

Two Types of Topic and Focus Features*

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1. Introduction

The primary aim of this paper is to develop the mechanism of topic and focus movement within the framework of Chomsky (2000, 2001) and propose an analysis which is substantially distinguished both on theoretical and empirical grounds. In pursuing this aim, this paper focuses on English and Japanese constructions exemplified in (1) and (2).

- (1) a. That book, John gave to Mary.
 b. THAT BOOK John gave to Mary.
- (2) a. Sono hon-wa John-ga Mary-ni ageta.¹
 that book-Top John-Nom Mary-Dat gave
 ‘That book, John gave to Mary.’
- b. John-wa SONO HON-WA Mary-ni ageta.
 John-Top THAT BOOK-Foc Mary-Dat gave
 ‘THAT BOOK John gave to Mary.’

These constructions have been analyzed as involving syntactic movement to topic and focus positions. Plausibly as a consequence of movement to the relevant positions, the clause-initial phrases in the a-examples behave as topics, and the capitalized phrases in the b-examples behave as foci.

In previous studies, a common assumption has been made where an element subject to topic and focus movement carries a topic/focus feature in the same vein that a *wh*-phrase carries a *wh*-feature for *wh*-movement. Maintaining the essence of

previous analyses, this paper proposes a distinctive analysis in which a previously assumed single topic/focus feature is split into two types. To be more specific, the two types of features are an interpretable topic/focus feature and an uninterpretable operator feature. This paper argues that this analysis is argued for both from theoretical and empirical grounds.

The organization of this paper is as follows. Section 2 will introduce some preliminaries for the following discussions. This section will present distinctions between topic and focus constructions and make some theoretical assumptions. Section 3 will propose an analysis which assigns not only an interpretable feature but also an uninterpretable feature to elements undergoing topic and focus movement. It will be argued that this analysis is preferred to previous analyses both theoretically and empirically. Section 4 will provide an approach to morphological and phonetic properties of topic and focus constructions in light of the analysis proposed in section 3. This section will claim that these properties are effects accompanying the deletion of the uninterpretable feature. Finally, section 5 will make concluding remarks.

2. Preliminaries

Prior to the central discussions, section 2 demonstrates basic properties of the topic and focus constructions in (1) and (2). At the same time, this section makes some theoretical assumptions that will be crucial to the following discussions.

2.1. Properties of Topic and Focus Movement

The English constructions in (1) are well-attested examples of A'-movement. They are syntactically common in that a certain element A'-moves to the clause-initial topic/focus position. Previous researches have used different terms for (1a, b). For example, Gundel (1974) refers to them as Topic Topicalization and Focus

Topicalization, and Ward (1988) refers to them as Topicalization and Focus Preposing. Despite the slight difference in terminology, previous researches agree by and large that the clause-initial phrase in (1a) conveys old information and serves as a topic element, and that in (1b) conveys new information and serves as a focus element. For simplicity, this paper refers to (1a) as Topicalization and (1b) as Focalization. Accordingly, this paper refers to the clause-initial phrase in (1a) as a topicalized phrase and that in (1b) as a focalized phrase.

In English, Topicalization and Focalization look quite identical on surface. An apparent difference lies in whether or not the clause-initial phrase is primarily stressed or not (see Gundel (1974), Ward (1988) and Culicover (1991)). This phonetic difference is relevant to the semantic difference between topics and foci. The topicalized phrase receives a non-primary stress, and the primary stress falls on some focus element in the remaining part of the sentence. Typically, the topicalized phrase is followed by an intonation break which is represented as a comma in writing notation. On the other hand, the focalized phrase is the locus of the primary stress, and it is followed by no intonation break. Throughout this paper, the focalized phrase is capitalized to signify the locus of the primary stress and to clearly make an apparent distinction between the focalized phrase and the topicalized phrase.

In the same vein, the Japanese constructions in (2) have been analysed as those in which an element is located in the topic/focus position. In addition, these constructions are morphologically and semantically unique. Namely, the element in the topic/focus position is accompanied by the topic or focus marker *wa*, and the interpretation of the *wa*-marked phrase differs depending on the position it occupies (see Kuno (1973)). The *wa*-phrase in the clause-initial position such as in (2a) is conceived of as a topic of the sentence, receiving thematic topic interpretation. On the other hand, the *wa*-phrase in the preverbal position such as in (2b) is given an emphasis, receiving contrastive focus interpretation. Following these interpretational differences and pursuing

simplicity, this paper refers to the thematic topic *wa*-phrase as the topicalized phrase and the contrastive focus *wa*-phrase as the focalized phrase. Furthermore, this paper calls sentence (2a) Topicalization and sentence (2b) Focalization for ease of comparative discussions with the English constructions in (1). The focalized phrase is capitalized to signify the locus of an emphatic stress and to clearly make an apparent distinction between the focalized phrase and the topicalized phrase.

As in the case of the English topicalized phrase, the Japanese topicalized phrase is assumed to target the left-peripheral topic position. On the other hand, the typical position of the Japanese focalized phrase is the preverbal position, which leads Yanagida (1995) to assume a focus projection between TP and VP. As for the topic and focus positions, it is controversial whether or not the phrases at issue are located there via movement. With respect to Topicalization, some researchers propose a movement analysis of the topicalized phrase, and others propose a base-generation analysis at least for the topicalized NP (see Kuroda (1986) and Sakai (1994); see also Kuno (1973), Saito (1985) and Hoji (1985)). This paper would rather not go into this controversial issue. This paper simply assumes following Sakai (1994) and Yanagida (1995) that topicalized and focalized phrases in Japanese undergo syntactic movement to the topic and focus positions.²

2.2. Landing Sites and Sentence Structures

It is not too much to say that Rizzi (1997) is the most influential analysis of the left periphery in the recent era. He presents the articulated CP structure in (3).

$$(3) \quad [_{\text{ForceP}} \text{Force}^0 [_{\text{TopP}} \text{Top}^0 [_{\text{FocP}} \text{Foc}^0 [_{\text{TopP}} \text{Top}^0 [_{\text{FinP}} \text{Fin}^0 [_{\text{TP}} \dots$$

The articulated CP structure has been adopted by a large number of studies, especially those that are concerned with topic and focus constructions. In the studies, TopP is

identified as the topic position and FocP is identified as the focus position. For ease of exposition, this paper assumes along the line of Rizzi (1997) that the topicalized phrase targets Spec-TopP and the focalized phrase targets Spec-FocP both in English and Japanese. This paper also assumes that TopP and FocP are optionally projected, i.e., they are projected only when topic and focus movement is triggered.

