Heavy NP Shift in English and the Copy Theory of Movement:
The Leftward A-movement and the Pronunciation of the Lower Copy[*]

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1. Introduction

It is widely accepted that English exhibits a relatively strict word order. In a prepositional dative construction (henceforth, PDC) like (1), for example, the Theme DP must precede the Goal PP, as exemplified by the following:

(1)　a.　John sent [money] to his mother.
　　　b. * John sent to his mother [money].

(McCawley (1988: 511))

There are, however, some cases where the Theme DP can be shifted across the Goal PP to sentence-final position, as shown in (2):

(2)　John sent to his mother [the money you had wanted him to give to us].

(McCawley (1988: 511))

To explain this phenomenon, which is referred to as Heavy NP Shift (HNPS), it has been argued since Ross (1967) that the shifted DP undergoes rightward movement (cf. Rochemont (1992), Nishihara (2005), etc.). In this paper, I show that Nishihara's analysis raises some theoretical and empirical problems, attempting to propose a new analysis of HNPS without such an ad hoc assumption as that introduced in the previous approaches. In particular, adopting the copy theory of movement (Chomsky (1995)), I argue that HNPS consists of both the leftward A-movement of the shifted DP and the pronunciation of the lower copy; that is, in the HNPS version of the PDC exemplified in (2), the shifted Theme DP, like the non-shifted DP in (1a), undergoes A-movement to the Spec of AspP at narrow syntax (cf. Hiraiwa (2005)), followed by the pronunciation of the lower copy in its original position at PF due to the status of the DP as a focused XP (cf. Takano (1996, 1998), Mikami (2010)). Furthermore, I show that the proposed analysis can give a principled explanation for the inapplicability of HNPS to the indirect object DP in the Double Object Construction (DOC). This achieves higher empirical coverage

as well as resolving the kind of theoretical problem raised by previous approaches such as Fukuchi (1977), thereby proving the validity of the copy theory of movement.

The organization of this paper is as follows. Section 2 presents some properties to be captured. Section 3 briefly reviews Nishihara (2005), which argues that the shifted DP undergoes rightward A'-movement to the $v*$P domain for focus-feature checking; then, it shows that the analysis is problematic both theoretically and empirically. Section 4 proposes an alternative analysis under the copy theory of movement and verifies its validity. Section 5 shows that the proposed analysis can properly capture the fact that HNPS cannot be applied to the indirect object DP in the DOC, confirming the copy theory of movement. Section 6 offers some concluding remarks.

2. Basic Properties of HNPS

In this section, I point out some basic properties that any adequate analysis of HNPS must capture.

2.1. The Shifted DP as a Focused XP

As its name indicates, HNPS is applied only if the shifted DP is 'heavy.' However, the notion of the heaviness is unclear and thus a lot of attempts have been made to define it. Ross (1967), for example, proposes the rule of complex NP shift, arguing that the heaviness of the DP is determined structurally on the basis of whether or not the DP dominates a clause, as shown in the following contrast:

(3)   a. * He threw into the wastebasket [$_{DP}$ the letter].
      b.   He threw into the wastebasket [$_{DP}$ the letter [$_{CP}$ which he had not decoded]].

(Ross (1986: 34))

But, as pointed out by many researchers like Postal (1974) and Rochemont (1978), there are a lot of counterexamples:

(4)   a.   I gave to Harry {all the sheep/ the whole sheep}.   (Postal (1974: 83))
      b.   John wants to give to Mary a gift of inestimable value.

(Rochemont (1978: 33))

In these examples of the PDC, the Theme DP can be shifted to sentence-final position although it does not dominate a clause. Taking these examples into

consideration, Rochemont (1978) argues that the heaviness is not determined structurally and the definition of the notion is based on pragmatic functions such as focalization; that is, this type of shift is applied only to a focused XP (cf. Rochemont and Culicover (1990)).

This status of the shifted DP is further supported by the appropriate paraphrase into the cleft sentence: In an HNPS sentence, only the shifted DP can occupy the so-called "focus position," as in (5):

(5) a. John wants to give to Mary a gift of inestimable value.   (= (4b))
     b. It's a gift of inestimable value that John wants to give to Mary.
     c. # It's Mary that John wants to give a gift of inestimable value.

<div align="right">(Rochemont (1978: 33))</div>

In (5b), which is an appropriate paraphrase of (5a), the focus position in the cleft sentence is filled by the shifted DP *a gift of inestimable value*. In (5c), on the other hand, the indirect object DP *Mary* occupies the focus position; according to Rochemont (1978), however, the sentence is not an appropriate paraphrase of (5a). This contrast, thus, suggests that the shifted DP in an HNPS sentence can be interpreted as a focused XP.[1]

2.2. *The Local Application of HNPS*

HNPS obeys strict locality. First of all, consider the following sentences:

(6) a. [CP That John sent to his mother [DP the money you wanted him to give to us]] is understandable.
     b. * [CP That John sent to his mother] is understandable [DP the money you wanted him to give to us].

<div align="right">(McCawley (1988: 510-511))</div>

In (6a), the Theme DP in the PDC is shifted rightward within the embedded CP; in (6b), the DP cannot move to sentence-final position across the CP. This ungrammaticality is due to a violation of the Right Roof Constraint (RRC), which prohibits an element from moving rightward out of the clause in which it originates (cf. Ross (1967)). Thus, this contrast suggests that the application of HNPS is

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[1] According to Rochemont (1978), in an HNPS sentence, sentence stress is usually assigned to the shifted DP. Because this type of stress is generally assumed to fall on the element that serves as the focus of the sentence, this fact also suggests that the shifted DP functions as a focused XP.

bound clause-internally.

Furthermore, the shifted DP in an HNPS sentence must occupy the VP-internal position. This is argued for based on the following examples of VP-preposing, which is a widely accepted criterion for VP constituency:

(7) a. I said I would give to John everything that he demanded and give to John everything that he demanded I will.

   b. * I said I would give to John everything that he demanded and give to John I will everything that he demanded.

(Nishihara (2005: 13-14))

When this preposing is applied to an HNPS sentence, the fronted VP constituent must contain the shifted DP, as in (7a). If the shifted DP is stranded, the sentence becomes ungrammatical, as in (7b). Therefore, this also suggests that HNPS is applied locally.[2]

2.3. 'Apparent' A'-properties of the Shifted DP

In an HNPS sentence, the shifted DP appears to exhibit A'-properties. This is indicated by several pieces of evidence.

