On Nominal Phase and Its Interpretation : A Minimalist Approach

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Abstract

Investigation of the internal structure of nominal phrases has been focused on in linguistic researches. One of the most common approaches to this subject is called the DP Analysis, which assumes the structural parallelism between clauses and nominal phrases. However, it remains unclear to what extent such a parallelism can be supported. To answer this question, it is argued in this article that English nominal phrases are composed of two phases as in the case of clauses, and that their syntactic properties can be accounted for by the Phase Theory. It is also argued that there is an important relation between the nominal phases and their interpretations at the semantic interface.

1. Introduction

The goal of this paper is to explore the internal structure and its interpretation of English nominal phrases in terms of the Phase Theory, which is proposed by the series of recent works in the Minimalist framework (see Chomsky (2000, 2001, 2005 and 2006) among others, for the basic proposals of the theory).

In the theory, the movement of a lexical element out of a "phase" (i.e. an "island" in the traditional term) is constrained by the PIC (Phase Impenetrability Condition). The PIC is defined as shown in (1), where ZP is the phase containing another phase HP (see Chomsky (2001) and others) :

(1) The PIC (Phase Impenetrability Condition) :
The domain of H is not accessible to operations at ZP ; only H and its edge are accessible to such operations.
$[_{ZP}\ Z \cdots [_{HP}\ \alpha\ [H\ YP]]]$ (Chomsky 2001 : 14)

Consider the example (2a) in terms of this condition :

(2) a. *What do you wonder when John ate t_{what}?

b. [$_{CP}$ do you wonder [$_{CP\text{-}Phase}$ when [$_{v^*P\text{-}Phase}$ John ate what]]]

PIC violation

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In the Phase Theory, for example, CP and v*P are assumed to be a phase.[1] Therefore, the PIC successfully predicts that the *wh* word (i.e. *what*) cannot move out of the embedded CP to the matrix CP as shown in (2b).[2] It is just the PIC violation.

If such an explanation is correct and the PIC covers the all movements in Syntax, the following movement should be also constrained by the PIC. The following contrast shows the so-called Definiteness Island effect:

(3) a. Who did you see a picture of t_{who}?

b. *Who did you see the/that/John's picture of t_{who}?

Radford (2004) suggests that the "definite" nominal phrase such as *the/that/John's picture of who* in (3b) is a phase, and that the movement of *who* out of it is banned. His explanation is based on a basic assumption that all the syntactic movement is constrained by the PIC, not only in clausal structure but also in nominal structure. Following such a proposal (see also Oba (1999), Radford (2000) and others), it is possible to assume that English (definite) nominal phrases have the internal structure shown below:

(4) a. [$_{DP\text{-}Phase}$ … [$_{NP}$]] (Nominal Structure)

b. [$_{CP\text{-}Phase}$ … [$_{v^*P\text{-}Phase}$ … [$_{VP}$ …]]] (Clausal Structure)

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[1] Chomsky assumes that the light verb phrase is divided into the two subcategories, namely, v*P, in which all θ-roles are assigned, and vP, which occurs in unaccusative and passive constructions (cf. Chomsky (2001, 2005, 2006)). In addition, based on these distinctions, he assumes that v*P is a phase, but vP is not a phase (see also the discussion in Section 2.2). For the expository convenience, I will not consider vP, unless it is relevant to the discussion here, because it is not a phase and the aim of this paper is to explore the properties of phase in clausal and nominal structures.

[2] Strictly, as implicitly assumed in Chomsky (2005, 2006), the explanation of the derivation shown in (2b) involves another assumption about the distinction between v*P and CP. As shown in (ib), a *wh* phrase can escape from v*P phase by using [Spec, v*P] as an escape hatch:

(i) a. What did you eat?

b. [$_{CP\text{-}Phase}$ what did you [$_{v^*P\text{-}Phase}$ t_{what} t_{you} [$_{v^*}$ eat] t_{what}]]

On the other hand, as shown in (iib), CP phase could not provide such an escape hatch with a *wh* phrase, because (iia) shows that the relevant movement of the *wh* phrase must be blocked. Thus, in (2b) *what* can move out of the v*P by using the escape hatch, but the PIC prohibits the movement of *what* from the embedded CP phase.

(ii) a. *What do you wonder when John ate? (= (2a))

b. [$_{CP}$ do you wonder [$_{CP\text{-}Phase}$ when John [$_{v^*P\text{-}Phase}$ t_{what} t_{John} ate t_{what}]]] (cf. (2b))

× PIC violation

Following Chomsky's (2005, 2006) definition, this property of CP could be restated by the term of the EF (Edge Feature), which requires an element in the specifier position (i.e. the edge) of a head (for the discussion of the EF, see also Section 2.2). Concretely, it seems possible to assume that the EF of C is deleted when the edge is filled with an appropriate element (e.g. a *wh* phrase), while the EF of v* is not deleted until v*P is transferred as proposed in Chomsky (2005, 2006). In this regard, following the traditional assumption that a clause type is determined at CP, I suggest that the EF of C should be deleted because it is not necessary any more, once the clause type of CP (e.g. "interrogative") is determined by the appropriate element in the edge.

Such a proposal seems to show the structural parallelism between clauses and nominal phrases, redefining the DP Analysis (cf. Abney (1987)) in terms of the Phase Theory, because both the structure are composed of the unit of "phase."