As represented in (3), Rizzi (1997) assumes that both of TopP and FocP can be projected at once. This assumption straightforwardly captures co-occurrences of a topicalized phrase and a focalized phrase in Italian such as in (4).

- (4) (Domani,) QUESTO (a Gianni,) gli dovreste dire.
Tomorrow THIS to Gianni Cl you-should tell
'(Tomorrow) THIS (to Gianni), you should tell him.'

(Rizzi (1997:298))

The articulated CP structure is of significant use in capturing this sort of fact in Romance languages. However, it is questionable whether the structure is applied to English as it is, given sharp contrasts between English and Romance languages. In English, for example, a topicalized phrase and a focalized phrase cannot co-occur in the left periphery regardless of orderings (see Tanigawa (2011) for details).

- (5) a. ?* THAT BOOK to Mary, John gave.
b. ?* To Mary, THAT BOOK John gave.

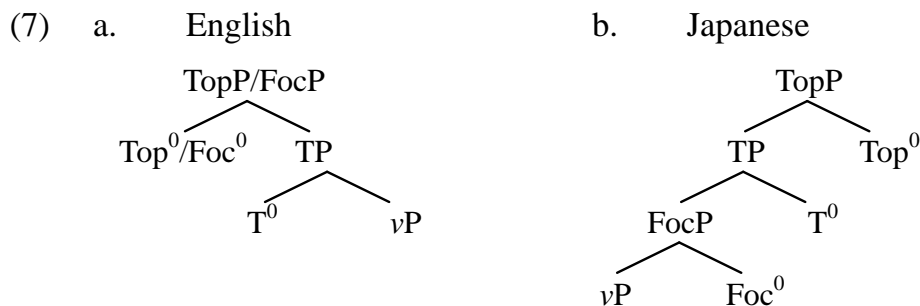
Based on this peculiar fact, this paper does not adopt the articulated CP structure in (3). Instead, this paper assumes for English that TopP and FocP are incompatible and that only one instance of TopP or FocP is projected per clause.

Meanwhile, Japanese patterns like Italian in permitting co-occurrences of a topicalized phrase and a focalized phrase, as exemplified in (6).

- ‘That book, John gave TO MARY.’

However, Japanese differs in that the focalized phrase occurs in the preverbal position rather than the left periphery. On the basis of this fact, this paper assumes for Japanese that FocP is projected between TP and vP, while TopP is projected above TP.

Summarizing the discussion above, this paper utilizes the structure in (7a) for English and the structure in (7b) for Japanese.



Regarding these structures, another assumption should be made. Both in English and Japanese, Topicalization and Focalization can occur in the embedded clause, almost exclusively when the clause is selected by assertive predicates such as *think* and its Japanese counterpart *omou*. For the embedded cases, this paper assumes that CP is projected on the top of the structures in (7) with the head C^0 occupied by the complementizer *that* or its Japanese counterpart *to*.

3. Two Types of Topic and Focus Features

In light of the preliminaries that section 2 introduced, section 3 proposes a unique analysis for topic and focus movement. After section 3.1 outlines previous analyses, section 3.2 proposes an alternative analysis which assigns two types of features to phrases undergoing topic and focus movement in English. Then section 3.3 provides

arguments for how this analysis is preferred to previous analyses both from theoretical and empirical points of view. Finally, section 3.4 extends the analysis to topic and focus movement in Japanese.

3.1. Previous Analyses of Topic and Focus Movement in English

It has been generally assumed in previous analyses that the topicalized phrase carries a topic feature, which is responsible for triggering A'-movement of the topicalized phrase to the left periphery. Lasnik and Saito (1994), Nakamura (1996) and Rizzi (1997) use [+Top] as a notation of a topic feature, deriving (8a), as in (8b).

- (8) a. This book, John gave to Mary.
b. [_{TopP} Top⁰_[+Top] [_{TP} John gave this book_[+Top] to Mary]]

In (8b), a topic feature [+Top] is assigned to the topicalized phrase and to the head of the topic projection TopP. The topicalized phrase must move to Spec-TopP in order for its [+Top] to enter into a spec-head relation with [+Top] in the functional head.

The same mechanism has been given to Focalization. Details aside, most previous analyses assume that the focalized phrase carries a focus feature [+Foc] and that it moves up to a focus projection such as FocP to establish a proper relation with [+Foc] in the functional head (see Nakamura (1996) and Rizzi (1997)).

- (9) a. THAT BOOK John gave to Mary.
b. [_{FocP} Foc⁰_[+Foc] [_{TP} John gave THAT BOOK_[+Foc] to Mary]]

These analyses do not commit themselves to interpretability of topic and focus features, as the notion of feature interpretability was not present or familiar at the time. However, they agree that [+Top] and [+Foc] assigned to topicalized and focalized phrases are visible in LF. This is equivalent to saying that these features are translated into interpretable features under the recent theoretical framework.

Radford (2004) makes explicit reference to interpretability of topic and focus features when he modernizes the analyses above within the framework of Chomsky (2000, 2001). As shown in (10a, b), he assumes that topic and focus features assigned to topicalized and focalized phrases are interpretable features, while those features in the functional heads are uninterpretable features.

- (10) a. $[_{TopP} \quad Top^0_{[uTop][EPP]} \quad [_{TP} \quad \text{John gave this book}_{[Top]} \text{ to Mary} \quad]]$
 b. $[_{FocP} \quad Foc^0_{[uFoc][EPP]} \quad [_{TP} \quad \text{John gave THAT BOOK}_{[Foc]} \text{ to Mary} \quad]]$

In the Topicalization case of (10a), for example, the topicalized phrase carries an interpretable topic feature $[Top]$, which enters into a matching relation with its uninterpretable counterpart $[uTop]$ in Top^0 . Via this matching relation, the topicalized phrase moves up to Spec-TopP to satisfy the EPP-feature $[EPP]$.