The first evidence concerns the formation of an 'island,' a certain syntactic configuration that resists extraction, such as *wh*-movement. In an HNPS sentence, the *wh*-element cannot be extracted out of the shifted DP, as in (8):

(8) * [How many of the children]$_i$ did Fred send to the School Board [$_{DP}$ accurate reports on t_i]?   (Culicover and Wexler (1977: 21))

(9) ?* Which book$_i$ did John go to class [after he read t_i]?

In (8), the *wh*-phrase *how many of the children* cannot undergo overt *wh*-movement from within the shifted DP. As is well known, this behavior is also observed in the case of extraction from adjunct clauses, as shown in (9). To explain the ungrammaticality of (9), Huang (1982) proposes the Condition on Extraction

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[2] The local application of HNPS is further supported by the behavior of the shifted DP with respect to VP deletion, as shown in (i):

(i) John gave to Mary a picture of Lyndon Johnson, and Bill did too.

(Rochemont and Culicover (1990: 118))

In the second conjunct in (i), this deletion must eliminate all the elements within the VP domain, including the shifted DP in an HNPS sentence. Thus, this also means that the shifted DP remains within the VP domain without any further movement.

Domain (CED), which bans movement out of noncomplements like adjuncts. Given this, the ungrammaticality of (8) suggests that the shifted DP occupies the adjunct position, an A'-position.

The second evidence stems from the licensing of parasitic gaps (PG) in English. In an HNPS sentence, the shifted DP can license PGs, as in (10):

(10) John put t_i on the table without reading pg_i [DP a recent article about global warming]$_i$.
<div align="right">(Nissenbaum (2000: 46))</div>

In (10), where the Theme DP is shifted to sentence-final position via HNPS, the PG in the adjunct clause is properly licensed. As the following contrast from Engdahl (1983) illustrates, PGs are licensed by A'-chains but not A-chains:

(11) a. Which articles$_i$ did John file t_i [without reading pg_i]?
    b. * John$_i$ was killed t_i [by a tree falling on pg_i].
<div align="right">(Engdahl (1983: 5, 13))</div>

In (11a), the *wh*-object *which book* undergoes overt *wh*-movement to the Spec of CP, and the A'-chain created by this movement licenses the PG. In (11b), by contrast, the chain formed by the passivization of the object DP cannot license the PG, because the chain is an A-chain. Thus, the grammaticality of (10) suggests that the movement involved in HNPS is A'-movement; that is, the shifted DP bears A'-properties.

The third evidence comes from the licensing of a negative polarity item (NPI). In an HNPS sentence, the negative element in the shifted DP cannot license an NPI, as shown in (12):

(12) * I showed to anyone [none of the pictures of John's mother].
<div align="right">(Nishihara (2005: 32))</div>

(13) a. None of the students walked into any of the classrooms.
    b. * Into none of the classrooms any of the students walked.
<div align="right">(Nishihara (1999: 389-390))</div>

In the example of the PDC in (12), the negative element *none* appears in the shifted Theme DP, but it cannot license the NPI in the Goal PP. This behavior is also found in cases that involve A'-movement rather than A-movement: In (13a), the negative element contained in the subject DP, which undergoes A-movement to the Spec of TP, licenses the NPI in the Location PP, while in (13b), the negative element
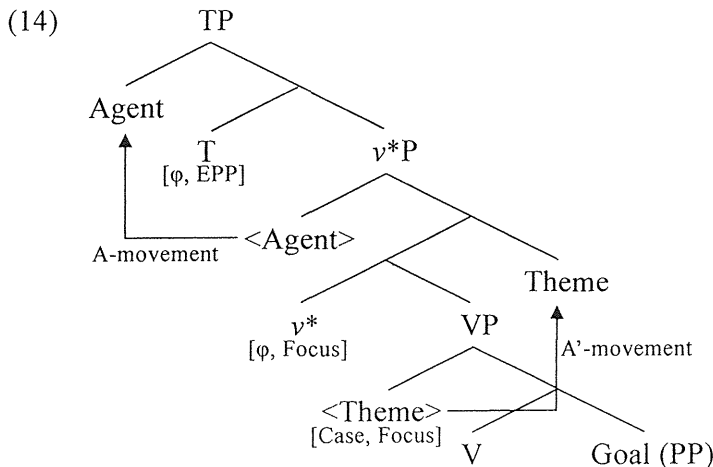
in the topicalized Location PP, which occupies the sentence-initial position via A'-movement, cannot license the NPI in the subject DP. This similarity between HNPS and Topicalization appears to suggest that the shifted DP in an HNPS sentence undergoes A'-movement in the derivation.

3. A Previous Approach: Nishihara (2005)

To capture the properties of HNPS discussed in section 2, Nishihara (2005) assumes the rightward A'-movement of the shifted DP. In this section, I briefly review his analysis and point out that the analysis raises both theoretical and empirical problems.

3.1. A Rightward A'-movement Analysis

In introducing the derivation of an HNPS sentence, Nishihara (2005) assumes that both v and T have a strong focus feature and the feature is checked by the right-adjunction of a focused XP.[3] Based on this assumption, he proposes that the derivation of the HNPS version of the PDC exemplified in (2) converges as follows. A Theme DP and a Location PP are base-generated in the Spec and the Comp of VP, respectively. As soon as V-to-v^* raising takes place, the strong focus feature on v^* triggers the right-adjunction of the Theme DP for feature checking, because the DP bears the matching feature. Then, when an Agent DP is introduced by Merge, the DP undergoes A-movement from the Spec of v^*P to the Spec of TP for the EPP on T. This derivation is schematized below:

(14)

In this structure, the shifted DP undergoes rightward A'-movement to the $v*$P domain to check the strong focus feature; consequently, the 'apparent' A'-properties of the DP can be properly captured, as well as the status of the DP as a focused XP.

3.2. Counterarguments
3.2.1. Theoretical Inadequacy

First of all, one can question whether or not the rightward movement for the checking of focus feature, which Nishihara (2005) assumes is essential for the derivation of an HNPS sentence, satisfies a conceptual necessity.[4] Given the general assumption that all types of movement in English are leftward movement, this type of movement is considered to be a marked option, and thus, it is necessary to answer why such a movement is permitted only in an HNPS sentence. However, Nishihara does not mention the nature of the movement at all. Therefore, the movement does not satisfy the conceptual requirement and is viewed merely as a notion that is introduced to explain only the properties of the sentence; that is, such a conceptually inadequate notion should be eliminated if a principled answer for the question is not provided and the empirical consequences can also be explained in some other way.

The second problem comes from the possibility of successive-cyclic application: As confirmed in 2.2, HNPS is applied locally; that is, the shifted DP cannot undergo rightward movement successive-cyclically:

(15) * [$_{CP}$ That John sent to his mother] is understandable [$_{DP}$ the money you wanted him to give to us].   (= (6b))

As is well known, however, this is not a general property of A'-movement: In contrast with HNPS, Topicalization does not exhibit such a restriction on its application, as in (16).

