new insight into the lack of the *that*-trace effect in early English.

Chapter 5 proposes a syntactic analysis of the structures of Sentential Subject Constructions and Extraposition Constructions and their historical changes in English. The proposed analysis can capture the fact that there are two types of Extraposition Construction: one can be rephrased as a Sentential Subject Construction but the other cannot. This chapter also argues that Sentential Subject Constructions developed by analogy with the reanalysis from the demonstrative *that* to the definite article *the*.

Chapter 6 is the conclusion of this thesis and the summary of the analyses proposed in each chapter.

Chapter 1

Introduction

1.1. Aims of This Thesis[1]

It goes without saying that an embedded clause is different from a matrix one in many respects.   Most striking is that in English, only the former can be introduced by the complementizer *that*.   There seems to be a consensus among many linguists that the complementizer *that* developed from the demonstrative *that* in the history of English (e.g. Hopper and Traugott (2003), Roberts and Roussou (2003), Hosaka (2010) and Gelderen (2011)).   Given that a diachronic change is not drastic but gradual, it is reasonable to assume that the complementizer *that* retained the status as demonstrative until a certain period of the history of English.   One piece of evidence for this idea is that in OE, a *that*-less clause was rare, and it gradually increased in the transition from OE to ME, finally leading to the situation in EModE where the complement clauses without *that* outnumbered those with *that*.

In the generative literature, it has been observed that the (un)grammaticality of certain constructions depends on whether *that* is present or not.   In some cases, it is well-known that the complementizer *that* cannot be omitted in certain circumstances.   For examples, omission of *that* is impossible in the clausal argument in sentential subject constructions, as illustrated in the following contrast.

(1)   a.   [$_{CP}$ That the world was round] was known to the Ancients.

         b.   * [$_{CP}$ the world was round] was known to the Ancients.

                                                                    (Pesetsky (1991: 35))

It has been observed by a number of researchers that the null complementizer must be

licensed under some circumstance (cf. Pesetsky (1991), Bošković and Lasnik (2003), An (2007), and Kim (2008)). In addition, *that* in complement clauses cannot be omitted unless the clausal argument is not adjacent to the matrix verb selecting it, as exemplified in (2).

(2)   a.   It seemed at that time [$_{CP}$ that [$_{IP}$ David had left]].

     b.   * It seemed at that time [$_{CP}$ Ø David had left].

(Bošković and Lasnik (2003: 529))

This seems to suggest that in English, the null complementizer must be licensed by establishing a certain relationship with the matrix predicate selecting a clausal argument. However, the following examples from EModE shows that it did not have to be licensed under that circumstance in early English.

(3)   a.   they say notwithstanding [$_{CP}$ Ø the town is a sad Jacobitish town]

(FIENNES-E3-H,146.135)

     b.   I knew not [$_{CP}$ Ø his Letters were to me],

(THOWARD2-E2-P2,109.712)

In these examples, the adverb *notwithstanding* and the negation *not* intervene between the null complementizer and the matrix verb selecting the clausal argument, resulting in the configuration where they are not adjacent to each other.

Second, the presence of *that* makes some constructions ungrammatical. For example, extraction of a subject is possible from an embedded clause only if the complementizer *that* is absent, whereas extraction of an embedded object is possible regardless of whether *that* is present or not, as illustrated in (4a, b), respectively.

(4) a. Who$_i$ do you think (*that) t_i met Sue?

b. Who$_i$ do you think (that) Sue met t_i?

(Pesetsky and Torrego (2001: 356))

Many studies have been devoted to accounting for the ban on extraction of a subject from a *that*-clause, which is called *that*-trace effect (e.g. Rizzi and Shlonsky (2007), Bošković (2011), Chomsky (2014) and Abe (2015a, b)).   Recently, there are two types of generative approaches to *that*-trace effect: a Criterial Freezing based approach and a locality based approach.   Under the former approach, the impossibility of subject extraction from a *that*-clause is attributed to the "EPP" property or something akin to it.   Rizzi and Shlonsky (2006, 2007) recasts the "EPP" as the subject criterion, satisfied by the movement of a nominal element to the specifier of SubjP, which prevents the element satisfying its criterion from moving to a matrix clause due to Criterial Freezing.   The latter approach analyzes the impossibility of extracting an embedded subject from a *that*-clause to be due to the violation of locality condition on movement.   From this perspective, Bošković (2011) argues that *that* counts as an intervener for the movement of an embedded subject to the specifier of the embedded CP.   These approaches argue that the lack of the complementizer *that* somehow allows an embedded subject to circumvent constraints such as Criterial Freezing and locality condition.   On the other hand, the following examples from ME and EModE show that the sequence of *that*-t was allowed in early English.

(5)   a.   Ðis ilche seið god to hem   ðe$_i$ he wile   ðat t_i bie   him

              this same says god to them that he wishes that be   him

              hersum:

              obedient   (CMVICES, 109.1321: M1 / Nawata (2013: 122))

      b.   Ther is the stateliest hearse in the Abbye Op$_i$ I thinke that t_i ever was

              made   (KNYVETT-1620-E2-P1, 66.109: E2 / Nawata (2013: 123))

In PE, the dummy *it* must be present in extraposition constructions, as illustrated in (6).

(6)   a.   It is obvious that the world is round.

                                        (Akmajian and Heny (1975: 280))

      b.   It is believed by everyone that Einstein was right.

                                          (Akmajian and Heny (1975: 281))

Many generative studies have been devoted to accounting for the relationship between the dummy *it* and the sentence-final clausal argument. Some researchers argue that *it* is an expletive with no semantic content while others argue that *it* is a pronoun, which refers to the sentence-final clausal argument.   On the other hand, the following examples from OE show that the insertion of *it* was optional in extraposition constructions in early English: (7a) has *hit* 'it' in the subject position, while (7b) has *eac* 'also' in preverbal position without a dummy element.

(7) a. Hit byð dysig þæt man speca ær þone he þænce.

     it is foolish that one speaks before that he thanks

     'It is foolish that one speaks before he thanks it'

                                                  (codicts, Prov_1_[Cox]:2.2.81)

     b. Eac bið swyþe derigendlic þæt bisceop beo gymeleas,

     also is very harmful that bishop is careless

     'It is also very harmful that a bishop is careless'

                                                  (coaelive, ÆLS[Pr_Moses]:125.2934)

Two types of approach have been proposed to the derivation and structure of extraposition constructions in early generative studies in order to account for the status of *it* and syntactic position of the sentence-final clausal argument. One is called the 'extraposition' approach, according to which extraposition constructions like (6) are derived from the corresponding sentential subject constructions in (8) by displacing the clausal argument to the sentence-final position and inserting *it* in the subject position.

(8) a. That the world is round is obvious.

                                                  (Akmajian and Heny (1975: 280))

     b. That Einstein was right is believed by everyone.

                                                  (Akmajian and Heny (1975: 281))

The other is called the 'intraposition' approach, according to which the clausal argument is base-generated in the sentence-final position; then, extraposition constructions are derived if *it* is inserted in the subject position while sentential subject constructions are derived if the clausal argument moves to the subject position. The latter approach is supported by the

bottom-up approach proposed recently, where the syntactic structure is constructed in the bottom-up fashion.   Under the recent generative studies, it is proposed that *it* is merged in the specifier of the clausal argument selected by a predicate and is then attracted to the specifier of the matrix TP (cf. Stroik (1996) and Iwakura (2002)).

It should be mentioned that there are some types of sentential subject construction which cannot be rephrased as an extraposition construction, as illustrated in the following pair of example.

(9)   a.   ?*It forced me to quit my job [that Lou was hired].

         b.   [That Lou was hired] forced me to quit my job. (Stroik (1996: 246))

This pair shows that sentential subject constructions with the clausal argument as an external argument cannot be rephrased as extraposition constructions.   This argues against the 'extraposition' approach, in which extraposition constructions are derived from sentential subject constructions through transformation.   It would also be untenable from the diachronic perspective because sentential subject constructions were not found in OE where there were many extraposition constructions with and without *it*; they began to be found in late ME where extraposition constructions with *it* were observed more frequently than those without *it*.   The sentential subject constructions like (9b) with the clausal argument as an external argument emerged in the same period as those like (6) containing it as an internal argument.

The main purpose of this thesis is to present a principled account of a number of constructions involving a *that*-clause and their historical changes in English within the minimalist framework.   This thesis proposes a new clausal architecture based on the syntactic cartography in which a certain criterion is satisfied by the movement of an element

to the specifier of the relevant functional head (cf. Rizzi (1997, 2006, 2010) and Rizzi and Shlonsky (2006, 2007)). It is argued that the development of the overt and null complementizer in English plays a key role in accounting for the historical change of the distribution of *that*-clauses and *that*-less clauses, the *that*-trace effect, and extraposition constructions, and the development of sentential subject constructions.

1.2. The Organization of This Thesis

The body of this thesis is organized as follows: adopting the recent cartographic approach proposed by Rizzi (1996, 1997, 2006, 2010) and Rizzi and Shlonsky (2006, 2007), chapter 2 proposes a new clausal architecture based on syntactic cartography, where some functional heads in the CP domain are amalgamated into a single head if the movement of a single element satisfies multiple criteria and features simultaneously. It is shown that the proposed analysis can capture the asymmetry between a subject *wh*-question and an object *wh*-question and account for the syntactic properties of the Locative Inversion Construction.

Chapter 3 examines the historical change of the overt and null complementizers in English. Under the standard assumption that the complementizer *that* developed from the demonstrative *that* in the history of English, this chapter argues that *that* was already a part of a complement clause but remained the status as a demonstrative in OE. This chapter proposes that *that* merged in the specifier of CP was reanalyzed as a complementizer merged in the head of CP and shows the structural differences between *that*-clauses in early English and PE. On the other hand, adopting the idea proposed by Pesetsky (1991), Bošković and Lasnik (2003) and Kim (2008) that the null complementizer is an affix which must attach to the matrix verb, this chapter argues that it was merged as a syntactic affix which attached to the matrix verb through head movement, and then, it was reanalyzed as a PF affix which attached either to the matrix verb or the embedded verb through PF merger. This results in

the final situation in PE where a *that*-less clause must be adjacent to the matrix verb.

Based on the clausal architecture proposed in chapter 2, chapter 4 provides a principled account of why the presence/absence of the complementizer *that* affects the possibility of extraction of an embedded subject in terms of Criterial Freezing and PF deletion. This chapter also examines a number of grammatical cases of extraction of a subject from an embedded clause with *that*, and shows how they receive a principled explanation under this analysis. Furthermore, it is argued that the development of *that* plays a key role in accounting for the historical change of the *that*-trace effect: the sequence of *that*-t was allowed only when *that* remained the status as a demonstrative.

Following Stroik (1996) and Iwakura (2002), who argue that the dummy *it* is merged in the specifier of the sentence-final clausal argument, chapter 5 presents a syntactic analysis of two types of extraposition construction within the minimalist framework. This analysis allows us to relate the development of the complementizer *that* to the historical change of extraposition constructions with regard to the presence/absence of *it*. Integrating this analysis with the idea proposed by Watanabe (2009) that the article merged in the head of DP developed from the demonstrative occupying in the specifier of DP, this chapter provides a syntactic analysis of why sentential subject constructions emerged in some period where extraposition constructions with *it* as well as complement clauses without *that* increased drastically.

Chapter 6 is the conclusion of this thesis and the summary of the analyses proposed in each chapter.

[1] Here are the historical periods of English standardly assumed: Old English (OE) (700-1100), Middle English (ME) (1100-1500), Modern English (ModE) (1500-1900) (Early Modern English (EModE) (1500-1700), Late Modern English (LModE) (1700-1900)), and Present-day English (PE) (1900-). In what follows, I will give both glosses and translations to OE examples and only glosses to ME examples.

Chapter 2

Clausal Architecture

2.1. Introduction

There have been many generative studies on the clausal architecture and the trigger of movement (e.g. see Fox and Pesetsky (2005), Bošković (2007), and Chomsky (2007, 2008, 2013, 2014) for recent studies).   Under the minimalist assumption that unvalued features are inherited from a phase head to a non-phase head, Chomsky (2007, 2008, 2013) argues that all operations within a phase take place simultaneously.[1]   Richards (2007) suggests that unvalued features must not stay in a phase head because the valuation and the transfer of such features should take place simultaneously.   Let us consider the derivation of the CP phase. Suppose the following derivational step where the phase head C is introduced into the derivation with unvalued φ-features, which in turn are inherited to the non-phase head T.

(1) $[_{CP}$ C $[_{TP}$ T(φ) $[_{vP}$ Subj(φ) v VP]]]

If unvalued φ-features of T are to be valued after the transfer of TP, they cannot be valued by any element with valued counterparts; on the other hand, if they are to be valued before the transfer of TP, the Conceptual-Intentional (henceforth, CI) interface cannot tell the difference between originally valued φ-features and derivationally valued counterparts, leading to the crash of the derivation.   The following derivation where unvalued φ-features stay in the phase head C is excluded in the same way.

(2) $[_{CP}$ C(φ) $[_{TP}$ T(-) $[_{vP}$ Subj(φ, Case) v VP]]]

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In (2), the establishment of an Agree relation between C and the subject in *v*P in φ-feature is followed by the transfer of TP. Thus, the phase head C is transferred to interfaces after the valuation of its φ-features. Again, the CI interface cannot identify whether they are originally or derivationally valued. As a result, the feature inheritance, the valuation, and the transfer should take place simultaneously so that the CI interface can tell the difference between originally valued features and derivationally valued ones.

However, many generative studies point out some problems with the feature inheritance (e.g. Hageman and van Koppen (2010), Obata (2010), Epstein, Kitahara and Seely (2012), and Gallego (2014)). Among others, Epstein, Kitahara and Seely (2012) present the following counterexamples, in which the unvalued features valued in a phase domain are transferred to interfaces in the next phase domain.

(3)   a.   * [$_{CP}$ C [$_{TP}$ T [$_{vP}$ Subj(φ, Case) V(φ)+*v* [$_{VP}$ *t*$_V$ Obj]]]]

   b.   * [$_{CP}$ C [$_{TP}$ T [$_{vP}$ Obj(φ, Case) Subj(φ, Case) V(φ)+*v* [$_{VP}$ *t*$_V$ *t*$_{Obj}$]]]]

(cf. Epstein, Kitahara and Seely (2012: 258))

In (3a), the derivation of a declarative sentence, the derivationally valued φ-features of V are transferred in the CP phase domain because V undergoes head movement to *v*, leading to the crash of the derivation. This holds for the derivation of an object *wh*-question in (3b), in which the object *wh*-phrase in outer Spec-*v*P bears the Case feature valued because of establishing an Agree relation with V in φ-feature, so that the CI interface cannot distinguish it from originally valued features.

Another problem with the feature inheritance is that a subject moves to Spec-TP only after C is merged with TP, resulting in the counter-cyclic derivation. Assuming that movement is an instance of a merger operation (called Internal Merge), the recent minimalist

studies (e.g. Chomsky (2007, 2008, 2013, 2014), and so on) argue that it is free to apply in narrow syntax.   Along the lines, Chomsky (2014: 10) assumes that a subject moves from its original position to Spec-TP before the merger of C and the inheritance of unvalued φ-features from C to T, as shown in the following derivation.

(4)   a.   [$_{TP}$ Subj T(-) [$_{vP}$ t_{Subj} v [VP...]]]

       b.   [$_{CP}$ C [$_{TP}$ Subj T(φ) [$_{vP}$ t_{Subj} v [VP...]]]]   (cf. Chomsky (2014:10))

In (4a), the free application of a movement operation makes it possible for the subject to move to Spec-TP before the merger of the phase head C and the inheritance of unvalued φ-features.   In (4b), the presence of the subject in Spec-TP is licensed under the 'specifier-head' configuration after the inheritance of unvalued φ-features from C to T. According to Chomsky (2014), this analysis allows us to dispense with the counter-cyclic derivation, in which a subject moves to Spec-TP after the merger of C and the inheritance of unvalued φ-features from C to T.   However, there is a serious problem with his analysis: a great number of derivations to crash are wrongly generated which violate some condition on movement, and it costs too much to exclude all the derivations as ungrammatical ones.

Therefore, in order to overcome this conceptual problem, this thesis assumes under the cartographic approach that the movement of an element is triggered only if it satisfies the requirement of a functional head or the element itself.   Under the cartographic approach (cf. Rizzi (1996, 1997, 2006) and Rizzi and Shlonsky (2007, 2006)), the CP domain consists of multiple functional heads and their projections associated with particular scope/discourse properties, and an element moves to their specifier in order to satisfy their relevant criteria and features.   The main purpose of this chapter is to propose a new clausal architecture in terms of syntactic cartography, in which some functional heads of a phase function as a single

head if they do not have to split and function as separate heads. Focusing on a matrix clause, this chapter argues that the new clausal architecture makes it possible to dispense with the feature inheritance and the counter-cyclic derivation, and to reduce the number of categories/projections and operations in a derivation, which are theoretically desirable consequences. It is shown that this analysis provides a principled account of the asymmetry between a subject *wh*-question and an object *wh*-question. This chapter also tries to account for the syntactic properties of the Locative Inversion Construction, arguing that the derivation of this construction is similar to that of a subject *wh*-question. Extending this analysis to the *v*P phase, furthermore, this chapter presents a principled account of the impossibility of extracting a *wh*-phrase from an external argument and the superiority effect in the multiple *wh*-question which contains both a subject *wh*-phrase and an object *wh*-phrase.

This chapter is organized as follows: section 2.2 focuses on the syntactic cartography of the CP domain, reviewing Rizzi (1996, 1997, 2006) and Rizzi and Shlonsky (2006, 2007). Revising the analysis proposed by Rizzi and Shlonsky (2006, 2007), section 2.3 proposes a new clausal architecture based on syntactic cartography and shows that this clausal architecture is theoretically desirable because the number of categories/projections and operations can be reduced. Section 2.4 shows that the analysis proposed in section 2.3 can capture the asymmetry between a subject *wh*-question and an object *wh*-question. This section also clarifies the syntactic structure of the Locative Inversion Construction and accounts for its similarity to a subject *wh*-question. Extending this analysis to the *v*P phase, section 2.5 provides a principled account of the (im)possibility of extraction from a subject and an object and the superiority effect in a multiple *wh*-question. Section 2.6 is the conclusion and summary of this chapter.

2.2. The Fine Structure of the CP Domain

2.2.1. Rizzi (1996, 1997, 2006)

Under the cartographic approach, Rizzi (1996, 1997, 2006) proposes that the CP domain consists of multiple functional heads and their projections, which are associated with particular semantic properties. (The diacritic "*" on Top is used to show that it can be repeated.)

(5)   [$_{ForceP}$ Force [$_{TopP}$ Top* [$_{FocP}$ Foc [$_{TopP}$ Top* [$_{FinP}$ Fin [$_{TP}$ T]]]]]]

(Rizzi (1997: 297))

(Top = Topic, Foc = Focus, Fin = Finiteness)

It is assumed that an element moves to the specifier of a particular functional projection in order to satisfy its relevant criterion, and that the element satisfying the criterion is frozen in place, which is defined as Criterial Freezing in (6).

(6)   Criterial Freezing

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

This can account for the ungrammaticality of the following example where a *wh*-phrase is extracted from the interrogative clause selected by the verb *wonder*.

(7)   * [$_{CP}$ [Which book]$_i$ does [Bill wonder [$_{CP}$ t_i C [she read t_i]]]]?

(Rizzi (2006: 112))

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In (7), the movement of the *wh*-phrase *which book* to the clause-initial position satisfies the Question (or *wh*) Criterion in the embedded clause, so that it cannot move to the matrix clause due to Criterial Freezing.

Next, let us consider the properties of each head and its projection of the CP domain in (5). Rizzi (1997) argues that the matrix CP domain is slightly different from the embedded one: the former is an interface between the content of the matrix IP domain and the discourse outside the sentence while the latter is an interface between the content of the embedded IP domain and the matrix predicate selecting it. Force marks a sentence as a declarative, a question, an exclamative, a relative, and so on, expressing a relation between a clause containing it and the information outside the clause. This function of the CP domain is called clausal typing by Cheng (1997). On the other hand, Fin plays a role in expressing a specification of finiteness, which in turn realizes some properties of the IP domain: a specification of mood, a form of a subject and a verb, and the choice of the complementizer. Therefore, it is assumed that ForceP is the topmost projection in the CP domain conveying the information of a clause outside while FinP is the lowest projection in the CP domain, which takes the IP domain as its complement. Rizzi (1997) assumes that these projections are the essential part of the CP domain, and therefore, they always are required to be present in all clausal structures.

On the other hand, the projections of Top and Foc are associated with semantic/discourse properties of a relevant phrase contained in a clause. The movement of a topic element to Spec-TopP yields the configuration of topic-comment whereas the movement of a focus element to Spec-FocP yields the configuration of focus-presupposition, as roughly illustrated in (8).

(8) a. [$_{TopP}$ XP [$_{Top'}$ Top YP]] (XP = Topic, YP = Comment)

(cf. Rizzi (1997: 286))

b. [$_{FocP}$ ZP [$_{Foc'}$ Foc WP]] (ZP = Focus, WP = Presupposition)

(cf. Rizzi (1997: 287))

These projections are activated in the CP domain only if a sentence has a topic or focus element in it.   This means that these projections are amalgamated into other projections in the sentence where there is no element which is interpreted as a topic or focus.   One piece of evidence for the presence of these heads and projections comes from the following examples from Gungbe.

(9) a. dàn lo yá [Kofi hu ì]

snake the TOP Kofi killed it

'As for the specific snake, Kofi killed it.' (cf. Aboh (2004: 298))

b. Wémà wè [Sena xìá]]]

book FOC Sena read

'Sena read A BOOK.' (cf. Aboh (2004: 237))

In (9a, b), Top and Foc are overtly expressed as *yá* and *wè*, respectively.   Given that ForceP is the topmost projection while FinP is the lowest projection in the CP domain, it follows that they are "sandwiched" between ForceP and FinP.   Rizzi (1997) reports that TopP and FocP are similar in many respects to each other, but they are different in some respects: first, the following examples from Italian shows that a resumptive clitic is present only if a fronted element is interpreted as a topic, as shown in (10) and (11), which are the examples with topicalization and focalization, respectively.   (In what follows, the bold form of a phrase

shows a focus stress on it.)

(10) a. Il tuo libro, lo ho comprato

'Your book, I bought it' (Rizzi (1997: 289))

b. * Il tuo libro, ho comprato *t*

'Your book, I bought it' (Rizzi (1997: 290))

(11) a. * IL TUO LIBRO lo ho comprato (non il suo)

'YOUR BOOK, I bought it (not his)'

b. IL TUO LIBRO ho comprato *t* (non il suo)

'YOUR BOOK, I bought (not his)' (Rizzi (1997: 290))

Second, the movement of an element shows the weak-cross-over effect only if the element is interpreted as a focus. As illustrated in the following examples, only focalization makes a sentence deviant.

(12) a. $Gianni_i$, sua_i madre lo_i ha sempre apprezzato.

'Gianni, his mother always appreciated him'

b. ??$GIANNI_i$, sua_i madre lo_i ha sempre apprezzato t_i.

'Gianni, his mother always appreciated him' (Rizzi (1997: 290))

Third, quantificational elements such as *nessuno* 'no none' and *tutto* 'everything' cannot be fronted as a topic whereas they can be fronted as a focus, as shown in (13) and (14).

(13) a. * Nessuno, lo ho visto.

    'No one, I saw him'

  b. * Tutto, lo ho fatto.

    'Everything, I did it'   (Rizzi (1997: 290))

(14) a. NESSUNO, ho visto *t*

    'No one, I saw'

  b. TUTTO, ho fatto *t*

    'Everything, I did'   (Rizzi (1997: 290))

Fourth, the following examples show that a *wh*-element is compatible with a topic if the former is preceded by the latter while it is incompatible with a focus in any order.

(15) a. A Gianni, che cosa gli hai detto?

    'To Gianni, what did you tell him?'

  b. * Che cosa, a Gianni, gli hai detto?

    What, to Gianni, did you tell him? (Rizzi (1997: 291))

(16) a. * A GIANNI, che cosa gli hai detto (, non a Piero)?

    'TO GIANNI, what did you tell him (, not to Piero)?'

  b. * Che cosa, A GIANNI, gli hai detto (, non a Piero)?

    What, TO GIANNI, did you tell him (, not to Piero)?

            (Rizzi (1997: 291))

Finally, let us consider the fixed order of Top and Foc and the repetition of Top in the

CP domain. More than one topic element can be fronted whereas only one focus element can, as illustrated in (17).

(17)   a.   Il libro, a Gianni, domain, glielo darò senz'altro

               'The book, to John, tomorrow, I'll give it to him for sure'

        b.   * A GIANNI IL LIBRO darò (non a Piero, l'articolo)

               'TO JOHN THE BOOK I'll give, not to Piero, the article'

                                               (Rizzi (1997: 290))

Two topic elements can occur with a focus element if one of the former precedes the latter, which in turn is followed by the other.

(18)   A Gianni, QUESTO, domain, gli dovrete dire

        'To Gianni, THIS, tomorrow, you should tell him'   (Rizzi (1997: 291))

These suggest that the projection of Foc is sandwiched between the two projections of Top which can be repeated, leading to the clausal architecture in (5). It should be noted that unlike Force and Fin, Top and Foc are activated only if a sentence contains the phrase which is interpreted as a topic or a focus (or has the topic or focus feature). This means that they are amalgamated into other heads if they are not needed.

2.2.2. Rizzi and Shlonsky (2006, 2007)

Rizzi and Shlonsky (2006, 2007) revise the clausal architecture in (5), proposing that the functional head Subj and its projection intervene between the CP domain and IP domain (cf. Rizzi and Shlonsky (2007: 118)).

(19)   [$_{ForceP}$ Force [$_{TopP}$ Top* [$_{FocP}$ Foc [$_{TopP}$ Top* [$_{FinP}$ Fin [$_{SubjP}$ Subj [$_{TP}$ T]]]]]]]

<div align="right">(cf. Rizzi and Shlonsky (2007))</div>

<div align="right">(Subj = Subject)</div>

Under the cartographical approach, the 'EPP' property is recast as the subject criterion, which is satisfied by the movement of a nominal element to the specifier of SubjP. Rizzi and Shlonsky (2006, 2007) assume that it is also satisfied by the merger of Fin with φ-features. A piece of evidence for this idea comes from Québec dialect of French where the overt complementizer occurs in matrix questions: *que* is used when an object is fronted while *qui* is used when a subject is fronted, as exemplified in (20a, b).

(20)   a.   Quel   garçon   que   tu   as   vu?

                   which   boy   QUE   you   have   seen

                   'Which boy have you seen?'

     b.   Quel   garçon   qui   est   venu?

                   which   boy   QUI   has   come

                   'Which boy has come?'   (Rizzi and Shlonsky (2007: 142))

Adopting the idea proposed by Taraldsen (2001) that *qui* consists of the complementizer *que* and the expletive-like element *-i*, Rizzi and Shlonsky (2007) argue that the subject criterion is satisfied by the merger of Fin with *-i* in a subject *wh*-question in Québec dialect of French.[2] With this in mind, let us consider how matrix questions are derived. First, the structure of a subject question is as follows.

(21) a. Who bought the book?

b. [$_{FocP}$ who$_i$ Foc [$_{FinP}$ Fin(φ) [$_{SubjP}$ Subj [$_{TP}$ T(φ) [$_{vP}$ t_i bought the book]]]]] (cf. Rizzi and Shlonsky (2007: 143))

In (21b), unlike the structure assumed traditionally in the generative literature where a subject *wh*-phrase moves from the original position through the subject position to the clausal-initial position, it can move from Spec-*v*P to Spec-FocP without undergoing Criterial Freezing in order to satisfy the *wh*-criterion because the subject criterion is satisfied under the head-head relation between Subj and Fin with φ-features.

Under this analysis, the structure of an object *wh*-question will be as follows.

(22) a. What did Mary buy?

b. [$_{FocP}$ what$_i$ [$_{Foc}$ did] [$_{SubjP}$ Mary$_j$ Subj [$_{TP}$ T(φ)[$_{vP}$ t_i t_j buy t_i]]]] (cf. Rizzi and Shlonsky (2007))

In (22b), *what* and *Mary* move to Spec-FocP and Spec-SubjP in order to satisfy the *wh*-criterion and the subject criterion, respectively.

Following this analysis, Rizzi and Shlonsky (2006) argue that the Locative Inversion Construction (henceforth, LIC), exemplified in (23), is derived in the similar way to a subject *wh*-question.

(23) a. Into the room walked my brother Jack.

b. Down the stairs fell the baby. (Stowell (1981: 269))

The following examples show that the locative PP in the LIC serves both as a subject and as a

topic.[3]

(24)   On that hill$_i$ appears t_i to be located a cathedral.   (Doggett (2004: 29))

(25)   * What$_i$ does John say that near his house lies t_i?   (Stowell (1981: 271))

In (24), the locative PP merged within an infinitival clause undergoes raising to the matrix

subject position.   On the other hand, as illustrated in (25), it blocks extraction of the

postverbal subject from the embedded clause, exhibiting the so-called "topic island effect,"

(see Koike (2013) for detailed discussion of the dual property of the locative PP in the LIC).

These lead Rizzi and shlonsky (2006) to conclude that the locative PP in the LIC serve to

satisfy the subject criterion and the topic criterion.   However, the movement of the locative

PP to Spec-SubjP would make it impossible for it to move to Spec-TopP due to Criterial

Freezing.   Thus, Rizzi and Shlonsky (2006) assume that the subject criterion is satisfied by

the merger of Fin with some kind of nominal feature, proposing the following derivation of

the LIC.

(26)   [$_{TopP}$ into the room$_i$ Top [$_{FinP}$ t_i Fin(Loc) [$_{SubjP}$ Subj [$_{TP}$ T(φ) walked John t_i]]]]

(cf. Rizzi and Shlonsky (2006: 347))

In (26), the merger of Fin with the special nominal feature Loc allows *into the room* to move

to Spec-TopP and satisfy the topic criterion without undergoing Criterial Freezing.   In this

structure, *into the room* must move through Spec-FinP in order to value the nominal feature

Loc.

However, Rizzi and Shlonsky's (2006, 2007) analysis has two problem: first, there is no

empirical evidence for φ-features in Fin at least in PE. Especially, the special type of nominal feature Loc cannot be supported in any overt languages.   Second and more seriously, the projection of Subj are inconsistent with the minimalist assumption (cf. Chomsky (1995)), under which functional heads and their projections should be abandoned if they do not contribute to interpretation at LF just like the functional head of Agr and its projection.   As noted above, the movement of a nominal element to Spec-SubjP yields the subject-predicate interpretation.   However, Rizzi and Shlonsky also assumes that the subject criterion is satisfied by the insertion of the expletive *there* with no semantic content in Spec-SubjP. This means that Subj and its projection do not contribute to interpretation at LF, and therefore, it should be abandoned.

2.3. Proposal

This section proposes a new clausal architecture in terms of the syntactic cartography of the CP domain originally proposed by Rizzi (1996, 1997) in order to overcome the problems with Rizzi and Shlonsky's (2006, 2007) analysis.   This clausal architecture dispenses with the feature inheritance, the counter-cyclic derivation, and the free application of a movement operation.

2.3.1. Clausal Architecture

Nawata (2013) points out that the functional head of Subj and its projection are redundant, proposing a new clause structure where the subject criterion is satisfied by the movement of a nominal element to Spec-FinP.[4]   This analysis would be supported by the idea (originally proposed by Rizzi (1997)) that Fin plays a role in specifying a form of a subject (see section 2.2.1).   Following his idea, this thesis dispenses with Subj and its projection, and assumes that the subject criterion is satisfied by the movement of an element

with active φ-features to Spec-FinP.

Revising the idea proposed by Rizzi (1997) that some functional heads of the CP domain are amalgamated into a single head if they are not activated, Maeda (2014) proposes that multiple heads in (5) are introduced into the derivation as a single head, which in turn split into some heads derivationally through the head movement strategy (cf. Travis (1984)) if needed, as illustrated in the following derivation.

(27)   a. $[_{CP} C(+\alpha, +\beta, -\gamma) ...]$

        b. $[_{\alpha P} XP_i(\alpha) [_{CP} C(+\alpha, +\beta, -\gamma) ... t_i]]$

        c. $[_{CP} C(+\beta) [_{\alpha P} XP_i(\alpha) [_{CP} C(+\alpha, +\beta, -\gamma) ... t_i]]]$ (cf. Maeda (2014: 110))

In (27a), the single head C is introduced into the derivation with some features, among which the α feature and the β feature are activated.   In (27b), the movement of a certain element satisfies the requirement of the α feature.   Finally, C with the activated β feature undergoes head movement to satisfy its requirement, leading to the final configuration in (27c) where the single head C splits and functions as two heads so that it can exhaust the requirement of all the activated features.   Integrating this analysis with the idea proposed by Gallego (2014) that T is a lower copy of the phase head C created through head movement, this thesis proposes that all the functional heads of the CP phase are introduced into the derivation as a single head C.[5]   Along these lines, a simple declarative sentence is derived as follows.[6]   (In what follows, a single head into which multiple heads of the CP phase are amalgamated is represented as C, the relevant functional heads and features are shown in brackets, and the operation irrelevant for the present discussion is omitted, such as movement of V to *v*.)

(28)　　a.　　$[_{CP}$ C(Force, Fin, T, φ) $[_{vP}$ Subj(φ) v $[_{VP}$ V...]]]]

　　　　b.　　$[_{CP}$ Subj(φ) C(Force, Fin, T, φ) $[_{vP}$ t_{Subj} v $[_{VP}$ V...]]]]

　　　　c.　　$[_{ForceP}$ Force $[_{CP}$ Subj(φ) C(Fin, T, φ) $[_{vP}$ t_{Subj} v $[_{VP}$ V...]]]]]]

This thesis follows Chomsky (2000) in assuming that the derivation is strictly cyclic (see also Chomsky (1995, 2001)).　Recall that Force and Fin must always be present since they are the essential part of the CP domain.　Given this, it follows that the single head C always consists of Force, Fin and T.　In (28a), Force, Fin and T are amalgamated into a single head, which is introduced into the derivation with unvalued φ-features.　In (28b), the single head C probes the subject in Spec-vP as its goal and establishes an Agree relation with it in φ-feature, and the subject criterion is satisfied by the movement of the subject with φ-features to Spec-CP.[7]　It is important to notice that Force, Top and Foc functionally differ from Fin since the former are associated with scope/discourse properties whereas the latter is an interface between the CP domain and the IP domain (see section 2.2.1).　Therefore, it is reasonable to assume that in the final configuration in (28c), Force functions as an independent head of the single head C into which Fin and T are amalgamated.　Finally, after the CP phase is completed, the domain of Force (i.e. CP) is transferred to interfaces, so that elements within CP are inaccessible due to the PIC, given the natural assumption that ForceP is a phase (cf. Totsuka (2013)).

　　　Next, let us consider the derivation of a matrix declarative clause with an object fronted by topicalization.　Suppose that an object interpreted as a topic has the relevant interpretable feature.

(29)   a. $[_{CP}$ C(Force, Top, Fin, T, φ) $[_{vP}$ Obj(Top) Subj(φ) v $[_{VP}$ V $t_{Obj}]]]$

        b. $[_{CP}$ Subj(φ) C(Force, Top, Fin, T, φ) $[_{vP}$ Obj(Top) t_{Subj} v $[_{VP}$ V $t_{Obj}]]]$

        c. $[_{CP}$ Obj(Top) C(Force, Top) $[_{CP}$ Subj(φ) C(Fin, T, φ) $[_{vP}$ t_{Obj} t_{Subj} v

             $[_{VP}$ V $t_{Obj}]]]]$

As shown in (29a), the movement of the object with the topic feature proceeds through

Spec-vP in conformity with the PIC. This thesis assumes with Rizzi (2006) that movement

to an intermediate position is triggered by a purely formal feature relevant to a certain

criterion which is satisfied by movement to a final landing site. It should be noted that in

(29), unlike the derivation of a simple declarative sentence in (28), the functional head Top

relevant to the topic criterion is activated in the CP domain. As shown in (29b) and (29c),

the single head C splits into the two distinct heads with the different components: the lower

head C into which Fin and T are amalgamated probes as its goal the subject in Spec-vP, which

satisfies the subject criterion by moving to the lower Spec-CP, while the higher head C into

which Force and Top are amalgamated probes as its goal the object with the topic feature,

which satisfies the topic criterion by moving to the higher Spec-CP. Notice that the subject

criterion cannot be satisfied by the movement of the object with the topic feature because its

φ-feature has already become inactive in the vP domain. One might point out why Force and

Top do not split through the head movement strategy and function as separate heads. Recall

that unlike Fin, Top is the same kind of functional head as Force in that these heads are

associated with particular clause-external properties, and that Force of a matrix clause does

not require its own projection to satisfy a particular criterion (at least in English). Therefore,

it is reasonable to assume that Force and Top do not have to split and function as separate

heads.[8]

     Under the cartographic approach, the present analysis dispenses with the free

application of a movement operation, the feature inheritance, and the counter-cyclic derivation.   Under the clausal architecture proposed in this section, the functional head of Subj and its projection are abandoned as redundant ones and some heads do not have to split and function as separate heads under certain circumstances.   These are theoretically desirable consequences because the theory of grammar can be simplified by reducing the number of categories/projections.   It is worth emphasizing that some heads and their projections of the CP phase, though not realized syntactically, are not truncated but amalgamated with other heads.   Bošković (1997) argues that the projections with no overt realization are truncated in syntax.   Given the recent minimalist assumption that a subject can be assigned the nominative case only under the C-T configuration, this analysis would lead us to predict wrongly that a subject cannot be assigned the nominative case in a matrix clause where there is no fronted element, because the projection of C with no overt realization should be truncated in syntax.   Under the cartographical approach where C is recast as Force-Fin, the present analysis assumes that some projections with no overt realization are amalgamated into a single head.   Therefore, it will be predicted correctly that a subject can be assigned the nominative case in a sentence even if Force-Fin-T configuration is not overtly realized in syntax.