As outlined above, a number of previous analyses have assumed a single topic/focus feature for the displaced phrase in Topicalization and Focalization. Although most of the previous studies do not refer to feature interpretability, topic and focus features assigned to topicalized and focalized phrases should be translated into interpretable features under the recent framework because they are assumed as visible in LF. Radford (2004) explicitly assumes that the topic and focus features at issue are interpretable features, although presenting no discussion as to why they are motivated to be so. Such an assumption is not unreasonable, provided that interpretable topic and focus features survive at LF and contribute to semantic interpretation.

However, as will be discussed in 3.3, there are reasons to believe that the previous analyses above are not maintainable both on theoretical and empirical grounds. In the following sections, this paper will offer an alternative analysis and clarify how this analysis is preferred to the previous analyses.

3.2. An Alternative Analysis: Two Types of Topic and Focus Features

Section 3.2 proposes an analysis in which elements undergoing topic and focus movement carry an uninterpretable feature in addition to an interpretable feature.

Before proposing an alternative analysis for topic and focus movement, it is essential to spell out the theoretical framework this paper adopts. The theoretical framework adopted here is Chomsky's (2000, 2001) Minimalist framework, in which uninterpretable features play significant roles. In this framework, the operations *Agree* and *Move* require a goal that is both local and active, and uninterpretable features such as structural Case features render the goal active, able to implement an operation. This is often referred to as Activation Condition, according to which an element is required to have an uninterpretable feature in order to function as an active goal (see Chomsky (2000:123)). As an illustration, look at how the ν P-internal subject *John* in (11a) enters into a matching relation with T^0 for A-movement to Spec-TP.

- (11) a. John broke the glass.
 b. [TP $T^0_{\{u\phi\}[EPP]}$ [ν P John $_{\{ \phi \}[uCase]}$ broke the glass]]
 c. [TP John $_{\{ \phi \}[uCase]}$ $T^0_{\{u\phi\}[EPP]}$ [ν P t_{Subj} broke the glass]]

In (11b), *John* carries two types of features which differ in interpretability: interpretable ϕ -features $[\phi]$ and an uninterpretable case feature $[uCase]$. In this example, $[uCase]$ enables *John* to be an active goal, and $[\phi]$ successfully enters into a matching relation (*Agree*-relation) with a probe $[u\phi]$ in T^0 . As a consequence of this matching relation, $[u\phi]$ and $[uCase]$ undergo deletion, and *John* moves up to Spec-TP to satisfy $[EPP]$, as sketched in (11c). Once $[uCase]$ is deleted, *John* turns into an inactive goal, which can no longer participate in a matching relation.

In Chomsky (2000), *wh*-movement is treated on a par with A-movement in that the *wh*-phrase carries not only an interpretable feature but also an uninterpretable

feature. The primary reason for this treatment is to pursue a good consistency between A-movement and *wh*-movement. In Chomsky (2000), *wh*-movement takes place in the following fashion:

- (12) a. What did Mary buy?
 b. $[_{CP} \quad C^0_{[uQ][EPP]} \quad [_{TP} \quad \text{Mary} \quad \text{buy} \quad \text{what}_{[Q][uWh]} \quad]]$
 c. $[_{CP} \quad \text{what}_{[Q][uWh]} \quad C^0_{[uQ][EPP]} \quad [_{TP} \quad \text{Mary} \quad \text{buy} \quad t_{Wh} \quad]]$

As shown in (12b), the *wh*-phrase carries an uninterpretable *wh*-feature [*uWh*] in addition to an interpretable Q-feature [Q], while C^0 has an uninterpretable Q-feature [*uQ*] and [EPP]. In this derivation, [*uWh*] makes the *wh*-phrase an active goal for a probe C^0 , and a matching relation is successfully established between the two Q-features. Due to this matching relation, [*uQ*] and [*uWh*] get eliminated, and finally, the *wh*-phrase moves up to Spec-CP to eliminate [EPP], as sketched in (12c).

Based on the theoretical framework overviewed above, the remainder of this section proposes an analysis in which elements subject to topic and focus movement carry an uninterpretable feature in addition to an interpretable feature. It is not a novel, let alone quirky, way to assign two types of features to elements undergoing A'-movement. A good example is *wh*-movement. In contrast to the typical analysis in which the *wh*-phrase carries a single *wh*-feature, Shima (1999), Chomsky (2000) and Watanabe (2005) hypothesize for the *wh*-phrase two types of formal features which differ in interpretability. Their analyses for (12a) are summarized in (13a, b).

- (13) a. $[_{CP} \quad C^0_{[uWh][Op]} \quad [_{TP} \quad \text{Mary} \quad \text{buy} \quad \text{what}_{[uWh][Op]} \quad]]$
 b. $[_{CP} \quad C^0_{[uQ][EPP]} \quad [_{TP} \quad \text{Mary} \quad \text{buy} \quad \text{what}_{[Q][uF]} \quad]]$

The representation in (13a) illustrates Shima's (1999) analysis, in which the *wh*-phrase carries an interpretable operator feature [Op] and an uninterpretable *wh*-feature [*uWh*]. On the other hand, the representation in (13b) illustrates analyses of Chomsky (2000)

and Watanabe (2005), in which the *wh*-phrase carries an interpretable Q-feature [Q] and an uninterpretable feature [*u*F]. In Chomsky (2000), [*u*F] is an uninterpretable *wh*-feature [*u*Wh], as has been already shown. In Watanabe (2005), [*u*F] is an uninterpretable focus feature [*u*Foc].

This paper extends to topic and focus movement the essential mechanism of the analyses in (13), particularly Chomsky's (2000) analysis on *wh*-movement. First, this paper proposes for Topicalization an analysis in which a single topic feature previously assumed for the topicalized phrase is split into two types of features. Specifically, the two features are an interpretable topic feature [Top] and an uninterpretable feature which this paper tentatively calls an operator feature [*u*Op]. The present analysis derives the Topicalization example of (14a), as in (14b, c).