However, it seems that there is still some room to discuss to what extent the internal structure of DP is similar to that of CP. In this paper, on the basic assumption (i.e. the strong parallelism between clauses and nominal phrases), I will propose that nominal phrases have the following structure, which is closer to the clausal structure than (4a), because both the structures in (5a, b)) have two phases in their internal structure:

(5) a. $[_{\text{DP-Phase}} \cdots [_{\text{XP-Phase}} [_{\text{NP}} \cdots]]]$ (Nominal Structure)

b. $[_{\text{CP-Phase}} \cdots [_{v^*\text{P-Phase}} [_{\text{VP}} \cdots]]]$ (=(4b)) (Clausal Structure)

In addition, I will examine what role the two phases play in producing the definite and the specific readings of nominal phrases, considering the empirical facts, for example, the grammaticality of the extraction of a *wh* phrase from DP (e.g. *Who did you see a/*the picture of* ?). As a result of the discussion here, I will propose the following relation:

(6) $\underbrace{\underbrace{[_{\text{DP-Phase}} \cdots}_{\text{Referentiality}} \quad \underbrace{[_{\text{XP-Phase}} \cdots [_{\text{NP}} \cdots]]]}_{\text{Presupposition}}}_{\text{<Specific Reading>}}$

<Definite Reading>

At the same time, in the course of the discussion, I will consider how the PIC constrains the movement out of a phase, considering the relation between the PIC and the syntactic operation "Transfer," which sends a phase to the semantic interface.

The organization of this paper is as follows: in Section 2, I will introduce the proposal developed in this paper, discussing the empirical facts which have much to do with the properties of a phase. In Section 3, I will discuss how such a proposal explains the so-called Definiteness Island effect. In addition, Section 4 will discuss another island effect which has been traditionally accounted for by the Specificity Condition (cf. Fiengo and Higginbotham (1981)) in the literature. Section 5 is the conclusion.

2. Facts and Proposal

2.1. The Two-Phase Structure

As mentioned in the introduction, English nominal phrases could have the two phases (i.e. DP and XP) in their internal structure. In this section, I consider the grounds on which I propose such a structure inside the nominal phrases. In this respect, interesting phenomena can be pointed out as shown below:

(7) *Who did you see [$_{DP}$ a certain picture of t_{who}]?

At this point, what is important is that in this example the movement from the nominal phrase is also prohibited even if it does not have a "definite" DP phase. Thus, such an example has been considered to be an exception to the Definiteness Island effect. However, if the PIC can predict the grammaticality of all the syntactic movements correctly, this fact suggests that at least another phase may be contained within the nominal phrases such as (7), and that the relevant movement from the extra phase is also prohibited by the PIC.

In addition, consider the following contrast:

(8) a. the city's destruction (by the enemy)

b. *the city's deliberate destruction (by the enemy) (cf. Drijkoningen (1993))

These examples, which are called passive nominals, show that there is a case where the object of a nominal phrase (i.e. *the city* in this case) cannot move to the subject position of the nominal phrase (i.e. [Spec, DP]) in the course of the derivation, as shown in (8b). Interestingly, in such a case, the movement of the object is banned within the nominal phrase (i.e. DP):

(9) [$_{DP}$ the city's deliberate destruction $t_{the\ city}$ (by the enemy)]
↑_____| PIC violation?
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On the basic assumption that the PIC constrains all the movements, the example (8b) also indicates that English nominal phrases have the extra phase within the DP (more precisely, at the lower level than DP), because the relevant movement is occurred inside the DP. From these points, I propose that English nominal phrases have the structure illustrated in (5) above (repeated here as (10)), which is composed of the two phases as in the case of clausal structure. In this paper, I will call such a structure the "two-phase structure."

(10) a. [$_{DP\text{-}Phase}$ … [$_{XP\text{-}Phase}$ [$_{NP}$ …]]] (Nominal Structure)

b. [$_{CP\text{-}Phase}$ … [$_{v^*P\text{-}Phase}$ [$_{VP}$ …]]] (Clausal Structure)

Moreover, I propose that the lower phase (i.e. XP in (10a)) is n*P, because following the strong parallelism between clauses and nominal phrases, it seems plausible to assume that nominal phrases have the same shell structure as clauses. Specifically, nominal phrases have n*P-NP structure (i.e. the NP-shells), just as clauses have v*P-VP structure (cf. Radford (2000, 2004) for the details of the NP-shell Analysis). Accordingly, in the following discussion, I assume that the relevant structure is as illustrated in (11) (with irrelevant parts to the discussion here omitted):[3]

[3] For the cartographic structure of nominal phrases, see Valois (1991), Lyons (1999), and Ogawa (2001) among others. For example, they assume Numeral Phrase (NumP) or Cardinal Phrase (CardP), which is a host for numerals or cardinals. In this paper, however, I will not refer to such a projection unless it is relevant to the discussion here, because it does not seem to be a phase as in the case of TP in clauses.

(11) The Internal Structure of English Nominal Phrase:

$[_{\text{DP-Phase}}\ \text{D}\ \cdots\ [_{n^*\text{P-Phase}}\ n^*\ [_{\text{NP}}\ \text{N}\ \cdots\ ]]]$[4]

(cf. $[_{\text{CP-Phase}}\ \text{C}\ [_{\text{TP}}\ \text{T}\ [_{v^*\text{P-Phase}}\ v^*\ [_{\text{VP}}\ \text{V}\ \cdots\ ]]]]$)

Given the two-phase structure, and if the examples shown in (7) and (8b) above also contain n^*P phase in their internal structures, the ungrammaticality of these examples are uniformly explained in a principled way. Concretely, in (12a, b), the movement of *who* and *the city* out of n^*P phase cannot be allowed in terms of the PIC as illustrated below (see Section 2.3 for the detailed process of the derivation):

(12) a. *Who did you see $[_{\text{DP}}$ a $[_{n^*\text{P-Phase}}$ certain $[_{n^*}$ picture$]$ $[_{\text{NP}}\ \cdots$ of $t_{\text{who}}]]]$? (cf. (7))

↑——————————————————————————— PIC violation

×

b. *$[_{\text{DP}}$ the city's D $[_{n^*\text{P-Phase}}$ deliberate $[_{n^*}$destruction$]$ $[_{\text{NP}}\ \cdots\ t_{\text{the city}}$

↑——————————————————————————— PIC violation

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(by the enemy)$]]]$ (cf. (8b))

However, such an explanation fails to predict the fact that the examples shown in (3a) and (8a) above are grammatical, if they also have n^*P phase in their structures:

(13) a. Who did you see $[_{\text{DP}}$ a $[_{n^*\text{P-Phase}}$ $[_{n^*}$ picture$]$ $[_{\text{NP}}\ \cdots$ of $t_{\text{who}}]]]$? (cf. (3a))

b. $[_{\text{DP}}$ the city's $[_{n^*\text{P-Phase}}$ $[_{n^*}$ destruction$]$ $[_{\text{NP}}\ \cdots\ t_{\text{the city}}$ (by the enemy)$]]]$ (cf. (8a))

Thus, in order to support the proposal here, it seems necessary to discuss how the notion of phase is defined to predict a correct distinction between these examples. In the next section, I will address this question. Furthermore, in Section 3 and Section 4, I will also consider the following contrast in detail, showing the validity of the analysis developed in this paper.