(16)   [This book$_i$], I think [$_{CP}$ that t_i you should read t_i].

(Lasnik and Saito (1992: 80))

In (16), the embedded object DP *this book* undergoes successive-cyclic A'-movement into the main clause through the embedded CP domain. If

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[4] As is well known, the Minimalist approach (Chomsky (1995, 2000, 2001, etc.)) explores the thesis that human language may be a system that is optimally designed to meet certain interface conditions imposed by other cognitive systems with which the language faculty interfaces: Consequently, when any additional assumptions are introduced to Universal Grammar, they must bear not only an empirical burden of proof but also a theoretical one.

Topicalization is also analyzed as A'-movement that is triggered for the checking of topic feature, there arises a reasonable question here: Why is there a difference in the possibility of successive-cyclic application between the two operations? But Nishihara (2005) does not give a principled explanation for the question.

3.2.2. *Empirical Inadequacy*

In addition to the theoretical problems, Nishihara's (2005) analysis has empirical ones as well. More precisely, the evidence he provides does not necessarily strongly support the analysis that the shifted DP in an HNPS sentence undergoes rightward A'-movement. The first problem concerns an island effect in HNPS. In an HNPS sentence, as observed in (8), the *wh*-element cannot be extracted out of the shifted DP, repeated here as (17):

(17) * [How many of the children]$_i$ did Fred send to the School Board [$_{DP}$ accurate reports on t_i]?

Nishihara (2005) argues on the basis of the similarity with noncomplements (cf. (9)) that the shifted DP occupies an A'-position; that is, the derivation of an HNPS sentence involves rightward A'-movement. However, as observed in Lasnik and Saito (1992), it is not necessarily impossible to be extracted out of constituents in A'-positions:

(18) a. ?? Who$_i$ do you think that [pictures of t_i]$_j$, John wanted t_j?
      b. ?? Who$_i$ do you wonder [which pictures of t_i]$_j$ Mary bought t_j?

(Lasnik and Saito (1992: 101-102))

In these examples, the *wh*-element *who* is extracted out of the topicalized element and the *wh*-element in the embedded clause, respectively.[5] Given that both Topicalization and *wh*-movement are also A'-movement that is triggered for the checking of a certain feature, Nishihara (2005) must give an adequate answer to

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[5] The extraction out of A'-position is not perfectly acceptable, but marginal, as indicated by a double question mark. According to Lasnik and Saito (1992), the marginality of (18a, b) is due to a weak Subjacency violation. However, the acceptability of the sentences is clearly better than that of the following sentence:

(i) ?* Who$_i$ do you think that [pictures of t_i] are on sale?   (Lasnik and Saito (1992: 101))

This sentence involves the extraction of the *wh*-element from the embedded subject DP, and it is quite ungrammatical. For further details of their account of the asymmetry in acceptability between (18a, b) and (i), see Lasnik and Saito (1992).

what makes a difference between HNPS and the other A'-movement phenomena.

The second problem stems from the licensing of PGs. In an HNPS sentence, the shifted DP can license PGs, as confirmed in (10), repeated here as (19):

(19) John put t_i on the table without reading pg_i [$_{DP}$ a recent article about global warming]$_i$.   (Nissenbaum (2000: 46))

This fact leads Nishihara (2005) to propose that A'-movement is involved in the derivation of an HNPS sentence, because PGs are generally licensed by A'-chain. However, it has been controversial whether or not HNPS licenses a PG. Indeed, Postal (1994) argues that an apparent HNPS sentence, exemplified in (19), is derived not by HNPS from the object position of the finite verb *put*, but by applying Right Node Raising (RNR) to the direct object of *put* and the direct object of *reading* in the adjunct clause, as schematized below (cf. Williams (1990, 1994), Nishikawa (1990), etc.):

(20) John put e_i on the table without reading e_i [$_{DP}$ a recent article about global warming]$_i$.

This argument is supported by the applicability of the operations to the objects of prepositions: In the sentence where HNPS appears to be applied, the object of the preposition can be shifted to sentence-final position across the adjunct clause, as in (21):

(21) I talked to e_i without actually meeting e_i [$_{DP}$ all the members voted against Hinkly]$_i$.   (Williams (1990: 267))

(22) a. * John looked [$_{PP}$ at t_i] very often [$_{DP}$ the woman that he loved]$_i$.
                                          (Johnson (1985: 86))

     b.   John spoke to e_i, but Frank Mary ignored e_i, [the new boss]$_i$.
                                          (McCloskey (1986: 186))

As is well known, HNPS is not applicable to the objects of prepositions, as in (22a), while RNR does not exhibit such a restriction, as in (22b). Given this behavioral difference between the two operations, the operation applied in (21) cannot be HNPS, but RNR. Hence, the sentences in (19) and (21) do not provide strong evidence for the A'-movement of the shifted DP.[6]

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[6] In passing, Nishihara (2005) argues that the sentences Postal (1994) considers to be

The third problem comes from the licensing of an NPI. In an HNPS sentence, as shown in (12), the negative element in the shifted DP cannot license an NPI, repeated here as (23a):

(23) a. * I showed to anyone [none of the pictures of John's mother].

     b. * Into none of the classrooms any of the students walked.   (= (13b))

In (23a), an HNPS version of the PDC, the negative element in the shifted Theme DP cannot license the NPI in the Goal PP. Nishihara (2005) points out that this ungrammaticality is similar to that of the cases that involve A'-movement (cf. (23b)), and argues that the shifted DP in an HNPS sentence undergoes A'-movement in the derivation. Note here, however, that there is a crucial difference between these two sentences, as shown in (24):

(24) a.   I showed [none of the pictures of John's mother] to anyone.

                                       (Takano (2003: 522))

     b. * Any of the students walked into none of the classrooms.

Sentence (24a) illustrates that in a non-HNPS version of the PDC, the negative element in the Theme DP can license the NPI in the Goal PP; sentence (24b) shows that the negative element in the Location PP cannot license the NPI in the subject DP, irrespective of whether or not the PP undergoes A'-movement to sentence-initial position. This contrast strongly suggests that the ungrammaticality of (23a) cannot be explained in the same way as that of (23b); more precisely, the ungrammaticality of the sentences in (23) is not directly attributed to the application of A'-movement.

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examples of RNR, exemplified in (19) and (21), are derived by HNPS from the object position, based on the following contrast with respect to extraction:

(i)   a. * Who$_i$ did Pat sell, by not recognizing pg_i, [pictures of t_i]?

     b.   Who$_i$ does Mary buy and Bill sell, [pictures of t_i]?