- (14) a. That book, John gave to Mary. (=(1a))
 b. [_{TopP} Top⁰<sub>[*u*Top][EPP]] [_{TP} John gave that book_{[Top][*u*Op]} to Mary]
 c. [_{TopP} that book_{[Top][*u*Op]} Top⁰_{[*u*Top][EPP]] [_{TP} John gave *t*_{Top} to Mary]}</sub>

In (14b, c), the functional head Top⁰ is endowed with an uninterpretable topic feature [*u*Top] as well as [EPP]. [*u*Top] undergoes deletion by entering into a matching relation with [Top] of the topicalized phrase. What is crucial and unique in this analysis is that this matching relation triggers another feature deletion: also [*u*Op] undergoes deletion at this point concomitantly to topic feature matching. Put it another way, [*u*Op] is not eliminated in the absence of topic feature matching. The derivation is completed once the topicalized phrase moves to Spec-TopP to satisfy [EPP].

This paper adopts the same line of analysis to Focalization. The only difference from Topicalization is that [Foc] is assigned to the displaced phrase and its uninterpretable counterpart [*u*Foc] is in Foc⁰. Everything else works exactly in the same way as follows:

- (15) a. THAT BOOK John gave to Mary. (= (1b))
 b. $[_{FocP} Foc^0 [_{uFoc} [EPP] [_{TP} John\ gave\ THAT\ BOOK_{[Foc][uOp]} to\ Mary]]$
 c. $[_{FocP} THAT\ BOOK_{[Foc][uOp]} Foc^0 [_{uFoc} [EPP] [_{TP} John\ gave\ t_{Foc}\ to\ Mary]]$

As shown in (15b, c), [Foc] and [uOp] are assigned to the focalized phrase. [uFoc] in Foc^0 enters into a matching relation with [Foc]. This matching relation results in deletion of both [uFoc] and [uOp]. The derivation is completed once the focalized phrase moves to Spec-FocP to satisfy [EPP] in Foc^0 .

In the present analysis, the two formal features [Top]/[Foc] and [uOp] play an independent role in analogy with [Q] and [uWh] in *wh*-movement and [φ] and [uCase] in A-movement. As an interpretable feature, [Top]/[Foc] survives at LF and contributes to semantic interpretation. In LF, [Top]/[Foc] counts as a quantificational feature and allows its possessor to function as a quantifier which binds a variable existing in the original position of the possessor. On the other hand, [uOp] contributes to the obligatory application of topic/focus movement to its possessor.³ In principle, [uOp] is eliminated only when [Top]/[Foc] enters into a matching relation with [uTop]/[uFoc] in the functional head, i.e., only when the functional head with [uTop]/[uFoc] is present in the derivation. Provided that such a functional head is necessarily accompanied with [EPP], the presence of [uOp] always gives rise to its possessor's movement to the functional projection.

3.3. Arguments for the Present Analysis

Section 3.3 clarifies three arguments in favour of the analysis proposed in section 3.2. It is demonstrated that the present analysis is preferable both on theoretical and empirical grounds.

The first argument for the present analysis concerns theoretical issues. One of the crucial hypotheses in Chomsky's (2000, 2001) framework is Activation Condition to

the effect that a goal must have an uninterpretable feature for *Agree* and *Move*. According to this condition, it is hypothesized that the goal DP in A-movement to Spec-TP has [*uCase*], and the goal *wh*-phrase in *wh*-movement has [*uWh*] (see (11) and (12) in section 3.2).

In this regard, recall from section 3.1 that only a single feature is assigned to topicalized and focalized phrases in previous analyses. Among others, Radford (2004) explicitly assumes that an interpretable topic/focus feature is assigned to the displaced phrase. Although Radford (2004) builds his discussions based on the framework of Chomsky (2000, 2001), his analyses for Topicalization and Focalization go against Activation Condition, which requires a goal to have an uninterpretable feature for *Agree* and *Move*. In Radford (2004), topicalized and focalized phrases lack uninterpretable features, and thus they shouldn't count as proper goals for *Agree* and *Move*. For this reason, previous analyses such as Radford (2004) are not theoretically valid under Chomsky's (2000, 2001) framework. Furthermore, if such analyses were correct, topic and focus movement would be differentiated from *wh*-movement and A-movement in how many features and what types of features the displaced phrase carries. Then, a question would arise as to why such a differentiation exists among types of movement, and no convincing answer would come up.

In contrast, the present analysis of Topicalization and Focalization is in harmony with Chomsky's (2000, 2001) framework. In the present analysis, the goal phrase has not only an interpretable feature [*Top*]/[*Foc*] but also an uninterpretable feature [*uOp*]. Due to the presence of [*uOp*], the goal phrase is capable of being an active goal and successfully enters into a matching relation for topic and focus movement. On top of that, the present analysis provides us with a consistent treatment of A-movement and different types of A'-movement. According to the present analysis, the displaced phrase has both an interpretable feature and an uninterpretable feature without exception whatever types of movement it involves.⁴

The second argument in favour of the present analysis concerns island effects in (16). The ungrammaticality of (16a, b) indicates that topicalized and focalized phrases constitute potential islands for *wh*-movement.

- (16) a. * Who does Bill think that that book, John gave to?
b. * Who does Bill think that THAT BOOK, John gave to?

The discussion here should begin by illustrating Chomsky's (2000) mechanism of successive-cyclic *wh*-movement instantiated in (17a).

- (17) a. What does John think that Mary bought?
b. $[_{CP} C^0=that_{[uP][EPP]} \text{ Mary bought } what_{[Q][uWh]}]$
c. $[_{CP} what_{[Q][uWh]} C^0=that_{[uP][EPP]} \text{ Mary bought } t_{Wh}]$
d. $[_{CP} C^0_{[uQ][EPP]} \text{ John ... } [_{CP} what_{[Q][uWh]} C^0=that_{[uP][EPP]} \text{ Mary ... } t_{Wh}]]$

Chomsky (2000:124, 149, note. 91) hypothesizes that C^0 may have a nonspecific periphery feature $[uP]$, which is contingent on assignment of $[EPP]$. $[uP]$ is defined as an incomplete version of periphery features, whereas features such as $[Q]$ and $[uQ]$ are defined as complete versions. According to this hypothesis, $[uP]$ enters into a matching relation with $[Q]$ of the *wh*-phrase. This matching relation leads $[uP]$ to deletion, but $[uWh]$ does not get deleted at this stage due to the incompleteness of $[uP]$ (see (17b)). The *wh*-phrase moves up to the embedded Spec-CP, and $[uWh]$ undergoes deletion when $[Q]$ matches $[uQ]$ of the matrix C^0 (see (17c, d)).