The next section shows that the present analysis can dispense with φ-features in Fin and provide a principled account of the similarity between a subject *wh*-question and the Locative Inversion Construction.

2.3.2. Matrix *Wh*-questions and the Locative Inversion Construction

2.3.2.1. Matrix *Wh*-questions

Following Maeda (2014), together with the idea proposed by Gallego (2014), this thesis

has assumed that the functional heads of the CP phase are introduced into the derivation as a single head C.　Under this idea, it is assumed that some heads remain amalgamated as a single head C if an element can satisfy multiple criteria and features simultaneously, regardless of the type of the relevant heads.　With this in mind, let us consider how matrix *wh*-questions are derived.　First, the structure of a subject *wh*-question is as follows.

(30)　　　　[$_{ForceP}$ Force [$_{CP}$ who$_i$(φ) C(Foc, Fin, T, φ) [$_{vP}$ t_i bought the book]]]

This thesis follows Rizzi (1997) in assuming that the *wh*-criterion is satisfied by the movement of a *wh*-phrase to Spec-FocP.　In (30), where the single head C into which Force, Foc, Fin and T are amalgamated probes *who* as its goal and establishes an Agree relation with it in φ-feature, the subject criterion and the *wh*-criterion are satisfied by the movement of *who* with φ- and *wh*-features to Spec-CP simultaneously.　It should be noted that the movement of *who* can satisfy only the criteria relevant to Foc and Fin.　Recall that Force differs from Fin functionally in that only the former is associated with a particular scope/discourse property.　These lead to the final configuration where Force is independent of the single head C into which Foc, Fin and T are amalgamated.

　　　On the other hand, an object *wh*-question is derived in almost the same way as a matrix declarative clause with a fronted topic in (29), as illustrated in (31).

(31)　　　　[$_{CP}$ what$_i$ [$_C$ did(Force, Foc)] [$_{CP}$ Mary$_j$ C(Fin, T, φ) [$_{vP}$ t_i t_j buy t_i]]]

In (31), the movement of *what* proceeds through outer Spec-*v*P to Spec-FocP in accord with the Phase Impenetrability Condition (henceforth, PIC) proposed by Chomsky (2001: 13), according to which the domain of a phase head is inaccessible to any operations of the next

phase and only the phase head and its edge are accessible to such operations. In this structure, unlike (30), φ-features of *what* has already become inactive in the *v*P domain, so Foc and Fin must split and functions as separate heads because there is no element which can satisfy both the subject criterion and the *wh*-criteiron simultaneously, which are relevant to Fin and Foc, respectively. Given that these heads are different types of functional head of the CP domain, as argued above, the two instances of single head C must split: the higher one consists of Force and Foc while the lower one consists of Fin and T. It should be noted again that in a matrix clause, Force and Foc do not have to split and function as separate heads since they are the same type of functional head of the CP domain. Finally, after the CP domain is completed, the domain of the higher single head C into which Force and Foc are amalgamated is transferred to interfaces.

The analysis proposed in this thesis is theoretically preferred to the analysis based on the feature inheritance. Chomsky (1986) argues that a movement operation with no effect on a PF output can be suspended, which is formulated as the Vacuous Movement Hypothesis (henceforth, VMH) in (32).

(32)　　Vacuous movement is not obligatory at S-structure.　(Sakamoto (2012: 317))

Integrating this idea with the minimalist assumption, Sakamoto (2012) proposes the structures of matrix *wh*-questions in (33a, b), which are those of a subject *wh*-question and an object *wh*-question, respectively.

(33)　　a.　　$[_{CP}$ C $[_{TP}$ who$_i$ T(AF, EF) $[_{vP}$ t_i bought the book]]]

　　　　b.　　$[_{CP}$ what$_i$ $[_C$ did(EF)] $[_{TP}$ Mary$_j$ T(AF) $[_{vP}$ t_j t_i buy t_j]]]

(cf. Sakamoto (2012: 325))

As shown in (33a, b), the VMH effect is derived by assuming that the edge feature (henceforth, EF) as well as the agree feature (henceforth, AF) is inherited from C to T only in the derivation of a subject *wh*-question. Adopting the idea originally proposed by Cheng (1997) that the clause type is determined by a fronted element, Sakamoto (2012) assumes that the EF must be valued by such element under the specifier-head configuration. In the derivation of an object *wh*-question, the EF cannot be valued by an object *wh*-phrase if it is inherited from C to T, resulting in the illicit derivation in (34), in which the EF is valued through the movement of the subject to Spec-TP.

(34)   *   [$_{CP}$ C [$_{TP}$ Mary$_i$ T(EF, AF) [$_{vP}$ t_i buy what]]]   (cf. Sakamoto (2012: 325))

The derivation in (34) is interpreted as an illicit one because the subject *Mary* values the EF of T by moving to Spec-TP in spite of the presence of the object *wh*-phrase *what*. Although this analysis appears to capture the difference between a subject *wh*-question and an object *wh*-question, there are some problems with it: first, integrating the feature inheritance, it assumes that a subject moves to Spec-TP counter-cyclically. Second and more seriously, a question remains what prevents the EF from being inherited from C to T in the derivation of an object *wh*-question. In other words, it is unclear why the inheritance of the EF is affected by the (im)possibility for a *wh*-phrase to value it.

     The present analysis can capture the VMH effect without such difficulties. Under the cartographic approach, it has been argued that a subject *wh*-phrase moves to the same position as a subject of a declarative clause. Under the present analysis, the alleged problems do not arise since it is not necessary to assume that the EF is inherited from C to T only in a subject *wh*-question, and that a subject moves to Spec-TP counter-cyclically.

2.3.2.2. The Locative Inversion Construction

Before discussing the structure of the Locative Inversion Constructions (henceforth, LIC), let us consider that of the *there*-construction.   Rizzi and Shlonsky (2006, 2007) assume that the subject criterion can be satisfied by the merger of the expletive *there* in Spec-SubjP in the *there*-construction, illustrated in (35) where *there* and the associate occupy the preverbal position and the postverbal position, respectively.

(35)   a.   There are books on the table.

        b.   There arrived a train.   (Sobin (2014: 386))

Chomsky (2000) observes that the verb in the *there*-construction shows agreement with the associate only in number, as seen in the following examples.

(36)   a.   There is/*am only me.

        b.   There are only us.   (Chomsky (2000: 149))

This will lead us to assume that *there* with a person feature can satisfy the subject criterion by moving to the CP domain, as schematized roughly in (37), in which the relevant φ-features split into a person feature (henceforth, Pr) and a number feature (henceforth, Nr).

(37)   [$_{ForceP}$ Force [$_{CP}$ there$_i$(Pr) C(Fin, T, Pr, Nr) [$_{vP}$ t_i are books(φ) …]]]

This thesis adopts the idea proposed by Sobin (2014) that *there* in the *there*-construction is merged in Spec-*v*P and moves to the preverbal position.   In (37), where two Agree relations are established between C and *there* in Spec-*v*P in Pr and between C and the associate in Nr,

the subject criterion is satisfied by the movement of *there* with Pr from Spec-*v*P to Spec-CP. Like a simple declarative sentence and a subject *wh*-question, Force and C split and function as separate heads through the head movement strategy.

A similar account holds for the LIC, in which the verb shows agreement with the postverbal subject only in number, as illustrated in (38).

(38)   a.   On the wall is/*am standing only me.

         b.   On the wall are standing only us.   (Arano (2014: 28))

These examples suggest that like *there* in the *there*-construction, the locative PP in the LIC bears a person feature and its movement satisfies the subject criterion. Given that the locative PP has the dual property as a topic and a subject (see section 2.2.2), the topic criterion as well as the subject criterion is satisfied by the movement of the locative PP, leading to the following structure where Top, Fin and T are amalgamated and function as a single head.

(39)   [ForceP Force [CP into the roomi(Pr) C(Top, Fin, T, Pr, Nr) [vP walked John *t*i]]]

In (39), in which Force and the single head C split and function as separate heads, two Agree relations are established between C and *into the room* in Pr and between C and the postverbal subject in Nr, and the movement of *into the room* to Spec-CP satisfies the topic criterion and the subject criterion simultaneously, accounting for the dual property of the locative PP in the LIC as a topic and a subject.[9]

Under the present analysis, both a subject *wh*-phrase and the locative PP in the LIC satisfy the subject criterion and the other criterion simultaneously by moving to Spec-CP.

This analysis can account for the similarity between a subject *wh*-question and the LIC in terms of syntactic cartography, and dispense with the merger of Fin with φ-features to satisfy the subject criterion.   Koike (2013) proposes a similar idea to the present analysis in order to account for the dual property of the locative PP.   Under the assumption made by Chomsky (2008) that all operations within a phase take place simultaneously, Koike (2013) proposes the following derivation of the LIC.

(40)   [$_{TopP}$ to the platform$_i$ Top(EF) [$_{TP}$ to the platform$_i$ T(φ, EPP) [$_{vP}$ came

a train t_i]]]   (cf. Koike (2013: 571))

In (40), C and T independently probe the locative PP *into the room* originating in the clause-final position, so that its two copies are created and they are attracted to Spec-CP and Spec-TP, respectively.   In the final representation, *into the room* occupies both the topic position and the subject position, so that the higher copy in Spec-CP is pronounced.   This analysis can also accounts for the dual property of the clause-initial PP in the LIC and the similarity between a subject *wh*-question and the LIC.   However, the present analysis would be preferred to Koike's (2013) analysis because the former assumes more simplex derivation than the latter: in the former, the locative PP undergoes the single movement operation whereas in the latter, it undergoes the two movement operations.

2.4. The *v*P Phase

Extending the present analysis to the *v*P phase, this section aims to provide a principled account of the other asymmetries between a subject and an object.   Many early generative studies are devoted to accounting for the following superiority effect (cf. Chomsky (1973, 1981, 1995) among others).

(41)   a.   Who saw what?

           b.   * What did who see?   (Chomsky (1995: 387))

The grammatical asymmetry in (41) illustrates that in a multiple *wh*-question, an object *wh*-phrase cannot moves to the clause-initial position across a subject *wh*-phrase in English. Chomsky (2008) observes another asymmetry between a subject and an object. This is exemplified in (42).

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

           b.   [Of which car]$_i$ did they find [the (driver, picture) t_i]?

                                        (Chomsky (2008: 147))

As shown in (42a), extraction of a *wh*-phrase is impossible out of a subject whereas as shown in (42b), it is possible to extract a *wh*-phrase out of an object. As for the second case, Chomsky (2008) proposes that "there is a cost to extracting" a *wh*-phrase out of a complex noun phrase in the specifier of *v*P, but he does not seem to present a principled account of the impossibility of extracting a *wh*-phrase out of an element in the specifier of *v*P.

2.4.1. The Difference between the CP Phase and the *v*P Phase

    Before proposing a syntactic analysis of the two asymmetries, let us review the minimalist approach to the derivation of the *v*P phase. Chomsky (2001, seq) and the other many generative studies propose the parallelism between the CP phase and the *v*P phase under the recent minimalist approach. Suppose the following derivational step where the phase head *v* is introduced into the derivation with unvalued φ-features, which are inherited from *v* to the non-phase head V.

(43) $[_{vP} v [_{VP} \text{Obj}(\varphi) \text{ V}(\varphi) t_{\text{Obj}}]]$

In the derivational step in (43), just like the CP phase, the object moves from Comp-VP to Spec-VP counter-cyclically after the merger of *v* and the inheritance of unvalued φ-features from *v* to V.   There are some theoretical problems with this analysis, in addition to those pointed out in section 2.1: first, the movement of an object from Com-VP to Spec-VP is too local.   Many generative studies (Murasugi and Saito (1995), Bošković (1994) and Abels (2003) and so on) argue that too local movement is not allowed.   Among others, Abels (2003) formulates this as the anti-locality constraint in (44).

(44)   * $[_{XP} \text{YP X } t_{YP}]$ (cf. Abels (2003: 12))

The constraint in (44) states that a single element cannot be both the specifier and the complement of the same projection.   Given this, the derivation in (43) will be crash.   The second problem comes from the idea that the two phases are derived in exactly the same way. Under the minimalist approach, it is assumed that the nominative case and the accusative case are assigned under the C-T configuration and the *v*-V configuration, respectively.   It is necessary to note that the former consists of different components from the latter: the former consists of the two functional heads C and T whereas the latter consists of the functional head *v* and the lexical head V.   Given this difference between the CP phase and the *v*P phase, it would follow that these phases have the different structures from each other.

2.4.2. The Fine Structure of the *v*P Domain

Maeda (2014) proposes that the *v*P domain consists of multiple functional heads and projections which are associated with particular semantic properties.

(45) $[_{AspP}$ Asp $[_{TopP}$ Top* $[_{FocP}$ Foc $[_{VoiceP}$ Voice $[_{VP}$ V]]]]]   (Maeda (2014: 34))

Let us overview the properties of each head and its projection of the *v*P domain.   First, let us consider the properties of the essential part of the *v*P domain: AspP and VoiceP.   AspP is the topmost projection whose head expresses the aspect of the entire event expressed by the verb phrase and marks it as perfective or imperfective (cf. Travis (2010)).   VoiceP is the lowest projection whose head marks the voice of the predicate as active or passive, introduces the external argument as its specifier, and takes VP as its complement.   Given that all sentences or events carry these properties, it is reasonable to assume that AspP and VoiceP must always be present in all verb phrases.   In this respect, AspP and VoiceP correspond functionally to ForceP and FinP of the CP domain, respectively.

On the other hand, Maeda (2014) argues that Top and Foc of the *v*P domain are activated in particular constructions.   It is well-known that the clause-final object is interpreted as a focus in the Heavy NP Shift Construction (henceforth, HNPSC) in (46).

(46)   John sent t_i to Horace [an expensive book about horned frongs]$_i$.

(Wexler and Culicover (1980: 278))

The following examples show that extraction is impossible from the clause-final object in this construction.

(47)   a.   * What$_i$ did you sell t_j to Fred [a beautiful and expensive painting of

t_i]$_j$?

b.   * Who$_i$ did you tell t_j to the members of the club [strange stories

about t_i]$_j$?   (Culicover and Wexler (1977: 21))

Also, extraction of a *wh*-phrase from a verb phrase is not allowed in this construction, as illustrated in (48), where the (a) and (b) examples are those of extraction of a *wh*-phrase out of a verb phrase and of sub-extraction of it out of the shifted NP, respectively.

(48)   a.   * Who$_i$ did John give t_j to t_i [the picture that was hanging on the wall]$_j$?

        b.   * [Which country]$_i$ did they elect t_j [President of t_i] [the colonel who had engineered the recent coup]$_j$?

                                                        (Wexler and Culicover (1980: 279))

Some researchers have argued that the clause-final object in the HNPSC undergoes leftward movement (cf. Den Dikken (1995), Kayn (1994, 1998), Jayaseelan (2001), Larson (1988) and Mimura (2009)).   Following this idea, Maeda (2014) propose the following derivation of *v*P of the HNPSC.

(49)   a.   [$_{FocP}$ an expensive book about horned frongs$_i$ Foc [$_{VoiceP}$ John Voice [$_{VP}$ sent t_i to Horace]]]

        b.   [$_{TopP}$ [$_{VoiceP}$ John Voice [$_{VP}$ sent t_i to Horace]]$_j$ Top [$_{FocP}$ an expensive book about horned frongs$_i$ Foc t_j]]   (cf. Maeda (2014: 93))

In (49), the heavy NP and VoiceP move to Spec-FocP and Spec-TopP in order to satisfy the focus criterion and the topic criterion, respectively.   Then, the external argument *John* moves to the subject position to satisfy the EPP.   Integrating this analysis with the assumption that an element cannot occupy a higher position than a landing site for a topic phrase, Maeda (2014) accounts for the ungrammaticality of the sentences in (47) and (48), as in (50a, b).

(50)	a.	* [$_\text{AspP}$ what$_\text{i}$ Asp [$_\text{TopP}$ [$_\text{VoiceP}$ you sell t_j to Fred]$_\text{k}$ Top [$_\text{FocP}$ [a beautiful

and expensive painting of t_i] Foc t_k]]]	(cf. Maeda (2014: 94))

b.	* [$_\text{AspP}$ who$_\text{i}$ AsP [$_\text{TopP}$ [$_\text{VoiceP}$ John give t_j to t_i]$_\text{k}$ ToP [$_\text{FocP}$ the picture

that was hanging on the wall Foc t_k]]]	(cf. Maeda (2014: 95))

In (50a), the structure of the sentences in (47), *what* cannot move from within the heavy NP in Spec-FocP to Spec-AspP, an intermediate position of *wh*-movement, since this movement crosses VoiceP occupying Spec-TopP.   In the same way, the structure in (50b) is excluded since *who* moves from VoiceP occupying Spec-TopP to Spec-AspP.

    Another example where TopP and FocP are activated is the *there*-construction, in which the associate is interpreted as a focus.   It has been observed that the *wh*-movement of the associate to the clause-initial position is allowed in the *there*-construction with a copular verb, as illustrated in (51), where the (a) and (b) examples are those with the associate undergoing *wh*-movement and with a *wh*-phrase extracted out of the associate, respectively.

(51)	a.	How many men are there *t* in the garden?

(Hoekstra and Mulder (1990: 45))

b.	Which wall do you think there was [a picture of *t*]?

(Moro (1997: 124))

There is a consensus among the generative studies that the *there*-construction is classified into two types: one is the *there*-construction with an unaccusative verb (henceforth, *there*-unaccusative construction) while the other is the *there*-construction with an unergative verb (henceforth, *there*-unergative construction).   In turn, the *there*-unaccusative construction is classified into two types: one is what is called inside verbal existential in

which the associate precedes a locative phrase, while the other is outside verbal existential in which the associate follows a locative phrase, as exemplified in (52).

(52)   a.   There developed many objections at the meeting.

            b.   There developed at the meeting many terrible objections.

(Milsark (1974: 248))

On the other hand, it is well-known that the associate must follow a locative phrase in the *there*-unergative construction, as illustrated in (53).

(53)   a.   * Suddenly there walked a uniform into the room.

            b.   Suddenly there walked into the room a uniform.

(Milsark (1974: 246))

The inside verbal existential is different from the outside verbal existential with respect to *wh*-movement of the associate and extraction out of it: in the former, the associate cannot undergo *wh*-movement but a *wh*-phrase can be extracted out of it, whereas in the latter, the associate cannot undergo *wh*-movement and a *wh*-phrase cannot be extracted out of it, as shown in (54) and (55).

(54)   a.   * How many packages did there arrive *t* in the mail?

(Chomsky (2001: 21))

            b.   On which artist did there hang [a portrait *t*] on the wall?

(Nishihara (1999: 394))

(55)　　a.　　* Who did there walk into the room *t*?

　　　　b.　　* What did there arrive in the mail [some books about *t*]?

(Julien (2002: 40))

Following the idea originally proposed by Perlmutter (1978) that an subject in the unaccusative construction originates in the complement of VP, Maeda (2010, 2014) assumes that the associate in the *there*-construction moves from Comp-VP to Spec-FocP in the *v*P domain, so that it freezes in place due to Criterial Freezing, as roughly schematized in (56).

(56)　　　　[$_{CP}$ C [$_{TP}$ there T [$_{AspP}$ V [$_{FocP}$ DP t_{Foc} [$_{VoiceP}$ t_{Voice} [$_{VP}$ t_V t_{DP}]]]]]]

(cf. Maeda (2014: 98))

Based on this structure, Maeda (2014) proposes the following structure of the *v*P phase of the inside verbal existential in (54a).

(57)　　* [$_{AspP}$ how many packages$_i$ [$_{Asp}$ arrive] [$_{FocP}$ t_i Foc [$_{VoiceP}$ Voice [$_{VP}$ t_V t_i in the mail]]]]]]

(cf. Maeda (2014: 99))

In (57), the internal argument *how many packages* moves from its original position to Spec-FocP of the *v*P domain, so that it freezes in place due to Criterial Freezing, resulting the ungrammaticality of the sentence in (54a). Along the lines, the grammaticality of the sentence in (54b) is accounted for, as in (58).

(58)　　　　[$_{AspP}$ on which artist$_i$ [$_{Asp}$ hang] [$_{FocP}$ [a portrait t_i]$_j$ Foc [$_{VoiceP}$ Voice [$_{VP}$ t_V t_j on the wall]]]]]

(cf. Maeda (2014: 99))

In (58), the whole NP and *on which artist* move to Spec-FocP and Spec-AspP simultaneously, so that the latter can undergo further movement to the CP phase without undergoing Criterial Freezing.   On the other hand, Maeda (2014) assumes that unlike the inside verbal existential, VoiceP moves to Spec-TopP in the derivation of the outside verbal existential.   This assumption can account for the ungrammaticality of the sentences in (55a, b) in the following way.

(59)   a.   * [$_{AspP}$ who$_i$ [$_{Asp}$ walk] [$_{TopP}$ [$_{VoiceP}$ Voice [$_{VP}$ t_V t_i into the room]]$_j$ Top

[$_{FocP}$ t_i Foc t_j]]]

   b.   * [$_{AspP}$ what$_i$ [$_{Asp}$ arrive] [$_{TopP}$ [$_{VoiceP}$ Voice [$_{VP}$ t_V t_j in the mail]]$_k$ Top

[$_{FocP}$ [some books about t_i]$_j$ Foc t_k]]]   (cf. Maeda (2014: 101))

In (59), the movement of VoiceP to Spec-TopP blocks that of *who* and *what* to Spec-AspP, resulting in the ungrammaticality of the sentences in (55).

Integrating this fine structure of the *v*P domain with the present analysis where multiple heads are introduced into the derivation as a single head, this thesis assumes that the functional heads of the *v*P phase are introduced into the derivation as a single head *v*.[10]   Now, let us reconsider the derivation of a simple declarative sentence under this analysis.   Citing Finish examples from Comrie (1976), Travis (2010) notes that a difference in aspect affects that in case assignment to an object, as illustrated in (60).

(60)   a.   hän luki   kirjan

                    he   read   book-ACC

                    'He read the book.'

        b.   hän luki   kirjaa

                    he   read   book-PAR

                    'He was reading the book.'   (Camrie (1976: 8))

In (60a), the object is assigned the accusative case while in (60b), it is assigned the partitive case, yielding an imperfective reading.[11] Given that the case assignment to an object depends on the presence/absence of an external argument (Burzio's generalization), the fact that it is affected by the aspect of a sentence, together with the idea that Voice introduces an external argument, suggests that the full argument structure is introduced by both AspP and VoiceP. This leads us to conclude that Asp and Voice may function as a single head by default in the derivation of a simple transitive construction. Furthermore, this thesis adopts a feature-based θ-theory proposed by Bošković and Takahashi (1998) and Hornstein (1999), in which a θ-role is taken to be an uninterpretable feature. Kondo (2015a, d) assumes that the θ-feature of a predicate, which is uninterpretable but valued, must assign its value to the θ-feature of its argument which is interpretable but unvalued (henceforth, u-θ). Note that the θ-criterion requires a θ-feature of a predicate to be deleted once it is checked by u-θ of its argument. Along these lines, a simple declarative sentence is derived as follows, with the single head represented as *v*.[12]

(61)   a.   [$_{VP}$ V(Th) Obj(φ, u-θ)]

            b.   [$_{vP}$ Subj(φ, u-θ) v(Asp, Voice, φ, Ag) [$_{VP}$ V(~~Th~~) Obj(φ, Th)]]

            c.   [$_{ForceP}$ Force [$_{CP}$ Subj$_i$(φ, Ag) C(Fin, T, φ) [$_{vP}$ t_{Subj} v(Asp, Voice, φ,

                 ~~Ag~~) [$_{VP}$ V(~~Th~~) Obj(φ, Th)]]]]]

Recall that the vP phase differs from the CP phase since the former consists of the functional head v and the lexical head V.   Given this, it is reasonable to assume that the lexical head V and the functional heads of the vP domain are not introduced into the derivation as a single head but independent heads.   Therefore, the functional heads of the vP domain is merged after the lexical domain VP is completed.   In (61a), the lexical head V is merged with the object, so that u-θ of the object is valued under the head-comp configuration, and the uninterpretable θ-feature Th of V is deleted.   In (61b), Asp and Voice are introduced into the derivation as a single head with unvalued φ-features and the uninterpretable θ-feature Ag. The single head v probes the object in Comp-VP as its goal, establishing an Agree relation with it in φ-feature, and u-θ of the subject is valued under the spec-head configuration with v and the uninterpretable θ-feature of v is deleted in accord with the θ-criterion.   This thesis follows Chomsky (2000, 2001) in assuming that a phase is defined in terms of propositionality.   Thus, after the full argument structure is introduced in vP, the domain of the single head v (i.e. VP) is transferred to interfaces and becomes inaccessible to any operations of the next phase.   Finally, the functional heads of the CP phase are introduced into the derivation as a single head C, which probes the subject in Spec-vP as its goal and establishes an Agree relation with it in φ-feature, finally leading to the configuration in (61c) (see section 2.3.1 for the derivation of the CP phase).

Along the lines, let us reconsider the derivation of matrix *wh*-questions.   First, the derivation of a subject *wh*-question is as follows.

(62)   a.   [$_{v}$P who(φ, u-θ) [$_v$ bought(Asp, Voice, *wh*, φ, Ag)] [$_{VP}$ t_V the

book(φ)]]]

b,   [$_{ForceP}$ Force [$_{CP}$ who$_i$(φ, Ag) C(Foc, Fin, T, φ) [$_{v}$P t_i [$_v$ bought(Asp,

Voice, *wh*, φ, ~~Ag~~)] [$_{VP}$ t_V the book(φ)]]]]]

The derivations in (62a) and (62b) are those of the *v*P phase and the CP phase. There is

another reason why Asp and Voice do not split and function as the single head *v* in a subject

wh-question. Recall that some heads remain amalgamated as a single head if an element can

satisfy multiple criteria and features simultaneously (see section 2.4.1). This leads us to

assume that Asp and Voice do not split and function as the single head *v* because the merger

of *who* in Spec-*v*P can satisfy the formal feature relevant to the *wh*-criterion and the

uninterpretable θ-feature Ag of the single head *v* simultaneously. Finally, the domain of the

single head *v* into which Asp and Voice are amalgamated is transferred into interfaces. On

the other hand, an object *wh*-question is derived as follows.

(63)   a.   [$_{AspP}$ what$_i$ [$_{Asp}$ bought(*wh*, φ)] [$_{VoiceP}$ Mary Voice(~~Ag~~) [$_{VP}$ t_V t_i]]]

b.   [$_{CP}$ what$_i$ [$_C$ did(Force, Foc)] [$_{CP}$ Mary$_j$ C(Fin, T, φ) [$_{AspP}$ t_i [Asp

bought (*wh*, φ)] [$_{VoiceP}$ t_j Voice (~~Ag~~) [$_{VP}$ t_V t_i]]]]]]

The functional heads of the *v*P domain are introduced into the derivation after u-θ of the

object is valued under the head-comp configuration with V. In (63a), the derivation of the

*v*P phase, Asp and Voice split and function as separate heads because the formal feature

relevant to the *wh*-criterion and the uninterpretable θ-feature Ag are satisfied by the different

elements *who* and *Mary*, leading to the configuration where *what* and *Mary* occupy

Spec-AspP and Spec-VoiceP, respectively. Given that the full argument structure is

introduced by both AspP and VoiceP, this thesis assumes that the domain of Voice (i.e. VP) is transferred into interfaces if Asp and Voice split and function as separate heads. Finally, after the functional heads of the CP phase are introduced into the derivation, *what* and *Mary* moves to the relevant positions to satisfy the *wh*-criterion and the subject criterion, respectively.

2.4.3. The Other Asymmetries between a Subject and an Object

We are in a position to account for the two asymmetries between a subject and an object. The relevant examples are repeated.

(41)   a.   Who saw what?

          b.   * What did who see?

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

          b.   [Of which car]$_i$ did they find [the (driver, picture) t_i]?

First, let us consider the derivation of a multiple *wh*-question. The structure of a multiple *wh*-question is shown as in (64), in which the (a) and (b) examples are the structures with a subject *wh*-phrase preceding an object *wh*-phrase and with a subject *wh*-phrase following an object *wh*-phrase, respectively.

(64)   a.   [$_{ForceP}$ Force [$_{CP}$ who$_i$(φ, Ag) C(Foc, Fin, T, φ) [$_{vP}$ t_i v(Asp, Voice,

                  wh, φ, ~~Ag~~) [$_{VP}$ saw(Th) what]]]]

          b.   * [$_{CP}$ what$_i$ [$_C$ did(Force, Foc)] [$_{CP}$ who$_j$(φ, Ag) C(Fin, T, φ) [$_{vP}$ t_j

                  v(Asp, Voice, *wh*, φ, ~~Ag~~) [$_{VP}$ saw(Th) t_i]]]]

The merger of *who* in Spec-*v*P satisfies the formal feature relevant to the *wh*-criterion and the uninterpretable θ-feature Ag of the single head *v* simultaneously.   This makes it impossible for Asp and Voice to split and function as separate heads, and for the object *what* to move to the *v*P domain.   Thus, it cannot move to the CP phase because *what* is inaccessible to any operation of the CP phase due to the PIC.   Moreover, even if *what* could move to the *v*P domain, it cannot move to the CP phase since the *wh*-criteiron and the subject criterion are satisfied by the movement of *who* to the specifier of the lower CP simultaneously.   Hence, the ungrammaticality of sentences like (41a) where an object *wh*-phrase crosses a subject *wh*-phrase.

Second, let us consider the (im)possibility of extracting a *wh*-phrase from a subject. Standardly, it is assumed that an external argument is merged in Spec-*v*P.   This means that a complex noun phrase containing a *wh*-phrase is merged in Spec-*v*P in the derivation of sentences like (42a), as illustrated in (65).

(65) a. * [$_{vP}$ [the (driver, picture) on which car](φ, Ag) *v*(Asp, Voice, *wh*, φ,

~~Ag~~) [$_{VP}$ cause(~~Th~~) a scandal(Th)]]

b. * [$_{CP}$ on which car$_i$ C(Force, Foc) [$_{CP}$ [the (driver, picture) t_i]$_j$ C(Fin,

T, φ) [$_{vP}$ t_j *v*(Asp, Voice, *wh*, φ, ~~Ag~~) [$_{VP}$ cause(~~Th~~) a scandal(Th)]]]]

In (65), like the derivation of a simple declarative sentence in (61), Asp and Voice are amalgamated and function as a single head in the derivational step of the *v*P phase because a *wh*-phrase is embedded in the external argument.   Therefore, the formal feature relevant to the *wh*-criterion cannot be satisfied by a *wh*-phrase, even if the movement of a *wh*-phrase out of the complex noun phrase in Spec-*v*P can satisfy the *wh*-criterion in the CP phase.[13]   One might wonder why in (65), Asp and Voice does not split and function as separate heads like

the derivation in (63), and a *wh*-phrase cannot satisfy the relevant formal feature by moving to Spec-AspP out of a complex noun phrase merged in Spec-VoiceP.   It should be emphasized that Asp and Voice can function as separate heads only if a *wh*-phrase is available to satisfy the formal feature relevant to the *wh*-criterion, as in (63).   Since *on which car* is embedded in the complex noun phrase, it is available to satisfy the relevant formal feature.

On the other hand, the possibility of extracting a *wh*-phrase out of an object is accounted for in the following way.

(66)   a.   [$_{AspP}$ [of which car]$_i$ [$_{Asp}$ find(φ, *wh*)] [$_{VoiceP}$ they(φ, Ag) Voice(~~Ag~~)

[$_{VP}$ t_V [the (driver, picture) t_i](φ, Th)]]]

b.   [$_{CP}$ [of which car]$_i$ [$_C$ did(Force, Foc)] [$_{CP}$ they$_j$(φ, Ag) C(Fin, T, φ)

[$_{AspP}$ t_i find [$_{VoiceP}$ t_j Voice(~~Ag~~) [$_{VP}$ t_V [the (driver, picture) t_i]]]]]]]

In (66a), unlike (65a), *on which car* is available to satisfy the formal feature relevant to the *wh*-criterion because it has already been merged as a part of the internal argument in the lexical domain VP.   Therefore, Asp and Voice split and function as separate heads, and *on which car* and *they* satisfy the formal feature relevant to the *wh*-criterion and the uninterpretable θ-feature Ag by moving to Spec-AspP and being merged in Spec-VoiceP, respectively.   This results in the legitimate derivation in (66b) where the *wh*-criterion and its relevant formal feature can be satisfied by the movement of *on which car* from the original position through Spec-AspP to the higher Spec-CP.

Adopting Maeda's (2014) analysis of the fine structure of *v*P, this section has argued that the functional heads of the *v*P domain are amalgamated into the single head *v*, which is introduced into the derivation after the lexical projection VP is completed, unlike the derivation of the CP phase.   This allows us to account for the two asymmetries between a

subject and an object in terms of syntactic cartography.

2.5. Conclusion and Summary

This chapter has dispensed with the feature inheritance, the counter-cyclic derivation, and the free application of a movement operation, and proposed the new clausal architecture based on syntactic cartography where all the functional heads of a phase are introduced into the derivation as a single head if they do not have to split and function as separate heads. This clausal architecture makes it possible to present a principled account of (a) the asymmetry between a subject *wh*-question and an object *wh*-question, (b) the similarity between a subject *wh*-question and the LIC, (c) the superiority effect in a multiple *wh*-question, and (d) the (im)possibility of extracting a *wh*-phrase out of a subject/an object. Under the proposed analysis, it is not necessary to assume that the merger of Fin with φ-features satisfies the subject criterion in a subject *wh*-question and the LIC.   Extending the proposed analysis to an embedded clause, chapter 4 tries to provide a principled account of the *that*-trace effect and its relevant phenomena in English and other languages.

[1] Chomsky (2008) and Richard (2007) use the term 'uninterpretable feature' for a feature serving as a probe. Following Pesetsky and Torrego (2007), this thesis assumes that there are four types of feature: interpretable valued features, interpretable unvalued features, uninterpretable valued features, and uninterpretable unvalued features. It is assumed that uninterpretable features and unvalued features can serve as probes. For convenience, let us suppose that unvalued features are inherited from C to T.

[2] The idea that *qui* consists of the complementizer *que* and the expletive-like element *-i* is originally proposed to account for the following contrast in an embedded clause in the standard dialect of French.

(i)   a.   Quelle étudiante$_i$ crois-tu   [qui/*que t_i va   partir]?

                     which   student   believe-you that   will leave

                     'Which student do you believe is going to leave?'

          b.   Quelle étudiante$_i$ crois-tu   [*qui/que Marie va   aider t_i]?

                     which   student   believe-you that   Marie will help

                     'Which student do you believe Marie is going to help?'

                                     (cf. Rizzi and Shlonsky (2007: 131))

Chapter 4 presents a principled account of the *that*-trace effect in English and the lack of complementizer-trace effect in other languages than English.

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3 The subject-verb inversion in the LIC can also be licensed by the *wh-* and focus movement of a PP, as exemplified by the following examples.