(14) a. Who did you meet the brother of t_{who}? (Yoshida (2003))

b. *Who did you see the picture of t_{who}?

c. Who did you see a picture of t_{who}?

d. *Who did you destroy a picture of t_{who}? (Diesing (1992))

2.2. The Definition of Phase

In the previous section, I have already introduced a theoretical view on the internal structure of English nominal phrases: the two-phase structure. In this section, on the basis of the assumption here, I consider the property and structure of a phase (e.g. DP and n^*P) in detail, considering the proposals by Chomsky (2000, 2001, 2005, and 2006) and Den Dikken

[4] Just as the distinction between (transitive) v^*P and (unaccusative and passive) vP in clausal structure, I will suggest that n^*P, which I assume receives a specific reading, should be a phase, while (nonspecific) nP should not be a phase (see Section 2.2 for the detailed discussion). In what follows, I will focus especially on n^*P for the same reason already mentioned in fn. 1.

(2006a, b). Their proposals are as follows:

(15) Phase is propositional: either

a. a verb phrase in which all θ-roles are assigned or

b. a full clause including tense and force. (cf. Chomsky (2000))

(16) An inherent phase (i.e. vP) is a predication: the subject-predicate structure.[5]

(cf. Den Dikken (2006a))

Although these proposals seems to be slightly different, they are based on the following primary assumption shown in (17), which follows from the SMT (Strong Minimalist Thesis) that the FL (faculty of language) is the optimal answer to the interface condition (Chomsky (2006: 3)).

(17) Phases are independently interpretable at the interface.

From this point of view, Den Dikken (2006a) proposes the following structure as a phase:

(18) Structure of Phase (HP):

$[_{HP}$ XP H [Predicate]] (Den Dikken (2006a: 11))

The structure shown in (18), where HP stands for a phase, illustrates the predication relationship (i.e. the subject-predicate structure), so that it is interpretable at the interface. In addition, this structure seems to cover Chomsky's proposal (15a), because the full argument structure shows just the subject-predicate relationship. From these points, both of the descriptions (i.e. (15a) and (16)) indicate the property of v*P phase. On the other hand, the description in (15b), which is intended to refer to CP phase, does not seem to be the same relationship as (16), so that this might be a problem to explore the definition of phase uniformly in terms of Den Dikken's proposal. Furthermore, the structure shown in (18) is not true of the example (19a) in contrast to the example (19b). Note that both of them are definite nominal phrases with *that* and *Mary's* in prenominal position.

(19) a. that picture of John

b. Mary's picture of John

In (19a), there is no subject in the DP, while *Mary's* can be regarded as the subject of the nominal phrase (19b). As a result, following Den Dikken's proposal, the definite nominal phrase such as (19a) is not a phase, because there is no predication relationship in the relevant structure. However, such a prediction is inconsistent with the recent proposal that a definite nominal phrase should be a phase (e.g. Radford (2004) and the discussion already shown above). At the same time, Den Dikken's (2006a) proposal fails to account for the typical example shown in (20), which shows the Definiteness Island effect in terms of the PIC.

[5] Note that Den Dikken (2006a, b) does not divide the light verb phrase into the two subcategories: v*P and vP in contrast to Chomsky's proposal. In what follows, for expository convenience, I will use Chomsky's notation (i.e. v*P and vP) to show the light verb phrase.

(20) *Who did you see [$_{DP\text{-}Phase}$ that picture of t_{who}] ?
↑_____| PIC violation
×

In (20), the relevant nominal phrase does not have any subject, so that, following Den Dikken's proposal, *that picture of who* cannot be considered to be a phase. As a result, the ungrammaticality of (20) cannot be predicted by the PIC within Den Dikken's framework.

On the basis of these points, I suggest that what is important in Den Dikken's definition shown in (18) is that the structure is saturated structurally (and as a result semantically) with the two elements in specifier and complement positions, rather than it is regarded just as a predication relationship. If the structure which is saturated structurally is sent to the semantic interface by the operation of "Transfer," then such a structure should be interpretable and its interpretation is determined at the interface, because such a structure has enough information to be interpreted. Therefore, in terms of the basic minimalist assumption shown in (17), the relevant structure, which is saturated structurally, should be regarded as a phase. From this point of view, I will propose the following simple definition of phase:

(21) A phase must be saturated structurally and provide the interface with enough information to be interpreted there.

The definition (21) requires that the structural positions available within a phase (i.e. specifier and complement) should be filled with the elements which are interpretable at the interface (e.g. force, tense and lexical items), in order to provide the interface with enough information. And the latter part of the definition (21), which I suggest follows from the basic assumption (17) above, requires that a phase should be an optimal size as an informational unit for the interpretation. Accordingly, for example, TP in clausal structure could not be a phase, because (without CP) the information of tense alone is not enough for the interpretation at the interface.[6]

In the recent minimalist framework, the relevant positions in a phase (i.e. specifier and complement in the traditional terms) are called an "edge," which is created by the EF (Edge Feature) of a head (cf. Chomsky (2005, 2006) for the basic property of the EF). Theoretically, a head could create at least two edges, which for the expository convenience I will call "the right edge" and "the left edge" in this paper.[7] If these two edges are filled with the relevant

[6] This prediction seems to be compatible with the assumption in the Phase Theory, which proposes that CP and v*P are a phase in clausal structure but TP is not a phase.

