In this article, we will examine a displacement phenomenon in English called Heavy NP Shift (henceforth HNPS), which has traditionally received a rightward movement analysis in which the heavy NP undergoes a rightward movement operation, thereby occupying the adjunct position of the VP (Ross (1967), etc.). On the other hand, Rochemont and Culicover (1997), among others, propose that HNPS involves the leftward movement of a heavy NP to the specifier position of a functional projection lower than TP and the subsequent leftward movement of a remnant category which contains the trace of the heavy NP to a higher position.

Though partially adopting the idea of the previous leftward movement analyses, we argue against the analyses and propose a different kind of leftward movement analysis of HNPS. More specifically, pointing out some similarities between HNPS and Focus-Topicalization, we claim that HNPS involves the combination of two types of leftward movement operations to the functional projections in the left periphery, namely Focus-Topicalization of the heavy NP and Topic-Topicalization of the remnant TP. Moreover, we will claim that the generalization that no element is moved rightward across a sentence boundary, also known as the “Right Roof Constraint,” should be explained by the Phase Impenetrability Condition (Chomsky (2000, 2001)). Finally, we will address some potential problems concerning our analysis of HNPS and provide a possible solution to each of them.

KEYWORDS: HNPS, Focus-Topicalization, Remnant Movement, Split CP Hypothesis, Phase Impenetrability Condition

1. Introduction

In this article, we mainly examine a displacement phenomenon in English called Heavy NP Shift (henceforth HNPS), which has traditionally received a rightward movement analysis such that the heavy NP undergoes a rightward movement operation, thereby occupying the adjunct position of the VP (Ross (1967), Nakajima (1989), Nishihara (1997) etc). For example, under the rightward movement analyses of HNPS, HNPS constructions illustrated in (1a–c) below are derived by the rightward movement of the heavy NP to a VP-adjoined position, as in (2).

(1) a. John bought for his wife [HNPN a beautiful white sweater]. (Whitney 1981: 299)
   b. John gave to Bill [HNPN a picture of the Grand Canyon]. (ibid.)
   c. John bought for his son last week [HNPN a book which is remarkably popular among children all over the world].

(2)

On the other hand, Rochemont and Culicover (1997), Kayne (2000), and Jayaseelan (2001), among others, propose a leftward movement analysis for the HNPS construction in (3a). Under the leftward movement analyses, as the first step, the heavy NP moves to the specifier position of a functional projection HP above VP as in (3b). As the second step, the remnant VP including the trace of the NP moves to a higher functional projection WP as in (3c).
Though partially adopting the idea of the previous leftward movement approaches, we argue against the leftward movement analyses and propose a different kind of leftward \( A \)-movement analysis for HNPS constructions. More specifically, pointing out some similarities between HNPS and Focus-Topicalization, we claim that HNPS constructions are derived by the combination of two types of leftward movement operations to the projections in the left periphery, Focus-Topicalization of the heavy NP and Topic-Topicalization of the remnant verbal elements. Furthermore, we show that HNPS does not always obey the generalization that no element is moved rightward across a sentence boundary, also known as the Right Roof Constraint (cf. Ross (1967)), and argue that examples alleged to conform to the restriction are explained by the Phase Impenetrability Condition (hereafter PIC (Chomsky (2000, 2001))). Finally, we address some potential problems concerning our analysis of HNPS and provide a possible solution to each of them.

This article is organized as follows: in section 2, we will claim that the shifted NP in HNPS constructions and the focalized element in Focus-Topicalization constructions can be analyzed as undergoing the same movement operations, namely \( A \)-movement operations, by pointing out some similarities between HNPS and Focus-Topicalization constructions. Based on the discussion in section 2, we will propose in section 3 that HNPS and Focus-Topicalization target the same structural position, and that HNPS constructions are derived by a combination of the two types of topicalizations. Section 4 will show that HNPS does not always obey the restriction known as the Right Roof Constraint and that examples alleged to conform to the restriction can be explained by the PIC on leftward movement operations. In section 5, we will try to resolve other problems concerning our analysis, and section 6 will discuss some consequences of our analysis. Section 7 concludes this article.

2. Focus-Topicalization and Heavy NP Shift

In this section, we point out syntactic and semantic similarities between the focus-topicalized element and the shifted heavy NP, and then propose that the heavy NP in HNPS constructions and the focalized element in Focus-Topicalization constructions should be analyzed as undergoing the same type of movement operation.

First, as pointed out in the literature (Gundel (1974) and Rochemont (1978)), the moved elements in Focus-Topicalization and HNPS constructions bear focal stress.

Second, we look at the semantic similarities. As illustrated in (4a, b) and (5a, b), the heavy NP in HNPS constructions and the focal element in Focus-Topicalization constructions can occupy the focus position in cleft sentences. This indicates that both the shifted NP and the focus-topicalized element represent new information.\(^1\)

(4) a. JOHN he called.
    b. It was JOHN that he called.

(5) a. John wants to give to Mary a gift of inestimable value.
    b. It’s a gift of inestimable value that John wants to give to Mary.
Third, as is well known, the element which conveys new information in an utterance functions as an answer to the interrogative sentence. As illustrated in (6b) and (7b), the focus-topicalized element and the shifted NP serve as an answer to the interrogative sentences in (6a) and (7b) respectively.

(6) a. Who did Mary kiss?  
    b. JOHN she kissed.

(7) a. What did John buy for his son?  
    b. John bought for his son a BOOK which is remarkably popular among children all over the world.

Fourth, if we adopt Kiss’ (1998) dichotomy of foci, the shifted NP and focus-topicalized element are classified into information focus. Kiss (1998) proposes that focal elements in English can be classified into two types: identificational focus, which represents exhaustiveness implicature, and information focus, which does not express such an implicature. Furthermore, Kiss argues that the clefted element in (8a) can be grouped into identificational focus, whereas the focus-topicalized element in (8b) belongs to information focus. As illustrated in (9a, b), the clefted constituent, classified into identificational focus, cannot occur with the additive adverb even, while the focal element in Focus-Topicalization is compatible with it.

(8) a. It was PIZZA that she ate in Italian restaurant.  
    b. JOHN she kissed.