    (i)   a.   In what room sitting my old brother?

               b.   IN THE LIVING ROOM is sitting my old brother (, not in the bed

                     room).   (Rizzi and Shlonsky (2006: 344))

Given that the clause-initial PP in the LIC is standardly interpreted as a topic, this thesis focuses on the derivation and structure of such LIC as (23) in the text.

4 Nawata (2013) assumes that the subject criterion can be satisfied by the merger of Fin with φ-features in LME and EModE, where verbs underwent movement to T and provides a principled account of the change of the *that*-trace effect in the history of English. However, Chapter 4 points out that this analysis has two theoretical and empirical problems, concluding that there is no φ-feature in Fin through the history of English.

5 This thesis uses the terms "CP domain" and "CP phase" to refer to different parts of CP: the CP domain contains the functional projections ForceP, TopP, FocP and FinP while the CP phase consists of TP as well as these functional projections. Under the present analysis proposed in the text, these terms mean the same part since ForceP, TopP, FocP, FinP and TP are introduced into the derivation as a single head. Henceforth, this thesis uses the term "CP phase" to refer to the domain consisting of these functional heads and their projections.

6 Although this thesis partly follows the idea proposed by Maeda (2014), her analysis differs

from the present analysis because the former does not recast 'EPP' as the subject criterion. In terms of Labeling Algorithm, Chomsky (2013, 2014) suggests that it should be recast as the requirement of labeling the mother node of T and a subject. I leave for future research the question of how it is derived in terms of labeling or something akin to it.

[7] Unlike Chomsky (2008, 2013, 2014), this thesis adopts the Agree-based approach (cf. Chomsky (2000, 2001)) under which a probe searches a goal in its c-command domain, resulting in the agreement relationship between the probe and the goal. Following Epstein and Seely (2006), chapter 4 argues that T (or the single head C containing it) and copies of a subject must c-command each other if full agreement holds between them, leading to the configuration where T c-commands the original copy of a subject while T is c-commanded by its moved copy.

[8] Rizzi and Shlonsky (2007) assume that an *that*-less clause is interpreted as a declarative by default. Integrating this idea with the suggestion that the complementizer *that* has an interpretable declarative feature to mark a declarative clause, chapter 4 assumes that in a *that*-clause, Force and Top/Foc must split and function as separate heads because the merger of *that* in Force satisfies only the declarative criterion, whereas in a *that*-less clause, they remain amalgamated into a single head because there is no criterion to require the merger of *that*. This accounts for the ungrammaticality of sentences involving a *that*-less clause with a fronted topic or focus. Given this, it would follow that Force and Top/Foc remain amalgamated into a single head in a matrix declarative clause where there is no overt complementizer.

[9] One might question how the ungrammaticality of the sentences like (25) is accounted for under the present analysis. Chapter 4 assumes with Maeda (2012) and Totsuka (2013) that TopP is a phase in the CP domain, so that the movement of an element across TopP is not allowed. See chapter 4 for the structure of the sentences like (25).

[10] Although it is very interesting to examine how the phenomena Maeda (2014) treats can be accounted for under the present analysis, it will be beyond the scope of this thesis.

[11] Travis (2010) classifies the aspect into two types: one is what Travis (2010) calls Outer Aspect syntactically encoded by OAspP, the topmost projection of the *v*P domain. The other is a lexical aspect, which he calls Inner Aspect, encoded by AspP immediately above the lowest VP. According to Travis (2010), the difference in (60) is involved in the grammatical aspect, that is, Outer Aspect. This thesis assumes that the Outer Aspect is encoded by the functional projection of AspP, which is the topmost projection in the *v*P domain, while the Inner Aspect is expressed lexically and is not overtly realized as a functional projection in narrow syntax. See Travis (2010) for detail discussion for the difference in a lexical aspect.

[12] This thesis uses the terms "*v*P domain" and "*v*P phase" to refer to different parts of *v*P: the *v*P domain contains the functional projections AspP, TopP, FocP and VoiceP while the *v*P phase consists of these functional projections and the lexical projection VP.

[13] It is suggested that a particular criterion be satisfied only by the movement of an element satisfying the formal feature relevant to it, which triggers its movement to an intermediate position. This means that some criterion and the formal feature relevant to it are satisfied by

the merger/ movement of the same element. Therefore, we could argue that the *wh*-phrase *on which car* cannot satisfy the *wh*-criterion as well as the formal feature relevant to the *wh*-criterion.

Chapter 3

On the Historical Change of the Complementizer in English

3.1. Introduction

Many historical linguists have attempted to account for the development of the complementizer *that* introducing a complement clause (henceforth, CC) (cf. Hopper and Traugott (2003), Roberts and Roussou (2003), Hosaka (2010) and Gelderen (2011) among others). Although they have argued that it developed from the demonstrative *that* in the history of English in terms of grammaticalization, they have not established a consensus with regard to how it developed. Another important aspect of CCs is the distribution of *that*-less CCs. A number of researchers note that in PE, the distribution of *that*-less CCs is more restricted (cf. Pesetsky (1991), Bošković and Lasnik (2003), An (2007) and Kim (2008)) than that of CCs with *that*. This chapter classifies *that*-less CCs into two types in terms of the (non-)adjacency to the matrix verb selecting them.

(1)   a.   I believe [CP that John liked linguistics].

        b.   I believe [CP Ø John liked linguistics].   (An (2007: 39))

(2)   a.   It seemed at that time [CP that David had left].

        b.   * It seemed at that time [CP Ø David had left].

                                                        (Bošković and Lasnik (2003: 529))

In one type of *that*-less clause exemplified by (1) (henceforth, V+Ø CC), the omission of *that* is possible if it is adjacent to the matrix verb while in the other type exemplified by (2) (henceforth, V+XP+Ø CCs), the omission of *that* is impossible if it is not adjacent to the

matrix verb.   This fact allows us to analyze the null complementizer heading a *that*-less CC as an affix which must attach to the matrix verb at some component.   However, no attention have been paid to the historical change of a *that*-less CC by these researchers.

This chapter investigates the historical change of the overt and null complementizers by employing *The York-Toronto-Helsinki Parsed Corpus of Old English Prose* (YCOE), *The Penn-Helsinki Parsed Corpus of Middle English, Second Edition* (PPCME2), *The Penn-Helsinki Parsed Corpus of Early Modern English* (PPCEME), and *the Penn Parsed Corpus of Modern British English* (PPCMBE).   This investigation reveals two facts: first, there were few examples of CCs without *that* in OE, but examples without *that* gradually increased after ME, so that examples without *that* outnumbered those with *that* in EModE.   Second, the percentage of V+XP+Ø CCs is very high, but they gradually decreased after ME, finally leading to the situation in PE where they are ungrammatical.

The main purpose of this chapter is to provide a principled account of the historical change of the overt and null complementizers.   This chapter makes two proposals: first, this chapter proposes a new developmental path of the overt complementizer *that*, based on Gelderen's (2011) analysis on the development of *that*.   In this part, it is argued that in OE, *that* was usually merged in the specifier of CP and retained the status of a demonstrative, but it was sometimes merged in the head of CP and functioned as just a complementizer; in the transition from ME to EModE, it completely lost the status of a demonstrative and functioned only as a complementizer.   The second part of this chapter proposes a developmental path of the null complementizer.   Assuming that the null complementizer is an affix which must attach to the predicate, this chapter argues that the status of the null complementizer gradually changed from an syntactic affix to a PF one.

This chapter is divided into two main parts: first, section 3.2 deals with the historical change of CCs in regard to the presence/absence of *that*.   By employing the historical

corpora mentioned above, section 3.2.1 investigates the distribution of CCs in the history of English. Section 3.2.2 reviews four previous studies on the development of *that*: Hopper and Traugott (2003), Roberts and Roussou (2003), Hosaka (2010) and Gelderen (2011). Pointing out the theoretical and empirical problems with these previous studies, section 3.2.3 proposes a new developmental path of *that* based on Gelderen's (2011) analysis, accounting for the historical change of CCs in regard to the presence/absence of *that*. Second, section 3.3 deals with the historical change of CCs without *that*. Section 3.3.1 investigates the distribution of *that*-less CCs. Section 3.3.2 reviews two previous studies on the distribution of *that*-less CCs, according to which the null complementizer is an affix attaching to the predicate. Section 3.3.3 points out their problems, proposing a developmental path of the null complementizer. It is shown that the analysis to proposed in this section can account for the historical change of the distribution of *that*-less CCs. Section 3.4 is the conclusion and summary of this chapter.

3.2. The Historical Change of the Overt Complementizer *That*[1]

   This section revises Gelderen's (2011) analysis of the development of the overt complementizer *that*, proposing a new developmental path of *that* in the light of the historical data investigated in section 3.2.1.

3.2.1. Historical Data

   This subsection investigates the distribution of the overt complementizer *that* introducing CCs, based on YCOE, PPCME2, and PPCEME. This provides a basis for the discussion in section 3.2.3 on the development of the complementizer *that*, because *that* can be omitted only if it has the status as a complementizer occupying the head of CP, according to Gelderen (2011) (see subsection 3.2 for detailed discussion). This investigation deals with

CCs to verbal, adjectival and nominal predicates which are attested at least once with those without *that* in each period, and classifies the relevant examples in terms of the presence/absence of *that*. The result is shown in Table 1, followed by the examples from each period, in which the (a) and (b) examples are those with *that* and without *that*, respectively.[2,3,4]

Table 1. Tokens of CCs with and without *That* from OE to EModE

	EOE	LOE	M1	M2	M3	M4	E1	E2	E3
Ø	9	11	25	8	154	419	895	1631	2315
That	452	1085	244	74	1438	1082	1483	1641	1351
%(ø)	2.0	1.0	9.3	9.8	9.5	27.9	37.6	49.9	63.2

(3)   OE

a.   and hi   wundrodon [þæt he to wifmenn spræc];

and they wondered   that he to wife   spoke

'and they wondered if he spoke to his wife'

(coaelhom, ÆHom_5:60.720: LOE)

b.   Sægde he, [he hit gehyrde from þæm seolfan Uttan]

said   he   he it   heard   from the   same   Uttan

mæssepreoste]

priest

'He says that he heard it from the silver Uttan priest'

(cobede, Bede_3:13.200.25.2045: EOE)

(4)   ME

    a.   And summe men trowen [þat þere is half the cross of oure

        And some men trust   that there is half the cross of our

        lord]

        lord   (CMMANDEV, 17.396: M3)

    b.   for   ich þouȝt   [þin   witnisses ben mi   þouȝt].

        but   I   thought   your witness   is   my   thought.

                        (CMEARLPS, 151.6695: M2)

(5)   EModE

    a.   I do knowe [that the same doo wel agre to the thynges that were

        graunted before].   (BOETHCO-E1-H, 99.605: E1)

    b.   I trust to God [it shall be ammended the next yeare]

                   (ABOTT-E1-P1, 230.16: E1)

As shown in Table 1, the percentage of examples without *that* was very low in OE.   In the transition from OE to ME, examples without *that* gradually increased, finally leading to the situation in E3 that examples without *that* outnumbered those with *that*.   This result leads us to conclude that *that* was unlikely to be omitted in OE, and the omission of *that* was firmly established in E3.

3.2.2. Previous Studies

    There seems to be a consensus among many historical linguists that the complementizer *that* developed from the demonstrative *that* in the history of English.   Let us review four studies on the origin and development of the complementizer *that* along the lines.   First,

Hopper and Traugott (2003) argue that the following example from OE suggests that the complementizer *that* has its origin as a demonstrative.

(6)   Þæt   gefremede Diulius hiora consul þæt þæt angin   wearð

              that   arranged   Diulius their consul that the   beginning was

              tidlice   þurhtogen.

              in-time   achieved

              'Their consul Diulius arranged (it) that it was started on time.'

                              (c. 880, Orosius 4 6.172.2 / Hopper and Traugott (2003: 192))

In (6), the first, clause-initial *þæt* is a fronted object pronoun and the second *þæt* introduces the following clause, an appositive one which resumes it. According to Hopper and Traugott, examples like (6) instantiate a hypotactic construction;[5] the demonstrative which belongs to the matrix clause was later reanalyzed as a complementizer introducing a complement clause.

Second, Roberts and Roussou (2003) propose the two steps in the development of the complementizer *that*. As illustrated in (7), the adjoined clause semantically related to the demonstrative *that* became dependent on the matrix clause, which instantiates structure simplification in that adjunction structure is eliminated.

(7)   a. $[_{IP}$ $[_{IP}$ I $[_{VP}$ V $(that_i)]]$ $[_{CP}$ the earth is round$]_i]$

   → b. $[_{IP}$ $[$I $[_{VP}$ V $[_{CP}$ the earth is round$]]]]$

                              (cf. Roberts and Roussou (2003: 118))

This was followed by the reanalysis in (8) involving the shift of constituent boundary, in which the demonstrative *that* (=D) was reanalyzed as a complementizer (=C).

(8)   a.   I think that [the earth is round]

→ b.   I think [that the earth is round]   (Roberts and Roussou (2003: 118))

Third, under the same assumption that *that* was initially independent of the clause associated with it, Hosaka (2010) proposes the three stages in the reanalysis of *that* as a complementizer.

(9)   a.   [$_{NP}$ [$_{NP}$ þæt] [$_{FP}$ [$_{F'}$ þe ...]]]

→ b.   [$_{CP}$ [$_{C'}$ þætte/þæt ...]]

→ c.   [$_{CP}$ [$_{C'}$ that ...]]   (cf. Hosaka (2010: 65))

The stage of (9a) where FP has an appositive relation with NP is illustrated by examples like (10), in which *þæt* is followed by the subordinating particle *te*.

(10)   monig oft   gecwæð þæt te suð ne norð ... oþer...selra nære

            many often   said   that that south nor north   other better not-was

            'It was often said that no better one could be found north or south.'

                                    (Beowulf 858 / Gelderen (2004: 90))

Then, this structure underwent a series of changes which turned the sequence of *þæt* and *te* into the complex element *þætte* in (9b) and then into the simple element *that* in the head of CP in (9c).

It is worth emphasizing that what is common among these three studies is that they assume that *that* as a demonstrative was initially independent of the clause semantically related to it, and the latter was not a complement clause but an appositive/adjunct one. In

contrast to these studies, Gelderen (2011) assumes that *that* was already part of the complement clause associated with it in OE, proposing the following developmental path of *that* from a demonstrative to a complementizer.

(11)　　a.　　　　[$_{DP}$ that]　　　　　　　　　(pre OE to PE)

　　　　　b.　　　　[$_{CP}$ that [$_{C'}$ C [$_{TP}$ ...]]]　　　(OE to ME)

　　　　　c.　　　　[$_{CP}$ [$_{C}$ that] [$_{TP}$ ...]]　　　　(late ME to PE)

(cf. Gelderen (2011: 261))

Gelderen (2011) argues that *that* had already become an element in the CP domain by OE, but it occupied Spec-CP and still retained the status as a demonstrative that is a category of DP and refers to the following TP as an antecedent.　She takes examples like (10) from OE to be evidence for this analysis, analyzing *þæt* and *te* as being merged in the specifier and the head of CP, respectively, unlike Hosaka (2010).　Gelderen claims that *that*, which lost the status as a demonstrative in late ME, was reanalyzed as a complementizer merged in the head of CP, so that it began to be omitted.

3.2.3. Proposal

　　　Although the previous studies reviewed in subsection 3.2.2 appear to present an appealing account of the development of the complementizer *that* in terms of grammaticalization, there are theoretical and empirical problems with their analyses.　First, the following example from EOE shows that extraction from *that*-clauses was possible: *sio anlicnes* 'an illustration,' originating in the clause introduced by *ðæt*, moves to the initial position of the matrix clause.

(12)   Sio   anlicnes$_i$ wæs   gecueden   ðæt t_i sceolde   beon   on   ðæs

an   illustration   was   said   that   should   be   on   the

sacerdes   hrægle   ða   readan   appla   ongemang   ðam   bellum.

preist's   robe   the   red   apples   among   the   bells

'It was said that as an illustration there were to be red apples on the priest's

robe among the bells'   (Pastoral Care / cf. Seppänen and Bergh (1996: 46))

Given that extraction from adjunct/appositive clauses is impossible (due to a violation of the

Condition on Extraction Domains (Huang (1982)); see Chomsky (2004) for a recent approach

to derive its effects), the analyses proposed by Hopper and Trauggott (2003), Roberts and

Roussou (2003) and Hosaka (2010) would wrongly predict examples like (12) to be

ungrammatical.   Second, as we saw in subsection 3.2.1, CCs without *that*, though not

productive, were observed in EOE.   This fact cannot be accounted for by these three studies,

since they argue that *that* was unambiguously a demonstrative whose category is NP/DP, in

the earliest stage of English.

On the other hand, the analysis proposed by Gelderen (2011) correctly predicts the

examples like (12) to be grammatical since it assumes that *that* had already introduced a

complement clause but not an adjunct/appositive clause, although occupying the specifier of

CP.   However, like the other studies, it cannot capture the fact that omission of *that* was

already possible in OE, since it assumes that *that* retained the status of a demonstrative and

was merged in the specifier of CP of CCs in OE.   If (as Gelderen (2011) claims) the

demonstrative *that* cannot be omitted due to its semantic function and the possibility of

omission of *that* points to its complementizer status, it follows that *that* already began to be

reanalyzed as a complementizer in OE.   Moreover, given the above conclusion that the

omission of *that* was firmly established only in E3, it is natural to assume that it lost its

demonstrative status and was completely reanalyzed as a complementizer in this period, which means that the demonstrative *that* occupying Spec-CP was available until E2.

This will lead us to revise Gelderen's (2011) analysis in (11) and propose the following developmental path of the complementizer *that*.   (For convenience, the syntactic structure of the CP phase is not fully shown in this chapter.)

(13) a. $[_{DP}$ that(φ, u-Case)$]$ (pre OE to PE)

  b. $[_{CP}$ that(φ) $[_{C'}$ C(Dec) $[_{TP}$ ...$]]]$ (OE to E2)

  c. $[_{CP}$ $[_{C}$ that(Dec)$]$ $[_{TP}$ ...$]]$ (OE to PE)

In OE, *that* was usually merged in Spec-CP as a demonstrative, and hence it was unlikely to be omitted.   Nevertheless, *that* could be sometimes merged in the head of CP, leading to sporadic cases of *that*-less CCs.   Since OE, the two options of (13b) and (13c) coexisted until E2, with the latter gradually replacing the former, so that the frequency of *that*-less CCs increased in the course of time.   Finally, in E3, *that* was completely reanalyzed as a complementizer merged in the head of CP, whereby its omission was firmly established.[6] The development of *that* in (13) instantiates grammatical competition in the sense of Kroch (1989), where a new option competes with and finally wins over an original one that was formerly predominant.

Given that the options of (13b) and (13c) coexisted from OE to E2, one might expect that *that* could appear both in the head and the specifier of CP (e.g. $[_{CP}$ that $[_{C'}$ $[_{C}$ that$]$ $[_{TP}$ …$]]]$), but such cases are not found in the historical corpora employed here.   The impossibility of occurrence of *that* in the two positions will be accounted for by assuming that the declarative (henceforth, Dec) criterion is satisfied by the merger of *that*, which has an interpretable declarative feature, regardless of whether it is merged in the head or the specifier

of CP, so the merger of *that* in the two positions should be redundant. If this is correct, examples like (10) where *te* occurs with *þæt* will indicate that the former is a pure subordinator lacking a declarative feature.

It should be mentioned that unlike the pure demonstrative *that* in (13a), *that* merged in Spec-CP lost the Case feature, as shown in (13b). Chomsky (2000, 2001) argues that an uninterpretable/unvalued feature is necessary for a goal to establish an Agree relation with a probe. This leads us to expect that through the history of English, *that* cannot enter into an Agree relation with C due to the lack of an uninterpretable/unvalued feature. This expectation is borne out, as exemplified in the following examples from PE and OE.

(14)   a.   * It *seem* equally likely at this point [that the president will be reelected] and [that he will be impeached].

          b.   It *seems* equally likely at this point [that the president will be reelected] and [that he will be impeached]. (McCloskey (1991: 565))

(15)   Ond þa   heora ealra dome gedemed wæs, [þæt he wære biscophade
        and   then them all   home deemed was   that he was episcopate
        wyrðe],   &   [þæt he to lareowe sended wære Ongolcynne, se   ðe
        fortune and that he to master sent   was Angel-people which that
        mid Godes gife swylc gescead funde in   heora geþeahte].
        with God's gift such   part   find   in   their thought

                                   (cobede,Bede_3:3.164.11.1575: O2)

As shown in the contrast in (14), the matrix verb does not show agreement with two coordinated clausal arguments in person and number in extraposition constructions with the

dummy *it* in the subject position.   The example in (15) where the matrix verb is a

third-person singular form (i.e. *wæs*) shows that the matrix verb did not show agreement with

the coordinated clausal arguments even in extraposition constructions without *it*. (See chapter

5 on the derivation of extraposition constructions with and without *it*.)

However, two questions arise how a *that*-less CC can be interpreted as a declarative,

and why *that* can be omitted when it occupies the head of CP.   We will return to these

questions in section 3.3.3.

3.3. The Historical Change of the Null Complementizer[7]

This section proposes a developmental path of the null complementizer in the light of

the historical data investigated in section 3.3.1, accounting for the historical change of

that-less CCs.

3.3.1. Historical Data

This subsection investigates the distribution of *that*-less clauses in regard with the

(non-)adjacency to the matrix verb selecting them.   This investigation deals only with

that-less clauses selected by verbal predicates, and classifies the relevant examples in terms of

the adjacency between CCs and the matrix verbs selecting them.[8]   The result of this

investigation is shown in Table 2, followed by the examples of V+XP+Ø CC from EModE.

Table 2. Tokens of V+Ø/ V+XP+Ø CCs in the History of English

	EOE	LOE	M1	M2	M3	M4	E1	E2	E3	L
V+Ø	5	3	20	6	122	334	662	1291	1789	2034
V+XP+Ø	4	7	9	0	23	66	82	86	80	99
%(V+XP+Ø)	44.4	70.0	31.0	0.0	15.9	16.5	11.0	6.2	4.3	4.6

(16)　　a.　　　they say notwithstanding [the town is a sad Jacobitish town]

(FIENNES-E3-H,146.135: E3)

　　　b.　　　I knew not [his Letters were to me],

(THOWARD2-E2-P2,109.712: E2)

In (16), the adverbial *notwithstanding* and the negative *not* intervenes between the matrix verb and the *that*-less CC.　As show in Table 2, the percentage of V+XP+Ø CCs was very high in OE.　However, in the transition from OE to ME, they gradually decreased.[9]　After EModE, the percentage of V+XP+Ø CCs became very low in EModE, finally leading to the situation in PE where they are ungrammatical, as shown above.

It is worthwhile to mention that even in PE, V+XP+Ø CCs are allowed when a subject *wh*-phrase is extracted from CCs whereas they are impossible when an object *wh*-phrase is extracted from them, as illustrated in (17).

(17)　　a.　　　Who$_i$ do you believe sincerely [t_i likes Natasha]?

　　　b.　　* Who$_i$ do you believe sincerely [Natasha likes t_i]?

(Bošković and Lasnik (2003: 536))

This subsection also investigates the distribution of such examples in the history of English.

The result of this investigation is summarized in Table 3 and Table 4, with V+XP+Ø CCs divided into three types: V+Subj+Ø CCs, V+Neg+Ø CCs and V+Adv+Ø CCs.

Table 3. Tokens of V+Ø/V+XP+Ø CCs with Subject Extraction in the History of English

	EOE	LOE	M1	M2	M3	M4	E1	E2	E3	L
V+Ø	0	0	1	0	9	10	35	49	78	182
V+Subj+Ø	0	0	0	0	1	1	1	0	1	0
V+Neg+Ø	0	0	0	0	0	1	0	1	0	0
V+Adv+Ø	0	0	0	0	0	0	3	2	6	5

(18) a. Who$_i$ thynke *you* [t_i is a wyse and a faythful seruaunt]?

(LATIMER-E1-P1,20P.69: E1)

  b. Innocence wolde that thou sholdest not do to a-noþer, the whiche$_i$

innocence would that you should   not do to another the which

thou woldist *not* [t_i were doon to the].

you would   not   were done to that   (CMAELR4,16.446: M4)

  c. And was not much vnlyke the bargayne that$_i$ I herd *of late* [t_i shulde

be betwixte two fryndes for a horsse],

(LATIMER-E1-P2,27L.61: E1)

Table 4. Tokens of V+Ø/ V+XP+Ø CCs with Object Extraction in the History of English

	EOE	LOE	M1	M2	M3	M4	E1	E2	E3	L
V+Ø	0	0	1	0	3	2	18	27	41	42
V+Subj+Ø	0	0	0	0	0	0	1	0	0	1
V+Neg+Ø	0	0	0	0	0	0	0	0	1	0
V+Adv+Ø	0	0	0	0	1	0	3	2	3	2

(19)   a.   And what$_i$ suppose ye [Martyn luther & his adherentes wolde do t_i].

(FISHER-E1-P2,345.178: E1)

       b.   dere is some Simples in my Closset, dat$_i$ I vill not for the varld [I

shall leau behind t_i].   (SHAKESP-E2-P1,42,C2.521: E2)

As shown in Table 3, after the emergence of V+Ø CC with the subject extraction from a CC in ME, it gradually got frequent.   Although no example of V+Adv+Ø CC was found in ME, they were observed more frequently than those of V+Subj+Ø CC and V+Neg+Ø CC in EModE, finally leading to the situation in PE where only V+Adv+Ø CCs are possible if its subject is extracted.   As shown in Table 4, an example of V+Ø CC with object extraction from a CC also emerged in M1.   There were more examples of V+Adv+Ø than those of V+Subj+Ø CC and V+Neg+Ø CC in the history of English.   However, as shown in (17b), all these examples had become ungrammatical by PE, though examples of V+Ø CC gradually increased.

This section has investigated the distribution of CCs without *that* in the history of English.   This investigation has revealed that the percentage of V+XP+Ø CCs was very high in OE but such examples gradually decreased after ME, and finally they became ungrammatical, just as we can see in PE; until EModE, a few examples of V+XP+Ø CCs

were observed with its subject or object extracted, but only examples with subject extraction are allowed in PE.

3.3.2. Previous Studies

Pesetsky (1991) accounts for the fact that a *that*-less CC must be adjacent to the matrix verb, by assuming that the null complementizer is an affix (henceforth, C_{affix}), which must attach to the matrix verb governing it through head movement at the surface structure. Under this analysis, the contrast in (20) is accounted for as in (21).

(20) a. The Ancients believed [$_{CP}$ the world was round].

   b. * [$_{CP}$ the world was round] was known to the Ancients.

                    (Pesetsky (1991: 35))

(21) a. The Ancients [$_{VP}$ C_{affix}+believed [$_{CP}$ t_C [$_{TP}$ the world was round]]]
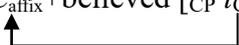
            Head Movement

   b. * [$_{CP}$ t_C [$_{TP}$ the world was round]]$_i$ was [$_{VP}$ C_{affix}+known t_i ...]
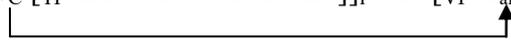
          *Head Movement

In (21a), where CP stays in the original position, C_{affix} can attach to the matrix verb *believed* governing it without any difficulty, whereas in (21b), where CP occupies the subject position, C_{affix} cannot attach to the matrix verb *known* because the latter cannot govern the former.

However, this analysis cannot account for the ungrammaticality of V+XP+Ø CCs. Revising Pesetsky's (1991) analysis, Bošković and Lasnik (2003) propose under the minimalist frameworks that C_{affix} must attach to the matrix verb through PF merger, which requires that the former be adjacent to the latter in a PF representation. Under this analysis,

the contrast in (20) is accounted for in the following way.

(22) a. The Ancients [$_{VP}$ C$_{affix}$+believed [$_{CP}$ t_C [$_{TP}$ the world was round]]]

PF Merger

b. * [$_{CP}$ t_C [$_{TP}$ the world was round]]$_i$ was [$_{VP}$ C$_{affix}$+known t_i ...]
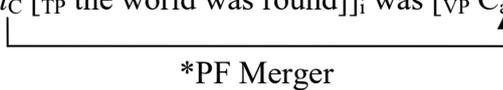
*PF Merger

In (22a), C$_{affix}$ can attach to *believed* through PF merger because the former is adjacent to the latter in a PF representation.   On the other hand, in (22b), the attachment of C$_{affix}$ is impossible because it does not establish an adjacent relation with *known* in a PF representation.   Under this analysis, the ungrammaticality of V+XP+Ø CCs follows immediately.

(23) a. * It seemed at that time [$_{CP}$ David had left].

(Bošković and Lasnik(2003: 529))

b. * It C$_{affix}$+seemed [at that time] [$_{CP}$ t_C [$_{TP}$ David had left]]
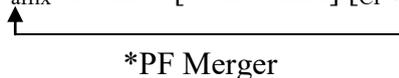
*PF Merger

In (23b), the attachment of C$_{affix}$ to *seemed* is impossible due to the intervention of the adverbial *at that time*.

3.3.3. Proposal

We are in a position to consider how C$_{affix}$ changed its status in the history of English. This subsection points out that none of the two previous studies can capture the historical fact noted in section 3.3.1, and proposes a developmental path of C$_{affix}$ where it changed its status

from a syntactic affix to a PF one. It is shown that this analysis cannot only account for the historical change of the distribution of the null complementizer, but also the historical change of V+XP+Ø CCs with subject/object extraction.

3.3.3.1. A Developmental Path of C_affix

Bošković and Lasnik's (2003) analysis might be preferred to Pesetsky's (1991) because the former can dispense with the notion of government and account for the ungrammaticality of V+XP+Ø CCs. However, it has difficulty in accounting for the fact that V+XP+Ø CCs were allowed in early English, as shown in Table 2. Furthermore, both the two analyses cannot capture the fact that V+XP+Ø CCs are allowed even in PE only if its subject is extracted, which in turn leads to the difficulty of accounting for the historical change of V+XP+Ø CCs shown in Table 3 and Table 4.

In order to overcome these problems, this subsection proposes the following developmental path of C_affix in the history of English.[10] (The operation irrelevant for the present discussion is omitted, such as movement of a subject.)

(24) a. $[_{TP} [C_{affix}+V+v]+T (Adv/Neg) [_{vP} t_{C+V+v} (Adv) [_{VP} t_{C+V} [_{CP} t_C TP]]]]$

(EOE to LModE)

→ b. $[_{TP} T (Adv/Neg) [_{vP} C_{affix}+[V+v] (*Adv) [_{VP} t_V [_{CP} t_C TP]]]]$

(LME to PE)

As shown in (24a), it is assumed that C_affix was originally merged as a syntactic affix attaching to the matrix verb through head movement in syntax, which in turn underwent V-to-T (or C) movement with the matrix verb, and hence, it could attach to the matrix verb even in the configuration where there is an intervener between a *that*-less CC and the matrix verb.

Roberts (2007) argues that V-to-T movement began to be lost in the fifteenth century (late ME). This means that the matrix verb came to stay in v more and more frequently, as V-to-T movement was gradually lost. Therefore, V+XP+Ø CCs decreased in late ME (M3 and M4) to the extent that its frequency was about fifteen percent, resulting in the increase of V+Ø CCs, where C_{affix} was adjacent to the matrix verb in the final representation. This leads us to propose that in this period, as shown in (24b), C_{affix} began to be reanalyzed as a PF affix in conformity with the economy condition on syntactic computation, which states that as few operations should be used as possible in syntax.[11] In particular, the option of (24b) is more preferred than that of (24a) because using the former option makes syntactic computation much simpler. Since LME, the two options of (24a) and (24b) coexisted until LModE, with the latter gradually replacing the former. Finally, in PE, C_{affix} was completely reanalyzed as a PF affix attaching the matrix verb through PF merger, whereby it must be adjacent to the matrix verb.

A question remains why a *that*-less CC is interpreted as a declarative. Adopting the idea proposed by Rizzi and Shlonsky (2007) that a *that*-less CC is interpreted as a declarative by default leads us to assume that CP headed by C_{affix} does not requires the merger of *that* in order to satisfy the Dec criterion, and it is interpreted as a declarative by default. Therefore, a question can be resolved why *that* can be omitted only if it occupies the head of CP: a CC can be marked as a declarative either by the merger of *that* in C or by the merger of C_{affix}, thus accounting for the optionality of *that*. Note that C_{affix} cannot be substituted for *that* to mark a CC as a declarative when it was merged in Spec-CP. This is because *that* was used not only as a complementizer marking a CC as a declarative but also as a demonstrative with a semantic content.

This subsection has argued that C_{affix} was originally merged as a syntactic affix, and in LME, it began to be reanalyzed as a PF affix. Again, the development of C_{affix} in (24)

instantiates grammatical competition, where the option of (24b) competes with and finally wins over the option of (24a) because the former conforms to economy condition.

3.3.3.2. The Historical Change of V+XP+Ø CCs with Subject/Object Extraction

A question remains how the historical change of V+XP+Ø CCs with subject/object extraction is accounted for under the present analysis, which wrongly predict sentences like (17a, b), repeated as (25a, b), to be ungrammatical because C_{affix} cannot attach to the matrix verb due to the intervention of the matrix adverb *sincerely*.

(25)   a.   Who$_i$ do you believe sincerely [t_i likes Natasha]?

         b.   * Who$_i$ do you believe sincerely [Natasha likes t_i]?

(Bošković and Lasnik(2003: 536))

In order to overcome this problem, this thesis assumes with Kim (2008) that C_{affix} can attach either to the matrix verb or to the embedded verb through PF merger, and proposes the additional option of (26).

(26)   [$_{TP}$ T (Adv/Neg) [$_{vP}$ [V+v] (Adv) [$_{VP}$ t_V [$_{CP}$ t_C [$_{TP}$ (*Subj) T [$_{vP}$ C_{affix}+[V+v]

         [$_{VP}$ t_V ...]]]]]]]   (LME to PE)

As shown in (26), C_{affix} as a PF affix can attach to the embedded verb through PF merger if the former is adjacent to the latter in a PF representation.   Under this analysis, the contrast in (25a,b) is accounted for in the following way.[12]

(27)	a.	[CP who$_i$ [C do] [TP you T [$_{vP}$ t_i believe sincerely [VP t_V [CP t_i t_C [TP t_i T [$_{vP}$ t_i C$_{affix}$+likes Natasha]]]]]]]

b.	* [CP who$_i$ [C do] [TP you T [$_{vP}$ t_i believe sincerely [VP t_V [CP t_i C$_{affix}$ [TP Natasha T [$_{vP}$ t_i likes t_i]]]]]]]

In (27a), the movement of the embedded subject *who* makes it possible for C$_{affix}$ to attach to the embedded verb *likes* through PF merger.   On the other hand, in (27b), the intervention of the matrix adverb *sincerely* and the embedded subject *Natasha* prevents C$_{affix}$ from attaching either to the matrix verb or to the embedded verb.

Next, let us consider the derivation of the examples of V+XP+Ø CC with subject/object extraction from ME and EModE.   The examples with subject extraction and object extraction are repeated as (28a, b, c) and (29a, b).

(28)	a.	Who$_i$ thynke *you* [t_i is a wyse and a faythful seruaunt]?

b.	Innocence wolde that thou sholdest not do to a-noþer, the whiche$_i$
innocence would that you should   not do to another the which
thou woldist *not* [t_i were doon to the].
you would   not   were done to thee

c.	And was not much vnlyke the bargayne that$_i$ I herd *of late* [t_i shulde be betwixte two fryndes for a horsse],

(29)	a.	dere is some Simples in my Closset, dat$_i$ I vill not for the varld [I shall leau behind t_i].

b.	And what$_i$ suppose ye [Martyn luther & his adherentes wolde do t_i].

Given that the options of (24a, b) and (26) coexisted until LModE, the sentences in (28a, b, c) are derived in two ways. First, the sentences in (28a, b, c) can be derived by the head movement of C$_{affix}$ to the matrix verb in syntax, as shown in (30a, b, c).

(30)　　a.　　[$_{CP}$ the which$_i$ C [$_{TP}$ thou [[C$_{affix}$+woldist]+T] not [$_{vP}$ $t$$_{C+V+v}$ [$_{VP}$

$t$$_{C+V}$ [$_{CP}$ t_i $t$$_C$ [$_{TP}$ t_i were doon to the]]]]]]

　　　　b.　　[$_{CP}$ who$_i$ [[C$_{affix}$+thynke+T]+C] [$_{TP}$ you $t$$_{C+V+v+T}$ [$_{vP}$ $t$$_{C+V+v}$ [$_{VP}$ $t$$_{C+V}$

[$_{CP}$ t_i $t$$_C$ [$_{TP}$ t_i is a wyse and a faythful seruaunt]]]]]]]

　　　　c.　　[$_{CP}$ that$_i$ C [$_{TP}$ I [C$_{affix}$+herd]+T *of late* [$_{vP}$ $t$$_{C+V+v}$ [$_{VP}$ $t$$_{C+V}$ [$_{CP}$ t_i $t$$_C$ [$_{TP}$ t_i

shulde be betwixte two fryndes for a horsse]]]]]]]

In the structures of (30), the head movement of C$_{affix}$ to the matrix verb is preceded by the movement of the embedded subject to the embedded Spec-CP, which feeds the subsequent movement to the matrix Spec-CP.   Second, the sentences in (28a, b, c) can be derived by the attachment of C$_{affix}$ to the embedded verb through PF merger, as shown in (31a, b).