[7] In some cases, as depicted below, a phase (especially, v*P and n*P) could have more than one element in its left edge:

(i) [$_{CP\text{-}Phase}$ what did John [$_{v*P\text{-}Phase}$ t_{what} t_{John} [v* buy] t_{what}]]
(cf. What did John buy?)

(ii) [$_{DP\text{-}Phase}$ the D [$_{n*P\text{-}Phase}$ big expensive old [$_{n*}$ vase] …]]
(cf. the big expensive old vase)

In (i), following the PIC, *what* must move to the CP through the left edge of the v*P (see also fn. 2). In order to do so, the v*P might have two left edges for *John* and *what*. On the other hand, in (ii), the

elements, such a structure can be interpretable at the interface. This means that for example, the transitive v*P shown in (22a) could be a phase, while the unaccusative and passive vPs such as (22b, c), which are not saturated structurally, could not be a phase.

(22) a. [$_{v*P}$ John kiss Mary]
(cf. John kissed Mary.)
b. [$_{vP}$ melt the snow]
(cf. The snow melted (in the afternoon).)
c. [$_{vP}$ love cherry blossoms]
(cf. Cherry blossoms are loved (by people).)

Even if Transfer is applied to (22b, c), which lack the information contained in the left edge, such a structure cannot be fully interpreted at the interface, so that they should not be a phase in terms of the primary assumption (17). Therefore, as shown in these examples, the definition (21) seems to evaluate the phasehood of a structure correctly, and restate Chomsky's assumption (i.e., v*P is a phase but vP is not a phase) in a principled way.

From the discussion so far, especially on the basis of the definition (21), I will propose the following structure as the basic structure of phase, changing Den Dikken's proposal slightly:

(23) The Basic structure of Phase (a revised version of (18))
[$_{HP}$ [$_{left\ edge}$ WP] H [$_{right\ edge}$ YP]]

The structure depicted in (23) shows that, in contrast to Den Dikken's proposal, a phase need not be a predication, if only it is saturated structurally. Thus, the interpretation of the structure shown in (23) depends on what element occurs in the edges, especially in the left edge. When the element in the left edge is a subject of the structure, the whole of the structure could be interpreted as a predication (i.e. subject-predicate relationship). In addition, when the element in the left edge is a *wh* phrase, the relevant phase (i.e. CP phase) could be interpreted as an interrogative sentence. Thus, the definition (21) could cover CP phase, in contrast to Den Dikken's proposal.

On the other hand, the theoretical structures illustrated in (24a, b) seems to be less informative, because they lack the element in the left edge or the right edge (cf. (22) above).

(24) a. [$_{HP}$ H [$_{right\ edge}$ YP]]
b. [$_{HP}$ [$_{left\ edge}$ WP] H]

Transfer should not be applied to such structures, because they cannot provide enough information to be interpreted at the interface. Therefore, they could not be considered to be a phase. From these points, I will propose that the basic structure of a phase should be as shown in (23)

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relevant nominal phrase has three adjectives in its left periphery, so that it might have three left edges for them. However, in such a case, it could be also possible to think that the three adjectives form just one AP. Unfortunately, for reasons of space, I will leave this question open in this paper.
(iii) [$_{DP\text{-}Phase}$ the D … [$_{n*P\text{-}Phase}$ [$_{AP}$ big expensive old] [$_{n*}$ vase] …]]

above. In the rest of this paper, I will discuss the phasehood of DP and *n**P, focusing on their left edges (i.e. WP and ZP in (25)). Specifically, I will discuss how the proposal developed here can account for the Definiteness or Specificity Island effects, which are observed in structures below (see the discussion in Section 3 and Section 4 for the details):

(25) a. [$_{DP}$ WP D ⋯ PP] (Definiteness Island)
(cf. *Who did you see that picture of?)
b. [$_{n*P}$ ZP *n** ⋯ PP] (Specificity Island)
(cf. *Who did see a certain picture of?)

In such structures, the right edge is always filled with PP (e.g. *of* PP and *about* PP). So, it seems that the existence of the left edge plays an important role in determining their phasehood.

Before entering into the detailed analysis, the next section is devoted to the discussion about the relation between the two nominal phases (i.e. DP and *n**P) and their interpretations on the basis of the proposal so far.

2.3. The Relation between Nominal Phase and Its Interpretation

I have already argued that in the nominal structure DP and *n**P should be a phase when they are saturated structurally, and that the saturated units are sent to the semantic interface by the operation of Transfer. In this section, I will consider the relation between these two phases and their interpretations. Traditionally, it has been pointed out that the semantic properties of nominal phrases are characterized by "definiteness" or "specificity," and that the definite and the (non-)specific interpretations are related to the definite nominal phrases and indefinite nominal phrases, respectively (cf. Hawkins (1978), Lyons (1999), Diesing (1992) and others).[8]

(26) a. Pass me that book on the table. (Definite Interpretation)
b. I bought a certain car yesterday. (Specific Interpretation)
c. I want to buy a car (when I grow up). (Non-specific Interpretation)

On the basis of the traditional observation and the proposal developed here, I suggest that the semantic properties under discussion (i.e. definiteness and specificity) should be related to the two-phase structure as follows:[9]

(27) a. $\underbrace{[_{\text{DP-Phase}}\ \text{that D}}_{\text{definiteness}}\ [_{n*P}\ [_{n*}\ \text{book}]\ \cdots\ ]]$ (cf. (26a))

[8] It has been also assumed that for example "uniqueness," "inclusiveness," and "familiarity" are the semantic properties of definite nominal phrases, and that definiteness can be divided into such subcategories (cf. Hawkins (1978), Enç (1991), Lyons (1999) and others). However, I will not address the detailed discussion of these notions, because it goes beyond the scope of this paper.