(9) a. *It was even Mary whom John deceived.  
    b. Even an apple she ate.

Following this dichotomy, let us consider the example (10) below, where the heavy NP occurs with the additive adverb even as naturally as the focus-topicalized element in (9b). From this, we can conclude that the heavy NP can be classified into the same semantic category as the focus-topicalized elements, that is, information focus.

(10) The waiter brought to our table even the wine that John ordered.

These four similarities between HNPS and Focus-Topicalization constructions indicate that the moved elements bearing focal stress in both constructions carry out a function that allows the elements to carry new information in an utterance, whereas the rest of the sentence in the constructions does not bear focal stress, serving as old information.

Next, we consider syntactic similarities between the shifted NP and focus-topicalized element. First, as Whitney (1982) observes, the direct object in double object constructions can undergo wh-movement in (11a) as well as HNPS in (12a). On the other hand, the indirect object NPs cannot undergo either wh-movement or HNPS as in (11b) and (12b) below.

(11) a. What did you give the man?  

(12) a. I gave a man I know a book about physics.  
    b. *I gave a book about physics a man I know.

However, as in (13), it is possible to passivize the indirect object NPs in double object constructions. Thus, passivization (A-movement), which moves an argument from one argument position (A-position) to another, can apply to the indirect object NPs, whereas HNPS cannot, like wh-movement, which targets a non-argument position (A-movement).

(13) Bill was given the book.

Given this, consider the following examples in (14a, b). In (14b), the application of Focus-Topicalization to the indirect object NP in (14a) is also impossible like wh-movement and HNPS. Therefore, HNPS and Focus-Topicalization can be analyzed as the same movement operation as wh-movement.


Second, it has been widely accepted that A-movement, but not A-movement, can license a parasitic gap. As is observed in the contrast in grammaticality between (15a) and (15b), wh-movement, analyzed as an instance of A-movement, allows the Parasitic Gap construction involving two gaps, whereas passivization, which is analyzed as an instance of A-movement, does not.

(15) a. Which articles did John file without reading?  
    b. *These articles are filed without my reading.

Notice here that HNPS can also license a parasitic gap, as in (16) below. This indicates that this movement operation must be analyzed as A-movement, like wh-movement.
Similarly, the parasitic gap is also licensed by the focus-topicalized element. From the data in (15a) above and (17a, b) below, it is obvious that Focus-Topicalization should be analyzed as A\text{-}movement.

(17) a. MARY’S ARTICLES John filed without reading.
   b. PICTURE BOOKS Mary bought without reading.

Third similarity between HNPS and Focus-Topicalization is so-called island constitution. As observed in the literature, if the direct object in the embedded clause in (18a) undergoes wh-movement as in (18b), the movement across another wh-phrase leads to ungrammaticality.

(18) a. John wondered [when Mary ate the apple]?
   b. *What did John wonder [when Mary ate t]

Given this, consider the following example in (19a, b). In (19a), the wh-phrase for whom moves out of the TP to the sentence-initial position across the heavy NP shifted to the sentence-final position, and in (19b), the wh-element for which of his sisters is extracted from the embedded clause involving HNPS. Thus, (19a, b) show that, unlike wh-movement, the movement of the shifted NP does not create an island.

(19) a. For whom did [TP Bill purchase last week [HNP an all expense-paid ticket to Europe]]?
   b. I didn’t remember [CP for which of his sisters [TP Bill bought in Europe [HNP a Fourteenth Century gold ring]]].

The same situation is also found in Focus-Topicalization constructions: the movement of wh-phrase across the focus-topicalized element is possible as in (20a). However, wh-movement across the topic-topicalized element is impossible as shown in (20b). The examples in (18a, b), (19a, b) and (20a, b) indicate that, unlike Topic-Topicalization and wh-movement, HNPS and Focus-Topicalization does not constitute an island for extraction.

(20) a. ?Which dishes are on the TABLE you going to put? (Hatakeyama 1998: 347)
   b. *Which dishes are, on the table, you going to put? (Culicover 1991: 48)

In this section we have provided seven pieces of evidence which show that the shifted NP and focus-topicalized element undergo the same type of movement operation. We have shown that, following Kiss’ dichotomy of foci, the shifted NP and the focus-topicalized element are classified into information focus. Moreover, we have seen that wh-movement, HNPS and Focus-Topicalization can be analyzed as sharing the syntactic property of A\text{-}movement. However, HNPS and Focus-Topicalization are distinct kind of A\text{-}movement from wh-movement in that they do not constitute an island for extraction. From these similarities, we conclude that the shifted NP in HNPS constructions and the focal element in Focus-Topicalization constructions do not constitute an island for extraction.

In this section we have provided seven pieces of evidence which show that the shifted NP and focus-topicalized element undergo the same type of movement operation. We have shown that, following Kiss’ dichotomy of foci, the shifted NP and the focus-topicalized element are classified into information focus. Moreover, we have seen that wh-movement, HNPS and Focus-Topicalization can be analyzed as sharing the syntactic property of A\text{-}movement. However, HNPS and Focus-Topicalization are distinct kind of A\text{-}movement from wh-movement in that they do not constitute an island for extraction. From these similarities, we conclude that the shifted NP in HNPS constructions and the focal element in Focus-Topicalization constructions do not constitute an island for extraction. Based on the discussion so far, in the next section, we will examine syntactic mechanisms of Focus-Topicalization and HNPS, proposing that the focalized elements in HNPS and Focus-Topicalization constructions move to the same structural position in the CP projection.

3. “HNPS” as a Combination of Two Types of Topicalization

In this section, based on the similarities discussed in the previous section, we propose that the focalized elements in HNPS and Focus-Topicalization constructions move to the same structural position. In so doing, we adopt Rizzi’s (1997) split CP hypothesis, which suggests that what was supposedly a single category CP should be split into a number of distinct functional projections, as illustrated below.
Under Rizzi’s Split CP, the highest functional projection, Force Phrase, is a projection whose head is occupied by the complementsizers, such as *that* and *if* in English, specifying a given clause is declarative or interrogative in force. Finiteness Phrase is a projection which functions as marking a clause as finite or non-finite. Topic Phrase projection hosts the topicalized element which represents old information, and Focus Phrase projection is occupied by the focal element which carries new information. Rizzi suggests that, unlike Topic Phrase, Focus Phrase does not form recursive projections. This is supported by the following Italian examples in (22a, b).