With minor modifications, this mechanism is applicable to other types of successive-cyclic A'-movement in (18).

- (18) a. That book, I think that John gave to Mary.
b. THAT BOOK I think that John gave to Mary.
(19) a. $[_{CP} \text{ that book}_{[Top][uOp]} C^0=that_{[uP][EPP]} \text{ John gave } t_{Top} \text{ to Mary }]$
b. $[_{CP} \text{ THAT BOOK}_{[Foc][uOp]} C^0=that_{[uP][EPP]} \text{ John gave } t_{Foc} \text{ to Mary }]$

Given that [Q] counts as a periphery feature, which is responsible for triggering A'-movement, it is plausible to regard also [Top] and [Foc] as periphery features. In fact, Chomsky (2000:108) implies that periphery features consist of force, topic, focus and so on. Then [*uP*] can match [Top] and [Foc]. Once this matching relation holds, as illustrated in (19), the topicalized phrase and the focalized phrase can move up to the embedded CP to eliminate [EPP]. [*uOp*] is not deleted until [Top]/[Foc] matches [*uTop*]/[*uFoc*] in the matrix $\text{Top}^0/\text{Foc}^0$.

With these preliminaries in mind, the remainder of this section works on an account of the island effects in (16) reproduced below in (21). A significant key to the account here is Chomsky's (2000:123) Defective Intervention Constraint (hereafter, DIC), which is cited here in (20) with some adaptation.

- (20) * $\alpha > \beta > \gamma$, where $>$ is c-command, and β and γ match the probe α , but β is inactive so that the effects of matching are blocked.

In terms of DIC, the present analysis accounts for the island effects in (21) as illustrated in (22).

- (21) a. * Who does Bill think that that book, John gave to? (= (16a))
 b. * Who does Bill think that THAT BOOK, John gave to? (= (16b))
- (22) a. [_{CP} $C^0_{[uP][EPP]}$ [_{TopP} that book_{[Top][~~*uOp*~~]} $\text{Top}^0_{[uTop]}$... to who_{[Q][uWh]}]]
 b. [_{CP} $C^0_{[uP][EPP]}$ [_{FocP} THAT BOOK_{[Foc][~~*uOp*~~]} $\text{Foc}^0_{[uFoc]}$... to who_{[Q][uWh]}]]

In (22), the topicalized phrase and the focalized phrase have moved to the embedded left periphery. Their [*uOp*] has been deleted as a result of topic/focus feature matching. Since the embedded clauses in (21) are selected by the assertive predicate *think*, C^0 realized as *that* is merged on the top of the embedded left periphery.⁵ In this circumstance, the topicalized phrase and the focalized phrase count as inactive elements β in (20), while C^0 and the *wh*-phrase count as α and γ respectively. This is

because [Top] and [Foc] can potentially match [μ P], and [μ Op] has been deleted. [μ P] cannot enter into a matching relation with [Q] for the presence of closer but inactive elements, i.e. the topicalized phrase and the focalized phrase. [μ P] cannot enter into a matching relation with [Top]/[Foc] either, as the deletion of [μ Op] deprives the phrases of the capability to participate in a matching relation. Consequently, effects of matching regarding [μ P] are entirely blocked in (22), and the examples in (21) are successfully excluded.

In this respect, the present analysis is preferred to previous analyses. Notice that the DIC-based account does not work for (21a, b) under previous analyses such as Radford (2004).

- (23) a. $[_{CP} C^0_{[\mu P][EPP]} [_{TopP} \text{that book}_{[Top]} \quad Top^0_{\cancel{[\mu Top]}} \dots \text{to who}_{[Q][\mu Wh]}]]$
 b. $[_{CP} C^0_{[\mu P][EPP]} [_{FocP} \text{THAT BOOK}_{[Foc]} \quad Foc^0_{\cancel{[\mu Foc]}} \dots \text{to who}_{[Q][\mu Wh]}]]$

In (23), the topicalized phrase and the focalized phrase are still active elements because they lack uninterpretable features such as [μ Op]. Hence, according to DIC, [μ P] can enter into a matching relation with [Q] by crossing [Top]/[Foc], and the examples in (21) would not be excluded.

Finally, the third argument for the present analysis is provided by looking into subtypes of topic movement. As subtypes of topic movement, the discussion here highlights Locative Inversion and Sentential Subject, which are exemplified in (24).⁶

- (24) a. On the bed lay two cats.
 b. That John is generous is obvious.

In a number of previous studies, the clause-initial phrases in (24) are claimed to end up in the topic position for their topic-like status (see Den Dikken and Næss (1993), Nishihara (1999) and Tanigawa (2009) for Locative Inversion; see Emonds (1976), Stowell (1981) and Takahashi (2010) for Sentential Subject). For such analyses, these

constructions are cases where the locative phrase and the sentential subject phrase move up to the topic position via Spec-TP, as sketched in (25).

- (25) a. $[\text{TopP} \text{ on the bed } \text{Top}^0 [\text{TP } t'_{\text{PP}} \text{ T}^0 \text{ lay two cats } t_{\text{PP}}]]$
 b. $[\text{TopP} \text{ that John is ... } \text{Top}^0 [\text{TP } t'_{\text{that}} \text{ T}^0 \text{=is } t_{\text{SS}} \text{ obvious }]]$

A piece of evidence for these analyses is obtained from ECM. As shown in (26), examples of Locative Inversion and Sentential Subject cannot occur within the ECM complement.

- (26) a. * I expect on this wall to have hung a portrait of our founder.
(Tanigawa (2009:300))
 b. * John believes that the cult members cloned a human baby to be true.
(Alrenga (2005:185))

The ECM complement is one of circumstances in which the clause is a constituent no bigger than TP and suspends a projection of the topic position. The locative phrase and the sentential subject phrase cannot keep staying in the ECM complement plausibly because their topic-like status is not satisfied there for the lack of the topic position. In these cases, the only way to ameliorate the grammaticality is to dislocate the locative phrase and the sentential subject to the top of the matrix clause, as shown in (27).