[9] See Section 3 and 4, for the detailed structures of definite and (non-)specific nominal phrases.

b. $[_{DP}\ [_{D}\ a]\ \underbrace{[_{n^*P\text{-}Phase}\ certain\ [_{n^*}\ car]\ \cdots\ ]]}_{specificity}$ (cf. (26b))

c. $[_{DP}\ [_{D}\ a]\ \underbrace{[_{nP}\ [_{n}\ car]\ \cdots\ ]]}_{non\text{-}specificity}$ (cf. (26c))

In (27), the structure (27a), which has the DP phase, shows a definite nominal phrase, while (27b, c), where the DP is not a phase, show indefinite nominal phrases. First of all, in (27b), the n*P should be a phase with the adjective *certain* in the left edge, so that it is sent to the interface and interpretable there as argued in the previous section. Thus, as argued above, it receives a certain interpretation. Following the traditional observation introduced above (cf. (26b)), I will propose that the relevant interpretation should be a "specific" interpretation. In (26b), it seems possible to consider that the speaker assume the existence of a specific car that he has already bought. In other words, such a proposal insists that a specific reading should be produced by interpreting an n*P phase (cf. (27b)) at the interface.

Secondly, in (27a), the DP is a phase with the pronoun *that* in its left edge, so it is sent to the interface and receives a definite interpretation, as observed in traditional works (cf. (26a)). Thus, it also seems possible to assume that it is DP phase that causes a definite interpretation. In contrast to these two cases, the structure illustrated in (27c) does not have any phase, so that it is not transferred to the interface. As a result, it receives neither definite nor specific interpretations. Therefore, the relevant nominal phrase is finally considered to be indefinite non-specific when it is interpreted with a sentence (more specifically, v*P) which contains it (see also fn. 14).

At this point, note that in some traditional works, the relevant interpretations (i.e. definiteness and specificity) are also explained in terms of a kind of semantic feature, for example, "identifiablity," as summarized by von Heusinger (2002).

(28) The Identifiability Criteria of Definiteness and Specificity

identified by	Definite (+Specific)	Indefinite Specific	Indefinite Non-specific
Speaker	+	+	−
Hearer	+	−	−

The table shown in (28) indicates that definiteness and specificity could be defined uniformly by [±identifiable]. Specificity requires that the relevant nominal phrase is identifiable by a speaker, and definiteness requires that the relevant nominal phrase is identifiable by both a speaker and a hearer. Put differently, it seems possible to say that definiteness implies specificity (cf. Enç (1991)). In the framework adopted in this paper (i.e. the NP-Shell

analysis), this relation between definiteness and specificity could be explained structurally. First of all, for the expository convenience, consider the definite nominal phrase shown in (29a):

(29) a. Mary's picture of John.
b. that book on the table (cf. (26a))

In the NP-Shell analysis, the structure of (29a) is derived as depicted in (30a, b), where the irrelevant parts are omitted:

(30) a. $[_{n^*\text{P-Phase}}$ Mary $[_{n^*}$ picture$]$ $[_{\text{NP}}$ $[_{\text{N}}$ $t_{\text{picture}}]$ of John$]]$ (n^*P-Phase Level)[10]
b. $[_{\text{DP-Phase}}$ D ⋯ $[_{n^*\text{P-Phase}}$ Mary $[_{n^*}$ picture$]$ $[_{\text{NP}}$ $[_{\text{N}}$ $t_{\text{picture}}]$ of John$]]]$
(DP-Phase Level)

In (30), at first, the subject of the nominal phrase *Mary* is base-generated in the left edge of the n^*P in (30a), because such a position is the place for a subject under the strong parallelism between clauses and nominal phrases. In the next step, the head D in (30b), which is null in this case (cf. Radford (2000)), agrees with *Mary* and its edge feature induces the movement of *Mary* to its left edge (i.e. the IM (Internal Merge) with *Mary* in the recent minimalist terms). On the basis of such a derivational process, a definite nominal phrase necessarily contains an n^*P phase, because its subject originates in the left edge of the n^*P. Thus, as a result of the derivation, definiteness, which is produced by DP phase, could entail specificity, which is produced by n^*P phase, as expected by the table shown in (28).

If such an explanation is on the right track, and an interpretation is determined on the basis of a syntactic structure, then the definite nominal phrase (29b) could be explained in the same way, because both of the examples shown in (29a, b) receive a definite reading.

(31) a. $[_{n^*\text{P}}$ that $[_{n^*}$ book$]$ $[_{\text{NP}}$ $[_{\text{N}}$ $t_{\text{book}}]$ on the table$]]$ (n^*P-Phase Level)
b. $[_{\text{DP}}$ D ⋯ $[_{n^*\text{P}}$ that $[_{n^*}$ book$]$ $[_{\text{NP}}$ $[_{\text{N}}$ $t_{\text{book}}]$ on the table$]]]$ (DP-Phase Level)

In (31), *that* in the left edge of the n^*P may not be a subject, but it is not a problem for the agreement between the D and *that*, if only *that* has the relevant formal feature(s), namely, ϕ-features. Thus, also in this case, the derivation could be completed and entail a specific reading as in the case of (30) above.

From this point of view, it seems plausible to assume that the interpretation of definiteness is not defined only by DP phase, but the relevant interpretation turns out to be definite as a result of the combination of n^*P phase and DP phase. I also assume that DP phase provides a hearer with some semantic information (e.g. referentiality), while n^*P phase, which expresses specificity, indicates that only a speaker can presuppose an existence of something referred

[10] In the NP-shell analysis, as in the case of the VP-shell analysis, a nominal root (i.e. N) moves into the next higher head n^*/n by the head movement. Such a derivation is also based on the framework of the Distributed Morphology (cf. for example Marantz (1997)), in which each category is determined by the combination of a lexical root and a functional head such as v, n and a.

to by a nominal phrase. Therefore, the discussion developed here could be summarized as follows:

(32) $\underbrace{[_{\text{DP-Phase}}\ \text{D}}_{\text{Referentiality}}\ \underbrace{[_{n^*\text{P-Phase}}\ n^*\ [_{\text{NP}}\ \cdots\ ]]]}_{\text{Presupposition}}$ (cf. (6))

$\underbrace{\qquad\qquad\qquad\qquad}_{<\text{Specific Reading}>}$

$\underbrace{\qquad\qquad\qquad\qquad\qquad\qquad}_{<\text{Definite Reading}>}$

In the next two sections, I will consider how the empirical facts already mentioned (i.e. Definiteness Island effects and Specificity Island effects) can be explained on the basis of the discussion so far.