(31)　　a.　　[$_{CP}$ the which$_i$ C [$_{TP}$ thou [[woldist]+T] not [$_{vP}$ $t$$_{V+v}$ [$_{VP}$ $t$$_V$ [$_{CP}$ t_i $t$$_C$ [$_{TP}$

t_i C$_{affix}$+were doon to the]]]]]]

　　　　b.　　[$_{CP}$ who$_i$ [[thynke+T]+C] [$_{TP}$ you $t$$_{V+v+T}$ [$_{vP}$ $t$$_{V+v}$ [$_{VP}$ $t$$_V$ [$_{CP}$ t_i $t$$_C$ [$_{TP}$ t_i

C$_{affix}$+is a wyse and a faythful seruaunt]]]]]]]

　　　　c.　　[$_{CP}$ that$_i$ C [$_{TP}$ I [herd]+T *of late* [$_{vP}$ $t$$_{V+v}$ [$_{VP}$ $t$$_V$ [$_{CP}$ t_i $t$$_C$ [$_{TP}$ t_i

C$_{affix}$+shulde be betwixte two fryndes for a horsse]]]]]]]

Under the present analysis, the fact that V+XP+Ø CCs with subject extraction have been observed since ME is accounted for.   However, it should be mentioned that the examples of

V+Neg+Ø CC and V+Subj+Ø CC were lost by PE, which is due to the loss of the verb movement to T or C itself.

Unlike V+XP+Ø CCs with subject extraction, that with object extraction can be derived only by the head movement of C_{affix} to the matrix verb in syntax, as shown in the following structure.

(32)   a. $[_{CP}$ dat$_i$ C $[_{TP}$ I $[C_{affix}$+vill]+T not for the varld $[_{vP}$ t_{C+V+v} $[_{VP}$ t_{C+V} $[_{CP}$ t_i t_C $[_{TP}$ I shall leau behind t_i]]]]]]]

b. $[_{CP}$ what$_i$ $[[C_{affix}$+suppose+T]+C] $[_{TP}$ ye $t_{C+V+v+T}$ $[_{vP}$ t_{C+V+v} $[_{VP}$ t_{C+V} $[_{CP}$ t_i t_C $[_{TP}$ Martyn luther & his adherentes wolde do t_i]]]]]]]

As shown in (32a, b), C_{affix} as a syntactic affix can attach to the matrix verb through head movement in syntax, regardless of whether an intervener is present or not.   It is worthwhile to emphasize that C_{affix} as a PF affix cannot attach either to the matrix verb or to the embedded verb through PF merger in V+XP+Ø CCs with object extraction, as illustrated in (27b).   Therefore, the present analysis accounts for the fact that V+XP+Ø CCs with object extraction were lost by PE where C_{affix} is completely reanalyzed as a PF affix.

3.4. Conclusion and Summary

This chapter has made the two proposals of the historical change of the complementizer in English.   First, section 3.2 has investigated the distribution of the overt complementizer *that* introducing CCs, based on YCOE, PPCME2, and PPCEME, and proposed the new developmental path of the overt complementizer *that* in the history of English.   Revising Gelderen's (2011) analysis, this section has argued that in OE, *that* was usually merged in Spec-CP as a demonstrative while it was sometimes merged in the head of CP, so that

that-less CCs were observed sporadically in OE; since OE, these options coexisted until E2, with the latter gradually replacing the former, finally leading to the situation where *that* was completely reanalyzed as a complementizer merged in the head of CP, whereby its omission was firmly established.

Second, section 3.3 has investigated the distribution of *that*-less clauses in the history of English, based on YCOE, PPCME2, PPCEME and PPCMBE, and argued that a *that*-less clause is headed by C_{affix}, which was merged as a syntactic affix in OE, and then, began to be reanalyzed as a PF one in ME, whereby V+XP+Ø CCs are possible only if an embedded subject is extracted. The analysis proposed by this chapter provides a basis for the discussion of the *that*-trace effect and the presence/absence of the dummy *it* in extraposition in chapter 4 and 5.

[1] This section is an extended version of a part of Kondo (2015b).

[2] This thesis assumes that finite clauses are uniformly CP or something akin to it in accordance with the analysis proposed in chapter 2, where a head and its projection with no syntactic realization are not truncated but amalgamated with another head. This dictates that examples like (3b) involve CP complements, which in turn indicates that the omission of *that* was available already in OE (though not preferred).

[3] Of course, Table 1 includes cases of the clausal argument in extraposition constructions with and without the dummy *it*. It is worthwhile to note that extraposition constructions with *it* are often found with the clausal argument without *that* in EModE (about twenty percent), much like PE examples such as (i).

(i)   a.   It is a pity John doesn't have any friends.

              b.   It's not sure John has any friends.

(Bošković and Lasnik (2003: 538))

On the other hand, only a few extraposition constructions without *it* are found with the clausal argument without *that*. Therefore, it would be reasonable to conclude that the omission of *that* was impossible in the clausal argument in extraposition constructions without *it*. The impossibility of omission of *that* in the clausal argument in extraposition constructions without *it* suggests that the development of *that* plays a key role in accounting for the historical change of extraposition constructions in regard with the presence/absence of

it.

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[4] This thesis collapses O1 and O2 into Early Old English (EOE), and O3 and O4 into Late Old English (LOE), respectively.   This is mainly because the sizes of O1 and O4 texts are too small to draw any firm conclusions by isolating these two periods.

[5] Hopper and Traugott (2003) propose the following cline on the development of complement clauses in terms of the combination of the features [±dependent] and [±embedded].

(i)   parataxis   >   hypotaxis   >   subordination

            -dependent   +dependent   +dependent

            -embedded   -embedded   +embedded

                                              (Hopper and Traugott (2003: 178))

According to this cline, the appositive clause introduced by the second *þæt* in (6) is dependent on the matrix clause, but it is not embedded.

[6] One might point out that investigation should be made on the distribution of complement clauses with and without *that* in LModE.   By employing *A Representative Corpus of Historical English Registers* (ARCHER), Finegan and Biber (1995) investigate the distribution of *that* in CCs, showing that it is omitted at about sixty percent in the letters in the first half of the twentieth century.   This result would support the idea in the text that the development of *that* had already been complete in E3 where about sixty percent of complement clauses were found without *that*.

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[7] This section is an extended version of Kondo (2016a).

[8] The number of the relevant examples with adjectives and nominal predicates is too small to provide substantial data to draw a firm conclusion, and hence, this investigation does not deal with CCs selected by adjective and nominal predicates.

[9] One might wonder why no relevant example was observed in M2. However, given that the text size of M2 is very small, the impossibility of occurrence of relevant examples would be accidental.

[10] One might argue that V+XP+Ø CCs are derived through the extraposition of CP if the matrix verb stays in v. However, this analysis wrongly predicts examples like (17a) to be ungrammatical, due to a violation of the Condition on Extraction Domains. Thus, this thesis assumes that adverbials are adjoined either to vP or to VP in V+XP+Ø CCs.

[11] This idea comes from Nawata's (2004) analysis of the grammatical change of *for-to* infinitives in English. Adopting Distributed Morphology (cf. Halle and Marantz (1993)) which assumes the morphological component where lexical items are inserted, he proposes the economy condition on lexical insertion, according to which a feature bundle must be realized by as few items as possible. This economy condition on the morphological component leads us to propose the economy condition on the syntactic component, which requires syntactic operations to be reduced. I open the possibility that this economy condition on the syntactic component accounts for the historical change of other constructions.

Chapter 4

On the *That*-trace Effect

4.1. Introduction

Extraction of an embedded subject is possible only if the complementizer *that* is absent, whereas extraction of an embedded object is possible regardless of whether *that* is present or not, as illustrated in (1a, b), respectively.

(1)   a.   Who$_i$ do you think (*that) t_i met Sue?

       b.   Who$_i$ do you think (that) Sue met t_i?

(Pesetsky and Torrego (2001: 356))

Since Perlmutter (1971), many generative studies have been devoted to accounting for the impossibility of extracting a subject from a *that*-clause (e.g. Chomsky (1981, 1986, 2014), Rizzi (1990), Pesetsky and Torrego (2001), Richards (2001), Rizzi and Shlonsky (2006, 2007), Bošković (2011), and Abe (2015)).   Within the Government-Binding framework, there seems to be a consensus that the presence of *that* prevents the trace of an embedded subject from being properly governed.   On the other hand, within the minimalist framework, many researchers have proposed various principled approaches.   Among others, this chapter reviews four approaches: a Criterial Freezing based approach, a locality based approach, a labeling based approach, and a linearization based approach.   Although all these approaches apparently are plausible, there are some theoretical and empirical problems with them.

The main purpose of this chapter is to provide a more plausible account of the ban on subject extraction from a *that*-clause.   Chapter 2 has proposed the new clausal architecture where all the functional heads of a phase are introduced into the derivation as the single head

C.　Along the same lines, this chapter argues that the subject in a *that*-clause undergoes Criterial Freezing by satisfying the subject criterion, so that it cannot move to the matrix clause.　Furthermore, revising the idea proposed by Bošković (2011) that a violation of a locality condition on movement can be rescued by PF deletion, this chapter proposes that the deletion of *that* allows the embedded subject to circumvent the effect of Criterial Freezing, thereby making possible its movement to the matrix clause.

This chapter is organized as follows: section 4.2 reviews four previous studies, and points out their problems.　Based on the clausal architecture developed in chapter 2, section 4.3 proposes a principled account of the impossibility of subject extraction from a *that*-clause. It is argued under the cartographic approach that an embedded subject cannot move to the matrix clause because it undergoes Criterial Freezing by satisfying the subject criterion. Section 4.4 presents a number of consequences of the analysis proposed in section 4.3.　On the basis of the analysis of the historical change of the complementizer *that* proposed in chapter 3, section 4.5 proposes a new analysis of the change of the *that*-trace effect in the history of English.　It is argued that subject extraction from a *that*-clause was possible in ME and EModE in which *that* retained its demonstrative status and was merged in the specifier of CP.　Tentatively adopting Labeling Algorithm proposed by Chomsky (2013, 2014), section 4.6 proposes that the deletion of *that* allows an embedded clause to be immediately preceded by predicates like *think of/about*, which do not select a *that*-clause.　Section 4.7 is the conclusion and summary of this chapter.

4.2. Previous Studies

4.2.1. Rizzi and Shlonsky (2006, 2007)

As reviewed in chapter 2, Rizzi and Shlonsky (2006, 2007) propose the clause structure

repeated as (2), in which a given criterion is satisfied by the movement of an element to the specifier of the relevant head, and the element satisfying a criterion is frozen in place, which is defined as Criterial Freezing in (3).

(2)   [$_{ForceP}$ Force [$_{TopP}$ Top* [$_{FocP}$ Foc [$_{TopP}$ Top* [$_{FinP}$ Fin [$_{SubjP}$ Subj [$_{TP}$ T]]]]]]]

(3)   Criterial Freezing

An element meeting a criterion is frozen in place.   (Rizzi (2006: 112))

Under the cartographic approach, Rizzi and Shlonsky (2006, 2007) recast the "EPP" as the subject criterion, which is satisfied by the movement of a nominal element to Spec-SubjP. They assume that if *that* is present, it is merged in Fin, and then, it moves to Force while if *that* is absent, Fin is merged with some kind of φ-features.   Under this assumption, they propose that the subject criterion is also satisfied by the merger of Fin with φ-features.   Thus, the structures of the sentences in (1a, b) are roughly schematized as in the following.

(4)   a.   * [$_{FocP}$ who$_i$ do you think [$_{ForceP}$ t_i [$_{Force}$ that] [$_{FinP}$ [$_{Fin}$ t_{that}] [$_{SubjP}$ t_i Subj [$_{TP}$ t_i met Sue]]]]]

      b.   [$_{FocP}$ who$_i$ do you think [$_{ForceP}$ t_i Force [$_{FinP}$ Fin(φ) [$_{SubjP}$ Subj [$_{TP}$ t_i met Sue]]]]]   (cf. Rizzi and Shlonsky (2007))

In (4a), Criterial Freezing prevents *who* from moving from Spec-SubjP, while in (4b), it is possible for *who* to move to the matrix Spec-FocP because the subject criterion is satisfied under the head-head relation between Subj and Fin with φ-features.

The idea that the subject criterion is satisfied by the merger of Fin with φ-features is

supported by the lack of the complementizer-trace effect in French where there is two forms of complementizer: *qui* is used when an embedded subject is extracted while *que* is used when an embedded object is extracted (or extraction does not occur), as exemplified in (5a, b), respectively.

(5)   a.   Quelle étudiante$_i$ crois-tu   [qui/*que t_i va partir]?

                which student   believe-you that   will leave

                'Which student do you believe is going to leave?'

      b.   Quelle étudiante$_i$ crois-tu   [*qui/que Marie va aider t_i]?

                which student   believe-you that   Marie will help

                'Which student do you believe Marie is going to help?'

                                    (cf. Rizzi and Shlonsky (2007: 131))

Rizzi and Shlonsky (2007) account for the possibility of subject extraction from an embedded clause with *qui* by assuming that *qui* consists of the complementizer *que* and the independent morpheme *-i*.   They take *-i* to have the following feature bundle in its lexical entry.

(6)   -i: [+Fin], [+N], [plural]   (cf. Rizzi and Shlonsky (2007: 135))

This feature bundle contains a nominal features, which allows the morpheme *-i* to be merged in Fin.   As a result, the merger of the morpheme *-i* has satisfies the subject criterion, as roughly schematized in the following structure.

(7)   [$_{FocP}$ quelle étudiante$_i$ crois-tu [$_{ForceP}$ t_i que [$_{FinP}$ t_i [$_{Fin}$ -i] [$_{SubjP}$ Subj [t_i va

              partir]]]]]   (cf. Rizzi and Shlonsky (2007: 136))

In (7), *quelle étudiante* can move through the embedded Spec-ForceP to the matrix Spec-FocP without undergoing Criterial Freezing because the subject criterion is satisfied under the head-head relation between Subj and Fin. Another well-known case of the lack of the complementizer-trace effect comes from pro-drop languages such as Italian and Spanish. The relevant examples are shown in (8) where the (a) and (b) examples are Italian and Spanish, respectively.

(8)   a.   Chi$_i$ credi   che t_i partira?   (Italian)

                       who you-think that   will-leave

                       'Who do you think will leave?'   (Abe (2015: 2))

     b.   Quién$_i$ dijiste   que t_i salito temprano?   (Spanish)

                       who   you-said that   left   early

                       'Who did you say left early?'   (Abe (2015: 2))

Rizzi and Shlonsky (2007) assume with the traditional practice that the subject criterion is satisfied by the insertion of the expletive *pro* in Spec-SubjP, so that a *wh*-phrase can move through the embedded Spec-ForceP to the matrix Spec-FocP without undergoing Criterial Freezing, as roughly schematized in (9).

(9)   [$_{FocP}$ chi$_i$ credi [$_{ForceP}$ t_i che [$_{FinP}$ Fin [$_{SubjP}$ pro Subj [$_{TP}$ t_i partira]]]]]

                                   (cf. Rizzi and Shlonsky (2007: 127))

However, Rizzi and Shlonsky's (2006, 2007) analysis has three problems. First, there is no empirical evidence for φ-features in Fin at least in Present-day English. As pointed out by Abe (2015), Rizzi and Shlonsky's (2007) analysis is problematic in respect of language

acquisition: because there is no independent cue in English, children cannot know that φ-features of Fin with no overt realization licenses subject extraction from an embedded clause.

Second and more seriously, the projections of Subj are inconsistent with the minimalist assumption (Chomsky (1995)), according to which projections should be abandoned if they do not contribute to interpretation at LF (like the projections of Agr). In this connection, Rizzi and Shlonsky (2007) argue that the movement of a nominal element to Spec-SubjP yields the subject-predicate interpretation. However, they also assume that the subject criterion is satisfied by the insertion of the expletive *there* with no semantic content in Spec-SubjP (see section 4.3.3 for the derivation of the *there*-construction). Furthermore, the expletive *pro* is inconsistent with the minimalist assumption, since it does not contribute to interpretation at SM (Sensory-Motor) and CI (Conceptual-Intentional) interfaces. These will suggest that the projection of Subj and the expletive *pro* should be abandoned.

Third, given that the subject criterion is satisfied by the movement of a nominal element to Spec-SubjP, sentences like (10) are wrongly predicted to be grammatical, in which a nominal adverb or an object occupy the clause-initial position while a subject remains in situ.

(10)   a.   * Tomorrow will John see Mary.

          b.   * This book$_i$ will John know t_i very well.   (Abe (2015: 10))

The unacceptability of these sentences suggests that the subject criterion cannot be satisfied by a nominal adverb and an object. Therefore, the definition of the subject criterion should be reconsidered.

4.2.2. Bošković (2011)

Based on the analysis of Chomsky (1972), Merchant (2001) argues that the diacritic "*"
is assigned to an island node when an element is extracted from the island, and its presence in
a PF representation induces a violation of a locality condition on movement. This is
illustrated by the sentence in (11a) which involves extraction from the adjunct clause, yielding
ungrammaticality due to the presence of "*" on it.   However, such sentences can be rescued
by the PF deletion of the node containing "*", as exemplified in (11b), where the relevant
constituent is elided under sluicing.

(11)   a.   * Ben will be mad if Abby talks to one of the teacher, but she
             couldn't remember which$_i$ (of the teachers) Ben will be mad [if she
             talks to t_i]*.

       b.   Ben will be mad if Abby talks to one of the teacher, but she
             couldn't remember which$_i$ (of the teachers) ~~Ben will be mad [if she~~
             ~~talks to t_i]*~~.   (Merchant (2001: 88))

This will suggest that a violation of a locality condition on movement is evaluated at PF, but
not in narrow syntax.   Extending Merchant's (2001) idea to cases of an intervention effect,
Bošković (2011) argues that "*" is assigned to an intervener between a moved element and its
lower copy.   Given this, the following contrast in Italian is accounted for as in (13).

(12)   a.   * Gianni$_i$ sembra a Maria [t_i essere stanco].

                Gianni   seems   to Maria   to be   ill

                'Gianni seems to Maria to be ill.'

        b.   A Maria$_j$, Gianni$_i$ sembra t_j [t_i essere stanco].

                to Maria   Gianni   seems   to be   ill

                'To Maria, Gianni seems to be ill.'   (Bošković (2011: 4))

(13)   a.   * Gianni$_i$ sembra [a Maria]* [t_i essere stanco]

        b.   [a Maria], Gianni$_i$ sembra ~~[a Maria]*~~ [t_i essere stanco]

                                              (cf. Bošković (2011: 4))

In (13a), *a Maria* in A-position functions as a intervener for the A-movement of *Gianni*, so that the presence of "*" in the PF representation induces an intervention effect.   On the other hand, in (13b), "*" is excluded by the PF deletion of the lower copy of *a Maria*, resulting in the lack of an intervention effect.

     Furthermore, extending this analysis to the *that*-trace effect, Bošković (2011) argues that the movement of a subject across *that* violates a locality condition on movement, which results in the assignment of "*" to *that*, as shown in (14a).   On the other hand, adopting the idea of Bošković and Lasnik (2003) that the null complementizer is an affix (henceforth, C$_{affix}$) which must be attached to the matrix verb at PF, Bošković (2011) proposes that the deletion of the lower copy of C$_{affix}$ after its affixation makes the sentence grammatical, as shown in (14b).[1]

(14) a. * who$_i$ do you think [$_{CP}$ t_i [$_C$ that*] [$_{TP}$ t_i left Mary]]

(cf. Bošković (2011: 31))

  b. who$_i$ do you C$_{affix}$+think [$_{CP}$ t_i ~~C$_{affix}$*~~ [$_{TP}$ t_i left Mary]]

(cf. Bošković (2011: 33))

Under this analysis, the fact in (15a) that the *that*-trace effect is nullified if there is a fronted element in a *that*-clause is accounted for in terms of CP recursion, as show in (15b).

(15) a. Robin met the man who$_i$ Leslie said that for all intents and purposes t_i was the mayor of the city.

  b. Robin met the man who$_i$ Leslie said [$_{CP}$ that [$_{CP}$ for all intents and purposes [$_{CP}$ ~~who$_i$~~ ~~that*~~ [$_{IP}$ ~~who$_i$~~ was the mayor of the city]]].

(Bošković (2011: 35))

He assumes that *for all intents and purposes* is adjoined to the lower CP, and *that* is merged in the lower C and then moves to the higher C, so that "*" is excluded by the PF deletion of the lower copy of *that* to which "*" is assigned due to its intervention for the movement of *who* to the lower Spec-CP.

Bošković's (2011) analysis has four theoretical problems: first, it is unclear why the head of CP, either *that* or C$_{affix}$, counts as an intervener for the movement of an embedded subject. One might points out that this problem is not very fair to Bošković (2011) because it just follows the standard assumption that the *that*-trace effect is due to a locality violation. Bošković (2011: 31) argues that 'whatever the precise implementation of the locality analysis is, it seems safe to assume that the troublemaker is the complementizer *that*.' However, it is crucial for analyzing the *that*-trace effect to clarify why the presence of *that* is problematic, so

it should be made clear what kind of locality condition is violated by the movement of an embedded subject across *that* or C_{affix}. Given this, it is fair to point out this problem.

Second, his analysis cannot readily accommodate the fact that the movement of a subject to Spec-CP is allowed in a matrix clause, but not in an embedded clause. It is standardly assumed in the generative framework that the derivations of a matrix clause and an embedded clause should be as uniform as possible. Given this, the matrix C must count as an intervener for subject movement, just like the embedded C. Therefore, a matrix subject *wh*-question is wrongly predicted to be ungrammatical since the matrix C assigned "*" due to subject movement survives into PF.

Third, it should be made clear why "*" is not assigned to the higher copy of *that*. In (15b), *who* moves from the specifier of the lower CP to the matrix clause across the higher C. If *that* counts as a intervener for the movement of an embedded subject, "*" should be assigned to the higher copy of *that*. Therefore, sentences like (15a) would be wrongly predicted to be ungrammatical.

Fourth, Bošković's (2011) analysis cannot capture the fact that extraction of a subject is possible from a *that*-clause with a fronted element only if the element is stressed as a focus, as illustrated in the following examples where (a) and (b) examples are those with a focus and with a topic, respectively.

(16)   a.   a man who$_i$ I think that, this book$_j$, t_i knows t_j very well

(Ishii (2004: 203))

        b.   * Who$_i$ did Leslie think that, this present, t_i gave Lee?

(Browning (1996: 250))

Bošković's (2011) analysis wrongly predicts sentences like (16b) to be grammatical because

such sentences would be derived as in (15b).

4.2.3. Chomsky (2014)

Under the recent minimalist assumption that merger is free to apply, Chomsky (2014) proposes a principled account of the *that*-trace effect in terms of Labeling Algorithm (henceforth, LA) advocated by Chomsky (2013). Before reviewing his analysis, let us consider how a syntactic object created by some operation is labeled under LA. First, the structure where a head H is merged with a phrase XP is labeled as in (17).

(17)   [$_\alpha$ H XP]   (α = H)   (cf. Chomsky (2013: 43))

In (17), minimal search immediately takes a head H to be the label of α. Second, the structure where two phrases XP and YP are merged is labeled as in (18).

(18)   a.   [$_\alpha$ XP YP]

         b.   i. [$_\beta$ XP … [$_\alpha$ t_{XP} YP]]   (α = YP)   (cf. Chomsky (2013: 43))

                 ii. [$_\alpha$ XP(F) YP(F)]   (α = F)   (cf. Chomsky (2013: 45))

In (18a), the label of α is not determined because neither XP nor YP is a head. According to Chomsky (2013), there are two ways of labeling the structure of α: first, as shown in (18bi), XP or YP raises so that α contains only an element, which is selected as the label of α; second, as shown in (18bii), some prominent feature shared by the two phrases is taken to be the label of α. Under this analysis, the contrast in (19) is accounted for as in (20), in which "*" in brackets expresses "not labeled".

(19) a. * They thought in which Texas city$_i$ JFK was assassinated t_i?

b. They wondered in which Texas city$_i$ JFK was assassinated t_i.

(Chomsky (2013: 45))

(20) a. * They thought [$_\alpha$ in which Texas city$_i$(Q) [$_\beta$ C [JFK was assassinated

t_i]]]? (α = *)

b. They wondered [$_\alpha$ in which Texas city$_i$(Q) [$_\beta$ C(Q) [JFK was

assassinated t_i]]]. (α = Q)

(cf. Chomsky (2013: 45))

In (20a), the *wh*-phrase *in which Texas city* moves so that the syntactic object consisting of the two phrases is built, resulting in the impossibility of labeling the structure of α. On the other hand, in (20b), *in which Texas city* and β share the Q feature, which is taken to be the label of α.

LA can also account for the "EPP" property of a sentence, which requires that a subject must move from Spec-vP to Spec-TP. Chomsky (2013, 2014) attributes the "EPP" property to the failure to labeling a structure. Suppose the following derivational step where C is introduced.

(21) [C [$_\alpha$ T(φ) [$_\beta$ Subj(φ) [v* [V Obj]]]]] (α = *, β = *)

(cf. Chomsky (2014: 6))

In (21), the label of β is not determined because it consists of the two phrases without some shared feature, so a subject must move from its original position in order to label β. In addition, Chomsky (2014) assumes that T is too weak to function as a label. Therefore, a

subject must move so that φ-features shared with T becomes the label of α.

(22) [C [$_\alpha$ Subj(φ)T(φ) [$_\beta$ t_{Subj} [v^* [V Obj]]]]]   (α = φ, β = v^*)

(cf. Chomsky (2014: 6))

Given the above discussion, an embedded subject must moves in order to label the mother node of T.   Therefore, it cannot move to the matrix clause due to the Phase Impenetrability Condition (henceforth, PIC), as shown in (23).

(23) * [$_\gamma$ who do you v^* [$_\varepsilon$ think [$_\delta$ [$_C$ that] [$_\alpha$ t T(φ) β]]]]   (α = φ)

(cf. Chomsky (2014: 7))

On the other hand, Chomsky (2014) assumes that if *that* is not present, the phasehood is inherited from C to T along with all features, so that α becomes a phase, as schematized in (24).

(24) [$_\gamma$ who do you v^* think Ø [$_\alpha$ t T β]]   (α = φ)

(cf. Chomsky (2014: 7))

In the structure of (24) where the domain of α is transferred to interfaces, *who* is accessible to the operation of the matrix clause.   Hence, the possibility of extraction of a subject from a *that*-less clause.

Although Chomsky's (2014) analysis in terms of labeling is appealing, there are two theoretical and empirical problems with it.   First, it is unclear how the following fact is accounted for under Chomsky's (2014) analysis.

(25)　　a.　　　It seemed at that time [$_{CP}$ that David had left].

　　　b.　　* It seemed at that time [$_{CP}$ Ø David had left].

<div align="right">(Bošković and Lasnik (2003: 529))</div>

It is crucial for analyzing the *that*-trace effect to clarify why the absence of *that* makes possible extraction of an embedded subject. Therefore, Chomsky's (2014) analysis is problematic in that it cannot account for the ungrammaticality of sentences like (25b). Second, it is unclear why the *that*-trace effect is nullified in an embedded clause with a fronted element, as illustrated in (16a), which leads us to question how Chomsky's (2014) analysis accounts for the fact that extraction of a subject is possible from a *that*-clause only if a fronted element is interpreted as a focus.

4.2.4. Abe (2015)

Fox and Pesetsky (2005) propose a syntactic architecture based on cyclic linearization, in which the linear order of words is determined at the end of each phase or "spell-out" domain, and the linear order established in a lower phase must not be revised in conformity with the Order Preservation Condition (henceforth, OPC), formulated in (26).

(26)　　Order Preservation Condition

　　　Information about linearization, once established at the end of a given

　　　Spell-out, is never deleted in the course of a derivation.

<div align="right">(Fox and Pesetsky (2005: 6))</div>

Under this architecture, the successive cyclicity of movement follows naturally, as illustrated in the following structure.

(27)   [$_{CP}$ to whom$_i$ will he [$_{vP}$ t_i say [$_{CP}$ t_i that Mary [$_{vP}$ t_i gave the book t_i]]]]

(cf. Abe (2015: 4))

In (27), the movement of *to whom* proceeds in the following fashion: first, *to whom* moves from its original position to the edge of the embedded *v*P, resulting in the establishment of the linear order where it precedes any other elements in the embedded *v*P phase (i.e. *gave* and *the book*).   Second, the movement of *to whom* to the edge of the embedded CP establishes the linear order where it precedes any other elements in the embedded CP phase (i.e. *that*, *Mary*, and the embedded *v*P).   Third, the linear order established in the embedded CP phase allows *to whom* to move to the edge of the matrix *v*P, so that the linear order where it precedes any other elements in the matrix *v*P phase is established (i.e. *say* and the embedded CP).   Finally, *to whom* moves to the edge of the matrix CP, as a result of which it precedes any other elements in the matrix CP phase (i.e. *will*, *he* and the matrix *v*P).

Integrating this architecture with the idea proposed by Hasegawa (2005) that the "EPP" feature must be materialized by an element with a phonetic content, Abe (2015) proposes the following structure of a *that*-clause with subject extraction.

(28)   [$_{CP}$ who that [$_{TP}$ who(PF) T(EPP) [$_{vP}$ who [$_{VP}$ leave]]]]   (cf. Abe (2015: 5))

Abe (2015) follows Chomsky (2008) in assuming that operations within a phase occur simultaneously.   Given this, it follows that *who* moves to Spec-TP and Spec-CP simultaneously, so that the two copies of *who* are created.   Also, it is assumed with Holmberg (2000) and Abe (2002) that an element moves to a particular position along with the relevant feature.   Therefore, as shown in (28), the "EPP" feature is satisfied by the movement of the copy of *who* with the PF feature.   This establishes the linear order where

the complementizer *that* precedes *who* in the embedded CP phase.   If *who* moves to the matrix clause, the linear order established in the embedded CP phase (i.e. *that* > *who* …) is revised in the matrix *v*P phase, accounting for the impossibility of extraction of a subject from a *that*-clause.   On the other hand, the possibility of extraction of a subject from a *that*-less clause is accounted for in the following way.

(29)   [$_{CP}$ who Ø [$_{TP}$ who(PF) T(EPP) [$_{v}$P who [$_{VP}$ leave]]]]   (cf. Abe (2015: 6))

In (29), unlike (28), there is no element which precedes *who* in the embedded CP phase. Therefore, the movement of *who* to the matrix clause does not revise the linear order established in the embedded CP phase.

Along the same lines, Abe (2015) proposes the following structure of a *that*-clause of sentences like (16a) with a fronted element.

(30)   [$_{CP}$ who(PF) [$_{C}$ that] [$_{TP}$ this book T(φ, EPP) [$_{v}$P ...]]]

In (30), the "EPP" feature is satisfied by the movement of *this book* to the embedded Spec-TP, so that the linear order *who* > *that* > *this book* is established in the embedded CP phase because only one copy of *who* is created, which moves to the embedded Spec-CP along with the PF feature.   Abe (2015: 10) notes that his analysis wrongly predicts sentences like (10), repeated as (31), to be grammatical because the 'EPP' feature can be satisfied by *tomorrow* and *this book*.

(31)   a.   * Tomorrow will John see Mary.

       b.   * This book$_i$ will John know t_i very well.

In order to overcome this problem, Abe (2015) assumes the following condition.

(32)   Agree triggers pied-piping of its goal in a given phase domain.

                                                        (Abe (2015: 10))

This condition can correctly exclude sentences like (31) as ungrammatical because even if the goal *John* is probed by T, it does not move to any positions in the CP phase.

Although Abe's (2015) analysis is apparently plausible, there are three theoretical problems with it. First, Abe's (2015) analysis does not take into consideration that a *that*-less clause must be adjacent to the matrix verb; second, it cannot capture the fact that extraction of a subject from a *that*-clause is possible only if a fronted element is interpreted as a focus; third, the condition in (32) wrongly predicts that *there*-constructions where the postverbal associate shows agreement with a verb are ungrammatical.

4.2.5. Summary of Section 4.2

     This subsection summarizes the problems with the previous studies reviewed in section 4.2. First, subsection 4.2.1 has argued that there are three problems with Rizzi and Shlonsky (2007), as in (33).

(33)   a.   There is no empirical evidence for Fin with φ-features.

        b.   The functional head of Subj is incompatible with the minimalist

                assumption.

        c.   The expletive *pro* is also incompatible with the minimalist

                assumption.

        d.   The sequence of Adv/Obj Aux Subj V is wrongly predicted to be

                possible.

Second, subsection 4.2.2 has pointed out four problems with Bošković's (2011) analysis, as

shown in (34).

(34)   a.   It is unclear what kind of locality condition is violated by the

                movement of an embedded subject across *that* or C_{affix}.

        b.   A matrix subject *wh*-question is wrongly predicted to be

                ungrammatical because "*" assigned to the matrix C due to subject

                movement survives into PF.

        c.   It is wrongly predicted that subject extraction is impossible from a

                that-clause with fronted element.

        d.   Subject extraction is wrongly predicted to be possible from a

                that-clause with a fronted element interpreted as a topic.

Third, subsection 4.2.3 has argued that Chomsky (2014) has the following two problems.

(35) a. The fact that a *that*-less clause must be adjacent to the matrix verb cannot be captured.

b. The possibility of subject extraction from a *that*-clause with the fronted element interpreted as a focus cannot be accounted for.

Fourth, subsection 4.2.4 has pointed out that there are three problems with Abe's (2015) analysis, as in (36).

(36) a. The fact that a *that*-less clause must be adjacent to the matrix verb cannot be captured.(= (35a))

b. Subject extraction is wrongly predicted to be possible from a *that*-clause with a fronted element interpreted as a topic.(= (34d))

c. The *there*-construction is wrongly predicted to be ungrammatical.

In what follows, this chapter proposes a new principled account of the *that*-trace effect based on the clausal architecture proposed in chapter 2. It is shown that the alleged problems (33)-(36) do not arise under the analysis to be proposed. Furthermore, it can provide a new insight of the change of the *that*-trace effect in the history of English.

4.3. Proposal[2]

4.3.1. The Clausal Architecture Proposed in Chapter 2

Under cartographic approach, chapter 2 has proposed the new clausal architecture, in which all the functional heads of a phase are introduced into the derivation as a single head. It has been assumed that the same type of functional heads can remain amalgamated through

the derivation whereas the different type of functional heads split by default. To illustrate this, let us consider the derivation of a simple declarative sentence, with the relevant head and feature shown in brackets.

(37) a. $[_{CP}$ C(Force, Fin, T, φ) $[_{vP}$ Subj(φ) v $[_{VP}$ V...]]]]

b. $[_{CP}$ Subj(φ) C(Force, Fin, T, φ) $[_{vP}$ t_{Subj} v $[_{VP}$ V...]]]

c. $[_{ForceP}$ Force $[_{CP}$ Subj(φ) ~~C~~(Fin, T, φ) $[_{vP}$ t_{Subj} v $[_{VP}$ V...]]]]]

In (37a), Force, Fin, and T are amalgamated as the single head C, which is introduced into the derivation with unvalued φ-features. In (37b), the single head C probes the subject in Spec-vP as its goal, resulting in the establishment of an Agree relation between C and the subject in φ-feature. Then, the subject criterion is satisfied by the movement of the subject to Spec-CP. Finally, in (37c), Force and the single head C split through head movement strategy because Force differs from Fin and T in that the former is associated with particular scope/discourse properties whereas the latter express clause-internal properties. Given that the functional heads of the CP phase split through head movement strategy, it would follow that the splitting functional heads count as copies created by head movement. Therefore, revising the clausal architecture proposed in chapter 2, this chapter assumes that the lower functional head(s) of the CP phase must undergo PF deletion under chain reduction (cf. Nunes (2004)).[3, 4]

Furthermore, it has been argued that some functional heads remain amalgamated as the single head C if an element can satisfy multiple criteria and features simultaneously, regardless of the type of the relevant heads. Along the lines, let us consider how matrix *wh*-questions are derived. First, the structure of a subject *wh*-question is shown in (38).