(22) a. Il libro, a Gianni, domani, glielo darò senz’altro. (Rizzi 1997: 290)
   TOP TOP TOP IP
   “The book, to Gianni, tomorrow, I’ll give it to him for sure.”
   b. “A GIANNI, IL LIBRO, darò (non a Piero, l’articolo).”
   FOC FOC IP
   “To GIANNI, THE BOOK I’ll give, not to Piero, the article.”

Furthermore, as shown in the following examples, Topic Phrase can appear in various structural positions in the left periphery.

(23) a. Credo che a Gianni, QUESTO, domani, gli doverremo dire. (Rizzi 1997: 295)
   C TOP FOC TOP IP
   “I believe that to Gianni, THIS, tomorrow we should say.”
   b. Credo che domani, a Gianni, QUESTO gli doverremo dire. (ibid.)
   C TOP TOP FOC IP
   c. Credo che a Gianni, domani, QUESTO gli doverremo dire. (ibid: 296)
   C TOP TOP FOC IP
   d. Credo che QUESTO, a Gianni, domani, gli doverremo dire. (ibid.)
   C FOC TOP TOP IP
   e. Credo che QUESTO, domani, a Gianni, gli doverremo dire. (ibid.)
   C FOC TOP TOP IP

So far, we have seen the Split CP Hypothesis, which suggests that the CP layer of the clause should be split into a number of separate projections. The above Italian examples in (22a, b) and (23a–e) show that TopP has recursive projections and can freely appear within a single clause. However, if we look at English sentences in (24a, b) and (25a, b) below, we find that TopP does not have recursive projections in English and that there is no TopP projection lower than FocP.

   TOP TOP
   b. “Last year, in St. Louis, we were living.” (ibid.)
   TOP TOP
From these examples in (24a, b) and (25a, b), we assume in this article that, at least in English, TopP projections are not recursive projections and that there is no TopP projection under FocP as in (26).

Let us now consider the derivation of Focus-Topicalization and HNPS constructions. First, we look at the derivation of the Focus-Topicalization construction in (27a), which is illustrated in (27b).

As in (27b), the Focus-Topicalization construction is derived by the movement of the focal element to the specifier of a functional projection, namely Focus Phrase, which hosts an element bearing new information.

Next, we consider the derivation of the HNPS construction in (28a). This is illustrated in (28b, c) below.
In (28b), the focalized heavy NP moves to the same structural position as the focus-topicalized element in (27b), namely \([\text{Spec}, \text{FocP}]\). In the case of HNPS, we propose further that the remnant of the sentence (here TP) moves to \([\text{Spec}, \text{TopP}]\) which is higher than the position where the heavy NP moves. We claim that this movement of the remnant part is topic-topicalization, and that the driving force of the movement is the [Topic] feature located in the head of Topic Phrase.

Given the remnant movement of TP in the HNPS construction, a question arises as to how we can explain the unbound trace of the shifted heavy NP? The structure which contains the unbound trace as in (28c) should be ruled out by the Proper Binding Condition (PBC), demanding that traces must be bound (cf. Fiengo (1977)). As for the remnant movement, however, Müller (1996) argues that the PBC is not a correct generalization and that movement of some category from which some other movement has already applied is possible in German, if the remnant category undergoes a distinct kind of movement operation from the one that the antecedent of the trace undergoes. Müller calls this constraint on remnant movement Unambiguous Domination. Unlike the PBC, Unambiguous Domination can correctly predict the well-formedness of the following examples, where remnant categories involving an unbound trace at S-structure like (28c) move to the sentence-initial position.

As illustrated in (29a), it is possible in German to topicalize a remnant category which contains a trace of the scrambled PP that is not bound by its antecedent at S-structure. The same phenomena show up in English sentences (29b, c). Although in (29b), if we assume the VP internal subject hypothesis, the preposed remnant category (here VP) contains the unbound trace of John, the remnant movement of the VP is possible. Also in (29c) the trace of the passivized subject NP within the preposed VP is not bound by its antecedent. Topicalization of the VP is, however, licit. As already mentioned above, remnant movement is possible if the remnant category undergoes a different kind of movement operation from that of the antecedent. Hence, if we assume that HNPS involves two instances of topicalization, we only have to say that these two instances of topicalization are distinct kinds of movement operations.

As previous studies (Gundel (1974), Culicover (1991), Hatakeyama (1998) and so on) have pointed out, these two types of topicalization differ from each other. First, in terms of their pronunciation, it is observed that while topic-topicalized elements have a comma intonation, focus topicalized elements bear focal stress. Second, with respect to their semantic property, fronted elements in Focus-Topicalization function as focus of the sentence, whereas preposed elements in Topic-Topicalization serve as topic, as illustrated in the following sentences.

(32) a. "Which dishes are, on the table, you going to put?" (Culicover 1991: 48)
   b. ?Which dishes are on the TABLE you going to put? (Hatakeyama 1998: 347)
In light of their pronunciation, information structure and island constitution, we assume here that Topic- and Focus-
Topicalizations are distinct kinds of movement operations, and propose that in HNPS constructions Focus-
topicalization of the heavy NP is triggered by [Focus] feature, whereas Topic-Topicalization of the remnant TP takes
place to check [Topic] feature. Thus, movement of the remnant TP in (28c) does not yield the violation of
Unambiguous Domination.5

4. HNPS and Upward Boundedness

In the previous section, we proposed that HNPS involves two types of leftward movement operations: Focus-
Topicalization of the heavy NP and Topic-Topicalization of the remnant TP. However, as is observed in the literature
(Ross (1967)), movement operations traditionally considered to be rightward movements are known to be subject to the
Right Roof Constraint, and fail to be applied across the clause boundary. HNPS, which is analyzed as an instance of
rightward movements in previous studies, is no exception in that it cannot be applied across a sentence boundary.
Therefore, if we analyze the movement of the heavy NP as leftward \( A \)-movement to the position higher than TP as
discussed so far, a problem arises as to why the heavy NP cannot move across a sentence boundary in (34b), whereas
wh-movement, a typical case of leftward \( A \)-movement, can be applied across the boundary as in (33).