3. Definiteness Island

In Section 1, we have already argued that English nominal phrases show the island effects. In this section, on the basis of the discussion so far, I discuss the grammaticality of the movement from the nominal phrases, and consider how the analysis proposed here can explain such empirical facts.

I begin with the following contrast, which shows the traditional observation: in (33b–d) the movement out of the definite nominal phrase to the matrix CP is banned (i.e. the Definiteness Island effects):

(33) a. Who did you see a picture of t_{who}?
b. *Who did you see the picture of t_{who}?
c. *Who did you see that picture of t_{who}?
d. *Who did you see John's picture of t_{who}?

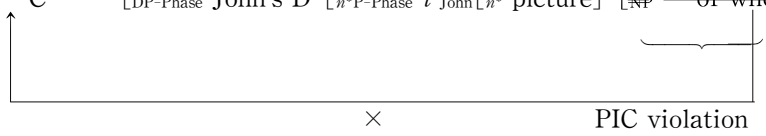
First of all, consider the example shown in (33d), which seems to be less problematic for the analysis proposed here. In terms of the similarity with the definite nominal phrase *Mary's picture of John*, which we have already discussed in the previous section (cf. (30)), I will assume that the structure of (33d) is as follows:

(34) $[_{\text{CP}}\ \text{C}\ \cdots\ [_{\text{DP-Phase}}\ \text{John's D}\ [_{n^*\text{P-Phase}}\ t_{\text{John}}\ [_{n^*}\ \text{picture}]\ [_{\text{NP}}\ \cdots\ \text{of who}]]]]$

In the structure of (34), the left edge of the n^*P is filled with *John's* (or the copy/trace of *John* at the next phase level DP), so that it is a phase and its complement (i.e. NP) is transferred to the semantic interface following Chomsky's assumption (cf. Chomsky (2006: 11) for example). Thus, after that, the relevant movement operation cannot be applied to such a domain, because it has been already transferred from Syntax before the next phase head (i.e. D) coming up. This should be the mechanism which causes the PIC violation.[11]

[11] I agree with Chomsky's (2006) assumption that the transferred domain (i.e. the complement of a phase head) cannot be accessed by the further operations in Syntax.

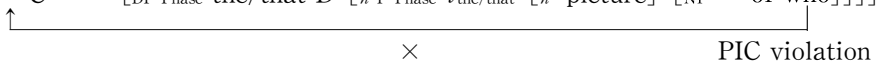
(35) [CP C … [DP-Phase John's D [n*P-Phase t John [n* picture] [NP … of who]]]]



The derivation illustrated in (35) shows that the movement of *who* from the transferred domain should be constrained by the PIC. As a result, the ungrammaticality of (33d) could be explained correctly in terms of the proposal developed here.[12]

Given such an explanation for the ungrammaticality of the definite nominal phrase, it seems possible to account for the examples (33b, c) in the same manner, because they are also definite nominal phrases, so that they should have the same structure as illustrated in (35) above : [13]

(36) [CP C … [DP-Phase the/that D [n*P-Phase t the/that [n* picture] [NP … of who]]]]



In (36), since the left edge of the n*P is filled with *the/that* as in the case of (35), the n*P is a phase and its complement should be sent to the interface by the operation of Transfer.

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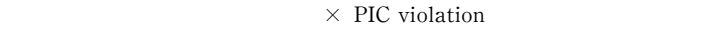
[12] In this example, the movement of the *wh* phrase (i.e. *who*) could cause the PIC violation when it moves out of the n*P. However, one might point out that *who* can escape from the n*P phase in the same way as *what* escapes from the v*P phase in an interrogative sentence such as *What did you eat ?* (cf. fn. 2) :

(i) [CP-Phase what did you [v*P-Phase t what t you [v* eat] t what]]

If this suggestion is on the right track, the movement of *who* from n*P phase in (35) could be allowed. However, even in such a case, the other phase DP blocks the relevant movement of the *wh* phrase as illustrated in (ii), because the complement of D (i.e. n*P) has been already transferred at the CP level :

(ii) [CP C … [DP-Phase John's D ~~[n*P-Phase t who t John [n* picture] [NP … of t who]]]~~]]



As a result, the ungrammaticality of the example could be predicted correctly within the framework here. Of course, such an explanation presupposes that DP does not provide an escape hatch with a *wh* phrase as in the case of CP (cf. fn. 2). I suggest that this property of DP is based on the same assumption as the relevant property of CP : DP is the phase at which phrase type should be determined, and the EF of D could be deleted because it is not necessary any more once the type of DP (e.g. "definite") is determined by the appropriate element (e.g. *John, the* and *that*) in its left edge (see fn. 2 again). If such a discussion is on the right track, it also shows the strong parallelism between clauses and nominal phrases.

[13] In this paper, I will suggest that there are two possibilities with respect to the function of the determiner *the*. One of them should be *the* as a definite determiner (or a referential word) such as *this* and *that* (see the discussion in (36)), which occurs in the left edge of DP following the proposal developed here (see the discussion in (31), where *that* is first base-generated in the left edge of n*P and moves to the left edge of DP through the operation of Agree with D). In this case, the D is null and requires an element which is specified as [+def] (i.e. *the* and *that* in this case) in its left edge. The other possibility should be *the* as an article such as *a* (see the discussion in (40)), which occurs lexically in the head position of DP as often assumed in the literature (see Radford (2000) for example). This type of *the* seems to be different from *a* in that *a* must be marked [+singular], while *the* is not necessarily marked [+singular] as shown in the examples (39a-f). At this point, what is important is that the same situation as the head D is true of the head C in CP phase. As shown in (ia), on the one hand, C is null and requires an element which is specified as [+Q]. On the other hand, C may be realized lexically by the elements such as *if*, *that* and *for*, as shown in (ib).