(38) $[_{ForceP}$ Force $[_{CP}$ who$_i$(φ) ∈(Foc, Fin, T, φ) $[_{vP}$ t_i bought the book]]]

In (38), Force, Foc, Fin, and T are introduced into the derivation as the single head C, which probes *who* as its goal and establishes an Agree relation with it in φ-feature.   Crucially, the subject criterion and the *wh*-criterion are satisfied by the movement of *who* to Spec-CP, simultaneously; Force functions as an independent head of the single head C into which Foc, Fin, and T are amalgamated; CP is transferred to interfaces; finally, the single head C is deleted under chain reduction.   On the other hand, the structure of an object *wh*-question is shown in (39).

(39) $[_{CP}$ what$_i$ $[_C$ did(Force, Foc)] $[_{CP}$ Mary$_j$ ∈(Fin, T, φ) $[_{vP}$ t_i t_j buy t_i]]]

In (39), unlike (38), Foc and Fin must split and function as separate heads because there is no element which can satisfy both the subject criterion and the *wh*-criterion simultaneously.   As a result, the structure has two amalgamated heads: the higher one consists of Force and Foc and the lower one consists of Fin and T.   Note that Force and Foc do not have to split and function as separate heads because they are the same type of functional heads of the CP phase. Therefore, *what* and *Mary* satisfy the *wh*-criterion and the subject criterion by moving to the higher Spec-CP and the lower Spec-CP, respectively.   Finally, CP is transferred to interfaces.

Extending this analysis to the structure of an embedded clause, this chapter attributes the impossibility of subject extraction from a *that*-clause to the violation of Criterial Freezing. Furthermore, revising Bošković's (2011) analysis reviewed in section 4.2.2, it is proposed that the deletion of the lower copy of C allows an embedded subject to circumvent the effect of Criterial Freezing, thereby making possible its movement to the matrix clause.

4.3.2. Deriving the *That*-trace Effect

Recall that Force, Foc, and Top functionally differ from Fin and T in that the former are associated with clause-external properties while the latter express clause-internal properties. Given this, in a simple embedded clause, Force functions as an independent head of the single head C into which Fin and T are amalgamated, as schematized in (40) and (41), which are the derivations of embedded clauses with and without *that*, respectively.

(40)   a. $[_{CP}$ Subj(φ) C(Force, Fin, T, φ) $[_{vP}$ t_{Subj} v $[_{VP}$ V...]]]]

       b. $[_{vP}$ think $[_{VP}$ V $[_{ForceP}$ $[_{Force}$ that] $[_{CP}$ Subj(φ) $\cancel{\in}$(Fin, T, φ) $[_{vP}$ t_{Subj} v $[_{VP}$ V...]]]]]]]

(41)   a. $[_{CP}$ Subj(φ) C_{affix}(Force, Fin, T, φ) $[_{vP}$ t_{Subj} v $[_{VP}$ V...]]]]

       b. $[_{vP}$ C_{affix}+think $[_{VP}$ V $[_{ForceP}$ $[_{Force}$ $\cancel{C_{affix}}$] $[_{CP}$ Subj(φ) $\cancel{C_{affix}}$(Fin, T, φ) $[_{vP}$ t_{Subj} v $[_{VP}$ V...]]]]]]]

Revising the idea proposed by Rizzi and Shlonsky (2007) that a *that*-less clause is interpreted as a declarative by default, chapter 2 has assumed that an embedded clause with *that* requires the merger of *that* in the head of CP to satisfy the declarative criterion so that it can be interpreted as a declarative, while an embedded clause with C_{affix} is interpreted as a declarative by default.   In (40a) and (41a), all the functional heads are amalgamated as the single head C/C_{affix}, and the movement of a subject to its specifier satisfies the subject criterion.   In (40b), Force and the single head C split through head movement strategy, and the merger of *that* in Force satisfies the declarative criterion.   Finally, the single head C is deleted under chain reduction.   On the other hand, in (41b), C_{affix}, which allows ForceP to be interpreted as a declarative by default, undergoes not only syntactic movement but also

attachment to the matrix verb at PF.   Finally, the lower copies of C$_{affix}$ are deleted under chain reduction.

Section 4.2.2 has pointed out that Bošković's (2011) analysis cannot capture the fact that the movement of a subject to the clause-initial position is allowed in a matrix clause, but not in an embedded clause.   In order to overcome this problem, this thesis argues that what is problematic in a *that*-clause with subject extraction is not the movement to the embedded Spec-CP but the movement from that position.   This analysis can overcome the problem in (34a).   Rizzi (2006) assumes that movement to an intermediate position is triggered by a purely formal feature relevant to a particular criterion which is satisfied by movement to a final landing site.   Adopting this, Maeda (2010) assumes that an embedded *wh*-phrase moves to the embedded Spec-ForceP to satisfy the purely formal *wh*-feature, and then to the matrix Spec-FocP to satisfy the *wh*-criteiron.[5]   Under the present analysis, Fin and Force do not split and function as the single head C since the subject criterion and the purely formal *wh*-feature can be satisfied by the movement of an embedded subject to the embedded Spec-CP, simultaneously.   Therefore, in the embedded clause, the subject satisfying the subject criterion is frozen in place due to Criterial Freezing; if it were to move further to the matrix clause, it would result in the assignment of "*" to the single head C into which Fin and Force are amalgamated, as shown in (42a, b).

(42) a. * [$_{CP}$ who$_i$ [$_C$ do(Force, Foc)] [$_{CP}$ you$_j$ C(Fin, T, φ) [$_{vP}$ t_i t_j think [$_{CP}$ t_i

[$_C$ that*(Force, Fin, T, φ)] [$_{vP}$ t_i left Mary]]]]]

b. [$_{CP}$ who$_i$ [$_C$ do(Force, Foc)] [$_{CP}$ you$_j$ C(Fin, T, φ) [$_{vP}$ t_i t_j C$_{affix}$+think

[$_{CP}$ t_i ~~C$_{affix}$~~*(Force, Fin, T, φ) [$_{vP}$ t_i left Mary]]]]]

In (42a), "*" assigned to *that* survives into the PF representation, with the result that the

sentence is ungrammatical.　On the other hand, in (42b), "*" is eliminated by the PF deletion of the lower copy of C_{affix}, resulting in the grammatical sentence.[6]

The present analysis can immediately account for the fact that extraction of an embedded object is possible, regardless of whether *that* is present or not.　Note that Fin and Force must split and function as separate heads in an embedded clause with object extraction (see (39)), as schematized in (43a, b).

(43)　　　a.　　　$[_{CP}$ who$_i$ $[_C$ do(Force, Foc)$]$ $[_{CP}$ you$_j$ $\in$(Fin, T, φ) $[_{vP}$ t_i t_j think $[_{ForceP}$

　　　　　　　　t_i $[_{Force}$ that$]$ $[_{CP}$ Sue $\in$(Fin, T, φ) $[_{vP}$ t_i met $t_i]]]]]]$

　　　　b.　　　$[_{CP}$ who$_i$ $[_C$ do(Force, Foc)$]$ $[_{CP}$ you$_j$ $\in$(Fin, T, φ) $[_{vP}$ t_i t_j C_{affix}+think

　　　　　　　　$[_{ForceP}$ t_i $[_{Force}$ ~~C_{affix}~~$]$ $[_{CP}$ Sue ~~C_{affix}~~(Fin, T, φ) $[_{vP}$ t_i met $t_i]]]]]]$

Recall that the subject criterion is satisfied by the movement of an element with active φ-features to the relevant position.　In the embedded clauses in (43), the movement of *who* satisfies only the purely formal *wh*-feature since its φ-features have already become inactive in the *v*P domain (cf. Chomsky (2000)), so that it does not undergo Criterial Freezing in the embedded clause, and therefore it can move to the matrix clause regardless of whether *that* is present or not.

There are some pieces of evidence for the idea that the *that*-trace effect can be nullified by some phonological process (see also note 1 for the case of slucing).　Kandybowicz (2006) observes that it is possible to extract a subject from a *that*-clause under the following circumstances: (a) when the reduced or unstressed complementizer is used, (b) a focal stress is placed on the embedded verb, and (c) an auxiliary is contracted with *that*.　The relevant examples are given below.

(44)   a.   ? The author that the editor predicates th't will be adored

       b.   ? Who do you think that WROTE *Barriers* (as opposed to say, *edited*

            it)?

       c.   ? Who do you suppose that'll leave early? (Kandybowicz (2006: 222))

Under the present analysis partly following Bošković (2011), the acceptability of these sentences will be accounted for by assuming that "*" assigned to *that* in C due to subject extraction is eliminated by the relevant phonological processes.   In (44a), "*" is excluded from the PF representation by the phonological reduction of *that*.   In (44b), since the embedded verb is stressed as a focus, *that* should be defocused and unstressed, resulting in the elimination of "*".   As for (44c), the contraction of an auxiliary onto *that* results in the invisibility of "*" assigned to *that*, following Bošković (2011), who suggests the possibility that "*" is excluded by a morphological process which fuses a head containing "*" and another head into a single morphological element.[7]

It should be noticed that some alleged problems do not arise under the present analysis. First, the present analysis dispenses with Fin with φ-features which cannot be motivated in English as well as the functional head Subj and its projection (cf. (33a, b)).   Second, unlike Bošković's (2011) analysis, the present analysis can capture the difference between a matrix clause and an embedded clause in *wh*-movement (cf. (34b)).   Third, sentences like (10), repeated as (45), is correctly predicted to be ungrammatical without any assumption.

(45)   a.   * Tomorrow will John see Mary.

       b.   * This book$_i$ will John know t_i very well.

Under the present analysis, the nominal adverbial *tomorrow* and the object *this book* cannot

satisfy the subject criterion by moving to the relevant position because these nominals do not have active φ-features (cf. (33d)).   Fourth, the present analysis adopting the idea proposed by Bošković and Lasnik (2003), according to who C_{affix} must attach to the matrix verb at PF, can capture the fact that a *that*-less clause must be adjacent to the matrix verb (cf. (35a)/(36a)).

In summary, the alleged problems in (33a, b, d), (34a, b), and (35a)/(36a) can be overcome.   In what follows, it is shown that the other alleged problems can be overcome under the present analysis.

4.4. Consequences

This subsection shows how the present analysis accounts for the (un)grammaticality of other sentences with subject extraction.

4.4.1. Eliminating "*" by the Movement of the Complementizer *That*

It is worthwhile to emphasize that if Force and the single head C split through head movement strategy, C is deleted under chain reduction.   This leads us to expect that "*" assigned to C due to subject extraction can be eliminated by its PF deletion if Force and the single head C split and function as separate heads.   This holds for the derivation of sentences like (16a), repeated as (46), where subject extraction is possible from a *that*-clause with a fronted element.

(46)   a man who$_i$ I think that, this book$_j$, t_i knows t_j very well

It is observed by Rizzi (1997) and Ishii (2004) that subject extraction is possible from a *that*-clause with a fronted element only if the element is stressed as a focus.   Given that ForceP is the higher projection than FocP, this suggests that FocP functions as an independent

head, preventing Force and the single head C from being amalgamated and functioning as a single head, so that *that* must undergo syntactic movement from the single head C to Force, as shown in (47).

(47)   a man [$_{ForceP}$ who$_i$ Force [$_{CP}$ I$_j$ ∈(Fin, T, φ) [$_{vP}$ t_i t_j think [$_{ForceP}$ t_i [$_{Force}$ that] [$_{FocP}$

this book$_k$ ~~Foc~~ [$_{CP}$ t_i ~~C*~~(Fin, T, φ) [$_{vP}$ t_k t_i knows t_k very well]]]]]]]

In the embedded clause in (47), "*" assigned to C by the movement of *who* from the embedded Spec-CP is eliminated by its PF deletion, resulting in the lack of the *that*-trace effect.[8]

By contrast, as we saw in (16b), repeated as (48), subject extraction is impossible from a *that*-clause with a fronted element if the element is interpreted as a topic (cf. Browning (1996) and Rizzi (2004)).

(48)   *   Who$_i$ did Leslie think that, this present, t_i gave Lee?

The ungrammaticality of sentences like (48) is immediately accounted for by assuming with Maeda (2012) and Totsuka (2013) that ForceP and TopP are phases in the CP domain.[9]

(49)   *   [$_{CP}$ who$_i$ [$_C$ did(Force, Foc)] [$_{CP}$ Leslie$_j$ ∈(Fin, T, φ) [$_{vP}$ t_i t_j think [$_{ForceP}$ t_i [$_{Force}$

that(*wh*)] [$_{TopP}$ this present$_k$ ~~Top~~ [$_{CP}$ t_i ~~C*~~(Fin, T, φ)][$_{vP}$ t_i gave Lee t_k]]]]]]]]]]]

In (49), which is the structure of (48), the movement of *who* to the embedded Spec-CP is followed by that of *this present* to Spec-TopP.   CP becomes inaccessible to any operations outside TopP in conformity to the PIC; the projection of Top makes impossible the movement

of *who* in Spec-CP to Spec-ForceP, the intermediate position of *wh*-movement.

The present analysis from the cartographic perspective correctly accounts for the fact that the *that*-trace effect is nullified only if a *that*-clause involves a fronted element interpreted as a focus.   Therefore, the problems in (34c), (34d)/(36b) and (35b) do not arise under the present analysis.

Note that it is impossible for an element to be fronted in a *that*-less clause, as illustrated in the following pair.

(50)　　a.　　　　She swore/insisted/thought [that(,) most of the time(,) they accepted

　　　　　　　　this solution].

　　　　b.　　* She swore/insisted/thought(,) [most of the time(,) they accepted this

　　　　　　　　solution].　　　　　　　　　　　　　　　　(Grimshaw (1997: 411))

This will immediately be accounted for under the present analysis.   It has been assumed that some functional heads of the CP phase remain amalgamated and function as the single head C if an element can satisfy multiple criteria and features simultaneously.   Given this, Force and Foc/Top, though they are the same type, must split and function as separate heads in a *that*-clause if the merger of *that* in Force satisfies only the declarative criterion.   Thus, a *that*-clause with a fronted element is derived as in (51).

(51)　　a.　　　　$[_{CP}$ most of the time$_i$ C(Force, Foc/Top) $[_{CP}$ they$_j$ C(Fin, T, φ) $[_{vP}$ t_j

　　　　　　　　accepted this solution t_i]]]

　　　　b.　　　　$[_{vP}$ thought $[_{VP}$ V $[_{ForceP}$ $[_{Force}$ that$]$ $[_{FocP/TopP}$ most of the time$_i$

　　　　　　　　~~Foc/Top~~ $[_{CP}$ they$_j$ ~~C~~(Fin, T, φ) $[_{vP}$ t_j accepted this solution t_i]]]]]]

In (51a), Force and Top/Foc are amalgamated into the single head C. In (51b), they must split and function as separate heads because the merger of *that* satisfies only the declarative criterion.

On the other hand, in a *that*-less clause, Force and Foc/Top are allowed to function as a single head C because the merger of *that* is not required to satisfy the declarative criterion. Thus, the ungrammaticality of *that*-less clauses with a fronted element is accounted for as in (52).

(52)   a.   [$_{CP}$ most of the time$_i$ C$_{affix}$(Force, Foc/Top) [$_{CP}$ they$_j$ C$_{affix}$(Fin, T, φ)

[$_{vP}$ t$_j$ accepted this solution t$_i$]]]

b.   * [$_{vP}$ C$_{affix}$+thought [$_{VP}$ V [$_{CP}$ most of the time$_i$ C$_{affix}$(Force, Foc/Top)

[$_{CP}$ they$_j$ C(Fin, T, φ) [$_{vP}$ t$_j$ accepted this solution t$_i$]]]]

In (52a), as argued above, the merger of C$_{affix}$ allows CP to be interpreted as a declarative. In (52b), C$_{affix}$ cannot attach to the matrix verb because the former is not adjacent to the latter due to the presence of the fronted element *most of the time* in the PF representation, resulting in the ungrammatical sentence.

4.4.2. Satisfying the Subject Criterion by Other Elements than a Subject

4.4.2.1. The *There*-construction and the Locative Inversion Construction

One might wonder how the grammaticality of the following sentence is accounted for under the present analysis where the subject criterion is satisfied by the movement of an element with φ-features.

(53)   What$_i$ do you think that there is t_i in the box?

(Rizzi and Shlonsky (2007: 126))

As shown in (53), extraction of the associate in the *there*-construction is possible from a *that*-clause. Apparently, the insertion of the expletive *there* in the clause-initial position cannot satisfy the subject criterion because it does not bear φ-features.   However, as argued in chapter 2, the idea that *there* bears a certain kind of φ-feature is supported by the following sentences where the verb in the *there*-construction shows agreement with the associate only in number.

(54)   a.   There is/*am only me.

         b.   There are only us.   (Chomsky (2000: 149))

On the basis of this fact, Arano (2014) assumes with Chomsky (2000) that the expletive *there* bears a person feature to trigger default agreement with T.   This will lead us to assume that *there* with a person feature satisfies the subject criterion by moving to the embedded Spec-CP, so that the associate can move through the embedded Spec-ForceP to the matrix clause without undergoing Criterial Freezing, as schematized in (55), in which the relevant φ-features are split into a person feature (henceforth, Pr) and a number feature (henceforth, Nr).

(55) a. [ForceP whati [Force that] [CP therek(Pr) C(Fin, T, Pr, Nr) [vP tj is [VP ti in

the box]]]]]]]

b [CP whati [C do(Force, Foc)] [CP youk C(Fin, T, φ) [vP tk tj think [ForceP

ti [Force that] [CP therej(Pr) C(Fin, T, Pr, Nr) [vP tj is [VP ti in the

box]]]]]]]]

This thesis follows Sobin (2014) in assuming that *there* is merged in Spec-*v*P in the

there-construction.   This would account for the impossibility of co-occurrence of *there* and

the external argument.   In the embedded clause in (55a), in which *there* is merged in Spec-*v*P,

after the establishment of Agree relations between C and *there* in Pr and between C and *what*

in Nr, the movement of *there* from Spec-*v*P to Spec-CP is followed by the movement of *what*

from within VP to Spec-ForceP.   In the matrix clause in (55b), this movement feeds the

subsequent movement to the matrix clause.[10]   It should be noted that "*" is not assigned to

any heads in the embedded CP phase in (55) because the movement of *what* to the matrix

clause does not violate any conditions on movement (including Criterial Freezing).

Chapter 2 has proposed that a similar account holds for the Locative Inversion

Construction (henceforth, LIC) as in (56).

(56) a. Into the room walked my brother Jack.

b. Down the stairs fell the baby. (Stowell (1981: 269))

The following examples show that the clause-initial PP in the LIC serves both as a subject and

as a topic.

(57) On that hilli appears ti to be located a cathedral. (Doggett (2004: 29))

(58) * What$_i$ does John say that near his house lies t_i? (Stowell (1981: 271))

In (57), the clause-initial PP merged within an infinitival clause undergoes raising to the matrix subject position.   On the other hand, as illustrated in (58), it blocks extraction of the postverbal subject, exhibiting the so-called "topic island effect," which will be discussed shortly (see Koike (2013) for detailed discussion of the dual property of the clause-initial PP in the LIC).   Turning now to the structure of the LIC, the verb also shows agreement with the postverbal subject only in number, as shown in (59).

(59) a. On the wall is/*am standing only me.

  b. On the wall are standing only us. (Arano (2014: 28))

This will indicate that like *there*, the clause-initial PP in the LIC with a person feature satisfies the subject criterion as well as the topic criterion, leading to the following structure of the LIC, where Fin and Top are amalgamated into the single head C.

(60) [$_{ForceP}$ Force [$_{CP}$ into the room$_i$(Pr) C(Top, Fin, T, Pr, Nr) [$_{vP}$ walked my

  borhter Jack(Nr) t_i]]]

In (60), like a subject *wh*-question, Top, Fin, and T are amalgamated into the single head C. The subject criterion and the topic criterion are satisfied by the movement of *into the room* to Spec-CP simultaneously, after the establishment of Agree relations between C and *into the room* in Pr and between C and *my brother Jack* in Nr.

  With this in mind, let us consider the fact in (58) that extraction of the postverbal subject in the LIC is impossible from an embedded clause, unlike the associate in the

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there-construction.　The ungrammaticality of this sentence is immediately accounted for in terms of the phasehood of TopP (see section 4.1.), together with the assumption that a single head into which multiple heads are amalgamated takes over their properties including phasehood.　The structure of sentence in (58) is shown in the following.

(61)　　* [$_{CP}$ what$_i$ [$_C$ does(Force, Foc)] [$_{CP}$ John$_j$ C(Fin, T, φ) [$_{vP}$ t_i t_j say [$_{ForceP}$ t_i [$_{Force}$

　　　　that] [$_{CP}$ near his house$_k$(Pr) ∈(Top, Fin, T, Pr, Nr) [$_{vP}$ lies t_i t_k]]]]]]

In the embedded structure in (61), *what* cannot move to the embedded Spec-ForceP because the domain of the single head C taking over the phasehood of Top has become inaccessible to any operations outside CP due to the PIC.

　　It is important to note that the structure of the LIC is similar to that of a subject *wh*-question, as discussed in chapter 2, in that both the clause-initial PP in the former and the *wh*-phrase in the latter undergo Criterial Freezing by satisfying the subject criterion.　This will lead us to expect that the clause-initial PP in the LIC also exhibits the *that*-trace effect. This expectation is borne out, as illustrated in (62).

(62)　　In which villages$_i$ do you believe [(*that) t_i can be found the best examples of

　　　　this cuisine]?　　　　　　　　　　　　　　　(Rizzi and Shlonsky (2006: 348))

The present analysis provides almost the same account of the (im)possibility of extraction of the clause-initial PP as that of a subject *wh*-phrase:

(63) a. * [$_{CP}$ in which villages$_i$(Pr) [$_C$ do(Force, Foc)] [$_{CP}$ you$_j$ C(Fin, T, φ) [$_{vP}$

t_i t_j believe [$_{CP}$ t_i [$_C$ that*(Force, Fin)] [$_{TP}$ [$_T$ can(Pr, Nr)] [$_{vP}$ be found

the best examples of this cuisine t_i]]]]]]]]

  b. [$_{CP}$ in which villages$_i$(Pr) [$_C$ do(Force, Foc)] [$_{CP}$ you$_j$ C(Fin, T, φ) [$_{vP}$

t_i t_j C$_{affix}$+believe [$_{CP}$ t_i ~~C$_{affix}$~~*(Force, Fin) [$_{TP}$ [$_T$ can(Pr, Nr)] [$_{vP}$ be

found the best examples of this cuisine t_i]]]]]]]]

The LIC is slightly different from a subject *wh*-question in that the clause-initial PP in the former has only a person feature whereas a subject *wh*-phrase in the latter has a full set of φ-feature.

Under the present analysis, the problem in (36c) can be overcome because the grammaticality of the *there*-construction can be captured. The present analysis where the subject criterion is satisfied by an element with φ-features, together with the assumption that *there* in the *there*-construction and the locative PP in the LIC bear a person feature, correctly predicts that extraction of the associate in the *there*-construction is possible from an embedded clause, whereas the extraction of the postverbal subject in the LIC is impossible. Thus, the present analysis is more preferred than Rizzi and Shlonsky's (2007) analysis where the subject criterion is satisfied by a "nominal", which is problematic because sentences like (45) are wrongly predicted to be grammatical, where an adverbial or an object occupies the clause-initial position and a subject is preceded by an auxiliary (see also note 9).

4.4.2.2. The Absence of the Complementizer-trace Effect in Other Languages than English

It has been reported by many generative researchers that there are a number of languages where subject extraction from an embedded clause with an overt complementizer is allowed (e.g. Perlmutter (1971), Taraldsen (1978, 2001), and Rizzi (1990)). Among those

languages lacking the complementizer-trace effect are pro-drop languages such as Italian and Spanish, as illustrated in the following examples.

(64)　　Chi$_i$　credi　　che t_i　partira?　　　　　(Italian)

　　　　who　you-think　that　　will-leave

　　　　'Who do you think will leave?'　　　　　　　(Abe (2015: 2))

(65)　　Quién$_i$ dijiste　　que t_i salito temprano?　　(Spanish)

　　　　who　　you-said　that　　left　early

　　　　'Who did you say left early?'　　　　　　　(Abe (2015: 2))

Alexiadou and Anagnostopoulou (1998) argue that the "EPP" property of T is satisfied by verb movement to T in pro-drop languages with rich verbal inflection.　Given that the "EPP" is recast as the subject criterion under the present analysis, it follows that verb movement to the single head C into which Fin and T are amalgamated satisfies the subject criterion in these languages.　Thus, the sentence in (64) is derived as in (66).

(66)　　[$_{CP}$ chi$_i$ C(Force, Foc) [$_{CP}$ [$_C$ credi(Fin, T, φ)] [$_{vP}$ t_i v [$_{ForceP}$ t_i [$_{Force}$

　　　　che] [$_{CP}$ [$_C$ partira(Fin, T, φ) [$_{vP}$ t_i $t_{partira}$]]]]]]]]

In (66), the movement of the embedded verb *partira* to the single head C is followed by the movement of the embedded subject *chi* to the embedded Spec-ForceP.　Then, *chi* moves from the embedded Spec-ForceP to the matrix clause without undergoing Criterial Freezing because the subject criterion is satisfied by the movement of *partira* to the single head C. Notice that Fin and Force cannot be amalgamated into a single head here because verb

movement can satisfy only the subject criterion.

Another well-known case of the lack of the complementizer-trace effect comes from French, where there are two forms of a complementizer: *qui* is used when an embedded subject is extracted while *que* is used when an embedded object is extracted (or extraction does not occur), as exemplified in (67a, b), respectively.

(67)   a.   Quelle étudiante$_i$ crois-tu   [qui/*que t_i va partir]?

                 which student   believe-you that   will leave

                 'Which student do you believe is going to leave?'

    b.   Quelle étudiante$_i$ crois-tu   [*qui/que Marie va aider t_i]?

                 which student   believe-you that   Marie will help

                 'Which student do you believe Marie is going to help?'

                                       (cf. Rizzi and Shlonsky (2007: 131))

Rizzi (1990) proposes that *qui* consists of the complementizer *que* and the agreement maker *-i*. Incorporating this idea into the present analysis, the possibility of extraction of a subject from a *qui*-clause in French is accounted for as follows.

(68)   [$_{CP}$ quelle étudiante$_i$ [$_C$ crois-tu(Force, Foc)] [$_{CP}$ C(Fin, T, φ) [$_{vP}$ t_i v [$_{VP}$ V [$_{CP}$

        t_i [$_C$ que+i(Force, Fin)] [$_{TP}$ [$_T$ va(T, φ)] [$_{vP}$ t_i partir]]]]]]

Rizzi (1990) argues that the agreement of *que* is triggered under the specifier-head relation between a subject and the agreement marker.   This leads us to assume that Fin and Force are amalgamated and function as the single head C hosting *que* and *-i*, so that the movement of *quelle étudiante* to the embedded Spec-CP triggers the agreement of C and satisfies the formal

wh-feature. Therefore, *quelle étudiante* can move through the embedded Spec-CP to the matrix clause without undergoing Criterial Freezing because the subject criterion is satisfied by the merger of -*i* in the single head C into which Fin and Force are amalgamated.[11]

The present analysis can overcome the problem in (33c) because it dispenses with the expletive *pro* in pro-drop languages.

4.5. The Historical Change of the *That*-trace Effect[12]

It has been noted by a number of researchers that subject extraction was possible from a *that*-clause in early English, as illustrated in the following examples (cf. Allen (1980), Bergh and Seppänen (1994), and Nawata (2013)).

(69)   a.   Ðis ilche seið god to hem ðe$_i$ he wile   ðat t_i bie him

    this same says god to them that he wishes that   be   him

    hersum:

    obedient   (CMVICES, 109.1321: M1 / Nawata (2013: 122))

    b.   Ther is the stateliest hearse in the Abbye OP$_i$ I think that t_i ever was

    made   (KNYVETT-1620-E2-P1, 66.109: E2 / Nawata (2013: 123))

These examples may suggest that the presence of the complementizer *that* did not affect the (im)possibility of subject extraction from an embedded clause in early English.

Chapter 3 has proposed the developmental path of the overt complementizer *that* in the history of English. Integrating this with the present analysis on the *that*-trace effect in PE, this section argues that the (im)possibility of subject extraction from a *that*-clause is related to that of omission of *that*, and that the subject criterion could be satisfied by the merger of *that* when *that* retained its demonstrative status, so that an embedded subject could move to the

matrix clause without undergoing Criterial Freezing.

4.5.1. Historical Data

Nawata (2013) investigates the sequences of *that*-t and zero-t in the history of English by employing PPCME2, PPCEME, and PPCMBE.   The result of this investigation is shown in Table 1.

Table 1. Tokens of Complement Clauses with *That*-t and Zero-t in the History of English

	M1	M2	M3	M4	E1	E2	E3	L1	L2	L3
that-t	6	1	3	1	1	2	0	0	0	0
zero-t	1	0	7	10	39	50	84	57	36	16

(cf. Nawata (2013: 122))

As shown in Table 1, examples with *that*-t were observed more frequently than those with zero-t in early ME.   However, the situation drastically changed in the transition from ME to EModE: the number of examples with zero-t sharply increased in EModE whereas that of *that*-t decreased in late ME, and finally, no examples are attested in M3.

On the other hand, chapter 3 has investigated complement clauses in terms of the presence/absence of the complementizer *that*, by using YCOE, PPCME2, and PPCEME. The result is shown in Table 2.

Table 2. Tokens of Complement Clauses with and without *That* from OE to EModE

	EOE	LOE	M1	M2	M3	M4	E1	E2	E3
Ø	9	11	25	8	154	419	895	1631	2315
That	452	1085	244	74	1438	1082	1483	1641	1351
%(ø)	2.0	1.0	9.3	9.8	9.5	27.9	37.6	49.9	63.2

As shown in Table 2, the percentage of examples without *that* was very low in OE. Although examples without *that* gradually increased in the transition from OE to ME, examples with *that* were strongly preferred to those without *that* in early ME to the extent that the former were observed about ten times more frequently than the latter. In M4, examples without *that* increased drastically. In the transition from ME to EModE, examples without *that* increased more and more, finally leading to the situation in E3 that examples without *that* outnumbered those with *that*. Given this result, it is concluded that *that* was unlikely to be omitted in OE, and the omission of *that* was firmly established in E3.

4.5.2. Proposal

Nawata (2013) attributes the possibility of subject extraction from a *that*-clause to the presence of verb movement to T in late ME and EModE. It is argued under the cartographic approach that the subject criterion could be satisfied by the merger of Fin with φ-features which were realized as an inflectional affix attaching to a verb in T. However, there are two theoretical problems with it: first, it is questionable whether a verbal inflection was rich enough to satisfy the subject criterion in early English. As noted above, Alexiadou and Anagnostopoulou (1998) argue that the "EPP" property of T is satisfied by verb movement to T in pro-drop languages with rich verbal inflection. As a consequence of this analysis, the fact that an overt subject is not needed in such languages is accounted for. As discussed by

Fischer et al. (2000), the null subject was allowed only under certain circumstances in early English where verb movement occurred.   This would lead us to conclude that in late ME and EModE, the subject criterion could not be satisfied by φ-features which were realized as a verbal inflection.   Second, Nawata's (2013) analysis cannot account for the increase/decrease of examples with *that*-t and zero-t shown in Table 1.   In order to overcome these problems, this section proposes that the possibility of subject extraction from a *that*-clause is attributed to the status of *that* as a demonstrative with φ-features.

Under the assumption that the possibility of omission of *that* points to its status as a complementizer, Gelderen (2011) argues that in OE, *that*, retaining the status as a demonstrative, was merged in the specifier of CP, and in late ME, *that* was reanalyzed as a complementizer merged in the head of CP.   However, according to the investigation in Table 2, *that*-less clauses already were observed in OE, though not productive (see section 3.2.1 for detailed discussion).   The result shown in Table 2 has led us to revise Gelderen's (2011) analysis, and argue that in OE, *that* was usually merged in the specifier of CP as a demonstrative, but it had already begun to be analyzed as a complementizer merged in the head of CP.   Furthermore, given that embedded clauses without *that* outnumbered those with *that* in E3, it has been concluded that *that* was completely reanalyzed as a complementizer in this period.   The developmental path of *that* proposed in chapter 3 is repeated as (70).

(70)　　a.　　　　$[_{DP}$ that(φ, u-case)]　　　　　(pre OE to PE)

　　　　b.　　　　$[_{CP}$ that(φ) $[_{C'}$ C(Dec) $[_{TP}$ ...]]]　　　(OE to E2)

　　　　c.　　　　$[_{CP}$ $[_{C}$ that(Dec)] $[_{TP}$ ...]]　　　　(OE to PE)

Since OE, the two options of (64b) and (64c) had coexisted until E2, with the latter gradually replacing the former.   Finally, in E3, *that* was completely reanalyzed as a complementizer.

Given this, it follows that the loss of the option of (70b) coincides with the loss of examples with *that*-t.   This leads us to argue that an embedded subject can move to the matrix clause without undergoing Criterial Freezing because the subject criterion is satisfied by the merger of *that* in the embedded Spec-CP, as schematized in (71).

(71)   [$_{ForceP}$ OP$_i$ Force [$_{CP}$ I$_j$ C(Fin, T, φ) [$_{vP}$ t_i t_j think [$_{VP}$ V [$_{CP}$ t_i that(φ) [$_{C'}$ C(Force, Fin) [$_{vP}$ ever was made t_i]]]]]]]]

In (71), the embedded subject can move through outer Spec-CP to the matrix clause without undergoing Criterial Freezing.[13, 14]   Chapter 2 has assumed that *that* merged in Spec-CP bears φ-features and an interpretable declarative feature, though its Case feature was lost in the course of time.   Therefore, Force and Fin remain amalgamated and function as the single head C, and the declarative criterion and the subject criterion can be satisfied by the merger of *that* in Spec-CP simultaneously.

Next, let us turn to the increase/decrease of examples with *that*-t and zero-t in the history of English.   The result in Table 2 shows that the percentage of *that*-less clauses gradually increased in the transition from ME to EModE.   The increase of *that*-less clauses implies that the option of (70c) gradually increased, where the subject criterion had to be satisfied by the movement of a subject, because *that* lost its demonstrative status.   Therefore, it follows that examples with zero-t became the overwhelming majority, and examples with *that*-t became almost obstacle during EModE, finally leading to the situation in E3 where subject extraction was impossible from a *that*-clause.

4.6. Movement Paradox

It has been noted by some researchers (e.g. Bresnan (2001), Alrenga (2005), and Kim

(2011)) that predicates like *think of/about* cannot select a *that*-clause whereas its movement to the clause-initial position makes sentences grammatical, as illustrated in the following pair.

(72)   a.   * He didn't think of [that he might be wrong].

          b.   [That he might be wrong]$_i$, he didn't think of t_i. (Kim (2011: 1009))

This phenomenon is what is called by Bresnan (2001) "movement paradox." The investigation by using *Corpus of Contemporary American English* (COCA) and *Corpus of Historical American English* (COHA) finds the following examples where *think of/about* is immediately followed by a *that*-less clause.

(73)   a.   I have found it useful to *think of* [Ø it is a cancer]

                                          (COCA,1996,SPOK,PBS,Newshour)

          b.   I didn't *think about* [Ø it's being easy or hard], "he answered."

                                          (COHA,1940,FIC,ChadHanna)

These examples suggest that the deletion of the complementizer *that* makes acceptable the configuration with *think of/about* preceding an embedded clause. Furthermore, this investigation reveals that such a predicate can be followed by a *that*-clause under the following circumstances.

(74)   a.   What$_i$ have you *thought of* [that you wanted t_i yet], Edith?

                                      (COHA,1909,FIC,GirlLimberlost)

          b.   there's a whole raft of things [OP$_i$ I *think about* [that I couldn't

                 hang t_i round any man's neck]].   (COHA,1913,FIC,TTembarom)

(75)　　a.　　　I never *thought of* it [that there was a commercial reason].

(COCA,2014,SPOK,NPR)

　　　　b.　　　they *think about* it [that it may make all Christians close to each

other].　　　　　　　　　(COCA,2000,SPOK,NPR,ATC)

As shown in (74), *think of/about* can followed by a *that*-clause if an element is extracted.　As

shown in (75), the insertion of the expletive *it* makes it possible for *think of/about* to be

followed by a *that*-clause.