                                             (Nishihara (2005: 24))

According to his explanation, in the example of HNPS in (ia), the *wh*-element cannot be extracted from the shifted DP, while in the RNR example in (ib), the extraction of the *wh*-element out of the shifted DP raises no problems. This argument is, however, inadequate. Wexler and Culicover (1980) propose that the shifted elements in RNR remains in their original position (cf. Abe and Hornstein (2010)). Under this analysis, the ungrammaticality of (ia) is due to a violation of the adjunct condition, because the *wh*-element is extracted out of the element remaining in the adjunct clause; in (ib), by contrast, the extraction of the *wh*-element out of the shifted DP does not violate the coordinate structure constraint as a result of an across-the-board application of RNR. Thus, the contrast in (i) can be explained without any problem even if the derivations of both the sentences are assumed to involve no HNPS.

In fact, it has been argued since Klima (1964) that an NPI must be c-commanded by the negative element at LF. Under this general view, Nishihara's A'-movement approach could not explain the ungrammaticality of (23a), because the shifted DP, which undergoes A'-movement at narrow syntax, is reconstructed at LF, and it is properly c-commanded by the negative element, as in the case of (24a).[7, 8]

4. Proposal

4.1. The Copy Theory of Movement and the Pronunciation of the Lower Copy

In this paper, I adopt the copy theory of movement, which is originally proposed in Chomsky (1995). According to this theory, movement is an operation that does not introduce a trace and merely leaves behind a complete copy of the moved element, which is not a newly introduced entity in the course of the derivation.[9] Thus, if an element X moves from α to β, X occurs in β through internal-Merge, with its copy left behind in α. The copy left behind is, of course, normally deleted in the phonological component, given that overt movement must have a PF effect (cf. Chomsky (1995)). As a consequence of this theory, however, it is in principle possible for the lower copy to be pronounced rather than the higher one.[10] The concept is, in fact, supported by many empirical arguments (cf. Yang

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[7] One of the main differences between A'-movement and A-movement is whether the movement is allowed to reconstruct: A'-movement is permitted to reconstruct, while A-movement is not, as shown in (i):

(i) a. [Which pictures of herself$_i$]$_j$ did Mary$_i$ find t_j?
     b. [John$_i$]$_j$ seems to himself$_i$ [t_j to be a genius].

In the case of overt *wh*-movement (A'-movement) in (ia), the reflexive pronoun *herself* in the *wh*-phrase can be bound by the subject DP *Mary*, because the pronoun is c-commanded in-situ by its antecedent at LF due to reconstruction. In the case of raising-to-subject (A-movement) in (ib), on the other hand, the subject DP *John* functions as an antecedent of the pronoun *himself* in the matrix adjunct, because the pronoun can be c-commanded by its antecedent throughout the derivation because of the absence of a reconstruction effect.

[8] The LF licensing can also explain the ungrammaticality of (23b) and (24b). Although sentence (23b) contains the A'-movement of the Location PP to sentence-initial position, the LF representation is identical to that of (24b), because A'-movement exhibits a reconstruction effect: In the representation, the NPI contained in the subject DP, which occupies the Spec of TP, cannot be c-commanded by the negative element in the Goal PP, reconstructed into its original position at LF. Unfortunately, this configuration violates the licensing requirement.

[9] Chomsky (2004, 2008, etc.) proposes as a natural requirement for efficient computation the no-tampering condition (NTC), which states that Merge of X and Y leaves the two syntactic objects unchanged (Chomsky (2008: 138)). This condition has always been assumed without question for external Merge. Once extended to internal Merge (i.e. movement), it automatically yields the copy theory of movement, because it bans leaving a newly introduced element like a trace.
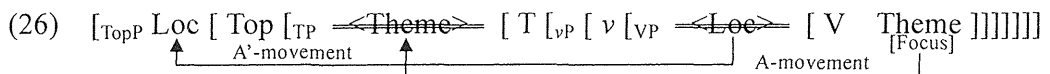
[10] The possibility for the lower copy to be pronounced is not predicted in the trace theory of movement, because the lower position of the moved element is occupied by a trace, which is generally assumed to be a phonologically null element.

(2006), Shimada (2008), etc.).

In English, it is generally assumed that the higher copy is pronounced, as is clear from the presence of overt *wh*-movement of nonsubjects. Takano (1996, 1998) and Mikami (2010), however, argue that the lower copy can also be pronounced in English if a marked interpretation is necessary for both the LF and the PF interfaces. For example, consider the case of the Locative Inversion Construction (LIC), as shown in (25):

(25) a.   In the corner was a lamp.

b.   Into the room walked John.

In this construction, the Theme DP, interpreted as a subject DP, occurs postverbally, although the subject DP of a clause, finite or non-finite, generally precedes a verb; consequently, it has often been argued that the subject DP in the LIC undergoes rightward movement (cf. Nishihara (1999, 2005), Doggett (2004), etc.). In contrast, Mikami (2010), based on the observation that the construction is licensed only when the 'shifted' subject DP functions as a focused XP (cf. Rochemont (1978)), proposes under the copy theory of movement that the subject DP undergoes A-movement to the Spec of TP at narrow syntax and then the lower copy in its original position is pronounced at the phonological component due to the status of the DP as a focused XP, as schematized below:[11]

(26)   [$_{TopP}$ Loc [Top [$_{TP}$ ~~Theme~~ [T [$_{vP}$ [v [$_{VP}$ ~~Loc~~ [V   Theme]]]]]]]]
         ↑___A'-movement___↑_____|_A-movement_| [Focus]

As a consequence, the lower copy of the subject DP can be interpreted as a focused XP at LF, and at the same time it is pronounced with a focus stress at PF.[12]

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[11] The status of the subject DP in the LIC as a focused XP is supported by the appropriate paraphrase into the cleft sentence, as in (i):

(i)   a.   At the foot of the stairs was his mother.
      b.   It was his mother that was at the foot of the stairs.
      c. # It was at the foot of the stairs that his mother was.

(Rochemont (1978: 30))

According to Rochemont (1978), sentence (ib) is an appropriate paraphrase of (ia), where the focus position in the cleft sentence is filled by the subject DP *his mother*; sentence (ic) is not an appropriate paraphrase, in which the Location PP *at the foot of the stairs* occupies the focus position. Therefore, this strongly suggests that in the LIC, the subject DP is always interpreted as a focused XP (cf. (5)).