- (27) a. ? On this wall, I expect to have hung a portrait of our founder.
(Tanigawa (2009:305))
 b. That the cult members cloned a human baby is believed to be true.
(Alrenga (2005:185))

Unlike the ECM complement, the matrix clause in (27) is a circumstance where the topic position is definitely projected above TP. The topic-like status of the two phrases is precisely satisfied once they are placed in the top of the matrix clause.

The contrast between (26) and (27) argues for the claim that the locative phrase and the sentential subject phrase must end up in the topic position. On top of that, the data in (26) and (27) lend support for the present analysis. Notice that previous analyses such as Radford (2004) fail to account for the ungrammaticality of (26a, b).

- (28) a. [TP I expect [TP on this wall_[Top] to have hung ... t_{PP}]]
b. [TP John believes [TP that the cult ..._[Top] to be t_{SS} true]]

In (28), the locative phrase and the sentential subject phrase have undergone A-movement to the embedded Spec-TP. This A-movement is sufficient to produce the word order, in which the locative phrase and the sentential subject phrase precede the verb. What is problematic in (28) is that the locative phrase and the sentential subject phrase can keep staying in Spec-TP in principle without undergoing A'-movement. Even if [Top] is assigned to the locative phrase and the sentential subject phrase, it is not responsible for the obligatory A'-movement of its possessors, since it is an interpretable feature. Nor does it affect the sentence grammaticality. Consequently, all the uninterpretable features are deleted in (28), and the derivation would converge, contrary to the fact. Therefore, previous analyses assuming only [Top] cannot account for the deviance of (26a, b) and wrongly rule the sentences in.

In contrast, the present analysis provides a successful account for the ungrammaticality of (26a, b) and the well-formedness of (27a, b).

- (29) a. [TP I expect [TP on this wall_{[Top][uOp]} to have hung ... t_{PP}]]
b. [TP John believes [TP that the cult ..._{[Top][uOp]} to be t_{SS} true]]

Under the present analysis, the locative phrase and the sentential subject phrase carry not only [Top] but also [*uOp*]. In order to delete [*uOp*], topic feature matching must take place. However, in (29), no matching relation is established as to [Top] in Spec-TP, since the ECM complement does not project TopP. Consequently, for the lack

of topic feature matching, [*uOp*] in Spec-TP remains undeleted, which leads the derivation to a crash. The only way to prevent this derivational crash is to project TopP on the top of the matrix clause to implement topic feature matching, as in (30).

- (30) a. [_{TopP} Top⁰_{[*uTop*][EPP]} [_{TP} I expect [_{TP} on this wall_{[Top][*uOp*]} to ...]]]
 b. [_{TopP} Top⁰_{[*uTop*][EPP]} [_{TP} that the cult..._{[Top][*uOp*]} is believed [_{TP} *t*_{SS'} to ...]]]

Once Top⁰ is merged to TP, its [*uTop*] enters into a matching relation with [Top] of the phrases in Spec-TP. This matching relation helps [*uOp*] undergo a successful deletion. Also this feature matching is accompanied by movement of the locative phrase and the sentential subject phrase to Spec-TopP to satisfy [EPP].⁷

3.4. Topic and Focus Movement in Japanese

So far the previous sections have focused on topic and focus movement in English. Section 3.4 turns attention to topic and focus movement in Japanese.

This paper extends to Japanese the mechanism that section 3.2 proposed for English. Japanese Topicalization is derived exactly in the same fashion as English Topicalization.

- (31) a. Sono hon-wa John-ga Mary-ni ageta. (= (2a))
 that book-Top John-Nom Mary-Dat gave
 b. [_{TopP} [_{TP} John-ga Mary-ni sono hon-wa_{[Top][*uOp*]} ageta] Top⁰_{[*uTop*][EPP]}]
 c. [_{TopP} sono hon-wa_{[Top][*uOp*]} [_{TP} John-ga Mary-ni *t*_{Top} ...] Top⁰_{[*uTop*][EPP]}]

As illustrated in (31), the topicalized phrase carries [Top] and [*uOp*]. As soon as Top⁰ is merged to TP, a matching relation is established between [*uTop*] and [Top], and this relation leads [*uTop*] and [*uOp*] to deletion. The derivation is completed once the topicalized phrase moves to Spec-TopP to satisfy [EPP].

In Japanese Focalization, on the other hand, feature matching takes place far

earlier than in the other cases due to the relatively low position of the focus projection. Recall from section 2.2 that FocP is assumed between TP and ν P in Japanese. In deriving (32a), [μ Foc] enters into a matching relation with [Foc] of the focalized phrase when Foc⁰ is merged to ν P.

- (32) a. SONO HON-WA Mary-ni ageta.
 THAT BOOK-Foc Mary-Dat gave
 ‘THAT BOOK I gave to Mary.’
- b. [_{FocP} [_{ν P} *pro* Mary-ni SONO HON-WA_{[Foc][μ Op]} ageta] Foc⁰_{[μ Foc][EPP]}]
- c. [_{FocP} SONO HON-WA_{[Foc][μ Op]} [_{ν P} *pro* Mary-ni *t*_{Foc} ...] Foc⁰_{[μ Foc][EPP]}]

Despite the earlier implementation of focus feature matching, feature elimination and movement take place in the same fashion as in the other cases, as sketched in (32b, c).⁸

There is an argument suggesting that the present analysis is preferred to previous analyses at least for Topicalization. As shown below, the topicalized phrase in general cannot appear in the complex NP complement. Compare (33a) and (33b):

- (33) a. * John-wa Mary-ni sono hon-o ageta riyuu
 John-Top Mary-Dat that book-Acc gave reason
 ‘The reason why John gave that book to Mary’
- b. John-ga Mary-ni sono hon-o ageta riyuu
 John-Nom Mary-Dat that book-Acc gave reason
 ‘The reason why John gave that book to Mary’

In Japanese as well as other languages, the complex NP complement is a circumstance in which the topic position is suspended. Thus, it is impossible to topicalize any elements in this complement. Sentence (33a) is an example where the subject phrase is topicalized. This is where the present analysis is preferred to previous analyses such as Radford (2004). Compare (34a) and (34b):

- (34) a. [TP John-wa_[Top] Mary-ni sono hon-o ageta] riyuu
 b. [TP John-wa_{[Top][μ Op]} Mary-ni sono hon-o ageta] riyuu

As in the case of the locative phrase and the sentential subject phrase in English, the subject phrase marked by *wa* can remain in Spec-TP if the assigned topic feature is interpretable, as shown in (34a). As a result, the sentence would be wrongly ruled in, contrary to the fact. Contrastively, the present analysis rules (33a) out precisely, as shown in (34b). In this circumstance, topic feature matching cannot take place for the lack of the topic projection and [μ Top]. Hence, [μ Op] in Spec-TP remains undeleted, and this causes a crash to the derivation.