　　Adopting Labeling Algorithm (henceforth, LA) reviewed in 4.2.3, this section proposes

a unified account of the (un)grammaticality of the sentences in (72)-(75).

4.6.1. Labeling Algorithm

　　Recall that under LA, a syntactic object is labeled in two ways, which are repeated as

(76) and (77).

(76)　　$[_\alpha \text{ H XP}]$　　　　　　　　　　$(\alpha = \text{H})$

(77)　　a.　　　$[_\alpha \text{ XP YP}]$

　　　　b.　　　i. $[_\beta \text{ XP} \ldots [_\alpha \, t_{\text{XP}} \text{ YP}]]$　　$(\alpha = \text{YP})$

　　　　　　　ii. $[_\alpha \text{ XP(F) YP(F)}]$　　　$(\alpha = \text{F})$

As shown in (76), when a head H is merged with a phrase XP, minimal search immediately

takes the former to be the label of α.　As shown in (77a), when two phrases XP and YP are

merged, minimal search cannot determine the label of α because the created structure is

symmetric.　There are two ways to label α: first, as shown in (77bi), XP or YP raises so that

α contains only one element, which is selected as the label of α; second, as shown in (77bii), some prominent feature shared by the two phrases is taken to be the label of α.   This should hold for the labeling of the structure consisting of two heads, as schematized in (78).

(78)   a. $[_\alpha$ H$_1$ H$_2]$

        b.   i. $[_\beta$ H$_1$ … $[_\alpha$ t_{H1} H$_2]]$ $(\alpha = H_2)$

                ii. $[_\alpha$ H$_1$(F) H$_2$(F)$]$ $(\alpha = F)$

In (78a), like (77a), the label of α cannot be determined, so either of the two strategies in (78b) must be employed.   As shown in (78bi), H$_1$ or H$_2$ must raise so that α contains only one element.   As shown in (78bii), some prominent feature shared by the two heads is selected as the label of α.

4.6.2. Theoretical Assumptions

    This subsection reviews Epstein, Kitahara and Seely (2016) and Tozawa (2015) adopted in this section.   First, Epstein, Kitahara and Seely (2016) proposes that the derivation of bridge-verb constructions (e.g. *John thinks that he will win.*) is different from that of transitive constructions (e.g. *John likes the dog.*).   Along the lines of Chomsky (2014), the derivation of transitive constructions is as follows.

(79)   a.   [Subj v(φ) $[_\alpha$ R Obj(φ)$]$

        b.   [Subj v(-) $[_\alpha$ Obj(φ) R(φ) $t_{Obj}]$

        c.   [Subj [R+v] $[_\alpha$ Obj (φ) t_R(φ) $t_{Obj}]$

                                (cf. Epstein, Kitahara and Seely (2016: 90))

In (79a), *v* with φ-features is merged with α, which has been created by the merger of Root (henceforth, R) with an object. In this step of the derivation, α cannot be labeled because R is too weak to become a label by itself. In (79b), φ-features are inherited from *v* to R and an object moves, so that α is labeled as φ via the strategy of (77bii). In (79c), *v* is made invisible by adjoining to R undergoing head movement. The invisibility of *v* leads to the inheritance of the phasehood from *v* to the lower copy of R. Thus, the domain of the lower copy of R (i.e. the lower copy of an object) is transferred to interfaces. On the other hand, Epstein, Kitahara and Seely (2016) proposes the following derivation of bridge-verb constructions.

(80)　　a.　　　[R+*v*]

　　　　b.　　　[Subj [$_\alpha$ [R+*v*] [$_\beta$ C …]]] (cf. Epstein, Kitahara and Seely (2016: 94))

In (80a), *v* is adjoined to R, so that *v* become invisible and loses its phasehood. It is assumed, following Chomsky (2014), that R to which *v* has been adjoined can become a label. In (80b), the complex head consisting of R and *v* becomes the label of α via the strategy of (76). In this derivation, no element is transferred to interfaces because there is no phase head.

Second, let us review Tozawa (2015). He suggests the a transferred domain is not available to labeling, as formulated in the following.

(81)　　　Labeling obeys the locality condition imposed by the PIC.

(Tozawa (2015: 26))

Let us consider how a syntactic object is derived under Tozawa's (2015) analysis. Suppose the following derivation where a phase moves to the specifier of α.

(82)   a. $[_{XP}$ X $[_{YP}$ Y [H ZP]]]]

       b. $[_{\alpha}$ [H...]$_i$ $[_{XP}$ X $[_{YP}$ Y t_i]]]   (α = H)

                                                                (cf. Tozawa (2015: 26))

In (82a) where H is a phase head, the domain of H is transferred to interfaces, so that the phase is taken to contain only a phase head H because its domain becomes invisible to labeling.   In (82b), the phase in which only H is available to labeling moves to the specifier of α, so that α is labeled as H via the strategy of (76).   On the other hand, the derivation where a phase with elements in its edge moves to the specifier of α is schematized in (83).

(83)   a. $[_{XP}$ X ... [ZP H ...]]]]

       b. $[_{\alpha}$ [ZP H...]$_i$ $[_{XP}$ X ... t_i]]]   (α = *H)

                                                                (cf. Tozawa (2015: 26))

In (83), α cannot be labeled as H via the strategy of (76) because the phase is taken to be a phrase containing ZP and H in its edge.

4.6.3. Proposal

    Integrating the two ideas reviewed in section 4.6.2, this section proposes the following derivation of bridge-verb constructions.

(84)   a. $[_{\beta}$ C(Dec) $[_{\varphi}$ Subj(φ) T(φ)...]]]   (β = C)

       b.   [Subj $[_{\alpha}$ [think+v(Dec)] $[_{\beta}$ C(Dec) ...]]]   (α = Dec)

                                                                (Dec = Declarative)

In (84a), the phase head C is merged with an interpretable declarative feature, so that C becomes the label of β via the strategy of (76). In this derivational step, the domain of C becomes invisible to labeling because it is transferred to interfaces, and hence β is taken to contain only the phase head C. In (84b), β is merged with *think* to which *v* has been adjoined. Since the verb *think* generally takes an declarative clause as its complement, it is introduced into the derivation with the relevant selectional feature. Therefore, α, consisting of two heads, can be labeled as Dec via the strategy of (78bii).

Next, let us consider the derivation of the following example where a *that*-clause occupies the clause-initial position.

(85)   [That anything will happen]$_i$, nobody believes t_i.   (Abels (2003: 116))

(86)   a. $[_β [_C \text{that(Dec)}] [_φ \text{anything(φ)} [_T \text{will(φ)}]\ldots]]]$ (β = C)

        b. $[_{Top} [_β [_C \text{that(Dec, Top)}] \ldots] \text{C(Top)} [_φ \text{nobody}_j(φ) \text{ T(φ)} [t_j [_α$
              $[\text{believes}+v(\text{Dec})] t_i]]]$ (α = believes+v)

In (86), like (84a), the phase head C is merged to become the label of β, and then, its domain is transferred to interfaces, whereby it becomes invisible to syntactic computation (containing labeling). This section partly follows Bošković (2016) in assuming that when a head H is merged with a phrase XP, minimal search immediately takes the former to be the label of the syntactic object, whereas the structure created by the merger of two phrases XP and YP is labeled only when it is transferred to interfaces. Along the same lines, we assume that the structure created by the merger of two heads H_1 and H_2 is labeled only when it is transferred to interfaces. Therefore, as shown in (86b), the labeling of α is preceded by the movement of β to the specifier of the matrix C. Finally, *believes+v* can be taken to be the label of α

only when the domain of the matrix C is transferred to interfaces.

Now, we are in a position to present a unified account of the (un)grammaticality of the sentences in (72)-(75), repeated as (87)-(90).

(87)　　a.　　* He didn't think of [that he might be wrong].

　　　　b.　　[That he might be wrong]$_i$, he didn't think of t_i.

(88)　　a.　　I have found it useful to *think of* [Ø it is a cancer]

　　　　b.　　I didn't *think about* [Ø it's being easy or hard], "he answered."

(89)　　a.　　What$_i$ have you *thought of* [that you wanted t_i yet, Edith]?

　　　　b.　　there's a whole raft of things [OP$_i$ I *think about* [that I couldn't hang t_i round any man's neck]].

(90)　　a.　　I never *thought of* it [that there was a commercial reason].

　　　　b.　　they *think about* it [that it may make all Christians close to each other].

First, the (un)grammaticality of the sentences in (87) is immediately accounted for under the present analysis.　The derivations of the sentences in (87a, b) are schematized in (91) and (92), respectively.

(91)　　a.　　[$_\beta$ [$_C$ that(Dec)] [$_\varphi$ he might be wrong]]　　　　　　　　(β = C)

　　　　b.　　* [he [$_\alpha$ [think of+v] [$_\beta$ [$_C$ that(Dec)] …]]]　　　　　　(α = *, β = C)

(92)   a. $[_\beta [_C \text{ that(Dec)}] [_\varphi \text{ he might be wrong}]]$ $(\beta = C)$

   b. $[\text{he} [_\alpha [\text{think of+}v] [_\beta [_C \text{ that(Dec, Top)}]\ldots]]]$

   c. $[_\text{Top} [_\beta [_C \text{ that(Dec, Top)}]\ldots]_i \text{ C(Top)} [_\varphi \text{ he}_j(\varphi) \text{ T}(\varphi) [t_j [_\alpha [\text{think of+}v]$

   $t_i]]]]$ $(\alpha = \text{think of+}v, \beta = C)$

In (91a), β, labeled as C, is taken to contain only one head.   In (82b), β is merged with the complex head *think of+v*, so that α consisting of two heads is created.   Since *think of/about* cannot take a *that*-clause in its complement, it is introduced into the derivation without the relevant selectional feature.   Therefore, unlike (84), the label of α cannot be determined via the strategy of (78bii), with the result that sentences like (87a) are ungrammatical.   On the other hand, in (92), the movement of β allows α to be labeled as *think of+v* via the strategy of (78bi), accounting for the grammaticality of sentences like (87b).

Second, the grammaticality of the sentences in (88) is accounted for by adopting Pesetsky's (1991) idea that the null complementizer is an affix, which attaches to the matrix verb through head movement.   Thus, the sentence in (88b) is derived as in (93).

(93)   a. $[_\beta \text{ C}_\text{affix} [\text{it's being easy or hard}]]$ $(\beta = \text{C}_\text{affix})$

   b. $[\text{I}(\varphi) [_\alpha [\text{think about+}v]+\text{C}_\text{affix} [_\beta t_C\ldots]]]$ $(\alpha = [\text{think about }+v]+\text{C}_\text{affix})$

In (93), like *v*, C_affix is made invisible to labeling by adjoining to the complex head *think about+v*, whereby α can be labeled as *think about+v*+C_affix.

Third, the grammaticality of the sentence in (94) is immediately accounted for under the present analysis, in which a phase is taken to be phrasal if it has elements in its edge.

(94)   a.   [$_β$ what$_i$(Q) [$_C$ that] [you wanted t_i yet]]

           b.   [you(φ) [$_α$ [think of+v] [$_β$ what(Q) [c that] …]]]   (α = think of+v)

           c.   [$_Q$ what$_i$ [$_C$ did(Q)] [$_φ$ you$_j$(φ) T(φ) [t_j [$_α$ [think of+v] [$_β$ t_i [c that]

                    …]]]]]   (β = C)

In (94a), *what* moves to the edge of β, whereby β is taken to be phrasal because it contains *what* and C after the domain of C is transferred to interfaces.　In (94b), where *think of+v* is merged with the phrasal β, the former can be taken to be the label of α via the strategy of (76). Finally, in (94c), the movement of *what* allows β to be labeled as C, with the result that all the syntactic objects can be labeled.

　　　　Fourth, the grammaticality of the sentence in (90) is correctly predicted by assuming with Stroik (1996) and Iwakura (2002) that the expletive *it* is merged in the specifier of CP. The sentence in (90a) is derived as follows.

(95)   a.   [$_β$ it [$_γ$ [$_C$ that] [there was a commercial reason]]]

           b.   [I(φ) [v(-) [$_α$ it$_i$(φ) [think of(φ) [$_β$ t_i [$_C$ that] …]]]]]   (α = φ, β = C)

In (95a), *it* is merged in the edge of β, so that β is taken to be phrasal, like the derivation in (94).[15]　Recall that *v* and R are independently introduced into the derivation in transitive constructions.　Therefore, in (95b), in which φ-features are inherited from *v* to *think of*, the movement of *it* to the edge of α allows α to be labeled as φ via the strategy of (77bii).

4.7. Conclusion and Summary

　　　　In order to overcome the problems with the four previous studies, repeated as (96)-(99), this chapter has proposed the principled account of the *that*-trace effect, based on the clausal

architecture proposed in chapter 2.

(96)   a.   There is no empirical evidence for Fin with φ-features.

           b.   The functional head of Subj is incompatible with the minimalist assumption.

           c.   The expletive *pro* is also incompatible with the minimalist assumption.

           d.   The sequence of Adv/Obj Aux Subj V is wrongly predicted to be possible.

(97)   a.   It is unclear what kind of locality condition is violated by the movement of an embedded subject across *that* or C_{affix}.

           b.   A matrix subject *wh*-question is wrongly predicted to be ungrammatical because the matrix C assigned "*" due to subject movement survives into PF.

           c.   It is wrongly predicted that it is impossible to extract a subject from a *that*-clause with fronted element.

           d.   Subject extraction is wrongly predicted to be possible from a *that*-clause with a fronted element interpreted as a topic.

(98)   a.   The fact that a *that*-less clause must be adjacent to the matrix verb cannot be captured.

           b.   The possibility of subject extraction from a *that*-clause with the fronted element interpreted as a focus cannot be accounted for.

(99) a. The fact that a *that*-less clause must be adjacent to the matrix verb cannot be captured.(= (98a))

b. Subject extraction is wrongly predicted to be possible from a *that*-clause with a fronted element interpreted as a topic.(= (97d))

c. The *there*-construction is wrongly predicted to be ungrammatical.

Section 4.3 has argued that a subject in a *that*-clause undergoes the Criterial Freezing by moving to the specifier of the single head C into which Fin and Force are amalgamated, and its movement to a matrix clause yields the assignment of "*" to *that*, resulting in the *that*-trace effect.   On the other hand, in a *that*-less clause, "*" is excluded from a PF representation by the PF deletion of the lower copy of C_{affix} which has attached to the matrix verb.

Section 4.4 has argued that if the presence of a fronted element interpreted as a focus prevents Fin and Force from being amalgamated into a single head in a *that*-clause, "*" assigned to *that* is excluded by the PF deletion of its lower copy created by its movement from Fin to Force, resulting in a grammatical sentence.   Furthermore, an embedded subject can move through Spec-ForceP to the matrix clause without undergoing Criterial Freezing if the subject criterion is satisfied by other elements than a subject in an embedded clause with an overt complementizer.

Section 4.5 has proposed the plausible account of the historical change of the *that*-trace effect, based on the analysis of chapter 3 on the development of the complementizer *that*.   It has been argued that the subject criterion could be satisfied by the merger of *that* in Spec-CP when it retained a demonstrative status, with the result that subject extraction was possible from a *that*-clause until E2.

Adopting Labeling Algorithm proposed by Chomsky (2013, 2014), section 4.6 has proposed the unified account of the movement paradox and the relevant phenomena.

Adopting the two ideas proposed by Epstein, Kitahara, and Seely (2016) and Tozawa (2015), this section has argued that the head-head configuration is created by the merger of *think of*/*about* and a *that*-clause, so that the syntactic object consisting of them cannot be labeled because there is no feature shared by them, with the result that the sentence is ungrammatical. On the other hand, the syntactic object can be labeled by the movement of a *that*-clause, resulting in a grammatical sentence.   Furthermore, the deletion of *that*, the extraction from a *that*-clause and the insertion of the expletive *it* makes it possible for the label of the syntactic object to be determined.

[1] Bošković (2011) pays attention to the fact (originally due to Perlmutter (1971)) that the *that*-trace effect is nullified under sluicing, as illustrated in (i).

(i)   a.   * It's probable that a certain senator will resign, but which senator$_i$ it's probable that t_i will resign is still a secret.

              b.   It's probable that a certain senator will resign, but which senator$_i$ ~~[it's probable that t_i will resign]~~ is still a secret.

                                          (Merchant (2001: 185))

This supports the idea of Bošković (2011) that PF deletion rescues sentences with the *that*-trace effect.

[2] This section is an extended version of Kondo (2015c).

[3] Under the assumption that T is the lower copy of C created by T-to-C movement, Pesetsky and Torrogo (2001: 372) suggest that the higher copy C and the lower copy T can be overtly realized as a complementizer and an auxiliary, respectively. This suggestion would lead us to assume that Fin and T split and function as separate heads when an auxiliary is present, as in (i) and (ii), which are the structure of a matrix clause and an embedded clause, respectively.

(i)   [$_{ForceP}$ Force [$_{FinP}$ Subj(φ) ~~Fin~~ [$_{TP}$ [$_{T}$ Aux(φ)] [$_{vP}$ t_{Subj} v...]]]]

(ii) a. $[_{vP}$ think $[_{VP}$ V $[_{ForceP}$ $[_{Force}$ that] $[_{FinP}$ Subj(φ) ~~Fin~~ $[_{TP}$ $[_T$ Aux(φ)] $[_{vP}$ t_{Subj} v $[_{VP}$ V...]]]]]]]]

b. $[_{vP}$ C_{affix}+think $[_{VP}$ V $[_{ForceP}$ $[_{Force}$ ~~C_{affix}~~] $[_{FinP}$ Subj(φ) ~~C_{affix}~~ $[_{TP}$ $[_T$ Aux(φ)] $[_{vP}$ t_{Subj} v $[_{VP}$ V...]]]]]]]]

In (i), an auxiliary is merged in T, the lowest copy created by head movement.   In (iia), *that* and an auxiliary are merged in the highest copy Force and the lowest copy T, respectively.

[4] Notice that chain reduction affects only PF representation, but not LF representation. Therefore, an element moving to a particular position of the CP phase can be interpreted properly at LF.

[5] In an embedded question, a *wh*-phrase must precede a fronted element interpreted as a focus, as exemplified in the following sentences.

(i) a. Lee wonders what (in the world) in no way would Robin eat.

b. * Lee wonders in no way what (in the world) would Robin eat.

c. * Lee wonders in no way would what (in the world) Robin eat.

(Maeda (2010: 275))

These sentences support the idea that *wh*-movement targets the embedded Spec-ForceP in an embedded clause, unlike a matrix clause.

[6] One might wonder why Force does not function as an independent head of the single head

C into which Fin and T are amalgamated, even if the merger of *that* satisfies only the declarative criterion.   Note that the movement of *who* to Spec-CP can satisfy the subject criterion and the formal *wh*-feature, simultaneously, so that Force, Fin and T can remain amalgamated and function as the single head C.

[7] There are two pieces of crosslinguistic evidence for the idea that fusing a complementizer with another head makes it possible to extract a subject from an embedded clause.   First, Shlonsky (1988) observes that subject extraction is possible from an embedded clause with the complementizer in Hebrew, where the complementizer *še-* is analyzed as a phonological clitic, as shown in (i).

(i)   Mi   at   ma'amina   še- lo   ohev salat   xacilim?

         who you believe   that NEG like   salad   eggplants

         'Who do you believe doesn't like baba ghanouj?'   (Shlonsky (1988: 192))

Another piece of evidence comes from Tagalog, in which there are two kinds of complementizer: one is the free-standing element *na*, and the other is the affix *ng* attaching to some adjacent element in the matrix clause.   As illustrated in (ii), a subject can be extracted from an embedded clause only if the affix *ng* is used as a complementizer (T = Topic; LI = Linker; A = Actor).

(ii)   a.   ang aklat [na alam ni Maria [-ng binabasa ni Juan]]

                      T   book LI know A Maria LI TT-reads A Juan

                      'the book that Maria knows is being read by Juan'

        b.   * ang aklat [na   alam ni Maria [na binabasa ni Juan]]

                      T   book LI   know A Maria   LI TT-reads A Juan

                      'the book that Maria knows that is being read by Juan'

                                        (Richards (1999: 304))

[8] Haegeman (2000) observes that a relative phrase must follow a focalized phrase, as exemplified in (i).

(i)   a.   Terry is the person for whom not even a postage stamp did I remember to buy.

        b.   * Terry is the person not even a postage stamp did for whom I remember to buy.

        c.   * Terry is the person not even a postage stamp for whom did I remember to buy.   (Haegeman (2000: 29))

This fact will suggest that a relative phrase occupies the specifier of the topmost projection of the CP domain.   This leads us to assume that it moves to Spec-ForceP to satisfy the relative criterion.

[9] Totsuka (2013) accounts for the difference between topicalization and focalization in terms of the phasehood of TopP.

(i) a. * On which table did Lee say that these books she will put?

 b. On which table did Lee say that only these books would she put?

<div align="right">(Koizumi (1999: 141))</div>

These examples show that the *wh*-phrase *on which table* cannot cross the fronted element *these books* interpreted as a topic. This is accounted for by assuming that when these topic elements move to Spec-TopP, the domain of Top becomes inaccessible to any operations in conformity to the PIC, so the *wh*-phrases cannot move to the embedded Spec-ForceP, the intermediate position of *wh*-movement.

[10] One might point out that the present analysis proposes basically the same account of the grammaticality of sentences like (53) as Rizzi and Shlonsky's (2007) analysis. However, note that the former assumes with Sobin (2014) that *there* is merged in Spec-*v*P with a person feature, and then, moves to the relevant position, whereas the latter assumes that it is inserted in Spec-SubjP without any kind of φ-feature (cf. Rizzi and Shlonsky (2007: 126)). The latter cannot account for the fact in (53) because there is no element which enters into an Agree relation with T in person. Thus, the present analysis would be preferred because it assumes that T enters into two Agree relations with *there* in Spec-*v*P in Pr and with *what* in Nr.

[11] The present analysis can be extended to account for the lack of the complementizer-trace effect in other languages with the complementizer agreement, such as West Flemish, as in (i) (cf. Bennis and Haegeman (1984) and Haegeman (1992)).

(i) a. den vent da Pol peinst da/*die Marie *t* getrokken

the man that Pol thinks that Marie made a picture of

heet

has

'the man that Pol thinks that Marie has made a picture of.'

b. den vent da Pol peinst da/die *t* gekommen is

the man that Pol thinks that come is

'the man that Pol thinks has come.'

(Bennis and Haegeman (1984: 35))

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[12] This section is a revised version of Kondo (2016b).

[13] One might wonder why outer Spec-ForceP is available to a *wh*-phrase, unlike outer Spec-TopP. Although Force and Top are phase heads under the cartographic approach, they are different in that the purely formal *wh*-feature, which triggers *wh*-movement to an intermediate position, can be assigned only to Force. Therefore, a *wh*-phrase can move to the matrix clause only across Spec-ForceP but not outer Spec-TopP.

[14] One might point out that an embedded subject can stay in situ in a *that*-clause without subject extraction where the subject criterion is satisfied by the merger of *that* in the embedded Spec-CP. Following Epstein and Seely (2006), Nawata (2013) assumes that T and copies of a subject must c-command each other if full agreement holds between them, leading to the configuration where T c-commands the original copy of a subject while T is c-commanded by its moved copy. Thus, T had to function as an independent head in a

that-clause without subject extraction, as in the following.

(i)   [$_{CP}$ that C(Force, Fin) [$_{TP}$ Subj(φ) T(φ) [$_{vP}$ t_{Subj} v [$_{VP}$ V ...]]]]

Note that in (i), like the derivation of an embedded clause with subject extraction, Force and Fin remain amalgamated and function as the single head C because the declarative criterion and the subject criterion can be satisfied by the merger of *that* in Spec-CP simultaneously.

[15] Following Chomsky (2013), this thesis simply assumes that a pronoun is phrasal (see also Uriagereka (1988)).

Chapter 5

On Sentential Subject Constructions and Extraposition Constructions

5.1. Introduction

Sentential subject constructions (henceforth, SSCs) in (1) can be rephrased as extraposition constructions (henceforth, ECs) in (2).

(1)   a.   That the world is round is obvious.

                                                (Akmajian and Heny (1975: 280))

        b.   That John decided to fight is admirable.

                                                (Akmajian and Heny (1975: 281))

(2)   a.   It is obvious that the world is round.

                                                (Akmajian and Heny (1975: 280))

        b.   It is admirable that John decided to fight.

                                                (Akmajian and Heny (1975: 281))

Many generative studies have been devoted to accounting for the structure and derivation of ECs and SSCs (Ross (1967), Emonds (1970), Stroik (1996), and Iwakura (2002)).   In the early generative studies, two types of approach have been proposed: the 'extraposition' approach and the 'intraposition' approach.   Under the 'extraposition' approach (e.g. Ross (1967)), ECs are derived from SSCs through the transformation rule of 'extraposition', as roughly schematized in (3).

(3)   a.   [[that the world is round] is obvious]

          b.   [Ø is obvious [that the world is round]]
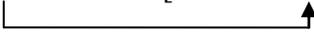
          c.   [it is obvious [that the world is round]]

In (3), the movement of the *that*-clause to the sentence-final position is followed by the insertion of *it*.   On the other hand, under the 'intraposition' approach (e.g. Emonds (1970)), SSCs is derived from ECs through the transformation rule of 'intraposition', as roughly schematized in (4).

(4)   a.   [it is obvious [that the world is round]]

          b.   [Ø is obvious [that the world is round]]
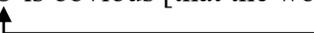
          c.   [[that the world is round] is obvious]

In (4), the deletion of *it* is followed by the movement of the *that*-clause to the sentence-initial position.

Within the minimalist framework, it is standardly assumed that the derivation proceeds in the bottom-up fashion.   Under this assumption, Stroik (1996) and Iwakura (2002) argue that *it* is merged in the specifier of CP of the clausal argument and then moves to the subject position of the matrix clause.   The main purpose of this chapter is to provide a syntactic analysis on the structure and derivation of SSCs and ECs and their historical development within the minimalist framework.   Under the cartographic approach, this chapter proposes that in ECs, *it* is merged in Spec-ForceP of the clausal argument to satisfy the D feature of Force, and that the D feature is also satisfied by the merger of the demonstrative *that* of the category of D in Force, leading to the structure of SSCs.

This chapter is organized as follows: Section 5.2 notes that in English, ECs are

classified into two types.　The two types of ECs differ in that one type of EC can be rephrased as SSCs but the other type cannot.　Revising the idea of Stroik (1996) and Iwakura (2002) that in ECs, *it* is merged in Spec-CP, this section proposes a syntactic analysis on the structures and derivations of the two types of EC in terms of the clausal architecture proposed in chapter 2 and developed in chapter 4.　Section 5.3 proposes a developmental path of ECs in the history of English.　This section investigates the presence/absence of the dummy *it* in ECs, based on the historical corpora employed in chapter 2 and 4.　It is argued that the development of the complementizer *that* plays an important role in accounting for the historical change of the presence/absence of *it* in ECs.　Section 5.4 proposes that SSCs developed by analogy of the reanalysis of the definite article *the* from the demonstrative *that*. Section 5.5 is the conclusion and summary of this chapter.

5.2. Two Types of EC[1]

　　　It has been suggested by some researchers that ECs are classified into the two types, as illustrated in (5a, b) (see especially Kajita (1967) and Napoli (1988) for arguments for their distinction).

(5)　　　a.　　　It is obvious that the world is round.

(Akmajian and Heny (1975: 280))

　　　　　b.　　　It seems that Ralph already skimmed the milk.　(Napoli (1988: 326))

In one type exemplified by (5a) (henceforth, Type I EC), the copular verb (such as *be*, *seem* and *appear*) select AP, whose head in turn takes the clausal argument as its complement; in the other type exemplified by (5b) (henceforth, Type II EC), the copular verb directly selects the clausal argument as its complement.　As we will see in section 5.2.1, the two types of EC

behave differently in three respects: (a) the (im)possibility of *wh*-movement from the clausal argument, (b) the thematic status of *it*, and (c) the (im)mobility of the clausal argument to the subject position.

This section proposes a syntactic analysis of the two types of EC based on the idea of Stroik (1996) and Iwakura (2002), in which in Type I ECs, *it* is merged in Spec-ForceP of the clausal argument, and then, moves through the matrix Spec-vP to the matrix Spec-CP. On the other hand, in Type II ECs, *it* is merged in the matrix Spec-vP, and then, moves to the matrix Spec-CP. It is shown that this difference plays an important role in accounting for the contrastive behavior between the two types of EC.

5.2.1. Three Differences between Two Types of EC

First, it is impossible to extract a *wh*-phrase from the clausal argument in Type I ECs whereas it is possible in Types II ECs, as illustrated in the following pair.[2]

(6)   a.   * Why$_i$ did it seem miraculous that John left t_i?   (Stroik (1996: 249))

        b.   How$_i$ does it appear he got lost t_i?   (Zaring (1994:566))

Second, *it* can be a controller of the PRO subject of an adjunct clause in Type I ECs whereas *it* cannot control the PRO subject in Type II ECs, as shown in (7).

(7)   a.   It$_i$'s likely enough that John did it [PRO$_i$ to convince me we ought to question him].   (Napoli (1988: 328))

        b.   * It$_i$ seems enough that John died [PRO$_i$ to upset me].

        (Napoli (1988: 329))

Napoli (1988) argues that this contrast can be accounted for by appealing to the status of *it*: in (7a), *it* is a thematic pronoun which can control PRO, whereas *it* is an expletive, and thus, it cannot control PRO in (7b).

Third, Type I ECs can be rephrased as SSCs but Type II ECs cannot, as illustrated in (8).

(8)   a.   [That the world is round] is obvious.

(Akmajian and Heny (1975: 280))

      b.   * [That Ralph already skimmed the milk] seems. (Napoli (1988: 326))

5.2.2. Proposal

Stroik (1996) and Iwakura (2002) argue that *it* is merged in Spec-CP of the clausal argument in ECs. Revising this idea, this thesis assumes under the cartographic approach that only in Type I ECs is *it* merged in Spec-ForceP to satisfy the D feature of Force. Integrating this assumption with the clausal architecture proposed in this thesis, this chapter proposes that in Type I ECs, *it* is merged in Spec-ForceP of the clausal argument to satisfy the D feature in Force, and then, moves through the matrix Spec-*v*P to the matrix Spec-CP.[3] On the other hand, in Type II ECs, *it* is merged in the matrix Spec-*v*P, and then, moves to the matrix Spec-CP to satisfy the subject criterion. Thus, the derivations of the sentences in (5a,b) are schematized in (9) and (10), respectively.[4, 5]

(9)   a.   [$_{ForceP}$ it(φ, u-Case) [$_{Force}$ that(D)] [$_{CP}$ the world C(Fin, T, φ) …]]

       b.   [$_{vP}$ it$_i$(φ, u-Case) [$_v$ is] [$_{VP}$ V [$_{AP}$ [$_A$ obvious] [$_{ForceP}$ t_i [$_{Force}$ that(D)] [$_{CP}$ the world C(Fin, T, φ) …]]]]]]

       c.   [$_{ForceP}$ Force [$_{CP}$ it$_i$(φ, ~~u-Case~~) C(Fin, T, φ) [$_{vP}$ t_i [$_v$ is] [$_{VP}$ V [$_{AP}$ [$_A$ obvious] [$_{ForceP}$ t_i [$_{Force}$ that(Dec, D)] [$_{CP}$ the world C(Fin, T, φ) …]]]]]]]]]]

(10)   a.   [$_{vP}$ it(φ, u-Case) [$_v$ seems] [$_{VP}$ V [$_{ForceP}$ [$_{Force}$ that(Dec)] [$_{CP}$ the world C(Fin, T, φ) …]]]]]]

       b.   [$_{ForceP}$ Force [$_{CP}$ it$_i$(φ, ~~u-Case~~) C(Fin, T, φ) [$_{vP}$ t_i [$_v$ seems] [$_{VP}$ V [$_{ForceP}$ [$_{Force}$ that] [$_{CP}$ Ralph C(Fin, T, φ) …]]]]]]]]]

This thesis has assumed under the cartographic approach that all the functional heads of the CP phase are introduced into the derivation as the single head C, and that different types of functional head must split and function as separate heads.   As shown in (9) and (10), Force functions as an independent head of the single head C into which Fin and T are amalgamated because Force is a different type of functional head from Fin and T in that the former is associated with the clause-external (discourse/scope) properties whereas the latter express the clause-internal properties.

   In (9a), *it* is merged in Spec-ForceP to satisfy the D feature.   This thesis follows Legate (2003) in assuming that unaccusative *v*P is a phase.[6]   Therefore, as shown in (9b), *it* moves to the matrix Spec-*v*P to satisfy the formal feature relevant to the subject criterion.   Finally, in (9c), *it* enters into an Agree relation with C in φ-feature, so that the Case feature of *it* is valued and deleted, and then *it* moves to the matrix Spec-CP to satisfy the subject criterion. On the other hand, in (10a), the merger of *it* in the matrix Spec-*v*P satisfies the formal feature

relevant to the subject criterion.   In (10b), *it* enters into an Agree relation with C in φ-feature, so that the Case feature of *it* is valued and deleted, and then, *it* satisfies the subject criterion by moving to the matrix Spec-CP.

The following subsections argue that the three differences between the two types of EC can be immediately accounted for under the proposed analysis.

5.2.3. Extraction of a *Wh*-phrase from the Clausal Argument

The difference in extraction of a *wh*-phrase from the clausal argument is immediately accounted for under the present analysis.

(11)   a.   * $[_{CP}$ why$_j$ $[_C$ did(Force, Foc)] $[_{CP}$ it$_i$(φ, ~~u-Case~~) C(Fin, T, φ) $[_{vP}$ t_j t_i

seem $[_{VP}$ V $[_{AP}$ miraculous $[_{ForceP}$ t_i $[_{Force}$ that(Dec, D)] $[_{CP}$ ... t_j]]]]]]]

b. $[_{CP}$ how$_i$ $[_C$ does(Force, Foc)] $[_{CP}$ it(φ, ~~u-Case~~) C(Fin, T, φ) $[_{vP}$ t_i

appear $[_{VP}$ V $[_{ForceP}$ t_i Force(Dec) $[_{CP}$ ... t_i]]]]]]

In the structure of a Type I EC in (11a), *it* is merged in Spec-ForceP of the clausal argument to satisfy the D feature.   This makes it impossible for *why* to move through Spec-ForceP, and hence, its movement to the matrix Spec-*v*P violates the PIC, because the matrix *v* cannot have access to it within the domain of the embedded Force.[7]   In the structure of a Type II EC in (11b), on the other hand, since *it* is merged in the matrix Spec-*v*P to satisfy the formal feature relevant to the subject criterion, the movement of *how* can proceed through Spec-ForceP of the clausal argument, which feeds the subsequent movement to the higher Spec-CP through the matrix Spec-*v*P.[8]

5.2.4. The Thematic Status of the Dummy *It*

Chapter 2 has adopted the feature-based θ-theory proposed by Bošković and Takahashi (1998) and Hornstein (1999), according to which a θ-role is taken to be an uninterpretable feature checked under some circumstance. It has been assumed that the θ-feature of a predicate, which is uninterpretable but valued, must assign its value to the θ-feature of its argument which is interpretable but unvalued (henceforth, u-θ). Adopting this idea, Kitada (2013) proposes that an uninterpretable θ-feature must be checked through Agree. This section integrates this feature-based θ-theory with the idea proposed by Pesetsky and Torrego (2007) that Agree is feature sharing, and proposes that a predicate must establish an Agree relation with its argument in θ-feature. Along the lines, let us consider how the θ-feature of the argument is valued under the proposed analysis. Suppose the following derivation of the transitive construction, in which the pair of θ-features which establish an Agree relation is represented by coindexing.

(12)   a. $[_{VP}$ V(Th) Obj(u-θ)]

   b. $[_{vP}$ Subj(u-θ) v(Ag) $[_{VP}$ V(~~Th~~$_i$) Obj(Th$_i$)]]

   c. $[_{vP}$ Subj(Ag$_j$) v(~~Ag~~$_j$) $[_{VP}$ V(~~Th~~$_i$) Obj(Th$_i$)]]

In (12a), V probes an object and establishes an Agree relation with it in θ-feature, resulting in the feature sharing of Theme (henceforth, Th) between V and the object. In (12b), a subject is merged in Spec-vP and enters an Agree relation with v in θ-feature, so that Agent (henceforth, Ag) is shared with the subject and v.[9] As argued in chapter 2, the θ-criterion requires the θ-feature of a predicate to be deleted once it enters into an Agree relation.