(33) What, do you think [that John read \( t_i \)]?
(34) a. It was believed by everyone [that Mary bought \( t_i \) for her mother \( \)HNP an ornate gold ring\( ] \).
(Rochemont and Culicover 1997: 292)
    b. *It was believed [that Mary bought \( t_i \) for her mother] by everyone \( \)HNP an ornate old ring\( ] \).
(ibid.)
The following examples, however, show that this is not always the case: heavy NPs can be extracted from within the
control infinitive in (35a–c) and the subjunctive clause in (36) respectively, across the adverbial modifying the main
clause.

(35) a. I have attempted/hoped/sought [to answer \( t_i \)] for many years \( \)HNP the most difficult questions that
Chomsky presented\( ] \).
(Hirai 2004: 245)
    b. I have demanded [to know \( t_i \)] for many years \( \)HNP exactly what happened to Rosa Luxemburg\( ] \).
(ibid.)
    c. I have expected [to find \( t_i \)] since 1939 –\( \)HNP the treasure said to have been buried on that island\( ] \).
(Postal 1974: 92)
(36) ?She has been requesting [that he return \( t_i \)] ever since last Tuesday \( \)HNP the book that John borrowed
from her just last year\( ] \).
(Kayne 2000: 251)
From this, we have to say that HNPS does not always observe the Right Roof Constraint, which should prevent the
heavy NP from moving out of a clause boundary. However, a grave question still remains: how can we explain the
ungrammaticality of sentence (34b)?

Let us propose that the ungrammaticality of (34b) is not due to a violation of the Right Roof Constraint, but that of
the PIC, proposed by Chomsky (2000, 2001). Chomsky (2000: 108) proposes that every syntactic operation is subject to
the condition in (37) below.

(37) In Phase \( \alpha \) with head H, the domain of H is not accessible to operation outside \( \alpha \), only H and its edge are
accessible to such operations.
Following Chomsky, we assume that vP and CP form phases. But, if CP is split into a number of functional
projections, one might ask which functional projection in (21) can be a phase in the left periphery. Assuming here
that a wh-phrase and a topic-topicalized element in English move to the specifier position of ForceP and TopP
respectively, we propose that ForceP and TopP form phases in the Split CP Hypothesis as described in (38). This is
based on the fact that not only the moved wh-phrases but also the topic-topicalized elements constitute an island, as in
(39a, b) below.
In Split CP, Force Phrase and Topic Phrase form phases.

(38) In Split CP, Force Phrase and Topic Phrase form phases.

(39) a. "What did Bill wonder when John ate?"
    b. "Which books did Lee say that, to Robin, she will give?" (Culicover 1991: 49)

In our analysis, the ill-formed sentences in (39a, b) are explained as follows: in (39a), the wh-phrase when occupies the specifier position of ForceP, which is a phase in (38). At the next higher phase, namely vP in the main clause, the wh-phrase what cannot move to [Spec, vP] from within the complement of ForceP, since the domain of TP is not accessible to syntactic operation as in (40a) below. Thus, in (39a) wh-movement of what yields the violation of PIC. Furthermore, the ill-formed sentence in (39b) is also explained by the violation of PIC. In (39b), the topicalized PP moves to the specifier position of TopP, which forms a phase. At the next higher phase, viz. ForceP, the domain of TP is not accessible to syntactic operation as in (40b). Hence, if the movement operation applies to the wh-phrase within TP, the movement produces the violation of PIC.

(40) a. [vP [v' Bill wonder [ForceP/FinP when [Force'/Fin' Force0/Fin0 [TP John ate what]]]]]
    b. Lee say [ForceP [Force' that [TopP to Robin [Top' Top0 [TP she will give which books]]]]]

Based on the discussion so far, we consider the ungrammatical sentence (34b). As in (41a, b) below, topicalization within the indicative complement is possible. With this in mind, we assume the structure in (42) for the indicative complement, where ForceP and TopP are potential phases.

(41) a. I think that, to Lee, Robin gave a book ti.
    b. It appears that this book, he read ti thoroughly. (Hooper and Thompson 1973: 478)

(42) ... [vP [v' [ForceP Force [TopP [Top' Top [FocP Foc [HNP an ornate gold ring]]]]]]]

With reference to the structure in (42), we look at the derivation of the ungrammatical sentence in (34b), which is repeated as (43a) below.

(43) a. "It was believed [that Mary bought ti for her mother] by everyone [HNP an ornate gold ring]." (Rochemont and Culicover 1997: 292)

b. [ForceP [Force' that [TopP [Top' Top [FocP HNP an ornate gold ring]] [Foc' Foc [TP Mary bought ti for her mother]]]]]

c. [ForceP [Force' that [TopP [TP Mary bought ti for her mother]] [Top' Top [FocP HNP an ornate gold ring]] [Foc' Foc ti]]]

d. [HNP an ornate gold ring] [Force' that [TopP [TP Mary bought ti for her mother]] [Top' Top [FocP ti' [Foc' Foc ti]]]]

After the heavy NP moves to [Spec, FocP] within the indicative complement in (43b), the remnant TP undergoes
Topic-Topicalization, thereby moving to [Spec, TopP] as in (43c). In order to generate (43a), the heavy NP in (43c), which stays in [Spec, FocP], has to move out of the indicative complement to the specifier position of Force Phrase, using it as an escape hatch. But this movement is impossible because the complement of TopP, which forms a phase, is invisible from the head of the next higher phase, ForceP. This means that Force Phrase cannot attract the heavy NP in the specifier position of Focus Phrase. Thus, movement of the heavy NP in (43d) violates the PIC in (37), yielding the ungrammatical sentence.

Next, let us consider the grammatical sentence in (35a), in which the heavy NP can be extracted from the control infinitives. As shown in (44a, b) below, topicalization is impossible within the control infinitives. Bearing this in mind, we propose for the control infinitives the structure (45), in which neither TopP nor FocP is present in the left periphery.

