1. Introduction

Rightward movement as outlined in (1) has received much attention since Ross (1967) (see Akmajian 1975, Baltin 1978, Johnson 1985, Rochemont 1978, Rochemont and Culicover 1990, Sabbagh 2007, among many others).

(1)  
a. I gave it to Gary [every one of my articles on lazy pronouns]. (Johnson 1985:83)  
b. A review of this article came out yesterday. (Ross 1986:176)  
c. I saw a book that everyone has read yesterday. (Johnson 1985:83)

The aim of this paper is to offer a new analysis of rightward movement without appealing to rightward adjunction, which is prohibited by Kayne (1994) and Fukui and Takano (1998). Rather it will be proposed that rightward movement involves projection of a moved constituent, which has been argued on independent grounds (see Larson 1998, Donati 2006, and Citko 2006, among others for free relatives, and Bachrach and Kazir 2007 for ACD).

This paper also discusses why rightward movement is more restricted in terms of locality, compared to leftward movement such as wh-movement. Rightward movement is clause-bounded, as shown in (2) (see Sabbagh 2007 for a different view).

(2)  
a. *I have expected that I would find it to Mary since 1939 [the treasure said to have been buried on that island]. (Postal 1974:93)  
b. *It was believed that Mary bought it for her mother by everyone [an ornate fourteenth century gold ring]. (Rochemont and Culicover 1990:136)

In (2), the heavy NPs are dislocated across the adjuncts in the matrix clause. Ross (1967) refers to the relevant constraint as the Right Roof Constraint (henceforth, RRC). It will be shown that the RRC is naturally derived under the proposed analysis.

2. Leftward movement approaches to rightward movement

2.1. Heavy NP shift

Traditionally, rightward movement has been analyzed in terms of rightward adjunction, as illustrated in (3).

(3)  
\[ XP [XP ..t_1.......] YP_1 ]

However, this traditional approach to rightward movement is challenged by Kayne’s (1994) and Fukui and Takano’s (1998) mechanisms of linearization, where linear order is determined by hierarchical relation. Under their approaches, only leftward adjunction is permitted and rightward adjunction is prohibited.

I am grateful to the audience at WCCFL 26 for useful comments and questions. I also thank for Asaf Bachrach, Naoki Fukui, Ken Hiraiwa, Shoichi Takahashi and Akira Watanabe for helpful discussion. My thanks also go to Adam Stott for suggesting stylistic improvements. All remaining errors are mine.
prohibited (see Kayne 1994 and Fukui and Takano 1998 for more details of their mechanisms of linearization).

Under the theory without rightward adjunction, one of the possibilities is to derive rightward movement by a series of leftward movements. For example, concerning Heavy NP shift, this approach is pursued by Den Dikken (1995) and Kayne (1998), whose original insight is due to Larson’s (1988, 1990) predicate raising analysis.¹ The details of their analyses aside, the derivation of rightward movement has two steps of leftward movement, as shown in (4b-c).

(4) a. John put on the table [the book that he had just bought].
b. John [the book that he had just bought] put t1 on the table.
c. John [put t1 on the table] t2 [the book that he had just bought] t1.

The heavy NP undergoes leftward movement in (4b) and then the remnant predicate moves to some higher position than the heavy NP in (4c). The apparent “rightward movement” of the heavy NP is obtained successfully without recourse to rightward adjunction, but this type of predicate raising approach also fails to expect the RRC. Let us take (2a) as an example. In (2a), the heavy NP the treasure said to have been buried on that island crosses the clause boundary. Under the predicate raising approach, nothing prevents (2a) from having the derivation given in (5).

(5) a. I have expected [that I would find [the treasure…… island] to Mary] since 1939.
b. I have [the treasure…… island] v_P expected [that I would find t1 to Mary] since 1939.
c. I have [v_P expected [that I would find t1 to Mary] since 1939] t2 [the treasure…… island] t1.

First, the heavy NP undergoes leftward movement, crossing the embedded CP in (5b). Then, the matrix predicate phrase undergoes leftward movement. Given that the predicate raising in (5c) takes place in the same way as (4c), it is natural to reduce the ungrammaticality of (2a) to the long distance movement of the heavy NP movement in (5b). A-bar leftward movement such as wh-movement is not clause-bounded, however. The predicate raising approach has to postulate some additional locality constraint which prohibits heavy NP movement across the clause-boundary.

---

¹ Larson (1988) introduces the following optional rule:

(i) V’ Reanalysis rule
Let a be a phrase [……] whose θ-grid contains one undischarged internal θ-role. Then a may be reanalyzed as [……]. (Larson 1988:348)

If the rule above applies to (4a), then put on the table, which is V’, is reanalyzed as V and then undergoes verb movement, as illustrated in (ii).

(ii) John [put on the table] t1 [the book that he had just bought] t1.

If the rule (i) does not apply, only put undergoes verb movement, which yields a canonical word order. Larson’s predicate raising analysis also correctly expects the RRC effect. Long distance heavy NP shift, exemplified by (2), is simply undervisible. Nothing allows a matrix predicate phrase to move, leaving behind a constituent in the embedded clause.

Under Larson’s analysis, however, it is not straightforward why extraction is not allowed out of the dislocated phrase. The relevant contrast is given in (iii).