(i) a. I wonder [CP who C that woman is].
b. I wondered [CP [C if] he was awake].

I suggest that these similarities between D and C also show the strong parallelism between clauses and nominal phrases.

Therefore, the relevant movement also causes the PIC violation, so that the examples shown in (33b, c) should be ungrammatical.

On the other hand, in (33a) the left edges of *n*P and DP are not filled with any element. Then, the nominal phrase (33a) is less informative, so that it could not be interpreted at the interface, nor could it be transferred there not only at *n*P level but also at DP level.[14] Accordingly, it seems that the indefinite nominal phrase in (33a) have the following structure (cf. (27c) above), and that there is not any phase within (37).

(37) $[_{CP}$ C … $[_{DP}$ $[_{D}$ a] $[_{nP}$ $[_{n}$ picture] $[_{NP}$ … of who]]]]
↑ No PIC violation

In (37), the movement of *who* to the matrix CP is possible in terms of the PIC. Thus, on the basis of the analysis discussed in this paper, it is also possible to predict the grammaticality of (33a) correctly.

However, in contrast to the ungrammaticality of (33b) (and (33c, d)), a few grammatical examples such as (38a, b) is observed in the literature (e.g. Fiengo and Higginbotham (1981) and Yoshida (2003)). These examples show that a *wh* phrase can move out of a nominal phrase with *the* in its left periphery.

(38) a. Which cities did you witness the destruction of $t_{\text{which cities}}$?
(Fiengo and Higginbotham (1981))

b. Who did you meet the brother of t_{who}? (Yoshida (2003))

Before closing this section, consider such examples. Fiengo and Higginbotham suggest that *the destruction* in (38a) is a mass nominal. In such a suggestion, what is important is that *the* used in this case does not have any referent. In the following examples, *the* does not have any referent, either: "non-referential use" of *the*.

(39) a. The pen is mightier than the sword.
b. When one is poor, the beggar will come out.
c. The housewife is very busy on weekday mornings.
d. He plays the violin.
e. We buy eggs by the dozen.
f. He didn't have the courage to go out.

The non-referential *the* in each example has a similarity with the indefinite article *a* in that both of them do not have any referent. Thus, if the syntactic structure is an input to semantics as argued so far, the nominal phrases with non-referential *the* should have the structural similarity with an indefinite nominal phrase, whose structure has been illustrated in (37)

[14] In the Phase Theory, the DP in (37) is finally transferred at the next higher phase level (i.e. the *v**P-phase level in *Who did you see a picture of?*). I suggest that the relevant DP cannot help receiving an indefinite and nonspecific interpretation (as a part of the interpretation of the *v**P phase), because it cannot be regarded as definite nor as specific at the interface then.

above. On the basis of this prediction, it seems probable that the structural position of non-referential *the* is as follows:

(40) a. [$_{CP}$ C ⋯ [$_{DP}$ [$_{D}$ the] [$_{nP}$ [$_{n}$ destruction] [$_{NP}$ ⋯ of which cities]]]] (cf. (37))
No PIC violation

b. [$_{CP}$ C ⋯ [$_{DP}$ [$_{D}$ the] [$_{nP}$ [$_{n}$ brother] [$_{NP}$ ⋯ of who]]]] (cf. (37))
No PIC violation

In (40a, b), which show the structure of (38a, b), the left edges of the DP and the *n*P are not filled with any element. Thus, there is not any phase in these structures. As a result, the PIC does not block the relevant movements of *which cities* and *who* in (40).

If such an explanation is on the right track, it seems possible to account for the grammaticality of the nominal phrases with *the* (including some special cases such as 38a, b), which contain the non-referential use of *the*) uniformly in terms of the PIC.

4. Specificity Island

In Section 2.1, I have already suggested that the ungrammaticality of the following example, where the *n**P is saturated structurally, should be explained by the PIC.

(41) a. *[$_{CP}$ Who did you see [$_{DP}$ [$_{D}$ a] [$_{n*P\text{-}Phase}$ certain [$_{n*}$ picture] [$_{NP}$ ⋯ of t_{who}]]]] ?
× PIC violation (cf. (12a))

b. *[$_{DP}$ the city's D [$_{n*P\text{-}Phase}$ deliberate [$_{n*}$ destruction] [$_{NP}$ ⋯ $t_{the\ city}$ (by the enemy)]]]
× PIC violation (cf. (12b))

In (33a), on the other hand, I have also argued that the movement of a *wh* phrase out of an indefinite nominal phrase should be allowed:

(42) [$_{CP}$ C ⋯ [$_{DP}$ [$_{D}$ a] [$_{nP}$ [$_{n}$ picture] [$_{NP}$ ⋯ of who]]]] (cf. (37))
No PIC violation

In (42), the *n*P is not saturated structurally, so that it cannot be transferred to the interface. As a result, such a derivation is not ruled out by the PIC. From these points, it seems that the movement from an indefinite nominal phrase is accounted for uniformly in terms of the structural saturation (see also the definition (21)).

However, in contrast to (42), Fiengo and Higginbotham (1981) observe that the extraction from an unsaturated nominal phrase cannot be allowed in the following example:

(43) *Which regions did you sample [$_{DP}$ a wine from $t_{which\ regions}$] ?[15]

(Fiengo and Higginbotham 1981: 420)

[15] I will suggest that the ungrammaticality of (43) should not result from the so-called adjunct island violation (see fn. 17).