[12] This does not mean that only the pronounced lower copy is interpreted at LF, but that it is in principle possible not only for the pronounced copy but also for the unpronounced higher copy to

4.2. Analysis: The Leftward A-movement and the Pronunciation of the Lower Copy

Taking the theoretical assumptions into consideration, I propose that the derivation of an HNPS sentence, such as (2), converges in the following fashion. A Theme DP and a Goal PP are base-generated in the Comp and the Spec of VP, respectively.[13] As soon as $v*$ is introduced by Merge, the φ-feature on $v*$ is passed down to Asp, a functional head selected by $v*$ (cf. Hiraiwa (2005)).[14] Then, Asp searches down the tree for a goal, and it enters into an Agree relation with the Theme DP across the Goal PP; consequently, the φ-feature on Asp and the Case-feature on the DP are deleted, and the DP undergoes A-movement to the Spec

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be interpreted properly at LF. According to Mikami (2010), this can be argued for based on the following fact on the binding of the reciprocal pronoun *each other*: In the LIC, the reciprocal contained in the Location PP can be bound by the subject DP, as in (i):

(i)   Beside each other$_i$ sat two young boys$_i$ quietly.   (Mikami (2010: 316))

In (i), the subject DP *two young boys* serves as the antecedent of the reciprocal in the Location PP. As is well known, according to Condition A of the binding theory (cf. Chomsky (1981), etc.), a reciprocal pronoun must be bound in its domain. Thus, sentence (i) strongly suggests that in the LIC, the subject DP A-binds the reciprocal contained in the Location PP at a point in the derivation. In my analysis of the LIC, when T is introduced by Merge, the subject DP, which establishes an Agree relation with T, undergoes A-movement across the Location PP to the Spec of TP, although the higher copy is deleted at PF, as shown below:

(ii)   [$_{TP}$ Theme [T [$_{vP}$ v [$_{VP}$ Loc [V <Theme>]]]]]
                    ↑ ¦   c-command   ↑
                    └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘   ┘ A-movement

At this point in the derivation, the higher copy of the subject DP, which occupies the Spec of TP (i.e. A-position), A-binds the Location PP, which remains in its original position; consequently, this configuration satisfies the requirement for anaphor binding.

    [13] In this paper, contrary to Nishihara (2005), I assume the three-layered VP-shell for the underlying structure of ditransitive verbs, a verb that selects Agent, Goal, and Theme, as shown in (i):
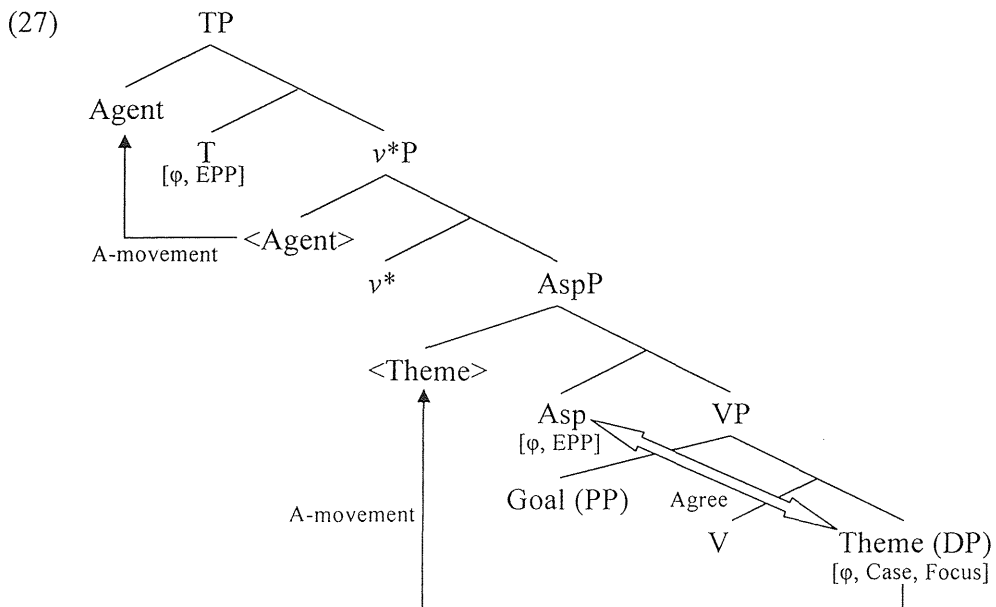
(i)   [$_{v*P}$ Agent [$v*$ [$_{AspP}$ [Asp [$_{VP}$ Goal [V Theme]]]]]]

In (i), $v*$ is a kind of light verb with the ability to assign Agent, and Goal and Theme are base-generated in the Spec and the Comp of VP, respectively. This structure is in accordance with the thematic hierarchy proposed in Jackendoff (1972), and there is much cross-linguistic evidence that argues for the structure, as discussed in Hoji (1985), and Takano (1996, 1998), among others.

    [14] In this paper, I adopt Chomsky's (2007, 2008) feature inheritance model. Under this model, syntactic operations, such as agreement and movement, are triggered by either an Agree-feature (φ-feature) or an edge feature of a phase head, and the Agree-feature is derivatively inherited from the phase head to the head of its complement for the A/A'-distinction, required by the conceptual-intentional interface: Consequently, the edge feature triggers A'-movement, while the Agree-feature drives A-movement.

    Furthermore, following Hiraiwa (2005), I simply assume that the phase head $v*$ selects Asp as its complement, but not V; given this assumption, in the $v*$-Asp phase, the Agree-feature of $v*$ is passed down to Asp and the feature triggers A-movement to the Spec of AspP, as in the C-T phase. Thus, I leave the validity of the assumption unverified for future research.

of AspP to satisfy the EPP on Asp.[15]   Furthermore, when the φ-feature on C percolates down to T, T establishes an Agree relation with an Agent DP, base-generated in the Spec of v*P, and the DP moves to the Spec of TP for the EPP on T.   Finally, once the derivation is transferred to the two interfaces, the lower copy of the Theme DP is pronounced with a focus stress at PF due to the status of the DP as a specially focused XP, and at the same time, it can be properly interpreted as a focused XP at LF.[16]   Now all the features that require agreement for convergence can be properly deleted; consequently, the derivation converges, as illustrated in the tree structure in (27):

(27)

In this derivation of the HNPS version of the PDC, the shifted Theme DP, like the

non-shifted DP, undergoes leftward A-movement to the Spec of AspP at narrow syntax, although the higher copy of the DP is deleted in the phonological component; that is, the derivation does not involve any kind of rightward movement, which must bear not only an empirical burden of proof but also a theoretical one, discussed in 3.2.1. Thus, this analysis does not pose the kind of theoretical problem for the movement that Nishihara (2005) must resolve.