It is important to mention that under the mechanism of feature sharing, Agree is allowed to apply between two unvalued features, which can be valued simultaneously if one of these

unvalued features is valued by an element with a valued feature.   This holds for the valuation

of u-θ of *it* and the clausal argument in Type I ECs.   The relevant derivational steps are

shown in (13a, b).

(13)   a.   [$_{ForceP}$ it(φ, u-Case, u-θ$_i$) [$_{Force}$ that(Dec, D, u-θ$_i$)] [$_{CP}$ …]]

         b.   [$_{AP}$ obvious(T̶h̶$_i$) [$_{ForceP}$ it(φ, u-Case,Th$_i$) [$_{Force}$ that(Dec, Th$_i$)] [$_{CP}$

                    …]]]

In (13a), the merger of *it* in Spec-ForceP of the clausal argument makes possible the

establishment of an Agree relation between *it* and Force in θ-feature.   Then, in (13b), the

adjective *obvious* is introduced into the derivation with the valued θ-feature Th, which probes

Force as its goal and enters into an Agree relation with it in θ-feature.   Since Force has

established an Agree relation with *it* in its specifier, the Agree relation between *obvious* and

Force results in the structure where the same value of Th is shared by the three elements:

obvious, *it* and Force.   Note that θ-criterion requires Th of *obvious* to be deleted, so that it

became inactive for Agree.   Finally, as shown in (9), *it* moves through the matrix Spec-*v*P to

the matrix Spec-CP to satisfy the subject criterion.

On the other hand, in Type II ECs, u-θ of *it* cannot be valued because it cannot enter into

an Agree relation with any element with an active θ-feature, as schematized in (14).

(14)   a.   [$_{VP}$ [$_V$ seems(T̶h̶$_i$)] [$_{ForceP}$ [$_{Force}$ that(Dec, Th$_i$)] …]]

         b.   [$_{vP}$ it(φ, u-Case, u-θ) [$_v$ seems(T̶h̶$_i$)] [$_{VP}$ V [$_{ForceP}$ [$_{Force}$ that(Dec, Th$_i$)]

                    …]]]

In (14a), the verb *seems* is introduced in the derivation with the valued θ-feature, which

probes Force as its goal and establishes an Agree relation with it in θ-feature, leading to the structure where Th is shared with *seems* and Force.   In (14b), unlike (13b), u-θ of *it* cannot be valued since *it* is merged in the matrix Spec-*v*P to satisfy the formal feature relevant to the subject criterion after the θ-feature of *seems* has been deleted.   Note that Force is inactive for Agree because it has no unvalued/uninterpretable features (see Chomsky (2008) for the inactivation condition).   Finally, as shown in (10), *it* enters into an Agree relation with C in φ-feature, and moves to the matrix Spec-CP to satisfy the subject criterion.

Under this analysis based on the feature-based θ-theory, the different status of *it* in two types of EC is accounted for in terms of the valuation of its u-θ: since u-θ of *it* is valued in Type I ECs, *it* is interpreted as a thematic pronoun at LF, whereas *it* is interpreted as an expletive in Type II ECs because its u-θ remains unvalued.   Therefore, it follows that only in Type I ECs can *it* be a controller of PRO, as we saw in (7).[10, 11]

One might point out that the derivation of (14) would crash because u-θ of *it* is not valued in narrow syntax, so that it could not be interpreted at LF.   Under the present analysis, the thematic status of *it* is accounted for in terms of the valuation of u-θ, so the instance of *it* is regarded as an "expletive" whose u-θ remains unvalued in narrow syntax.   On the other hand, *it* would be taken to refer to the clausal argument in Type I ECs, because the two elements share the same θ-feature value.   If this is correct, *it* is associated with the clausal argument only in Type I ECs, thus capturing the intuition behind the traditional transformational analysis of Type I ECs (see section 5.1).

5.2.5. The Relationship between ECs and SSCs

Finally, this subsection shows how the present analysis can account for the fact that only Type I ECs can be rephrased as SSCs.   McCloskey (1991) observes that the verb in SSCs shows agreement with the clausal argument in person and number, as shown in the

following examples.[12]

    (15)   a.   That the president will be reelected and that he will be impeached

        are equally likely at this point.

        b.   That the march should go ahead and that it should be canceled have

        been argued by the same people at different times.

    (McCloskey (1991: 564))

As shown in (15), the matrix verb is in the third person plural form in SSCs with a coordinated clausal argument. This would lead us to propose that *that* in the clausal argument of SSCs is a demonstrative of the category D with φ-features and the Case feature, so that it can satisfy the subject criterion by moving to the matrix Spec-CP.[13] This section proposes that the demonstrative *that* of the category D satisfies the D feature by its merger in Force of the clausal argument. This allows the clausal argument to enter into an Agree relation with C in φ-feature, so that it can satisfy the subject criterion by moving to the matrix Spec-CP. Therefore, Type I ECs can be rephrased as SSCs because the clause argument has the D feature of Force, as schematized in (16).[14, 15]

    (16)   a. $[_{ForceP} [[_D \text{that}(\varphi, \text{u-Case})]+\text{Force(Dec, D)}] [_{CP} …]]$

        b. $[_{ForceP} \text{Force} [_{CP} [_{ForceP} [[_D \text{that}(\varphi, \text{u-Case})]+\text{Force(Dec, D)}] \text{CP}]_i$

        $\text{C(Fin, T, } \varphi) [_{vP} t_i \text{ is } [_{VP} \text{V } [_{AP} \text{obvious } t_i]]]]]$

On the other hand, since the clausal argument in Type II ECs lacks the D feature in Force, the merger of *that* as D is unavailable, and hence, the clausal argument cannot enter into an Agree relation with the matrix C in φ-feature and satisfy the subject criterion by moving to its

specifier.　Thus, the impossibility of rephrasing Type II ECs as SSCs is accounted for as in (17).

(17)　*　[$_{ForceP}$ Force [$_{CP}$ [$_{ForceP}$ [$_{Force}$ that(Dec)] CP]$_i$ C(Fin, T, φ) [$_{vP}$ t_i seems [$_{VP}$ V t_i]]]]]

As a result, *it* must be merged in the matrix Spec-*v*P and move to the matrix Spec-CP in order to satisfy the subject criterion.

Stowell (1981) observes that *that* of the clausal argument cannot be omitted in SSCs, as shown in (18).

(18)　　a.　　*　The teacher was lying was hardly obvious.

　　　　b.　　*　Louise was angry at me came as no surprise.　(Stowell (1981: 396))

As a consequence of the present analysis, the ungrammaticality of sentences like (18) follows immediately.

(19)　*　[$_{ForceP}$ Force [$_{CP}$ C(Fin, T, φ) [$_{vP}$ was hardly obvious [$_{ForceP}$ Force(Dec, D) the

　　　　teacher was lying]]]]

In (19), there are no elements to satisfy the D feature of Force; moreover, the clausal argument cannot move to the matrix Spec-CP due to the lack of φ-features, resulting in the failure of satisfying the subject criterion.

If the present analysis is correct, the difference between ECs and SSCs will be attributed to the different modes of satisfying the D feature of Force in the clausal argument: ECs involves the merger of *it* in Spec-ForceP of the clausal argument, whereas the merger of *that*

as D in Force of the clausal argument yields SSCs.[16]

5.3. The Historical Change of Type I ECs[17]

The following examples from PE show that Type I ECs must have *it* in the subject position which is associated with the sentence-final clausal argument.

(20)   a.   * (It) is obvious that the world is round.

           b.   * (It) is admirable that John decided to fight.

On the other hand, the following examples from OE show that the insertion of *it* was optional in Type I ECs in early English.

(21)   a.   Hit byð dysig þæt man speca ær þone he þænce.

               it is foolish that one speaks before that he thanks

               'It is foolish that one speaks before he thanks it'

                                  (codicts, Prov_1_[Cox]:2.2.81)

           b.   Eac bið swyþe derigendlic þæt bisceop beo gymeleas,

               also is very harmful that bishop is careless

               'It is also very harmful that a bishop is careless'

                           (coaelive, ÆLS[Pr_Moses]:125.2934)

In (21a), *hit* 'it' occupies the sentence-initial position while in (21b), the adverbial *eac* 'also' occupies the preverbal position without a dummy element. A number of historical linguists have observed this difference between PE and early English (cf. Allen (1995), Kemenade (1997), and Fischer et al. (2000)). However, a systematic investigation is not provided on

the distribution of *it* in Type I ECs in the history of English, nor is a principled explanation offered for why the presence of *it* become obligatory by PE.

Assuming with section 5.2 that *it* is merged in Spec-ForceP of the clausal argument in Type I ECs, this section attempts to propose a principled account of the historical change of Type I ECs.   This section investigates the distribution of *it* in the history of English, based on the historical corpora *The York-Toronto-Helsinki Parsed Corpus of Old English Prose* (YCOE)*, The Penn-Helsinki Parsed Corpus of Middle English, Second Edition* (PPCME2), and *The Penn- Helsinki Parsed Corpus of Early Modern English* (PPCEME).   Chapter 3 has adopted the standard assumption that the complementizer *that* developed from the demonstrative *that* in the course of time.   Under this assumption, it is argued that the development of the complementizer *that* plays a key role in accounting for the historical change of Type I ECs.

5.3.1. Historical Data

5.3.1.1. Type I ECs

This subsection investigates the historical change of Type I ECs with special reference to the presence/absence of *it*, by employing YCOE, PPEME2, and PPCEME.   The result of this investigation is shown in Table 1.[18, 19]   The relevant examples from ME and EModE are given in (22) and (23), where the (a) and (b) examples are those with and without *it*, respectively.

Table 1. Tokens of Type I ECs with and without *It* from OE to EModE

	EOE	LOE	M1	M2	M3	M4	E1	E2	E3
Ø	314	571	46	3	7	24	13	6	5
It	87	210	44	11	142	100	351	446	562
%(*it*)	21.7	26.9	48.9	78.6	95.3	80.6	96.4	98.7	99.1

(22)   ME

a.   þer fore   hit   is   god   þet   Mon   ow   segge   hwiche   he

therefore   it   is   good   that   man   you   says   which   he

munegeþ to þis   fehte.

admonish to this   fight   (CMLAMB1, 151.403: M1)

b.   þe holie man is ned   þat he festned on his holinesse.

the holy   man is need that he fasted   on his holiness

(CMTRINIT, 59.793: M1)

(23)   EModE

a.   it is nedefull that it wanteth and lacketh the helpe of som other.

(BOETHCO-E1-H, 68.34: E1)

b.   Whereupon was concluded that, if the Scottis will agree it, the

ground shall be divided   (EDWARD-E1-P1, 390.335: E1)

As shown in Table 1, examples without *it* were observed more frequently than those with *it* in

OE.   In the transition from OE to ME, the percentage of examples with *it* increased to the

extent that their number was almost the same as that of examples without *it* in M1.   After

M2, examples with *it* became the overwhelming majority, and finally examples without *it*

became almost obsolete during EModE.   Thus, it can be concluded that examples without *it* were strongly preferred to those with *it* in OE, and *it* became obligatory in E3 except for a few residual cases.[20]

5.3.1.2. The Complementizer *That*

Chapter 3 has investigated the distribution of the complementizer *that* introducing a complement clause, by employing YCOE, PPCME2, and PPCEME.   The result of this investigation is repeated as Table 2.   (See chapter 3 for the relevant examples.)

Table 2. Tokens of Complement Clauses with and without *That* from OE to EModE

	EOE	LOE	M1	M2	M3	M4	E1	E2	E3
Ø	9	11	25	8	154	419	895	1631	2315
That	452	1085	244	74	1438	1082	1483	1641	1351
%(ø)	2.0	1.0	9.3	9.8	9.5	27.9	37.6	49.9	63.2

Table 2 shows that examples without *that* was attested much less frequently than those with *that* in OE.   After ME, examples without *that* gradually increased.   Particularly, in late ME (M3 and M4), their number drastically increased.   Finally, in E3, examples without *that* outnumbered those with *that*.   This leads us to conclude that the omission of *that* was not a preferred option in OE, and it was firmly established in E3.

Given the results of the two investigations shown in Table 1 and Table 2, it would follow that the establishment of *it* in Type I ECs roughly coincides with that of the omission of *that* in complement clauses: both the insertion of *it* and the omission of *that* were not preferred in OE, and *it* became almost mandatory and the omission of *that* was firmly established in E3.[21]

5.3.2. The Clause Structure in Early English

Before analyzing the historical change of Type I ECs, this subsection considers the clause structure in early English.

5.3.2.1. The 'EPP' Property in Early English

Since Kemenade (1987), many generative studies have been devoted to clarifying the structural difference between early English and PE.　First, let us consider the 'EPP' property of a clause in early English.　It is well-known that in PE, the expletive *there* cannot occur with a transitive verb, while it can occur with an unaccusative verb, as illustrated in the following examples.

(24)　　a.　　　Someone ate an apple.

　　　　b.　* There someone ate an apple.　　　　　　(Tanaka (2010: 84))

(25)　　a.　　　A man appeared.

　　　　b.　　　There appeared a man.　　　　　　(Tanaka (2010: 84))

In order to capture the difference between a transitive verb and an unaccusative verb, Tanaka (2010) proposes that the 'EPP' is divided into two features: one is a phonological (henceforth, PHON) feature, which requires an element with phonological features, while the other is a predication (henceforth, PRED) feature, which requires a 'subject of predication' as the unmarked topic of a sentence (cf. Tanaka (2010:85)).　Under this analysis, the grammatical contrast between the sentences in (24a, b) follows immediately.

(26)   a.   [$_{TP}$ someone$_i$ T(PHON, PRED) [$_{v*P}$ t_i [$_v$ ate] [$_{VP}$ V an apple]]]

         b.   * [$_{TP}$ there T(PHON, PRED) [$_{v*P}$ someone [$_v$ ate] [$_{VP}$ V an apple]]]

<div align="right">(cf. Tanaka (2010: 85))</div>

As shown in (26a), the PHON feature and the PRED feature can be satisfied by the movement of *someone* to Spec-TP simultaneously. On the other hand, as shown in (26b), the merger of *there* in Spec-TP can satisfy only the PHON feature but not the PRED feature because it has the phonetic form but lacks a semantic content.

Unaccusative constructions are different from transitive constructions in that the former can be interpreted either as predicative or as presentational, whereas the latter are interpreted only as predicative. Guéron (1980) defines a predicative sentence and a presentational sentence as in (27a, b), respectively.

(27)   a.   *Predication*: The subject refers to an individual or object (or a set these) whose existence in the world of the discourse is presupposed: thematic subject. The VP describes a property of the thematic subject.

         b.   *Presentation*: The VP denotes, essentially, the appearance of the subject in the world of the discourse.   (Guéron (1980: 653))

Adopting these definitions, Tanaka (2010) argues that T lacks the PRED feature in unaccusative constructions interpreted as presentational. Under this analysis, the grammaticality of the sentences in (25) is accounted for, as in (28).

(28)   a. $[_{TP}$ a man$_i$ T(PHON, PRED) $[_{vP}$ $[_v$ appeared] $[_{VP}$ V t_i]]]

           b. $[_{TP}$ a man$_i$ T(PHON) $[_{vP}$ $[_v$ appeared] $[_{VP}$ V t_i]]]

           c. $[_{TP}$ there T(PHON) $[_{vP}$ $[_v$ appeared] $[_{VP}$ V a man]]]

<div align="right">(cf. Tanaka (2010: 86))</div>

In (28a), which is the derivation of the sentence in (25a) with a predicative reading, the PHON feature and the PRED feature must be satisfied by the movement of *a man* to Spec-TP. In (28b, c), which are the derivations of the sentences in (25a, b) with a presentational reading, T bears only the PHON feature, which can be satisfied either by the movement of *a man* to Spec-TP or by the merger of *there* in Spec-TP. If this analysis is correct, it follows that in PE, a subject must move to Spec-TP in a sentence without *there*.

However, in early English, a subject could be preceded by an unaccusative verb in a sentence without *there* (cf. Kemenade (1997), Ohkado (1998), and Pintzuk (1993)). The relevant examples from OE and ME are given in (29a, b).

(29)   a.   þonne ðurh gode bodunge aspringað clæne geðohtas on

                 when through good preaching spring pure thoughts in

                 mode ðæra hlystendra

                 mind the listeners'

                 'when, through good preaching, pure thoughts spring up in the

                 mind of the listeners'   (Æhom I. 362. 17: OE / Ohkado (1998: 69))

           b.   yf him nedys fleobotomie

                 if him needs phlebotomy

                 'if phlebotomy is necessary to him'

<div align="right">(Æhom II. 536.6: ME / Ohkado (1998: 70))</div>

As shown in (29a, b), in the adjunct clauses, where the left periphery is not available, the prepositional phrase *ðurh gode bodunge* and the dative pronoun *him* precede the impersonal verb *aspringað* and the mutative verb *nedys*, respectively, which in turn are followed by the subjects. Given that verb movement occurred only to T in an embedded clause, these examples suggest that in OE and ME, the PHON feature could be satisfied by the other element than a subject. Therefore, in unaccusative constructions in an embedded clause, a subject did not have to move to Spec-TP, nor was the merger of *there* in Spec-TP needed. Tanaka (2010) attempts to account for this fact by assuming that the PHON feature could be satisfied by verb movement to T in OE and ME in which verbal inflection was somewhat rich.[22]

Under this analysis, a question remains where a preverbal element is located in the sentences like (29a, b). In this connection, Kemenade (1997) and Tanaka (2002) assume that in early English, Spec-TP could be a topic position only in unaccusative constructions where verb movement occurred to T. If this might be correct, the preverbal element would occupy Spec-TP in such constructions. However, it is unclear what makes it possible for Spec-TP to serve as a topic position. In order to overcome this problem, this thesis revises the above analysis by Tanaka (2010) and assumes that in early English, the PHON feature could be satisfied either by verb movement to the relevant head or by the movement of an element to its specifier. Many generative linguists argue that the 'EPP' is phonological requirement (e.g. Holmberg (2000), Landau (2007), Abe (2015)). In other words, the 'subject position' must be occupied by an element with phonological realization. Along the lines, this section argues that the subject criterion is divided into two components: one is the PHON criterion, which can be satisfied by an element with the phonological feature, while the other is the PRED feature (not criterion), which must be satisfied by an element with active φ-features.[23, 24] Given that φ-features of an object has been inactive in the *v*P domain, it

follows that the PRED feature is satisfied only by the movement of a subject. Under the present analysis, the sentence in (29b) is derived as in the following, with the PHON criterion represented in the bracket following Fin.[25]

(30)   a.   [$_{CP}$ C(Force, Fin(PHON), T, φ) [$_{vP}$ him [$_{v}$ nedys] [$_{VP}$ V fleobotomie]]]

        b.   [$_{CP}$ him$_{i}$ C(Force, Fin(PHON), T, φ) [$_{vP}$ t_i [$_{v}$ nedys] [$_{VP}$ V fleobotomie]]]

        b.   [$_{ForceP}$ [$_{Force}$ yf] [$_{CP}$ him$_{i}$ [$_{C}$ nedys(Force, Fin(PHON), T, φ)] [$_{vP}$ t_i v [$_{VP}$ V fleobotomie]]]]

In the derivational step in (30a), the dative pronoun *him* and the impersonal verb *nedys* are equidistant from the single head C into which Force, Fin, and T are amalgamated because they are in the same domain (cf. Chomsky (1995)). In (30b), *him* moves to Spec-CP to satisfy the PHON criterion. It is assumed with Biberauer and Roberts (2012) that verb movement is triggered by the tense feature.[26] In (30c), *nedys* satisfies the tense feature by moving to the single head C into which Force, Fin, and T are amalgamated. Finally, Force functions as independent head of the single head C into which Fin and T are amalgamated.

If this analysis is correct, it is expected that in early English, the initial position in a subordinated clause could be occupied by an unaccusative verb, which in turn was followed by all other elements. This expectation is borne out, as exemplified in (31a, b).

(31) a. a þa cume monedeis lihting

      until come Monday's dawn

      'until Monday's dawn comes'   (LH 45. 381 / Ohkado (1998: 70))

   b. þt ga þe hus efter hire

      that go the house after her

      'if the house should go after her (=obey her)'

                                 (SAWLES 166.8 / Tanaka (2010))

Under the present analysis, sentences like (31a, b) are derived as follows:

(32) a. [$_{CP}$ C(Force, Fin(PHON), T, φ) [$_{vP}$ [$_v$ ga] [$_{VP}$ þe hus V efter hire]]]

   b. [$_{CP}$ [$_C$ ga(Force, Fin(PHON), T, φ)] [$_{vP}$ [$_v$ ga] [$_{VP}$ þe hus V efter hire]]]

   c. [$_{ForceP}$ [$_{Force}$ þt] [$_{CP}$ [$_C$ ga(Fin(PHON), T, φ)] [$_{vP}$ v [$_{VP}$ þe hus V efter hire]]]]

In (32), which is the derivation of the sentence in (31b), the PHON criterion and the tense feature can be satisfied simultaneously by the movement of the verb *ga* from *v* to the single head C into which Force, Fin, and T are amalgamated, so that the subject *þe hus* and the adjunct *efter hire* can stay in their original positions.

5.3.2.2. The Verb Second Phenomenon in Early English

   Next, let us turn to the verb second phenomenon in early English. Chapter 2 has proposed the following structures of *wh*-questions.

(33)　　a.　　　　$[_{\text{ForceP}}$ Force $[_{\text{CP}}$ who$_i$(φ) C(Foc, Fin, T, φ) $[_{vP}$ t_i bought the book]]]

　　　　b.　　　　$[_{\text{CP}}$ what$_i$ $[_{\text{C}}$ did(Force, Foc)] $[_{\text{CP}}$ Mary$_j$ C(Fin, T, φ) $[_{vP}$ t_i t_j buy t_i]]]

Recall that different types of functional head must split and function as separate heads unless the criteria and features relevant to them are satisfied by the movement of an element simultaneously, and that the same types of functional head must also split and function as separate heads if different criteria and features relevant to them are satisfied by different operations.　　In (33a), which is the structure of the subject *wh*-question, the movement of *who* to Spec-CP can satisfy the subject criterion and the *wh*-criterion simultaneously, so that Foc, Fin, and T do not split and function as the single head C.　　On the other hand, in (33b), which is the structure of the object *wh*-question, *what* and *Mary* satisfy the *wh*-criterion and the subject criterion by moving to the higher Spec-CP and the lower Spec-CP, respectively. Under the generative approach, *wh*-questions are standardly assumed to be residual verb second phenomena.　　This would mean that verb second sentences were derived in a similar way to *wh*-questions in PE.　　Nawata (2009) argues that the clause-initial element moves to Spec-TopP or Spec-FocP under verb second.　　Along these lines, this thesis assumes that in verb second sentences, the clause-initial element and a verb move to the specifier and the head in a particular projection in order to satisfy the topic/focus criterion and the tense feature (see note 24 for verb movement under verb second).

　　Under this analysis, let us consider the derivation of verb second sentences with a transitive verb.　　First, the transitive constructions where a subject occupies the clause-initial position are derived as in (34), with the PRON criterion and the PRED feature represented in the bracket following Fin.[27]

(34)   a.   [$_{CP}$ C(Force, Top/Foc, Fin(PHON, PRED), T, φ) [$_{vP}$ Subj v [$_{VP}$ V

                   Obj]]]

   b.   [$_{CP}$ Subj [$_C$ V(Force, Top/Foc, Fin(PHON, PRED), T, φ)] [$_{vP}$ t_{Subj} v

                   [$_{VP}$ V Obj]]]

   c.   [$_{ForceP}$ Force [$_{CP}$ Subj [$_C$ V(Top/Foc, Fin(PHON, PRED), T, φ)] [$_{vP}$

                   t_{Subj} v [$_{VP}$ V Obj]]]]

In (34a), a subject and v are equidistant from the single head C into which Top/Foc, Fin, and

T amalgamated.   In (34b), the topic/focus criterion, the PHON criterion, and the PRED

feature are satisfied by the movement of a subject to Spec-CP, which is followed by the verb

movement to C.   The verb movement to C can satisfy the two tense features of Top/Foc and

T simultaneously.   Finally, Force functions as an independent head of the single head C.

Second, transitive constructions where an object occupies the clause-initial position are

derived as in (35).

(35)   a.   [$_{CP}$ C(Force, Top/Foc, Fin(PHON, PRED), T, φ) [$_{vP}$ Obj Subj v [$_{VP}$

                   V t_{Obj}]]]

   b.   [$_{CP}$ Subj [$_C$ V(Force, Top/Foc, Fin(PHON, PRED), T, φ)] [$_{vP}$ Obj

                   t_{Subj} v [$_{VP}$ V t_{Obj}]]]

   c.   [$_{CP}$ Obj [$_C$ V(Force, Foc/Top)] [$_{CP}$ Subj C(Fin(PHON, PRED), T, φ)

                   [$_{vP}$ t_{Obj} t_{Subj} v [$_{VP}$ V t_{Obj}]]]]]

In (35a), after an object moves to outer Spec-vP, Force, Top/Foc, Fin, and T are introduced

into the derivation as the single head C.   In (35b), the PHON criterion and the PRED feature

are satisfied by the movement of a subject to Spec-CP, and the two tense features is satisfied

by the verb movement to C.   In (35c), the two instances of single head C split through head movement strategy.   It is assumed that since the verb satisfies the tense feature of Top/Foc, it moves from the lower C to the higher C when the two instances of single head C split through head movement strategy.   Finally, the topic/focus criterion is satisfied by the movement of an object to the higher Spec-CP.   Transitive constructions where an adjunct or a dative element occupies the clause-initial position are derived in almost the same way as (35).   The only difference is that the higher Spec-CP is occupied by an adjunct or a dative element to satisfy the topic/focus criterion.

Next, let us turn to verb second sentences with an unaccusative verb.   First, predicative and presentational unaccusative constructions where a subject occupies the clause-initial position are derived in almost the same way as (34), as shown in (36) and (37), respectively.

(36)   a. $[_{CP}$ C(Force, Top/Foc, Fin(PHON, PRED), T, φ) $[_{vP}$ Subj v $[_{VP}$ t_{Subj} V XP]]]

b. $[_{CP}$ Subj $[_{C}$ V(Force, Top/Foc, Fin(PHON, PRED)), T, φ)] $[_{vP}$ t_{Subj} v $[_{VP}$ t_{Subj} V XP]]]

c. $[_{ForceP}$ Force $[_{CP}$ Subj $[_{C}$ V(Top/Foc, Fin(PHON, PRED), T, φ)] $[_{vP}$ t_{Subj} v $[_{VP}$ t_{Subj} V XP]]]]

(37)   a. $[_{CP}$ C(Force, Top/Foc, Fin(PHON), T, φ) $[_{vP}$ Subj v $[_{VP}$ t_{Subj} V XP]]]

b. $[_{CP}$ Subj $[_{C}$ V(Force, Top/Foc, Fin(PHON)), T, φ)] $[_{vP}$ t_{Subj} v $[_{VP}$ t_{Subj} V XP]]]

c. $[_{ForceP}$ Force $[_{CP}$ Subj $[_{C}$ V(Top/Foc, Fin(PHON), T, φ)] $[_{vP}$ t_{Subj} v $[_{VP}$ t_{Subj} V XP]]]]

The only difference between (36) and (37) is that in (37), the derivation of presentational unaccusative constructions, Fin lacks the PRED feature.

Second, predicative and presentational unaccusative constructions where the clause-initial position is occupied by the other phrase than a subject are derived in almost the same way as (35), as shown in (38) and (39), respectively.

(38)   a.   [$_{CP}$ C(Force, Top/Foc, Fin(PHON, PRED), T, φ) [$_{vP}$ XP Subj v [$_{VP}$ t_{Subj} V t_{XP}]]]

          b.   [$_{CP}$ Subj [$_{C}$ V(Force, Top/Foc, Fin(PHON, PRED)), T, φ)] [$_{vP}$ XP t_{Subj} v [$_{VP}$ t_{Subj} V t_{XP}]]]

          c.   [$_{CP}$ XP [$_{C}$ V(Force, Top/Foc)] [$_{CP}$ Subj C(Top/Foc, Fin(PHON, PRED), T, φ) [$_{vP}$ t_{Subj} v [$_{VP}$ t_{Subj} V t_{XP}]]]]

(39)   a.   [$_{CP}$ C(Force, Top/Foc, Fin(PHON), T, φ) [$_{vP}$ XP Subj v [$_{VP}$ t_{Subj} V t_{XP}]]]

          b.   [$_{CP}$ Subj [$_{C}$ V(Force, Top/Foc, Fin(PHON)), T, φ)] [$_{vP}$ XP t_{Subj} v [$_{VP}$ t_{Subj} V t_{XP}]]]

          c.   [$_{CP}$ XP [$_{C}$ V(Force, Top/Foc)] [$_{CP}$ Subj C(Top/Foc, Fin(PHON), T, φ) [$_{vP}$ t_{Subj} v [$_{VP}$ t_{Subj} V t_{XP}]]]]

This section has discussed the 'EPP' property and the verb second phenomenon in early English, illustrating the derivations of embedded clauses with a postverbal subject and matrix clauses with verb second. Along the lines of this subsection, the following subsection reveals the structure of Type I ECs without *it*, and accounts for the historical change of Type I ECs with respect to the presence/absence of *it*.

5.3.3. Proposal

5.3.3.1. The Development of the Complementizer *That*

　　Revising the analysis of Gelderen (2011) on the development of the complementizer *that*,

chapter 3 has proposed the following developmental path of the complementizer *that*.

(40)　　a.　　　$[_{DP}$ that(φ, u-Case)]　　　　　(pre OE to PE)

　　　　b.　　　$[_{CP}$ that(φ) $[_{C'}$ C(Dec) $[_{TP}$ ...]]]　(OE to E2)

　　　　c.　　　$[_{CP}$ $[_C$ that(Dec)] $[_{TP}$ ...]]　　(OE to PE)

This thesis partly follows Gelderen (2011) in assuming that *that* had already been merged in

the CP domain in OE.　As shown in (40b), *that* usually occupied Spec-CP as a demonstrative

of the category DP with only φ-features, so that *that*-less clauses were unlikely to be omitted.

Nevertheless, as shown in (40c), *that* could be sometimes merged in C, and hence, *that*-less

clauses was sporadically attested.　Since OE, the two options of (40b) and (40c) coexisted

until E2, with the latter gradually replacing the former, so that the frequency of *that*-less

clauses increased in the course of time.　Finally, in E3, *that* was completely reanalyzed as a

complementizer occupying C, whereby its omission was firmly established.

　　Adapting this analysis based on the single CP system to the cartographic analysis

proposed in this thesis, the historical change from (40b) to (40c) is schematically represented

as (41).[28]

(41)　　a.　　　$[_{ForceP}$ that(φ) $[_{Force'}$ Force(Dec) $[_{CP}$ ...]]]　　(OE to E2)

　　　　b.　　　$[_{ForceP}$ $[_{Force}$ that(Dec)] $[_{CP}$ ...]]　　(OE to PE)

Chapter 3 has argued that *that*, merged in the CP domain, bears the declarative feature marking a complement clause as a declarative, regardless of whether it is merged in the head or the specifier.   As shown in (41a), from OE to E2 when *that* was merged as a demonstrative, the declarative (henceforth, Dec) criterion was satisfied by the merger of *that* in the embedded Spec-ForceP.   Since OE, the option of (41a) was gradually replaced by that of (41b), in which *that*, losing φ-features as well as its demonstrative status, is merged in Force as a complementizer.

The next subsection argues that the development of *that* in (41) plays a key role in accounting for the historical change of Type I ECs with respect to the presence/absence of *it*.

5.3.3.2. The Historical Change of Type I ECs

It is natural to assume that the historical change of *that* in (41) should apply to all kinds of *that*-clause.   If this is correct, it follows that in early English, *that* was merged as a demonstrative in Spec-ForceP of the clausal argument in Type I ECs.   Integrating this analysis on the development of the complementizer *that* with the idea in section 5.2 (originally proposed by Stroik (1996)) that *it* is merged in Spec-ForceP of the clausal argument in Type I ECs to satisfy the D feature, this section proposes that the D feature is satisfied by the merger of *that* as a demonstrative in Spec-ForceP of the clausal argument, with the result that a Type I EC without *it* is derived.   Under the present analysis, there are two possible structures of sentences like (21b), as shown in (42a, b).[29]

(42)   a.   [$_{CP}$ eac C(Force, Top/Foc) [$_{CP}$ [$_{C}$ bið(Fin(PHON), T)] [$_{vP}$ t_i v [$_{VP}$ V

[$_{AP}$ swyþe derigendlic [$_{ForceP}$ þæt(Dec, φ) Force(Dec, D) [$_{CP}$ …]]]]]]

b.   [$_{ForceP}$ Force [$_{CP}$ eac$_i$ [$_{C}$ bið(Top/Foc, Fin(PHON), T)] [$_{vP}$ t_i v [$_{VP}$ V

[$_{AP}$ swyþe derigendlic [$_{ForceP}$ þæt(Dec, φ) Force(Dec, D) [$_{CP}$ …]]]]]]]

In (42a, b), *þæt* is merged in Spec-ForceP of the clausal argument to satisfy the Dec criterion and the D feature of Force, so that *þæt* freezes in place due to Criterial Freezing. After *v* is introduced into the derivation, its domain is transferred into interfaces, whereby *that* becomes inaccessible to any operations (including Agree). Given that Type I ECs without *it* are unaccusative constructions without a subject, it would be reasonable to assume that Fin lacks the PRED feature in their structures. The structure in (42a) is different from that in (42b) in that in the former, the verb movement satisfies the PHON feature (as well as the tense feature), while in the latter, the movement of *eac* satisfies the PHON feature (as well as the topic/focus criterion). As a result, in (42a), the two instances of single head C split through head movement strategy; in (42b), Force functions as an independent head of the single head C.[30]

On the other hand, as shown in (41b), *that* already began to be merged in Force in OE. This leads to the sporadic case of Type I ECs with *it* in OE. In this case, the D feature must be satisfied by the merger of *it* in Spec-ForceP of the clausal argument.[31] Thus, two possible structures of sentences like (21a) are schematized in (43a, b).

(43) a. $[_{CP}$ hit$_i$(φ, ~~u-Case~~) C(Force, Top/Foc) $[_{CP}$ $[_C$ byð (Fin(PHON), T)] $[_{vP}$

t_i v $[_{VP}$ V $[_{AP}$ dysig $[_{ForceP}$ t_i $[_{Force}$ þæt (Dec, D)] CP]]]]]]

b. $[_{ForceP}$ Force $[_{CP}$ hit$_i$(φ, ~~u-Case~~) $[_C$ byð (Top/Foc, Fin(PHON), T)] $[_{vP}$

t_i v $[_{VP}$ V $[_{AP}$ dysig $[_{ForceP}$ t_i $[_{Force}$ þæt (Dec, D)] CP]]]]]]

In (43a, b), *it* and *that* satisfy the D feature and the Dec criterion by moving to the specifier and the head of ForceP of the clausal argument, respectively. In (43a), in which the two instances of single head C are created, the PHON criterion (as well as the tense feature) is satisfied by the verb movement to the lower C, and the topic/focus criterion is satisfied by the movement of *hit* to the higher Spec-CP. In (43b), where Force functions as an independent

head, the PHON criterion and the topic/focus criterion are satisfied by the movement of *hit* to Spec-CP, and then, the tense feature is satisfied by the verb movement to C.

Although the derivations of (42a) and (43a) were lost with the loss of verb movement, both the derivations of (42) and (43) were available from OE to E2.   However, as the option of (41c) gradually replaced that of (41b), the number of Type I ECs with *it* increased at the expense of those without *it* in the course of time.   Finally, with the loss of the option of (41b) in E3, the derivation of (43) remained as the only possible option and the presence of *it* became obligatory, thereby explaining the loss of Type I ECs without *it* in this period.   If this analysis is on the right track, the historical change of Type I ECs is closely related to the development of the complementizer *that*, which is neatly captured by incorporating the analysis developed in this chapter in which *it* is merged in Spec-ForceP of the clausal argument in Type I ECs.

5.4. The Development of SSCs in English

As seen at the onset of this chapter, SSCs with an unaccusative verb (henceforth, unaccusative SSCs) can be rephrased as ECs with an unaccusative verb (henceforth, unaccusative ECs).[32]   The relevant examples are repeated as (44a, b).

(44)   a.   That the world is round is obvious.

          b.   It is obvious that the world is round.

This has led early generative linguists to propose that one of the two constructions is derived from the other.   On the other hand, (as observed by Stroik (1996)) SSCs with a transitive verb (henceforth, transitive SSCs) cannot be rephrased as ECs with a transitive verb (henceforth, transitive ECs).   The grammatical contrast of transitive SSCs and ECs is shown

in the following pair.