In this section, I argue that the analysis proposed here can account for the ungrammaticality of the extraction as shown in (43). Concretely, I suggest that the relevant indefinite nominal phrase should receive a specific interpretation, so that in such a case the relevant nominal phrase should be a phase (i.e. n*P) in terms of the relation between syntactic structure and interpretation (cf. the discussion in Section 2).[16] As a result, the PIC should block the *wh* movement shown in (43). At this point, however, a basic question arises: how can we consider the nominal phrase in (43) to be specific? It is because the left edge of the nominal phrase in (43) is not filled with any overt element. This might be a problem to the explanation presented here.

Note that within the framework adopted in this paper, what is important is that the specific interpretation is a result of the operation of Transfer. Thus, if the nominal phrase in (43) receive a specific reading, it must be saturated structurally, and it must be transferred (i.e., it must be a phase). Such a proposal could be illustrated structurally as follows:[17]

(44) $[_{CP}$ C ⋯ $[_{DP}$ $[_{D}$ a] $[_{n^*P\text{-}Phase}$ $[_{XP}$ Ø] $[_{n^*}$ wine] $[_{NP}$ ⋯ from which regions]]]]

× PIC violation

This illustration shows that the left edge of the n*P is filled with an element, but the element is not realized overtly. In other words, the relevant positions should be filled with a null lexical element. I suggest that such a case could occur when a speaker presupposes a specific entity, but (for some reasons) he does not dare to mention the details of it. In this respect, it seems possible to propose that the null element is expressed by the null version of *certain* (i.e. $\text{Null}_{\text{certain}}$), because (*a*) *certain X* expresses the presupposition of a specific entity (cf. Enç (1991)).[18] Based on such an idea, the structure of (44) above could be modified as follows:

(45) $[_{CP}$ C ⋯ $[_{DP}$ $[_{D}$ a] $[_{n^*P\text{-}Phase}$ $\text{Null}_{\text{certain}}$ $[_{n^*}$ wine] $[_{NP}$ ⋯ from which regions]]]]

× PIC violation

In (45), the n*P, which is saturated structurally with the null element, is a phase, so that the movement of *which regions* to the left edge of the matrix CP is prohibited by the PIC. Of course, when the null element is shown overtly, the ungrammaticality of the extraction from the

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[16] Actually, Oba (1999) suggests that the indefinite nominal phrase in (43) receives a specific interpretation.

[17] Some readers might point out that the ungrammaticality of (43) or (44) is because of an adjunct island effect, because the PP from which the *wh* phrase is extracted is an adjunct. However, as shown in the following grammatical examples, the ungrammaticality of (43) or (44) cannot be explained only by the adjunct island violation.

(i) a. Where did you sample the wine from t_{where}? (Fiengo and Higginbotham (1981: 420))
b. Who did you write up a paper about t_{who}? (Guéron (1990: 155))

Incidentally, I suggest that (ia) is not a counterexample to the analysis proposed here as discussed in Section 3 (cf. (38) and (40)).

[18] It seems also possible to assume an existential operator (i.e. ∃(x)) as the relevant element, because it can be interpretable at the interface and express the presupposition of a certain entity. However, in this paper I will leave this possibility open for reasons of space.

specific indefinite nominal phrases can be demonstrated much more clearly:

(46) a. *Who did you see a certain picture of t_{who}? (= (41a))

b. *What subject did they publish a certain book about $t_{what\ subject}$? (Guéron (1980))

In these examples, it seems to be clearer that the n*P is a phase:

(47) a. $[_{CP}$ C ⋯ $[_{DP}$ $[_{D}$ a] $[_{n*P\text{-}Phase}$ certain $[_{n*}$ picture] $[_{NP}$ ⋯ of who]]]]

× PIC violation

b. $[_{CP}$ C ⋯ $[_{DP}$ $[_{D}$ a] $[_{n*P\text{-}Phase}$ certain $[_{n*}$ book] $[_{NP}$ ⋯ about what subject]]]]

× PIC violation

In (47a, b), the n*Ps are filled with the adjective *certain*, so that they are saturated structurally and transferred to the interface. As a result, the extraction of *who* or *what subject* is blocked by the PIC. In this way, the analysis proposed here can also predict the ungrammaticality of *wh* movement from specific indefinite nominal phrases uniformly, in terms of the PIC.

The analysis developed in this section is supported by other empirical facts. First of all, consider the following examples, which also contain overtly unsaturated nominal phrases:

(48) a. John saw a picture of Paul.

b. John destroyed a picture of Paul.

(cf. ∃(x) [x is a picture (of Paul), y destroyed x])

c. John tore up a book about Darwin.

(cf. ∃(x) [x is a book (about Darwin), y tore up x])

In contrast to the example (48a), the nominal phrases in (48b, c), where the *destroy*-type verbs receive the "once-only-action" interpretation, should receive a specific interpretation, because it is assumed that these sentences presuppose the existence of a certain entity.[19] So, if the explanation proposed in this section is on the right track, the extraction of a *wh* word from the (overtly unsaturated) indefinite nominal phrases in (48b, c) should be ungrammatical. Such a prediction is borne out by the following contrast:

(49) a. Who did you see a picture of t_{who}? (cf. (48a))

b. *Who did you destroy a picture of t_{who}? (cf. (48b)) (Diesing (1992))

c. *Who did John destroy a book about t_{who}? (cf. (48c)) (Chomsky (1977))

In this way, the analysis proposed here can also account for the grammaticality of the nominal phrases which are related to the Specificity Island effect correctly.

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[19] Diesing (1992) points out that this type of verbs may receive non-presuppositional (i.e. non-specific) reading too, when they present habitual (i.e. non-once-only) activities with time adverbials such as *every day, every week* and so on.

(i) Oscar destroys/tears up a picture of a linguist every day.

5. Conclusion

In this paper, we have discussed the relation between syntactic structure and its interpretation within the framework of the Phase Theory. In the course of the discussion, I have suggested that a phase must be saturated structurally with the interpretable elements, which could be null in some cases, and that definite and specific interpretations result from the Transfer of the saturated structures to the semantic interface. Such a discussion should have some implications to the study of the relation between syntax and semantics.

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