(44) a. “That book, for me to read, ti would be impossible.” (Hooper and Thompson 1973: 484)
   b. “My friends tend the more liberal candidates, to support, t, ti.” (ibid: 485)

(45) ... \[vP \[v \[ForceP/FinP \[Force'/Fin' Force/Fin \[TP to ... HNP ...]]]]

Let us turn to examine the derivation of (35a), repeated here as (46) below.

(46) I have attempted/hoped/sought [to answer ti] for many years [HNP the most difficult questions that Chomsky presented]. (Hirai 2004: 245)

As illustrated in (47a–c), the heavy NP undergoes successive cyclic movement, thereby moving to [Spec, FocP] in the main clause through [Spec, ForceP] within control infinitives and [Spec, vP], and after this movement of the heavy NP, the remnant TP moves to [Spec, TopP] in the main clause as in (47d). Note that Focus-Topicalization of the heavy NP in (47a–c) does not violate the PIC, since TopP, which forms a phase, is not present in this complement. Thus, we can produce the grammatical sentence in (46), where the heavy NP moves across the CP (here, Force Phrase). In other words, the presence or absence of the “Upward Boundedness” effects in HNPS can be explained in our theory in terms of the PIC.

(47) a. \[ForceP/FinP \[HNP the most difficult questions ...], [Force'/FinP Force/Fin \[TP to answer ti]]]
   b. \[vP \[HNP the most difficult questions ...], [v' I attempt \[ForceP/FinP t', \[Force'/FinP Force/Fin \[TP to answer ti]]]
   c. \[FocP \[HNP the most difficult questions], [Foc' \[TP I have been \[vP t", [v' attempted \[ForceP/FinP t', \[Force'/Fin' Force/Fin \[TP to answer ti]]]
   d. \[TopP \[TP I have been \[vP t", [v' attempted \[ForceP/FinP t', \[Force'/Fin' Force/Fin \[TP to answer ti]]], [Top' \[FocP \[HNP the most difficult questions]]]

Given our explanation of the contrast between (34b) and (35a), let us finally consider the derivation of (32), where the heavy NP moves out of the subjunctive clause. As is seen from the following ungrammatical sentences (48a, b), the application of Topicalization to subjunctive clauses is impossible. This shows that, as well as control infinitives, subjunctive clauses do not have the functional projection corresponding to Topic Phrase within its CP domain, as in (49).

(48) a. “The senator proposed that the troops, ti, be withdrawn, ti immediately.” (Hooper and Thompson 1973: 485)
   b. “It’s important that the book, he study, t, ti carefully.” (ibid.)

(49) ... \[vP \[v \[ForceP/FinP \[Force'/Fin' Force/Fin \[TP ... HNP ...]]]]

Based on the structure of CP domain illustrated in (49), the derivation of the sentence (50a) below should proceed as follows. First, since there is no Focus Phrase to land in the embedded clause, the heavy NP moves to the specifier position of Focus Phrase in the main clause through [Spec, ForceP] in the embedded subjunctive clause and [Spec, vP] in the main clause. After Focus-Topicalization of the heavy NP, the remnant TP moves to the specifier position of the matrix Topic Phrase, as in (50e). In short, Focus-Topicalization of the heavy NP out of subjunctive clauses does not violate the PIC for the same reasons as the extraction of the heavy NP out of control infinitives observed in (47a–c). This is why (50a) is well-formed.
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(50) a. She has been requesting that he return the book that John borrowed from her just last year. (Kayne 2000: 251)

b. \[FocP \[HNP the book \ldots \]\[Force TP he return t\ldots]]

c. \[vP \[HNP the book \ldots \]\[\[c' she request \[Force t\ldots \]\[Force TP he return t\ldots]]\]

d. \[FocP \[HNP the book \ldots \]\[\[Foc t\ldots \]\[\[v' she has \[vP t\ldots \]\[\[c' request \[Force t\ldots \]\[Force TP he return t\ldots]]\]

e. \[TopP \[TP she has been \[vP t\ldots \]\[\[v' request \[Force t\ldots \]\[Force TP he return t\ldots]]\]\[\[Top t\ldots \]\[\[FocP \[HNP the book \ldots \]]\]

In this section, we have seen that the ungrammatical sentences involving HNPS that were analyzed as a violation of Ross’ Right Roof Constraint can now be explained in terms of the violation of the PIC, which is a general condition on leftward movement operations. Moreover, we have argued that extractions of the heavy NP from infinitives and subjunctives are possible, because these complements do not have Topic Phrase in the CP layer, which serves as a phase, and the PIC violation can be circumvented.

5. Some Remaining Problems for the Analysis of HNPS Constructions

In this section, we will address some problems concerning our analysis of HNPS constructions discussed so far. In section 5.1, we will present two pieces of evidence which show that the heavy NP cannot move over the TP projection, adding some explanations to these examples. In section 5.2, we will introduce a set of examples which appear to indicate that the movement of the focalized NP can be considered to be A-movement, not A-movement.

5.1 HNPS across IP-Adverbs and Subject-Oriented Predicates

In section 2, we have claimed that movement of the heavy NP targets [Spec, FocP] in the CP layer. However, there are some pieces of evidence which show that it is impossible to move the heavy NP to the functional projection higher than TP. These are illustrated in the following examples.

(51) a. *Eleanor bought apparently [HNP brand new drapes for the whole house]. (Johnson 1985: 85)

b. *Vern left t, angry [HNP that store where service is so slow]. (ibid.)

In (51a), the heavy NP moves rightward across the TP-(IP-)adverb apparently to the sentence-final position. In (51b), the NP undergoes the movement operation of HNPS to the sentence-final position over angry, which is the TP-adjoined secondary predicate of the subject Vern. The above examples pose a problem for our analysis, because they show that the heavy NP occupies a position lower than TP.

However, it is possible to argue that (51a) is ill-formed, because the TP-adverb, here apparently, cannot occupy the sentence-final position irrespective of whether the movement operation of HNPS applies or not: TP-adverbs like evidently and apparently, which are analyzed as members of epistemic adverbs, cannot sit in the sentence-final position, as is confirmed by the example in (52b) below.

(52) a. The theory is evidently/apparently unrelated to the one proposed by Gunter. (Ernst 1984: 63)

b. *She did it very evidently/apparently.