(45)   a.   [That Lou was hired] forced me to quit my job.

            b.   ?*It forced me to quit my job [that Lou was hired].

<div align="right">(Stroik (1996: 246))</div>

Furthermore, no transitive ECs without *it* are found in the historical corpora used in this thesis.

Employing the historical corpora shown above, this section investigates the distribution of SSCs in the history of English, and shows that SSCs were not attested in OE and EME in which there were many examples of EC with and without *it*. This thesis has assumed that the complementizer *that* retained the demonstrative status and was merged in Spec-ForceP. Integrating this assumption with Watababe's (2009) analysis on the development of the definite article *the*, this section proposes that *that* of the category DP (or DemP) was reanalyzed as *that* of the category D merging in Force by analogy with the reanalysis of the demonstrative *that* as the definite article *the*. This reanalysis allows *that*-clauses to establish an Agree relation with C in φ feature and move to Spec-CP, thus accounting for the emergence of SSCs. This section also proposes that transitive ECs with *it* are ungrammatical due to the violation of condition on movement, and that transitive ECs without *it* are not attested in the historical corpora because a certain feature could not be satisfied by any element.

5.4.1. Historical Data

Based on the historical corpora which have been employed in this thesis, this subsection investigates the distribution of SSCs in the history of English. The result of this

investigation is shown in Table 3. The relevant examples of unaccusative and transitive SSCs from LME are illustrated in (46) and (47), respectively.

Table 3. The Tokens of Unaccusative and Transitive SSCs in the History of English

	EOE	LOE	EME	LME	EModE	LModE
Unaccusative	0	0	0	2	17	38
Transitive	0	0	0	2	1	6

(46)　　And, sire, [that ther hath been many a good womman], may lightly

　　　and sir [that there have been many a good women] may lightly

　　　be preved.

　　　be proved　　　　　　　　　　　　　　　(CMCTMELI,220.C2.134: LME)

(47)　　and [þat Crist towchede þis leprous] *techeþ* vs now þat þe

　　　and [that Christ furnished this leprous] teaches us now that the

　　　manhede of Crist was instrument to his godhede

　　　human nature of Christ was instrument to his godhead

　　　　　　　　　　　　　　　　　　　(CMWYCSER,364.2462: LME)

Table 3 shows that no SSCs were found in OE and EME where ECs were frequently found especially without *it*. Both unaccusative and transitive SSCs emerged in the transition from EME and LME, and their number increased in EModE where ECs without *it* were lost (see (44a) and (45a) for the examples of unaccusative and transitive SSCs from PE).

　　Although unaccusative and transitive SSCs began to be found at the same time, they are different in that in the history of English, unaccusative SSCs can be rephrased as ECs but

transitive SSCs cannot.   In fact, in LME, unaccusative ECs with *it* could be found with the same predicate as unaccusative SSCs, as shown in (48), whereas no transitive ECs were found with and without *it* in the investigation in this section.

(48)   if it may *be prevyd* bi othir placis of hooly scripture, [that ech of tho

                     if it may be proved by other place of holy scripture [that each of the

                     thingis acordith with treuthe].

                     things accords with truth   ]   (CMPURVEY,I,45.1937: LME)

5.4.2. Proposal

Section 5.2. has proposed that the demonstrative *that* of the category D with both φ-features and the Case feature satisfies the D feature by its merger in Force of the clausal argument in Type I ECs.   This allows the clausal argument to enter into an Agree relation with C in φ-feature, so that it can satisfy the subject criterion by moving to the matrix Spec-CP.   It has also been argued that the complementizer *that* retained its demonstrative status and was usually merged in Spec-ForceP as a demonstrative of the category DP, which had only φ-features but not the Case feature (see also chapter 3).   This subsection provides a principled account of how *that* changed its status from DP with only φ-features to D with both φ-features and the Case feature.

5.4.2.1. The Historical Change of Embedded Clauses

Watanabe (2009) proposes that the definite article *the* was reanalyzed from the demonstrative in EME.   This reanalysis is roughly schematized in (49).

(49)   a. $[_{DP} [_{DemP} þe]_i [_{D'} D [t_i ...]]]$

→ b. $[_{DP} [_{D'} [_D þe] [...]]]$ (cf. Watanabe (2009: 368))

As shown in (49), before LME, *þe* is merged within the complement of D as DemP and moves to Spec-DP. In LME, it was reanalyzed as a definite article occupying D. This would instantiate economy condition on a historical change, formulated by Gelderen (2004, 2011) as the Head Preference Principle in (50).

(50)   Head Preference Principle

Be a Head, rather than a Phrase.   (Gelderen (2004: 18))

Next, let us turn to the historical change of the complementizer *that* discussed in this thesis. Revising the standard idea of the development of the complementizer *that*, this thesis has assumed (following the idea of Gelderen (2011)) that *that* was merged in Spec-ForceP as a demonstrative, and it was reanalyzed as a complementizer occupying Force.   The relevant historical change is repeated as (51).

(51)   a. $[_{ForceP} that(Dec, \varphi) [_{Force'} Force [_{FinP} ...]]]$ (OE to E2)

b. $[_{ForceP} [_{Force} that(Dec)] [_{FinP} ...]]$ (OE to PE)

Integrating these ideas, this section proposes that after EME in which the demonstrative *that* was reanalyzed as a definite article, the historical change of *that* (or *þe* in (49)) in the DP domain was applied to *that* in the CP domain: in LME, *that* merged in Spec-ForceP as DP was reanalyzed as D merged in Force.   This instantiates analogy in the sense of Hopper and Traugott (2003), in which new structure is applied to already existing structure.   As a result,

the developmental path of the complementizer *that* is revised as in the following.

(52)   a. $[_{ForceP}$ that(φ) $[_{Force'}$ Force(Dec) $[_{FinP}$ ...]]]   (OE to E2)

    b. $[_{ForceP}$ $[_{Force}$ that(Dec)] $[_{FinP}$ ...]]   (OE to PE)

    c. $[_{ForceP}$ $[[_D$ that(φ)]+Force(Dec)] $[_{FinP}$ ...]]   (LME to PE)

As argued so far, the two options in (52a) and (52b) coexisted until E2.   As shown in (52c), in LME, *that* came to be merged in Force as D by analogy with the reanalysis from the demonstrative *that* occupying Spec-DP to the definite article *the* occupying D.   Therefore, the three options in (52a), (52b), and (52c) coexisted from LME to E2.   After the option in (52a) was lost because *that* was completely reanalyzed as a complementizer, the options in (52b) and (52c) remain as possible options by PE.

One might wonder why the option in (52c) was not lost like the option in (52a). According to Gelderen (2011), the development of the complementizer *that* from the demonstrative *that* was triggered by the Head Preference Principle in (50).   The option in (52b) gradually replaced that in (52a) in the history of English because the merger of *that* in Force is more economical than the merger of *that* as DP in Spec-Force.   Given this, it follows that the option in (52c) is as economical as that in (52b).   As a result, these two options remain as possible ones by PE.

It is important to notice that in (52c), *that* should be inactive for Agree because it has no uninterpretable/unvalued feature.   Chapter 3 has argued that φ-features are not sufficient for *that* to be active for Agree, following Chomsky (2000, 2001), according to who an uninterpretable/unvalued feature is necessary for a goal to establish an Agree relation with a probe.   Therefore, Force in (52c), having *that* of the category D with φ-features in its head, cannot enter into an Agree relation with C in φ-feature.

5.4.2.2. The Development of SSCs

Given that the historical change in (52) should apply to all kinds of *that*-clause, it is reasonable to assume that in LME, *that* of the category D began to be merged in Force to satisfy the D feature and the Dec criterion in the clausal argument in ECs.   Therefore, from LME to E2, there had been three options of satisfying the D feature of Force in the clausal argument in ECs.   In the first option, the merger of *that* as DP in Spec-ForceP satisfies the Dec criterion and the D feature simultaneously, resulting in the structure of ECs without *it*. This option was lost in E3 because *that* was completely reanalyzed as a complementizer in this period.   This led to the loss of ECs without *it*, as argued in the previous section.   In the second option, the Dec criterion and the D feature are satisfied by the merger of *that* in Force and the merger of *it* in Spec-ForceP, respectively, resulting in the structure of Type I ECs with *it*.   In the third option, they are satisfied by the merger of *that* as D in Force simultaneously.

Section 5.2. has proposed that in the derivation of Type I ECs with *it* in PE, the same value of the θ-feature is shared by *it* and the clausal argument, so that *it* is interpreted as referring to the clausal argument at LF.   Table 1 has showed that the percentage of Type I ECs with *it* increased in the transition from OE to ME.   This means that the clausal argument associated with *it* increased in course of time.   Along these lines, let us assume that the clausal argument in Type I ECs is interpreted as a nominal element at LF due to the thematic link with *it*, so that *that* merged in Force as D acquired the Case feature in LME in which the third option emerged.   The three options are shown in (53a, b, c).

(53)   a. $[_{\text{ForceP}}$ that(φ) Force(Dec, D) $[_{\text{Fin}}$ …]]   (OE to E2)

         b. $[_{\text{ForceP}}$ it(φ, u-Case) $[_{\text{Force}}$ that(Dec, D)] $[_{\text{Fin}}$ …]]   (OE to PE)

         c. $[_{\text{ForceP}}$ $[_{\text{D}}$ that(φ, u-Case)]+Force(Dec, D)] $[_{\text{Fin}}$ …]]   (LME to PE)

In (53c), the third option, the clausal argument has *that* of the category D with both φ-features and the Case feature in Force. This allows the clausal argument to establish an Agree relation with C in φ-feature and moves to Spec-CP, thus accounting for the emergence of SSCs in LME.

Along this line, let us consider the structures of unaccusative and transitive SSCs, roughly schematized in (54a, b), respectively.

(54)   a.   [$_{ForceP}$ Force [$_{CP}$ [$_{ForceP}$ [[$_D$ that(φ, ~~u-Case~~)]+Force(Dec, D)] [$_{CP}$ ...]]$_i$

[$_C$ may(Fin(PHON, PRED), T, φ)] lightly [$_{vP}$ t_i be [$_{VP}$ preved t_i]]]]]

b.   [$_{ForceP}$ Force [$_{CP}$ [$_{ForceP}$ [[$_D$ þat(φ, ~~u-Case~~)]+Force(Dec, D)] [$_{CP}$ ...]]$_i$

C(Fin(PHON, PRED), T, φ) [$_{vP}$ t_i techeþ [$_{VP}$ V vs now [þat ...]]]]]]

Suppose that in (54a, b), the PRED feature as well as the PHON criterion has to be satisfied and a verb moves only to *v*. In (54a, b), the D feature is satisfied by the merger of *that* as D with both φ-features and the Case feature in Force of the clausal argument. The clausal argument becomes active for Agree since it has the unvalued feature. Therefore, it can enter into an Agree relation with C in φ-feature and move to the matrix Spec-CP to satisfy both the PHON criterion and the PRED feature, so that φ-features of C and the Case feature of the clausal argument can be valued and deleted. The structure in (54a) differs from that in (54b) in that in the former, the clausal argument is merged within VP as an internal argument, while it is merged in Spec-*v*P as an external argument.

In summary, this subsection has proposed that in LME, *that* merged in Spec-ForceP as DP was reanalyzed as D merged in Force by analogy with the reanalysis of the demonstrative *that* as the definite article *the* in EME, and *that* merged in Force as D acquired the Case feature because the clausal argument was interpreted as a nominal element at LF. This can

account for how *that* developed from DP with only φ-features to D with both φ-features and the Case feature.   However, a question remains to be accounted for: why no transitive ECs are found with and without *it* in the investigation in this thesis.   The following subsection argues that the difference between unaccusative and transitive SSCs in (54) plays a key role in accounting for the ungrammaticality of transitive ECs.

5.4.2.3. The Absence of Transitive ECs with and without *It*

Finally, we conclude this section by accounting for the fact that transitive SSCs cannot be rephrased as transitive ECs.   The relevant example is repeated as (55).

(55)   ?* It forced me to quit my job [that Lou was hired].

Before analyzing the ungrammaticality of sentences like (55), let us review the proposed structure of unaccusative (Type I) ECs with *it* in PE.   Section 5.2 has proposes the following structure to account for the syntactic properties of unaccusative (Type I) ECs.

(56)   [$_{ForceP}$ Force [$_{CP}$ it$_i$(φ) C(Fin(PHON), T, φ) [$_{vP}$ t_i [$_v$ is] [$_{VP}$ V [$_{AP}$ [$_A$ obvious]

[$_{ForceP}$ t_i [$_{Force}$ that(Dec, D)] [$_{CP}$ the world C(Fin, T, φ) …]]]]]]]]

In (56), *it* is merged in Spec-ForceP to satisfy the D feature, and then, *it* moves to the matrix Spec-CP, so that the PHON feature is satisfied.   Note that the clausal argument with *it* in Spec-ForceP is merged as an internal argument.   On the other hand, the clausal argument is merged as an external argument in transitive ECs.   Thus, the ungrammaticality of transitive ECs with *it* is accounted for as in (57).

(57)   ?* [$_{\text{ForceP}}$ Force [$_{\text{CP}}$ it$_i$ C(Fin(PHON, PRED), T, φ) [$_{vP}$ t$_j$ forced [$_{VP}$ V me to quit

my job] [$_{\text{ForceP}}$ t$_i$ [$_{\text{Force}}$ that(Dec, D)] [$_{\text{Fin}}$…]]$_j$]]]

This thesis follows Chomsky (2008) in assuming that extraction is impossible from a complex

phrase occupying Spec-vP.   In (57), in which *it* is merged in Spec-ForceP of the clausal

argument occupying Spec-vP to satisfy the D feature of Force, *it* cannot move from its

original position to the matrix Spec-CP.   Therefore, the PHON criterion and the PRED

feature cannot be satisfied, with the result that transitive ECs with *it* are ungrammatical.

One might argue that transitive ECs without *it* should be grammatical because no

condition on movement is violated.   However, the PRED feature cannot be satisfied by any

element with active φ-features.   Therefore, transitive ECs without *it* are correctly predicted

to be ungrammatical under the present analysis.

5.5. Conclusion and Summary

This chapter has proposes that in Type I ECs, *it* is merged in Spec-ForceP of the clausal

argument to satisfy the D feature.   On the other hand, in Type II ECs, *it* is merged in the

matrix Spec-vP to satisfy the formal feature relevant to the subject criterion (or the PHON

criterion).   Section 5.2 has argued that this difference allows us to account for the three

contrastive behaviors between two types of ECs.

Section 5.3 has adopted the idea proposed by chapter 3 (originally by Gelderen (2011))

that the complementizer *that* remained its demonstrative status and was merged in

Spec-ForceP as DP, and argued that in Type I ECs without *it*, the D feature was satisfied by

the merger of *that* in Spec-Force of the clausal argument in early English.   Since OE, *that*

merged in Spec-ForceP as a demonstrative was gradually replaced by a complete

complementizer merged in Force.   As a result, the D feature of Force had to be satisfied by

the merger of *it* in ForceP of the clausal argument in the course of time.   In E3, *that* was completely reanalyzed as a complementizer merged in Force, leading to the loss of Type I ECs without *it*.

Section 5.4 has proposed that in LME, *that* merged in Spec-Force as DP was reanalyzed as D merged in Force by analogy with the reanalysis of the demonstrative *that* as a definite article *the* in EME.   It has been argued that the clausal argument in Type I ECs with *it* has been interpreted as a nominal element at LF because it has been associated with *it* since OE. This led to the situation where only *that* as D merged in Force of the clausal argument can bear both φ-features and the Case feature.   As a result, unaccusative and transitive SSCs emerged in LME in which *that* merged in Spec-ForceP was reanalyzed as D merged in Force.

The ungrammaticality of transitive ECs with *it* is accounted for by assuming with Chomsky (2008) that extraction is impossible from a complex phrase occupying Spec-*v*P.   In transitive ECs with *it*, the condition on movement is violated by the movement of *it* from Spec-ForceP of the clausal argument originating in Spec-*v*P.   On the other hand, in transitive ECs without *it*, there was no element which could satisfy the PRED feature by moving to the matrix Spec-CP, thus accounting for the fact that no transitive ECs were found with and without *it* in the investigation in this thesis.

[1] This section is a revised version of Kondo (2015d).

[2] Zaring (1994) attributes the contrast in (6) to the difference between an adjunct clause and a complement clause.   If Zaring's (1994) analysis is correct, it would follow that in Type I ECs, the clausal argument is merged as an adjunct, while in Type II ECs, it is merged as the complement of the copular verb.   However, it is now a standard view that in Type I ECs, the clausal argument is a complement of AP/NP following the copular verb (cf. Stroik (1996)). The following examples suggest that the clausal argument in Type I ECs is an internal argument.

(i) a. How likely [that I'll be on time] is it?

    b. How certain/obvious [that he'll win] is it? (Rothstein (1995: 501))

Williams (1983) notes that only an internal argument can move with a *wh*-phrase.   Given this, it is reasonable to assume that the clausal argument in Type I ECs is an internal argument merged in the complement of AP/NP.   On the other hand, Type II ECs have been analyzed as having a clausal argument which is a complement of the copular verb since Kajita (1967).

[3] One might wonder why the following sentence is ungrammatical despite the fact that all criterion and features are satisfied.

(i) * [It that the world is round] is obvious.

The structure of (i) will be correctly ruled out by adopting the economy condition proposed by Radford (2009), according to which syntactic operations should affect as few words as possible (see also Chomsky (1995)). This condition requires *it* to move to the matrix Spec-CP in (i), because it is sufficient to satisfy the subject criterion without pied-piping the whole CP.

[4] Butler (1980) observes that there were examples of EC with *þæt* 'that' or *þis* 'this' as a dummy subject in OE, but such examples drastically decreased in ME. Putting aside ECs with *þis* which were not productive, this observation would be accounted for in terms of the semantic change of *þæt/that*. It is argued by some linguists that the demonstrative *that* developed from the neuter form *þæt* of *se*, which did not always have a deictic meaning in OE (cf. Ibaraki (2013, 2014)). Assuming that only semantically "light" neuter pronouns can function as a dummy element, *þæt* could be used as a dummy subject like *hit* 'it' in OE due to the (optional) lack of a deictic meaning; then, it became obligatorily associated with a deictic meaning in ME, leading to the loss of ECs with *that*.

[5] Stroik (1996) originally proposes that *it* is merged in Spec-CP of the clausal argument in ECs, but he does not distinguish types of EC like the present analysis. In this connection, it is worth noting that different types of clausal argument are selected in the two types of EC: a clausal argument with *it* in its specifier in Type I ECs and a clausal argument without *it* in Type II ECs, respectively. This selectional difference is in turn reduced to the presence/absence of the D feature in C. For the moment, this difference is stipulated as irreducible lexical properties, leaving for future research the question of how it is derived from deeper sources.

[6] This is compatible with the idea originally proposed by Chomsky (2000, 20001) that a phase is defined in terms of propositionality, because the full argument structure is introduced in unaccusative *v*P.

[7] Under the cartographic approach, this thesis has assumes that a *wh*-phrase moves through the embedded Spec-ForceP.   See chapter 4 for a piece of empirical evidence in favor of this idea.

[8] Indeed, Stroik (1996) regards examples like (6a) as a piece of evidence for the idea that *it* is merged in Spec-CP of the clausal argument in Type I ECs.   He also observes that examples of Type I EC like (ia) with argument extraction are somewhat more acceptable than those like (6a) with adjunct extraction.   However, it is worthwhile to note that (ia) is less acceptable than the example of Type II EC in (ib), despite the fact that both examples involve argument extraction.

(i)   a.   ? Who$_i$ does it seem sad that Lou had fired t_i?   (Stroik (1996: 248))

        b.   Which car$_i$ does it appear he washed t_i?   (Zaring (1994: 566))

This grammatical contrast will be accounted for in the same way as in (11) under the analysis proposed in the text, but I leave for future research the question of why setences like (ia) are not completely unacceptable.

[9] Although Pesetsky and Torrego (2007) originally argue that what serves as a probe is an unvalued feature, this paper assumes that the (valued) uninterpretable θ-feature of a predicate

can also function as a probe.   Given the standard assumption that a θ-role must be discharged into an argument, it is reasonable to assume that the θ-feature of a predicate can function as a probe to be deleted through Agree.

[10] If the present analysis is correct, it would follow that there is only one lexical item/entry for *it* in the lexicon, and the thematic status of *it* would be determined by its merged position. This is theoretically desirable, since the theory of grammar is simplified by reducing the number of lexical items/entries in the lexicon.

[11] It is observed by Napoli (1988) that a non-thematic element cannot occupy the subject position of the small clause selected by perception verbs, as shown in the following example involving the expletive *there*.

(i)   * I could see there glow two eyes in the shadows.   (Napoli (1988: 337))

If the analysis proposed in the text is correct, it is predicted that only Type I ECs, having *it* as a thematic pronoun, can occur in the small clause selected by perception verbs.   This prediction is borne out, as exemplified in (iia, b).

(ii)   a.   We all watched it become clear that he wasn't going to show up at the church.   (Napoli (1988: 338))

      b.   * I could actually see it appear that he was sad.   (Napoli (1988: 337))

This similarity between *there* in the *there*-construction and *it* in Type II ECs, together with the

assumption that in Type II ECs, *it* is merged in Spec-*v*P after all the θ-features has become inactive, would support the idea adopted in chapter 4 that *there* is merged in Spec-*v*P.

[12] One might wonder how Type I ECs with a coordinated clausal argument are derived under the analysis proposed in the text.   McCloskey (1991) observes that the verb in such cases shows agreement with *it* in parson and number, as exemplified in (i).

(i) a. * It seem equally likely at this point that the president will be reelected and that he will be impeached.

   b. It seems equally likely at this point that the president will be reelected and that he will be impeached.   (McCloskey (1991: 565))

Given this, it would be safe to assume that the verb enters into Agree relation with *it*, which undergoes Across-the-Board movement to the matrix Spec-CP, as shown in (ii).

(ii) [$_{ForceP}$ Force [$_{CP}$ it$_i$(φ) C(Fin, T) [$_{vP}$ t_i seems likely at this point [[$_{ForceP}$ t_i [$_{Force}$ that(D)] [$_{CP}$ ...]] and [$_{ForceP}$ t_i [$_{Force}$ that(D)] [$_{CP}$ ...]]]]]]]

This supports the idea that unlike *there*, *it* bears a full set of φ-features in ECs.

[13] Recall that the subject criterion can be satisfied by the movement of an element with active φ-features and the phonological feature.

[14] As observed by Emonds (1970), SSCs are not compatible with subject-auxiliary inversion,

which might pose a problem with the present analysis, under which the clausal argument is assumed to occupy the subject position like a DP subject.

(i)   * Is that this stock will be sold certain?   (Emonds (1970: 108))

However, Davies and Dubinsky (2009) argue that the unacceptability of sentences like (i) is attributed to parsing difficulty, and give some acceptable examples of SSC where the clausal argument undergoes inversion with an auxiliary.

(ii)   Does [that Fred lied to them] bother all of the people who bought stock in his

company?   (Delahunty (1983: 387))

This would suggest that SSCs with subject-auxiliary inversion are grammatical, lending support to the present analysis of SSCs.

[15] Among recent works on SSCs, Takahashi (2010) proposes that the clausal argument in SSCs is of a category of DP whose head is null and takes CP as its complement. If this were correct, the clausal argument could be a controller of PRO like other kinds of DP (including *it* in Type I ECs). However, my informant judges sentences like (i) to be unacceptable, contrary to the prediction.

(i)   * [That John did it]$_i$ is likely enough [PRO$_i$ to convince me we ought to

question him].

Assuming that only DP can be a controller of PRO, the present analysis will correctly predict the unacceptability of sentences like (i) since the clausal argument in SSCs is a category of ForceP with *that* as D merged in its head, though it may be interpreted as a nominal element.

[16] Given the two modes of satisfying the D feature of Force, together with the two variants of a complementizer (*that* and zero), there will be four possible configurations of the CP domain in the clausal argument of Type I ECs: (a) *it* is merged in Spec-ForceP with *that* as a complementizer; (b) *it* is merged in Spec-ForceP with the null complementizer; (c) *that* as D is merged in Force with *that* as a complementizer; and (d) *that* as D is merged in Force with the null complementizer. It is clear that the options in (a) and (b) lead to Type I ECs with and without *that*, respectively, and the option in (d) yields SSCs. The option in (c) might pose a problem for the present analysis, since the structure in (i), in which two instances of *that* are merged in an SSC, is not allowed.

(i)   * [$_{\text{ForceP}}$ Force [$_{\text{CP}}$ [$_{\text{ForceP}}$ [[$_{\text{D}}$ that(φ)]+[$_{\text{Force}}$ that (D)]] CP]$_i$ C(Fin, T, φ) [$_{v\text{P}}$ t_i is obvious t_i]]

This problem will be explained away by adopting Distributed Morphology (cf. Halle and Marantz (1993)), under which a syntactic structure consists of feature bundles and lexical items are inserted after all syntactic operations. Following the economy condition on lexical insertion proposed by Nawata (2004), according to which a feature bundle must be realized by as few items as possible, it follows that the feature bundle created by the merger of D in Force must be realized by one instance of *that*.

[17] This section is an extended version of Kondo (2015b).

[18] About ninety percent of Type I ECs without *it* observed in the investigation in the text have a sentence-initial element, including an adverbial, a prepositional phrase, and the dative experiencer semantically related to the matrix predicate.

[19] The investigation in the text can find only Type I ECs with an unaccusative verb, regardless of the presence/absence of *it*.   See section 5.4 for the explanation for this fact.

[20] It is important to mention the five examples of ECs without *it* in E3, which are from five different texts: in three of these five texts, examples like (i) are attested where a lexical verb precedes the negative *not*.

(i)   I care not a Fig who comes, nor who goes, as long as I must be lock'd up

        like the Ale-Cellar.   (VANBR-E3-H, 59.498: E3)

Roberts (2007) observes that verb movement began to decline in the fifteenth century and was finally lost during the seventeenth century.   Given this, there is the possibility that these texts are archaic in style and preserve old features like verb movement and Type I ECs without *it*, in conformity with the conclusion in the text that *it* became obligatory in Type I ECs in E3.

[21] One might question the correlation between the insertion of *it* and the omission of *that*, because the percentage of Type I ECs with *it* is much higher than that of *that*-less clauses, especially in M2 and M3.   Some comments concerning this question are in order.   First, the

discrepancy in M2 might be accidental because the text size of M2 is very small.   Second, predicates which take *that*-less clauses drastically increased in late ME to the extent that their number was about six times larger than that in early ME.   This would indicate that the option of *that* as a complementizer became predominant in late ME, leading to the high frequency of Type I ECs with *it*; see subsection 5.3.3.1 for the competition between the demonstrative *that* occupying Spec-ForceP and the complementizer *that* occupying Force.   In this connection, it should be noticed that the status of *that* is ambiguous between the head and the specifier of ForceP in *that*-clauses.

[22] Revising Alexiadou and Anagnostopoulou's (1998) analysis, Tanaka (2010) argues that OE and ME differs from pro-drop languages such as Italian and Spanish in that in the latter, the verbal inflection is rich enough to satisfy both the PHON feature and the PRED feature by verb movement.   Under this analysis, the grammaticality of the following sentence from Spanish is accounted for where the subject *Juan* is preceded by the transitive verb *leyo*.

(i)   leyo Juan el   libro

         read Juan the   book

         'Juan read the book'   (Alexiadou and Anagnostopoulou (1998: 492))

[23] Under this assumption, one might argue that in PE, the movement/merge of any element can satisfy the PHON criterion, so that an subject can follow a verb in the presentational unaccusative construction without the expletive *there* or something akin to it.   However, as argued in chapter 4, a subject must move so that it can c-command T (or the single head containing it), if full agreement holds between the subject and T.   Therefore, the movement

of a subject with active φ-features satisfies the PHON criterion and creates the configuration where the subject c-commands T.

In turn, this might pose a problem with the derivations in (30) and (32), in which a subject cannot c-command T because it stays in its original position. This problem would be explained away by assuming with Alexiadou and Anagnostopoulou (1998) that rich verbal inflection serves as a pronoun. In OE and ME where verbal inflection is rich enough to satisfy the PHON feature, a verb moves to the single head C so that the former can locally c-command the latter. This allows a subject to stay in its original position.

[24] Of course, the PRED feature cannot be satisfied by elements with no semantic content, such as the expletive *there*, even if they bear active φ-features.

[25] This thesis follows Levin and Rappaport Hovav (1995) in assuming that a subject originates in an internal argument position in unaccusative constructions. Therefore, if the subject moves to the matrix CP phase, its movement has to proceed through the edge of the *v*P phase in conformity with the PIC.

[26] Biberauer and Roberts (2010) argues that verb movement under verb second was triggered by the tense feature of C in OE where verbal tense inflection was relatively rich, and that in this period, verb movement did not occur to T. Along the lines, they propose that verb movement to C was reanalyzed as that to T, so verb movement occurred to T even in ME where tense inflection is relatively impoverished. For the moment, this thesis simply assumes that all kinds of verb movement are triggered by the tense feature of the relevant heads.

27 Given the two mode of satisfying the PHON criterion, there will be three possible derivations of verb second sentences: (a) the PHON criterion is satisfied by the movement of a subject, as shown in the text; (b) it is satisfied by verb movement; and (c) it is satisfied by the movement of the other phrase than a subject. For simplicity, only the option in (a) is illustrated in the text because it is beyond the scope of this thesis to clarify all the structures of verb second sentences. See section 5.3.3.2 for two possible derivations/structures of Type I ECs without *it*.

28 Chapter 4 has proposed that the merger of *that* as a demonstrative satisfies the subject criterion (or the PHON criterion) as well as the Dec criterion. For convenience, this chapter simply assumes that the merger of *that* satisfies only the Dec criterion even when it retain its demonstrative status. Thus, Force functions an independent head of the single head C into which Fin and T are amalgamated.

29 This thesis tentatively assumes that the sentence-initial adverbial is first merged within *v*P, with no empirical evidence in favor of this idea. Of course, Type I ECs without *it* were also attested in embedded clauses in early English. Under the present analysis, it is assumed that the PHON criterion is satisfied by the movement of an adverbial to Spec-CP, and then, a verb moves to C to satisfy the tense feature. See section 5.3.2.1 for the argument of an embedded unaccusative constructions with the clause-initial adverbial.

30 Chapter 3 has presented an example of Type I EC without *it* where the matrix verb does not show agreement with two instances of *that* in the coordinate clausal argument. The relevant example in chapter 3 is repeated in (i), in which a verb is in a third-person singular

form.

(i)   Ond þa   heora ealra dome gedemed *wæs*, [þæt he wære biscophade

and   then them all   home deemed was   that he was episcopate

wyrðe], &   [þæt he to lareowe sended wære Ongolcynne, se   ðe

fortune   and   that he to master sent   was Angel-people which that

mid Godes gife swylc gescead funde in   heora geþeahte].

with God's gift such   part   find   in   their thought

(cobede,Bede_3:3.164.11.1575: O2)

This can be accounted for under the analysis proposed in the text, in which C cannot establish an Agree relation with *that* in φ-feature because Criterial Freezing forces it to stay in Spec-ForceP, which is inaccessible to the Agree operation of the matrix CP phase. One might argue that Type I ECs should be ungrammatical because φ-features of C cannot be valued by any element. This thesis assumes for the moment that in early English, a verb could show default agreement if φ-features of C are not valued by any element.

[31] One might wonder whether the merger of *that* in Spec-ForceP can satisfy the D feature of Force in the clausal argument with *that* in Force (e.g. [ForceP that [Force′ [Force that(D)] [CP …]]]). However, such a configuration can be correctly ruled out under the analysis proposed in this thesis, in which *that*, whether it is merged in the head or the specifier of ForceP, can satisfy the Dec criterion, so the merger of *that* in the two positions is redundant.

[32] This section only deal with Type I ECs but not Type II ECs, so we simply use the term

'ECs' for it.

Chapter 6

Conclusion and Summary

This thesis has proposed the syntactic analysis of the constructions and phenomena involving *that*-clauses and their historical changes, the distribution of *that*-clauses and *that*-less clauses, the *that*-trace effect and its related phenomena, the structure of ECs and SSCs, the historical change of ECs, and the development of SSCs. This section summarizes the analyses proposed by each chapter of this thesis.

Chapter 2 has proposed the new clausal architecture based on syntactic cartography, where all functional heads of a phase are introduced into the derivation as a single head, and they do not split and function as a single head if some criteria and features are satisfied by the movement of an element to the relevant position. It has also been assumed that the same types of functional head do not have to split and function as separate heads, whereas the different types of functional head must split and function as separate heads. Focusing on a matrix clause, chapter 2 has provided the plausible account of the differences between a subject and an object.

By using the historical corpora, chapter 3 has proposed the developmental path of the overt and null complementizer in the history of English. Revising Gelderen's (2011) analysis, this chapter has argued that in OE, *that* was usually merged in Spec-CP as a demonstrative, while it was sometimes merged in C, so that *that*-less clauses were observed sporadically in OE. Since OE, these options coexisted until E2, with *that* merged in C gradually replacing *that* merged in Spec-CP, finally leading to the situation where *that* was completely reanalyzed as a complementizer merged in C, whereby its omission was firmly established. On the other hand, chapter 3 has argued that the null complementizer changed its status from a syntactic affix to a PF one in the course of time. This analysis can account

for the historical change of the distribution of *that*-less clauses

Chapter 4 has proposed the cartographic analysis of the *that*-trace effect and its related phenomena, based on the clausal architecture proposed in chapter 2. It has been argued that "*" is assigned to the relevant head by the violation of Criterial Freezing. If an embedded subject were to move from Spec-CP to the matrix clause, it results in the assignment of "*" to the single head C. Therefore, in a *that*-clause, "*" survives in the PF representation, with the result that the sentence is ungrammatical.

On the other hand, there are two structures where "*" assigned to the single head is excluded. First, in a *that*-less clause, "*" can be excluded by the PF deletion of the lower copy of C_{affix} which has attached to the matrix verb. Second, in a *that*-clause with a fronted element interpreted as a focus, Force must function as an independent head of the single head C consisting of Fin and T due to the presence of FocP. In this case, "*" assigned to the single head C is eliminated by its PF deletion copy under copy reduction, yielding a grammatical sentence.

Furthermore, it has been shown that a subject can move from an embedded clause with the overt complementizer to the matrix clause without undergoing Criterial Freezing if the subject criterion is satisfied by other elements than it (e.g. *there* in the *there*-construction, the locative PP in the LIC, a verb in pro-drop languages). Incorporating the analysis on the development of the complementizer *that*, the lack of the *that*-trace effect in early English is accounted for by assuming that the subject criterion can be satisfied by the merger of *that* as DP in Spec-CP.

Chapter 5 has accounted for the three differences between Type I ECs and Type II ECs by assuming that in Type I ECs, *it* is merged in Spec-ForceP of the clausal argument to satisfy the D feature, whereas in Type II ECs, *it* is merged in Spec-*v*P to satisfy the formal feature relevant to the subject criterion (or the PHON criterion).

Incorporating the analysis of chapter 3 on the development of the complementizer *that*, this chapter has also accounted for the historical change of Type I ECs in regard with the presence/absence of *it* by assuming that in Type I ECs without *it*, the D feature of Force of the clausal argument could be satisfied by the merger of *that* in Spec-ForceP as a demonstrative. In E3, in which *that* was completely reanalyzed as a complementizer merged in Force, the D feature of Force had to be satisfied by the merger of *it* in Spec-ForceP, accounting for the loss of Type I ECs without *it*.

It has also been argued that the development of the complementizer *that* plays a key role in accounting for the development of SSCs: in LME, *that* merged in Spec-ForceP as DP was reanalyzed as D merged in Force, with analogy with the reanalysis of the demonstrative *that* as the definite article *the*. Therefore, the D feature of Force of the clausal argument is satisfied by the merger of *that* of the category D in Force. This allows the clausal argument to establish an Agree relation with C in φ-feature and move to the matrix Spec-CP, accounting for the emergence of SSCs.

Finally, the ungrammaticality of transitive ECs in PE has been accounted for by adopting the idea that extraction is impossible from a complex phrase in Spec-*v*P. In the structure of transitive ECs, the movement of *it* to the matrix Spec-CP violates such condition on movement because *it* is merged in Spec-ForceP of the clausal argument occupying Spec-*v*P. Furthermore, it has been argued that the absence of transitive ECs without *it* follows immediately under the proposed analysis: without *it*, there is no element which can satisfy the subject criterion (or the PRED feature), with the result that the derivation is crash.

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