In this subsection, I have proposed a new analysis of HNPS without such an ad hoc assumption as that introduced in the previous approaches. In the next subsection, I demonstrate that this analysis provides a natural explanation for a wide range of data observed in the previous sections.

4.3. Explanation
4.3.1. The Local Application of HNPS

In this subsection, I explain the local application of HNPS, a distinctive feature that any adequate analysis of HNPS must capture. As confirmed in 2.2, HNPS is not applied successive-cyclically. The relevant examples are illustrated in the following contrasts:

(28) a. [$_{CP}$ That John sent to his mother [$_{DP}$ the money you wanted him to give to us]] is understandable.

 b. * [$_{CP}$ That John sent to his mother] is understandable [$_{DP}$ the money you wanted him to give to us].

(= (6))

(29) a. I said I would give to John everything that he demanded and give to John everything that he demanded I will.

 b. * I said I would give to John everything that he demanded and give to John I will everything that he demanded.

(= (7))

The sentences in (28) and (29) show that the Theme DP in the PDC cannot be shifted to sentence-final position across any phase boundary. These facts could be explained under Nishihara's (2005) analysis, according to which the shifted DP undergoes rightward A'-movement to the v*P domain to check the strong focus feature. But, as noted in 3.2.1, his analysis fails to resolve a fundamental question; that is, why HNPS is not applied successive-cyclically. In his analysis, the rightward A'-movement is considered to be motivated for the checking of a certain feature, like the other types of A'-movement, such as Topicalization and *wh*-movement, which allow successive-cyclic application. Thus, nothing would

prevent the successive-cyclic application of the rightward movement unless any additional assumptions are made to capture the idiosyncratic nature of the movement, such as the RRC (cf. Ross (1967)).

In contrast, my analysis can give a principled explanation not only for the (un-)grammaticality of (28) and (29) but also for the fundamental issue unsolved in Nishihara (2005). In the proposed analysis, an HNPS sentence is derived by both the leftward A-movement of the shifted DP to the Spec of AspP and the pronunciation of its lower copy, as shown in (27). Thus, the derivation does not involve the type of A'-movement that permits its successive-cyclic application. Consequently, the shifted DP remains within the v*P domain throughout the derivation, not undergoing any further movement out of the domain. As just described, under this analysis, it is in principle impossible to generate the sentences in (28b) and (29b), because there is no copy of the shifted DP outside the v*P domain. That is, the idiosyncratic nature of HNPS can be properly captured without any ad hoc assumptions which would be required to be introduced in the previous approaches.

4.3.2. 'Apparent' A'-properties of the Shifted DP

In this subsection, I give an account of the alleged A'-properties of the shifted DP in HNPS.

Let us start by considering the licensing of an NPI. In an HNPS sentence, the negative element in the shifted DP cannot license an NPI, as confirmed in (23a), repeated here as (30):

(30) * I showed to anyone [none of the pictures of John's mother].
(31)   I showed [none of the pictures of John's mother] to anyone.   (= (24a))

This behavior of the shifted Theme DP contrasts with that of the DP in a non-HNPS version, repeated here as (31). As discussed in 3.2.2, Nishihara's analysis fails to explain this contrast. However, it can be captured under my analysis without raising any problem. Firstly, consider the ungrammaticality of (30). In this paper, following Mikami's (2010) approach to the LIC, in which the LIC is derived via the pronunciation of the lower copy of the Theme DP due to the proper interpretation of the DP as a focused XP at LF (cf. Takano (1996, 1998)), I argue that an HNPS sentence is also derived via the pronunciation of the lower copy of the shifted DP, interpreted as a focused XP of the sentence, which undergoes A-movement to the Spec of AspP, as in (27); consequently, the focused DP can be interpreted properly in its original position at LF, as in (32):

(32)   the LF representation: ... [$_{VP}$ Goal   [V   Theme$_{[Focus]}$]]

(c-command: Goal c-commands Theme$_{[Focus]}$)

This is the relevant part of the LF representation of an HNPS sentence. In this configuration, the Goal PP c-commands the focused Theme DP. Given the general assumption that an NPI must be c-commanded by the Neg-element at LF (cf. Klima (1964)), the configuration cannot meet the requirement for the licensing. In the derivation of the non-HNPS version of the PDC, by contrast, the non-focused Theme DP undergoes A-movement to the Spec of AspP across the Goal PP; consequently, the negative element in the Theme DP asymmetrically c-commands the NPI in the Goal PP throughout the derivation to license the NPI properly, as in (31), because A-movement does not exhibit a reconstruction effect.

    This explanation can also capture another fact with respect to the licensing of an NPI: In an HNPS sentence, as pointed out in Williams (1994) and Pesetsky (1995), the negative element in the Goal PP can license the NPI in the shifted DP, unlike the non-HNPS case.   This contrast is shown in (33):

(33)   a.   I gave to no one's parents any indication that anything was amiss.
       b. * I gave any indication that something was amiss to no one's parents.

(Williams (1994: 190))

Under my analysis, the non-HNPS version of the PDC exemplified in (33b) is derived by the A-movement of the Theme DP across the Goal PP.   Because A-movement does not exhibit a reconstruction effect, the DP asymmetrically c-commands the PP throughout the derivation.   Hence, the NPI in the Theme DP cannot be c-commanded by the Neg-element in the Goal PP, in violation of the licensing requirement.   By contrast, in the derivation of the HNPS version, exemplified in (33a), although the shifted DP undergoes at narrow syntax the same type of A-movement as the non-shifted DP does, the lower copy in its original position is interpreted at LF due to the status of the DP as a focused XP, as illustrated in (27).   Consequently, the Neg-element in the Goal PP c-commands the NPI in the shifted DP, which meets the licensing requirement.[17, 18]

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[17] Note that in (33a), although the negative element contained in the Goal PP does not strictly c-command the NPI in the Theme DP due to the presence of the PP projection, the NPI is licensed.   This kind of phenomenon is observed in certain cases when computing command relation for binding (cf. Pesetsky (1995)).   With respect to HNPS, the (un-)grammaticality of the sentences in (37), discussed later in 4.4, independently supports in terms of binding that the Goal PP is transparent, and thus, the DP contained in the PP c-commands the Theme DP.