4. Value Assignment in Topic and Focus Movement

The previous sections have assumed that [μ Op] undergoes deletion when its concomitant features [Top] and [Foc] are matched by their uninterpretable counterparts in the functional heads. Section 4 takes a further step into showing what the deletion of [μ Op] brings about to topic and focus movement. Specifically, this section demonstrates in terms of value assignment that morphological and phonetic properties of Topicalization and Focalization are effects accompanying the deletion of [μ Op].

In Chomsky's (2000, 2001) hypothesis, uninterpretable features are deleted from narrow syntax by *Agree*. According to Chomsky (2001:5), these uninterpretable features, even though deleted, play some role in morphology and phonology. In his hypothesis, *Agree* allows uninterpretable features to be assigned some value, which contributes to the phonology by giving rise to phonetic effects.

Although Chomsky (2001) does not instantiate a concrete process of the value assignment mechanism, an excellent illustration is offered by Radford (2004:285-286) with respect to ϕ -features and case features. Sentence (35a) is produced as follows:

- (35) a. They are arrested.
- b. $[_{TP} \quad T^0 \quad [_{VP} \quad arrest \quad \textit{pronoun} \quad]]$
 $\{u\varnothing\}$ $[\varnothing]_{\text{3rd Person, Plural}}$
 $\{uCase\}$
- c. $[_{TP} \quad \textit{pronoun} \quad T^0 \quad [_{VP} \quad arrest \quad t_{\textit{pronoun}} \quad]]$
 $[\varnothing]_{\text{3rd Person, Plural}} \quad \{u\varnothing\}_{\text{3rd Person, Plural}} \rightarrow are$
 $\{uCase\}_{\text{Nominative}} \rightarrow they$

There are three features in (35b): $[u\varnothing]$, $[\varnothing]$ and $[uCase]$. While $[\varnothing]$ has entered into the derivation with values of 3rd Person and Plural, $[u\varnothing]$ and $[uCase]$ are valueless at first as they are uninterpretable features. The pronoun has entered into the derivation with an abstract form *pronoun* rather than the concrete form *they*. In (35b), a matching relation is established between T^0 and the pronoun by virtue of $[u\varnothing]$ and $[\varnothing]$. This matching relation allows $[u\varnothing]$ and $[uCase]$ to undergo deletion and receive values. $[u\varnothing]$ inherits values of 3rd Person and Plural from the pronoun. $[uCase]$ is valued as Nominative because its matching probe is T^0 . Once this derivation cycle is completed with the pronoun's movement to Spec-TP, as in (35c), it is handed over to Spell-Out, in which concrete morphological and phonetic forms are realized according to assigned values. In this case, the pronoun is spelled out as the third-person-plural nominative form *they*, while the *be* verb in T^0 is spelled out as the plural form *are*.⁹

Although only pronouns are sensitive to such morphological variations in English, some other languages such as Japanese have case markers for nominals as a reflection of morphological variations. Takano (1996) claims that case markers in Japanese are morphological realizations of case features and that eliminated case features are linked to phonological features by the presence of case markers. According to his claim, for example, the nominative case marker *ga* is realized and attached to the subject in order to eliminate the nominative case feature of the subject. This way of case realization can be reformulated by value assignment, and in fact, Hiraiwa (2010) approaches to the Japanese case realization by means of value assignment. Specifically, he claims

that structural cases in Japanese are valued in narrow syntax and that actual realizations of assigned values take place at PF via Spell-Out. If we follow Hiraiwa (2010), the nominative case marker *ga* is realized as follows:

- (36) a. Hannintati-ga taihos-are-ta.
 criminals-Nom arrest-Pass-Past
 ‘The criminals were arrested.’
- b. [TP [VP hannintati taihos] T⁰]
 [φ]_{3rd Person, Plural} [~~uφ~~]
 [~~uCase~~]
- c. [TP hannintati [VP t_{DP} taihos] T⁰]
 [φ]_{3rd Person, Plural} [~~uφ~~]_{3rd Person, Plural}
 [~~uCase~~]_{Nominative} → *ga*

In (36b), the subject *hannintati* has entered into the derivation without any marker. [~~uφ~~] and [~~uCase~~] are deleted as a result of feature matching between T⁰ and the subject DP. After deleted, [~~uφ~~] inherits values of 3rd Person and Plural from [φ] of the subject DP, and [~~uCase~~] is valued as Nominative because its matching probe is T⁰ here. Once this derivation cycle is completed with the subject DP’s movement to Spec-TP, as in (36c), it is handed over to Spell-Out. The subject DP is spelled out as *hannintati-ga*, in which the nominative marker *ga* is realized by virtue of the value of Nominative.¹⁰

This is a brief sketch of how value assignment works for φ-features and case features. On the basis of the mechanism, the remainder of this section makes an attempt to value the deleted [~~uOp~~] in the same manner, claiming that the value can yield morphological and phonetic effects for Topicalization and Focalization. Contrary to case values, it is not crystal clear what kind of value is assigned to the deleted [~~uOp~~]. For the present purpose, this paper assumes tentative notations of Topic and Focus as specific values when the matching probes are Top⁰ and Foc⁰.

For a clear-cut illustration of this claim, the discussion here begins with Japanese Topicalization and Focalization, in which the displaced phrase has a unique

morphological property similar to case marking. In Japanese, the topic and focus marker *wa* is attached to topicalized and focalized phrases, as was discussed in section 2.1. This marker can be analyzed as a realization of the value assigned to the deleted [μ Op]. First, look at how value assignment works for Topicalization in (37a).