Note that apparently in (51a) must have occupied the sentence-final position before the movement operation of the heavy NP is applied. Given this, we suspect that the example in (51a) is ungrammatical, even if the heavy NP does not move, because the adverb apparently cannot occupy the sentence-final position as shown in the first place. If such an argument is on the right track, then the ungrammaticality of (51a) does not bring up a problem for our analysis.

Next, we consider (51b), which shows that the direct object cannot move to the sentence-final position across the subject-oriented secondary predicate angry. As illustrated in (53c) below, however, it is possible to move the heavy NP across a subject-oriented secondary predicate.
(53) a. Mary entered the room fully clothed. (Culicover 2000: 12)
   b. *Mary entered fully clothed the room. (ibid.)
   c. Mary entered fully clothed the room across the hall. (ibid.)

The well-formedness of (53c) shows that it is not always the case that HNPS cannot apply across a subject-oriented secondary predicate. Although it remains unclear why a heavy NP can cross some subject-oriented secondary predicates, but not others, we assume from the example in (53c) that the ungrammatical sentence in (51b) cannot be considered to be the evidence which shows that the heavy NP cannot be extracted from within the closest TP.

5.2 The A-movement Analysis of HNPS

Another potential problem for our analysis of HNPS is illustrated in (54a, b) below. In (54a) the c-commanding of the anaphor in a PP which occupies the matrix VP-adjoined position is impossible from the object position in infinitives. Since the heavy NP, located in-situ, does not c-command the anaphor in the matrix adjunct position, (54a) is excluded as the violation of the Binding Condition (A).

(54) a. *Mary wanted PRO to meet [\[\text{HNP} \text{the men who had been accused of the crime}\] until each other's trials. (Murasugi and Saito 1995: 310)
   b. ?Mary wanted PRO to meet until each other's trials [\[\text{HNP} \text{the men who had been accused of the crime}\]. (ibid.)

On the other hand, in (54b) the shifted NP c-commands the anaphor in the matrix VP-adjoined position. This means that the c-command relation can be established between the NP and the anaphor. Since (54b) satisfies the Binding Condition (A), it turns out almost perfectly acceptable. Based on the contrast in (54a, b), Takano (2003) argues that, when HNPS is applied to the object NP in non-finite clauses, the heavy NP moves to an A-position which is higher than the matrix VP-adjoined position.

If we follow the leftward movement analysis proposed by Rochemont and Culicover (1997), Kayne (2000), Jayaseelan (2001) and so on, we can account for the fact of binding in (50a, b) by using the derivation illustrated in (55a–c) below.

(55) a. … wanted to meet the men who … of the crime until each other’s trial.
   b. … [\[\text{HNP} \text{the men who … of the crime}\] H\(^0\) wanted to meet \(t_i\) until each other’s trials.
   c. … [\[\text{HNP} \text{the men who … of the crime}\] \(t_i\) until each other’s trials\]k \(H^0_j+W [\[\text{HNP} \text{the men who … of the crime}\] t_j t_k

In (55b), the shifted NP moves to the specifier position of a functional projection HP in the matrix clause. Suppose that [Spec, HP], the landing site of the HNPS, is an A-position. Then, the shifted NP, which occupies the A-position, c-commands the trace of the moved remnant categories, and hence the intended binding is established through the reconstruction (Takano (2003)).

The fact of the binding illustrated above shows that the movement of the heavy NP appears to have the property of the nature of A-movement, not A-movement. Therefore, the fact in (54a, b) appears to undermine our theory. However, it can be captured in our approach as follows. Recall that infinitives do not have Topic Phrase and Focus Phrase in the CP domain. Hence, we do not exclude the possibility that the movement of the heavy NP stops by an A-position before it reaches the specifier position of the matrix Focus Phrase, which is an A-position. From this, we suggest that in our approach the derivation of (54b) proceeds as in (56b–d) below.

(56) a. *Mary wanted PRO to meet until each other’s trials [\[\text{HNP} \text{the man who had been accused of the crime}\].

First, as in (56b), the heavy NP moves over the sentence boundary to the specifier position of HP, namely A-position, which enables the shifted NP to c-command the anaphor in PP. Thereafter, the heavy NP moves to the A-position of the
matrix Focus Phrase in (56c). After the application of Focus-Topicalization of the NP, the remnant TP undergoes Topic-Topicalization, thereby moving to the specifier position of Topic Phrase in (56d). In (56b–d), we are claiming that, before it reaches [Spec, FocP], the heavy NP occupies [Spec, HP], which we assume is a matrix A-position. Hence, our analysis can capture the well-formedness of (54b), and we can maintain the analysis of HNPS as A-movement discussed in section 2.8.9

6. Some Consequences

6.1 Why Topic Phrase Forms Phase

In section 4, we argued that Focus-Topicalization of the heavy NP over a sentence boundary in non-finite clauses is possible, since non-finite clauses do not have the functional projection called Topic Phrase, which constitute a phase in the CP layer. However, a question arises as to why, in the split CP hypothesis, Topic Phrase must form a phase in addition to Force Phrase? Chomsky (2000: 106) suggests that the phases are “propositional”: verbal phrases with full argument and CP with force indicators. Since ForceP in Rizzi (1997) corresponds to the CP in Chomsky (2000), it is natural to think that, in the split CP hypothesis, Force Phrase is a phase. However, it remains unsolved why Topic Phrase constitutes a phase in the CP layer.

Now let us claim, unlike Chomsky, that the phases are “predicational”: in each domain of the phases a predication relation is established. For example, in (57a) below the predication relation holds between the Agent external argument John and the predicate hit Mary. Thus, vP is predicational. Furthermore, we can find a similar kind of predication relation between who and she saw in (57b) which is called A-predication (cf. Williams (1994)). Thus, CP(ForceP) can also be predicational. Similarly, this A-predication is also observed between the topicalized element John and the rest of the clause he called in (57c), which is paraphrased as as for John he called him. In this case, the relevant predication relation appears to be the Topic-Comment relation.

(57) a. John hit Mary.
   b. John met the man who she saw.
   c. John, he called.

So, in terms of the predication relation, we can conclude that vP, CP(ForceP) and TopP are phases.