[18] The LIC also exhibits a similar behavior with respect to the licensing of an NPI, as in (i):

Let us turn to an island effect observed in HNPS. In this construction, the shifted DP forms an island, unlike other constituents in A'-position, such as the *wh*-element that occupies the Spec of the embedded CP through *wh*-movement. This contrast is repeated here as (34):

(34)　a. * [How many of the children]$_i$ did Fred send t_j to the School Board [$_{DP}$
　　　　accurate reports on t_i]$_j$?　　　　　　　　　　　　　　　　(= (17))

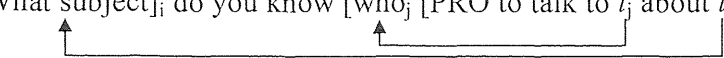　　　b. ?? Who$_i$ do you wonder [which pictures of t_i]$_j$ Mary bought t_j?　(= (18b))

As noted in 3.2.2, this behavioral difference suggests that the impossibility of extraction is not a general property of constituents in A'-positions, and it implies that we must provide an account independent of the CED for those clearly ungrammatical examples that involve movement out of a moved constituent. Instead, as originally pointed out in Ross (1967), this behavior of HNPS is shared by other 'stylistic inversion' constructions, such as the LIC and Extraposition from NP, represented here as (35a) and (35b), respectively:
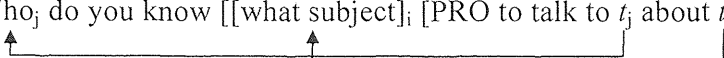
(35)　a. * [What kind of mushrooms]$_i$ do you think on these trails can be found
　　　　[$_{DP}$ specimens of t_i]?　　　　　　　　　　　　　　(Bresnan (1994: 87))

　　　b. * Who$_i$ did you show [a picture t_j] to Martha [of t_i]$_j$? (Baltin (1984: 160))

In these examples, the *wh*-element cannot be extracted from constituents in the sentence-final position, which are generally assumed to be shifted via rightward movement (cf. Baltin (1981), Doggett (2004), etc.). In this paper, following Lasnik and Saito (1992), I argue that the ungrammaticality of (34a) and (35) does not come from a violation of the CED, but it is due to a "crossing effect" (cf. Baker (1977) and Kuno and Robinson (1972)), with an accurate explanation for the nature of this effect left open. The effect forbids the crossing of association chains, and it can be observed in a variety of environments in English. For example, consider the case of *wh*-islands in English:

(i)　　Into none of the classrooms walked any of the students.　　(Nishihara (1999: 389))

In this sentence, where the negative element *none* appears in the Location PP, it can license the NPI in the Theme DP. According to Mikami (2010), this fact can also be explained along the lines of the explanation of the grammaticality of (33a). In the LIC, where the Location PP and the Theme DP move to the Spec of TopP and that of TP, respectively, the PP occupies its original position at the LF representation via reconstruction into the VP domain, and the Theme DP can also be interpreted in its original position as a specially focused XP at LF. Consequently, it follows that the Location PP can c-command the Theme DP at the LF representation, as represented in (32), and thus, the negative element contained in the PP can license the NPI in the DP.

(36) a. ? [What subject]$_i$ do you know [who$_j$ [PRO to talk to t_j about t_i]]?

b. * Who$_j$ do you know [[what subject]$_i$ [PRO to talk to t_j about t_i]]?

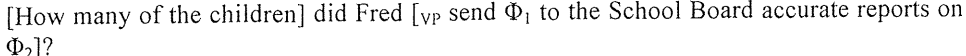(Pesetsky (1982: 268): with slight modifications)

In (36a), although the *wh*-element *what subject* moves to sentence-initial position across the other element *who*, the sentence is not perfectly unacceptable, because the dependencies are nested between *wh*-elements and their traces. In (36b), by contrast, the two association chains intersect each other, and thus, the sentence is perfectly unacceptable. That is, although it is not clear how to characterize "crossing" precisely, the sentences in (34a) and (35) will be a case of crossing under either Baker's (1977) or Pesetsky's (1982) formulation; as a consequence, the ungrammaticality of the sentences arises.[19, 20]

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[19] Baker proposes the principles in (i) as an alternative explanation for the cases of ungrammaticality that Culicover and Wexler (1977) offer in support of the Freezing Principle, with some informal terms "prospective tenants" and "addresses":

(i) a. As a sentence is processed from left to right, a prospective tenant *y* is *more current* than a prospective tenant *x* if *y* occurs to the right of *x*.
   b. A prospective tenant is assigned to the first unoccupied address for which it is the most current of the eligible prospective tenants.

(Baker (1977: 63))

These principles require the leftmost gap in the VP domain to be interpreted as an address assigned to the rightmost one of elements extracted out of the domain. When the principles are applied to sentence (34a), they correctly predict the ungrammaticality, as shown in (ii):

(ii) * [How many of the children] did Fred [$_{VP}$ send Φ_1 to the School Board accurate reports on Φ_2]?

In this sentence, because the *wh*-element *how many of the children* is considered as the current prospective tenant at the point where Φ_1 is reached, the element is assigned the address Φ_1 by the principle in (ib). However, this association is at variance with the intended assignment, and thus, the extraction is not licensed. Furthermore, the principles in (i) can also explain the grammaticality of (34b). In (34b), the *wh*-element *who* is the most current prospective tenant at the point at which the empty address after *of* is reached. Consequently, the principle in (ib) correctly assigns this address to the *wh*-element.

[20] This crossing effect is also found in Japanese. Consider the following examples, which include the licensing of an NPI in Japanese:

(i) a. Nani-ga   Tokyo-kara-sika   todok-ana-katta-no?
      what-Nom   Tokyo-from-only   arrive-Neg-Past-Q
      'What arrived only from Tokyo?'
   b. ?* Hon-sika   doko-kara   todok-ana-katta-no?
      book-only   where-from   arrive-Neg-Past-Q
      'Where did only books arrive from?'

4.4. Supporting Evidence

In my analysis of HNPS, the shifted DP can be interpreted in-situ at LF, even if the DP undergoes A-movement across the Goal PP at narrow syntax. This analysis is further supported by the following evidence of anaphor binding:

(37) a. * We gave to him$_i$ on Friday [John$_i$'s brand-new toy].

   b.   We gave to them$_i$ at the interview [copies of reports on each other$_i$].

(Pesetsky (1995: 266))

Sentence (37a) represents a standard violation of Condition C of the binding theory, which requires an R-expression to be free, while sentence (37b) satisfies Condition A, according to which a reflexive pronoun must be bound in its domain (cf. Chomsky (1981), etc.). These facts can be properly explained, if the shifted DP stays in its original position, where the DP is c-commanded by the Goal PP, as argued in the proposed analysis.