- (37) a. Sono hon-wa John-ga Mary-ni ageta. (= (2a))
that book-Top John-Nom Mary-Dat gave
- b.
- | | | | | | | | | |
|-------------------|-----------------|------|---------|--------------------|-------|---|---------------------|---|
| [_{TopP} | [_{TP} | John | Mary-ni | sono hon | ageta |] | Top ⁰ |] |
| | | | | [_{Top}] | | | {u _{Top} } | |
| | | | | {u _{Op} } | | | [EPP] | |
- c.
- | | | | | | | | | | |
|-------------------|--------------------|-------------------------|------|---------|------------------|-------|---|---------------------|---|
| [_{TopP} | sono hon | [_{TP} | John | Mary-ni | t _{Top} | ageta |] | Top ⁰ |] |
| | [_{Top}] | | | | | | | {u _{Top} } | |
| | {u _{Op} } | P _{Topic} → wa | | | | | | [EPP] | |

In (37b), the topicalized phrase has entered into the derivation without any marker. After topic feature matching takes place, the deleted [*uOp*] of the topicalized phrase is valued as Topic. Once the derivation cycle of (37a) is completed with topic movement to Spec-TopP, as shown in (37c), it is handed over to Spell-Out. In PF, the topicalized phrase is spelled out as *sono hon-wa*, in which the topic marker *wa* is morphologically realized by virtue of the value of Topic.¹¹

The same line of analysis is given to Focalization, in which the focalized phrase is accompanied with the focus marker *wa* and primarily stressed.

- (38) a. SONO HON-WA Mary-ni ageta. (= (32a))
 THAT BOOK-Foc Mary-Dat gave
- b. [_{FocP} [_{vP} *pro* Mary-ni sono hon ageta] Foc⁰]
 [Foc] [~~*uFoc*~~]
 [~~*uOp*~~] [EPP]
- c. [_{TP} *pro* [_{FocP} sono hon [_{vP} *t*_{Subj} Mary-ni *t*_{Foc} ageta] Foc⁰] T⁰]
 [Foc] [~~*uFoc*~~]
 [~~*uOp*~~]_{Focus → wa & stressed} [~~EPP~~]

In (38b), the focalized phrase has entered into the derivation without any markers. As a

result of focus feature matching, the deleted [μ Op] is valued as Focus. Eventually, in PF, the focalized phrase in Spec-FocP is spelled out as *sono hon-wa*, in which the focus marker *wa* is morphologically realized by virtue of the value of Focus. In addition, it can be plausible to see that an emphatic stress on the phrase is a phonetic realization of the value, as indicated by Watanabe (2005:80).

Finally, the discussion proceeds to the English constructions. As was shown in section 2, Topicalization and Focalization in English are phonetically distinguished. The topicalized phrase has no primary stress, and it is followed by an intonation break. On the other hand, the focalized phrase is primarily stressed and followed by no intonation break. These phonetic properties can be considered as effects of value assignment.

(39) a. That book, John gave to Mary. (=(1a))

b. [_{TopP} that book Top⁰ [_{TP} John gave *t*_{Top} to Mary]]
 [Top] { μ Top}
 { μ Op}_{Topic} {EPP}
 →unstressed & break

(40) a. THAT BOOK John gave to Mary. ((=1b))

b. [_{FocP} THAT BOOK Foc⁰ [_{TP} John gave *t*_{Foc} to Mary]]
 [Foc] { μ Foc}
 { μ Op}_{Focus} {EPP}
 →stressed & no break

As in the case of Japanese, the deleted [μ Op] is valued either as Topic or Focus depending on whether the matching probe is Top⁰ or Foc⁰. In the case of Topicalization, the value of Topic contributes in PF to the phonetic information in which the topicalized phrase is unstressed and followed by a break. In the case of Focalization, the value of Focus signifies in PF that its possessor is primarily stressed and not associated with a break.

5. Concluding Remarks

This paper developed the mechanism of topic and focus movement by assigning both an interpretable feature and an uninterpretable feature to topicalized and focalized phrases. Arguments were provided where this paper's analysis is more tenable both on theoretical and empirical grounds. In addition,

Note

- * This paper is an elaborated version of my earlier materials primarily centered on Chapters 2 and 3 of my Ph.D. thesis "A Minimalist Analysis of A'-Constructions in English and Related Constructions in Japanese" submitted to the University of Tsukuba in 2009. Part of the materials was presented at the 26th annual conference of English Linguistics Society of Japan held on November, 15th, 2008 and the 27th Mie University Linguistics Colloquium held on May, 26th, 2010. I would like to express my gratitude to my thesis committee members: Hiromi Onozuka (chair), Nobuhiro Kaga, Koichi Miyakoshi, Akiko Nagano and Masaharu Shimada. Also I would like to thank the audience at the conference and the colloquium.
- 1. The abbreviations used in this paper are the following: Acc = Accusative case, Cl = Clitic, Dat = Dative case, Foc = Focus marker, Nom = Nominative case, Pass = Passive morpheme, Top = Topic marker.
- 2. See Sakai (1994) and Yanagida (1995) for arguments for a movement approach.
- 3. As will be discussed in section 4, [*uOp*] plays another role in helping realize morphological and phonetic effects.
- 4. The three types of A'-movement are treated much more consistently if [*uWh*] of the *wh*-phrase is replaced with [*uOp*].
- 5. Recall the assumption made at the end of section 2.2: TopP and FocP can be preceded by CP in embedded Topicalization and Focalization.
- 6. A subtype of focus movement is Negative Inversion, in which a negative element is analyzed as involving movement to Spec-FocP. This construction shows island effects such as in (16), which are successfully accounted for by the present analysis.
- 7. In the case of (30b), the sentential subject phrase proceeds through the matrix Spec-TP for passivization.

8. For the complete derivation of (32a), TP must be projected above FocP, and *pro* must move up to Spec-TP. This process is omitted here for simplicity, but illustrated in (38) in section 4.
9. If the sentence is active and the matching probe is the transitive v^0 , [*uCase*] is valued as Accusative and the pronoun is spelled out as *them*.
10. If the sentence is active and the matching probe is the transitive v^0 , [*uCase*] is valued as Accusative, which leads to a spell-out of *hannintati-o*.
11. As the topicalized phrase here is originally an object, its case feature is valued as Accusative, which will lead to a spell-out of *sono hon-o*. For the expected realization of *sono hon-wa*, it has to be assumed here that the values of Topic and Focus are given higher priority than the values of Accusative and Nominative.

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