Given the analysis of TopP as phases, we argue that the ungrammatical sentences which were considered to be a violation of the Right Roof Constraint specifically on the rightward movements can be reduced to a violation of the PIC on every movement operation.

6.2 HNPS and the Parametric Differences between VO and OV Languages

Thus far, we have analyzed HNPS constructions in English as those which involve two types of Topicalizations. However, we have not discussed the nature of the movement of the heavy NP and why this movement phenomenon can be found in English, but not, for example, in Japanese. In this subsection, we add a brief comment on the issue.

Fukui (1993) argues that HNPS can be analyzed as a different variety of the optional leftward movement operation called Scrambling, which is observed in OV languages, such as Japanese. For example, by proposing the Parameter Value Preservation (PVP) measure, Fukui suggests that applications of the leftward movement operation of scrambling in Japanese, which is a head-final language, and the rightward movement of HNPS in English, which is a head-initial languages, can be analyzed as costless, because the structures resulting from the application of HNPS and scrambling in the two types of languages are consistent with the value of the head parameter in each language. Put another way, the application of leftward movement operations in English, such as wh-movement, Topicalization and so on, cannot apply freely, since the direction of the movements is to the side opposite from the value set by the head parameter. For these reasons, in terms of the PVP, Fukui explains the optionality of HNPS in English, and the lack of rightward movement in Japanese corresponding to HNPS in English.

However, as Kayne (2003) points out, not all VO languages have the movement operation called HNPS. For example, Haitian, Bambra and Chinese do not have HNPS. This fact cannot be explained by Fukui’s PVP, since the PVP wrongly predicts that the above VO languages should have HNPS, like English. Thus, at this point, it is unclear whether HNPS in English is really costless, as Fukui argues. On the other hand, if our proposal is on the right track, HNPS is no longer a cost-free movement to the right but a feature-driven movement to the left, and hence it is possible to argue that HNPS in English is an obligatory movement. We suspect that the reason why VO languages, such as Haitian, Bambra and Chinese, do not have HNPS is (i) these languages do not have a functional projection which hosts the focalized element, namely Focus Phrase or (ii) they do not have the remnant movement of topicalized elements subsequent to Focus-Topicalization.

The question whether HNPS in English is an obligatory movement also involves the issue of whether OV languages, such as Japanese, do not have the movement operation referred to as HNPS. We suggest that Japanese does have HNPS which we were claiming to involve two types of leftward movements: Topic- and Focus-Topicalizations. This is illustrated in the following examples.
The examples in (58a, b) are so-called cleft constructions in which the presuppositional clause is followed by a focalized element and a copular verb da. In each sentence, the NP, kono-hon in (58a) or ringo in (58b), is focalized and the presupposition clause with the complementizer no is topicalized. This construction can be analyzed as involving the same kind of two types of movement operation as the HNPS construction in English, namely Focus-Topicalization of the clefted element and Topic-Topicalization of the presuppositional clause. For example, Hiraiwa and Ishihara (2002) argue that the underlying structure for Japanese cleft sentence is the No da in-situ construction in (59) below and that the former is derived from the latter via two types of distinct movement operations. Following the articulated CP structure in Rizzi (1997), Hiraiwa and Ishihara propose the following derivation for the Japanese cleft construction in (60a).

(59) Taro-ga Hanako-o tataita no da.
Taro-NOM Hanako-ACC hit C COP
“It is that Taro hit Mary.”

(60) a. Taro-ga tataita no wa Hanko-o da.
Taro-NOM hit C TOP Hanako-ACC COP
“It is Hanako whom Taro hit.”

b. FocP
    Hanako-0, Foc’
    FinP Foc0
      TP Fin0 da
      Taro-ga tataita no

c. TopP
    FinPj FocP Top0
      Taro-ga tataita no wa
    Hanako-o, Foc’
      tj Foc0 da

Putting aside their detailed explanations, we can see that in (60b) the element in the focus position of Japanese clefts undergoes focalization, thereby moving to the specifier position of Focus Phrase, which is headed by the focus marker da. After the movement of the focal element, as illustrated in (60c), the remnant categories (here, FinP) which contain the trace of the focal element subsequently undergo topicalization, occupying the specifier position of TopP. The fact that the topic marker wa is attached to the presuppositional clause may provide morphological evidence that the FinP is moved to the specifier position of Topic Phrase. From this, we can say that, in a broad sense, Japanese cleft sentences correspond to English HNPS constructions in that both constructions are analyzed as having a combination of Topic- and Focus-Topicalizations.
7. Conclusion

In this article, we have argued that HNPS constructions in English involve Focus-Topicalization of the heavy NP and Topic-Topicalization of the remnant TP, based on some similarities between HNPS and Focus-Topicalization in the language. Moreover, we reduced the Right Roof Constraint on movement of the heavy NP to a more generalized condition on movement, that is, the PIC, by proposing that Force Phrase and Topic Phrase form phases in the left periphery. This proposal was supported by the fact that whether HNPS can apply across a clause boundary or not correlates with the possibility of topicalization within the embedded clauses.

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Notes

1 In all the examples below, capital letters stand for focal stress on the phrases.
2 The functions of these two types of foci are given below.

(i) Identificational focus

An identificational focus represents a subset of the set of contextually or situationally given elements for which the predicate phrase can potentially hold; it is identified as the exhaustive subset of this set for which the predicate phrase actually holds. (Kiss 1998: 245)

(ii) Information focus

If a sentence part conveys new or nonpresupposed information marked by one or more pitch accents—without expressing exhaustive identification performed on a set of contextually or situationally given entities, it is not identificational focus but a mere information focus. (ibid. 246)

According to Kiss’ definition of identificational focus, the element called identificational focus represents the value of the variable bound by an abstract operator expressing exhaustive identification, and syntactically acts as an operator, moving into a scope position in the specifier of a functional projection and binding a variable. Moreover, Kiss suggests that the English realization of identificational focus is the cleft constituent. As for information focus, Kiss proposes that it conveys new information and involves no syntactic ordering.

Some scholars do not regard examples such as (16a, b) as an instance of parasitic gaps licensed by HNPS. For example, Nakamura (1993), and Postal (1994), among others, argue that HNPS constructions as in (16a, b) are instances of Right Node Raising (henceforth, RNR), illustrated below.