Furthermore, the analysis can also be extended to the following example of anaphor binding, which differs from the sentences in (37) in that the shifted DP functions as a binder:

(38) I describe t_i to himself$_i$ [the victim whose sight had been impaired by the explosion]$_i$.   (Baltin and Postal (1996: 129))

In this sentence, a reflexive pronoun in the Goal PP can be bound by an antecedent contained in the shifted DP. This strongly suggests that the PP is c-commanded by the shifted Theme DP at a point in the derivation. In my analysis, the shifted DP moves across the Goal PP to the Spec of AspP at narrow syntax; as a consequence, the DP c-commands the Goal PP at a point in the derivation, although its lower copy is realized at PF, as schematized below:

(39) ... [$_{v*P}$ Agent [$v*$ [$_{AspP}$ <Theme> [Asp [$_{VP}$ Goal [V Theme]]]]]]
                        A-movement   c-command

As can be seen in these examples, when the *sika*-phrase, which functions as an NPI in Japanese, co-occurs with a *wh*-element, the former cannot precede the latter, as schematized in (ii):

(ii) * [[... XP-sika ... [... wh ...] ... Neg ...] Q]

In this illicit configuration, the dependency between the NPI and its licenser crosses the one between the *wh*-element and the Q-morpheme. Thus, this contrast has also been explained in terms of the crossing effect (cf. Takahashi (1990), Tanaka (1997), etc.).

Because this configuration satisfies the requirement of Condition A, it makes possible for the Goal PP to receive a bound interpretation.[21]

In this way, the proposed analysis can give an explanation for both the 'higher' and 'lower' behavior of the shifted DP in HNPS, attaining higher empirical adequacy.

5. The Inapplicability of HNPS in the Indirect Object in the DOC

So far, I have proposed a new analysis of HNPS, which consists of both the leftward A-movement of the shifted DP at narrow syntax and the pronunciation of its lower copy at PF. In this section, I consider HNPS in the English DOC, and I show that the proposed analysis of HNPS in the PDC can be extended to that of the construction.

As pointed out by many previous studies since Ross (1967), it is not the case that HNPS is always applied. In fact, there exist some restrictions on its application. In the English DOC, for example, the indirect object DP cannot be shifted to sentence-final position across the direct object DP, even if the former DP dominates a clause, as in (40):

(40) a.   John gave the girl who was studying linguistics a book.
     b. * John gave a book the girl who was studying linguistics.

(Fukuchi (1977: 10))

As illustrated in this contrast, the indirect object DP must precede the direct object DP.   To explain this fact, Fukuchi (1977) proposes the following thematic constraint (cf. Hirose, Koizumi, and Fukuyasu (1983), etc.):

(41)   Complex NP Shift (= HNPS) can move the NP working as Theme but it cannot operate on the NP working as Goal or Source.   (Fukuchi (1977: 8))

According to this constraint, the direct object DP in the PDC, which is assigned a Theme, can be shifted via HNPS, while the indirect object DP in the DOC cannot, because the DP is assigned a Goal (more specifically, a Possessor).   Here, however,

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[21] One would wonder why it is possible for both the lower copy and the higher one to be interpreted only in the case of Condition A (cf. (37b) and (38)), unlike in the case of Condition C (cf. (37a)).   Since Lebeaux (1988), it has often been pointed out that there is clearly a difference between the two binding conditions as to where they apply.   In this paper, following Saito (2003), I assume that Condition A is an anywhere condition, which has to be satisfied at some point in a derivation but can be violated at earlier or later stages; Condition C is an LF condition, which applies after chain interpretation.

there arises a reasonable question: Why is HNPS applied only to the Theme DP? Fukuchi attempts to confirm the validity of the constraint from the functional perspective, but it is not persuasive enough.[22] Thus, the constraint would be viewed as merely a descriptive generalization, unless a plausible explanation is given for the constraint.

In contrast, my analysis can properly exclude the sentence in (40b). In discussing the details, I assume, following Takano's (1996, 1998) analysis of the DOC, that the indirect object DP is base-generated at a higher position than the direct object DP, and I propose that the indirect object DP undergoes A-movement to the Spec of AspP for the EPP on Asp, because the DP is closer to Asp than the direct DP, as schematized in (42):[23]

(42)   ... [$_{v*P}$ Agent [$v*$ [$_{AspP}$ Goal [Asp [$_{VP}$ Goal(DP) [V Theme]]]]]]
              A-movement[__[EPP]__]

In my analysis, I argue that an HNPS sentence is derived via the pronunciation of the lower copy of the shifted DP. Given this analysis, in the DOC, it is in principle impossible for the indirect object DP to be shifted across the direct object DP, because there is no copy of the indirect object DP in the domain after the direct object position, as confirmed in the derivation in (42).

As just described, under the copy theory of movement, the proposed analysis can give an adequate explanation for the inapplicability of HNPS to the indirect

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[22] According to Fukuchi (1977), when the Goal-argument appears as a postverbal bare NP, it cannot work well as an element of linguistic expression, because the argument generally tends to be realized as a PP. Hence, the Goal-argument in the DOC, which is realized as a DP, has difficulty in gaining prominence via HNPS. For further details, see Fukuchi (1977).

[23] As originally pointed out by Barss and Lasnik (1986), the fact that the indirect object DP occupies a higher position than the direct object DP throughout the derivation of the DOC is supported by a variety of evidence. Consider the following examples of standard c-command phenomena:

(i)   a.   I showed the professors$_i$ each other$_i$'s students.
       b. * I showed each other$_i$'s students the professors$_i$.

(Barss and Lasnik (1986: 347))

(ii)   a.   I gave no one anything.
       b. * I gave anyone nothing.

(Barss and Lasnik (1986: 350))

In (i), the indirect object DP can bind the reciprocal pronoun contained in the direct object DP, while the direct object DP cannot bind the pronoun in the indirect object DP. Similarly, in (ii), the negative element in the indirect object DP can license the NPI in the direct object DP, although the NPI in the indirect object DP cannot be licensed by the negative element in the direct object DP. These facts strongly suggest that the indirect object DP asymmetrically c-commands the direct object DP in the DOC. For further evidence, see Barss and Lasnik (1986).

object DP in the DOC, without assuming any thematic constraint. This analysis is capable of resolving the theoretical problems with the previous analysis without being at the expense of its empirical adequacy, thereby confirming the validity of the copy theory of movement.

6. Conclusion

In this paper, adopting the copy theory of movement (Chomsky (1995)), I have proposed a new analysis of HNPS without such an ad hoc assumption as rightward movement: The shifted Theme DP in the PDC, like the non-shifted DP, undergoes leftward A-movement to the Spec of AspP at narrow syntax, although the lower copy is pronounced at PF due to the status of the DP as a focused XP. Furthermore, I have shown that the proposed analysis of HNPS in the PDC can be extended to that of the DOC. This proves the validity of the copy theory of movement as well as improving the empirical adequacy of the proposed analysis.

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