(iii) a. Who did John notice, by not recognizing [e], [a picture of t_i]? b. Who does Mary buy, and Bill sell, [a picture of t_i]?

As shown in (iiia, b), the extraction of the wh-phrase from the direct object NP is possible, whereas wh-movement out of the shifted NP is impossible. Given this, consider (iiia, b). In the HNPS construction with parasitic gaps, it is impossible to extract the wh-phrase as in (iiia), though as in (iiib) the extraction of wh-phrase from the NP does not yield ill-formedness in the sentence with RNR. This shows that the heavy NP occupies the different structural position from the NP in RNR and that HNPS constructions with parasitic gaps cannot be analyzed as RNR.

4 As a constraint on remnant movement, Müller proposes the following principle.

(i) Unambiguous Domination

An α-trace must not be α-dominated.

Here ‘α-trace’ means ‘trace with a (not necessarily c-commanding) antecedent in a position of type α,’ and that ‘α-dominated’ means ‘dominated by a category in a position of type α’ (Müller 1993: 375–376). For further discussion of remnant movements, see Müller (1993).

5 One might wonder why HNPS constructions involve topic-topicalization of TP, whereas Focus-Topicalization constructions do not. On this point, we assume that topic-topicalization occurs in HNPS constructions in order to ease sentence processing (cf. Hawkins (1990): the principle of Early Immediate Constituents). Since the preposing of a long
NP involving some modifiers decreases the efficiency of sentence processing, the remnant parts carrying old information undergo topic-topicalization in HNPS constructions. On the other hand, since the focus-topicalized elements are relatively shorter than the shifted heavy NPs, the preposed element in Focus-Topicalization constructions does not affect sentence processing. Therefore, topic-topicalization of the remnant parts does not take place in Focus-Topicalization constructions.

In (40a), there is no focalized or topicalized element. In this case, Rizzi suggests that the head of FinP is syncretized with that of ForceP and that ForceP and FinP constitute a single functional projection ForceP/FinP, which is correspond to the CP in the traditional sense.

One might think that it is too hasty to draw this conclusion. Note that the verb *enter* in (49a–c) can be analyzed as unaccusative verbs. It is known that in Italian unaccusative verbs in the past tense co-occur with the auxiliary verb *be*, but unergative verbs in the past tense require the auxiliary verb *have*, as pointed out in the previous studies. This is illustrated in the following examples.

(i) a. Ugo ha corso meglio ieri.
   Ugo has run better yesterday
   “Ugo ran better yesterday.”
   (Kageyama 1996: 34–35)
   b. Ugo è corso a casa.
   Ugo is run to home
   “Ugo ran home.”

The above Italian examples show that, when the verb *enter* in (49c) contains the Goal-argument, the verb is not a transitive verb with an external argument but a dyadic unaccusative verb, like the verb *arrive in* *John arrived at the station*. Thus, the secondary predicate in (49c), which modifies the internal argument, is not considered to be adjoined to TP. This analysis of the transitive verb *enter* as a dyadic unaccusative verb attracts our great interest, but, at this point, no satisfactory explanation for the phenomena has yet been discovered. Therefore, we leave this problem for future research.

An anonymous reviewer points out how we can explain why HNPS cannot apply to subjects as in (ia), whereas leftward A-movements can as in (ib).

(i) a. *We believe t₁ has good judgment [everyone who took the time to analyze this phenomenon].
   (Lasnik and Saito 1992: 112)
   b. Who do you think that t₁ left.

However, not all the leftward movements can apply to subjects. As pointed out in Lasnik and Saito (1992), it is impossible to topicalize the subjects clause-internally in English.

(ii) a. *John, t left.
   b. *John thinks that Bill, t likes Mary.

From this, one possible solution to the asymmetry in (ia, b) is to claim that (ia) is ill-formed for the same reasons as (iia–b), since it involves local movement of subjects corresponding to local topicalization in (iia, b) above.

However, as in (iii) below, we can find a focus-construction in English which is analyzed as involving local focalization of the subject.

(iii) It was John [CP that t₁ loved Mary].

Let us assume that too short a movement is prohibited and that the focused element *John* in (iii) moves to a post-verbal position in the main clause from within the embedded clause. In (iii), the focal element moves from [Spec. TP] in the embedded clause to the post-verbal position in the main clause over the clause boundary. Thus, the movement of the focal subject is not too short. In short, we conclude that (ia) is excluded, since it involves too short a focus movement of the subject NP.

Another problem which concerns our analysis is illustrated in (ia) below, where the heavy NP cannot be extracted out of PP, contrary to other kinds of leftward A-movements, such as wh-movement, as in (ib).

(i) a. *Mary put the money on t₁ yesterday [a table that was sitting at the entrance to the hall].
   b. Which table, did Mary put the money on t₁ yesterday?

The ill-formedness of (ia) cannot be accounted for in our analysis, since we wrongly predict that HNPS from within PP should be possible, if the leftward movement, here wh-movement, out of PP does not yield ungrammaticality.

However, in some cases, it is possible to extract the heavy NP from PP. Consider the following examples.

(ii) a. ?We slept in t₁ when we were in Connecticut [a marvelous bed that had belonged to George Washington].
   (Rochemont and Culicover 1990: 191)
   b. ?We looked at t₁ last night [a wonderful film about New York that had been made during the Depression].
   (ibid.)
In (iia, b), the prepositions are restructured under V, so that it is assumed that the focal NPs are not shifted out of PP. Note here that the object NP in (iia, b) can undergo passivization as in (iii a, b), whereas that in (ia) cannot as in (iiic).

(iii) a. The bed was slept in by the children.
   b. The baby was looked at by her.
   c. *The table was put the mouse on.

From the examples in (iii a–c), it is possible to say that in our analysis the object NP in (iia, b) moves to \[Spec, FocP\] in the CP layer via an A-position, whereas the NP in (iia) does not stop by the A-position. Since the heavy NP does not involve A-movement, (ia) becomes ungrammatical, unlike (iia, b). Thus, we can maintain our analysis in section 5.2, which proposes that the heavy NPs move to \[Spec, FocP\] through an A position.


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