(iii) a. Who did you buy a beautiful picture of t1 yesterday?
b. *Who did you buy yesterday a beautiful picture of t1? (Rochemont and Culicover 1990:134)

There should be no difference between (iiiia) and (iiib), with respect to the syntactic position of a beautiful picture of.
Den Dikken (1995) suggests that the first step of leftward movement, that is, leftward heavy NP movement, is a movement to [Spec, AgroP], which reduces the relevant clause-boundedness to that of A-movement.\(^2\) However, this attempt cannot be extended to the rightward movement of PP, which does not undergo A-movement. As shown in (6), prepositional phrases can also undergo rightward movement.\(^3\)

(6) I put a stain \(t_1\) yesterday \([pp \text{on my favorite antique rolltop desk}]\). (Johnson 1985:84)

### 2.2. Extraposition

Next, let us turn to the issue of how to derive extraposition without appealing to rightward adjunction. If the strategy of two steps of leftward movement is extended to the extraposition of CP, then (1c) would have the derivation given in (7).

(7) a. I saw a book \([\text{that everyone has read}]\) yesterday.
   b. I \([\text{that everyone has read}]\), saw a book \(t_1\) yesterday.
   c. I \([\text{saw a book \(t_1\) yesterday}]\), \([\text{that everyone has read}]\), \(t_2\).

The availability of the first leftward movement would be suspicious, however. Kayne (1994) notes this point. Relative clauses cannot undergo leftward movement, as shown in (8).

(8) a. *\([\text{that you should know about}]\), something \(t_1\) just happened. (Kayne 1994:119)
   b. *\([\text{Who we don’t know}]\), someone \(t_1\) just walked into the room. (ibid.)
   c. *\([\text{Who I knew}]\), they arrested a man \(t_1\) yesterday. (Wilder 1995:278)

Kayne suggests that an apparently extraposed relative clause is actually stranded as a result of the raising of the head of the relative clause, as illustrated in (9).

(9) Something \(t_1\) just happened \([t_1 \text{that you should know about}]\).

Adopting Vergnaud’s (1974) head raising analysis of relative clauses, Kayne argues that *something* moves to [Spec, CP] inside the relative clause, first. Then, it undergoes A-movement to the matrix clause, leaving behind the relative clause.

However, this stranding analysis is also problematic. As Kayne notes, the stranding analysis has the difficulty of dealing with extraposition out of PP such as (10) because *to someone* is not a constituent, obviously.\(^4\)

(10) John is going to talk to *someone* tomorrow \([\text{who he has a lot of faith in}]\). (Kayne 1994:126)

\(^2\) See also Nishikawa (1990) for a similar view. He also argues that the landing site of rightward movement is [Spec, Ag0P], which is on the right hand side.

\(^3\) Lasnik (1999) argues that a remnant A-moves out of an ellipsis site to [Spec, AgroP] in Pseudogapping. Based on the fact that a prepositional phrase can be also a remnant of Pseudogapping, he suggests that a prepositional phrase can also move to [Spec, AgroP] as well as a DP object. If Lasnik is correct, then (6) would cease to be problematic for Den Dikken’s analysis.

\(^4\) Kayne (1994) sketches the following derivation for (10):

(i) a. …..talk tomorrow \([pp \text{to } [dp D \text{someone}1 \text{who he has a lot of faith in } \text{t}_1]]\)
   b. …..talk tomorrow \([pp \text{someone}1 [pp \text{to } [dp D \text{t}_1 \text{who he has a lot of faith in } \text{t}_1]]]\)
   c. …..talk tomorrow \([pp [qp to2 \text{someone}1] [pp \text{t}_2 [dp D \text{t}_1 \text{who he has a lot of faith in } \text{t}_1]]]\)
   d. …..talk \([qp to2 \text{someone}1]\) tomorrow \([pp \text{t}_1 [pp \text{t}_2 [dp D \text{t}_1 \text{who he has a lot of faith in } \text{t}_1]]]\)

First, *someone* moves to [Spec, CP] inside the relative clause in (ia) and *someone* moves to [Spec, PP] in (ib). Then, *to* left-joins to *someone* in (ic). The last step is movement of *to someone* across *tomorrow.*
Furthermore, as pointed out by Wilder (1995), the stranding analysis cannot be extended to extraposition of the noun complement such as (11a)

\[(11)\]
\[\begin{array}{l}
a. \text{The claim was made [that Mary will hire Peter].} \\
b. [\text{DP the [NP claim CP]}]
\end{array}\]

Under the stranding analysis, *the claim* is supposed to move, stranding its complement CP. However, as shown in (11b), it is generally assumed that CP is a sister of the head of the noun phrase and thus *the* and *claim* do not make a constituent. The stranding analysis has no way other than to move a non-constituent, which is generally prohibited.

To sum up, the leftward movement approaches to rightward movement have been reviewed, which do not employ rightward adjunction. They have empirical problems to be solved, however. In the next section, an alternative analysis will be provided.

### 3. Proposals

#### 3.1. Projecting Focus phrase after Movement

In this section, a new analysis of rightward movement will be proposed. This analysis has three ingredients. The first one is (12).

\[(12)\] A constituent which undergoes rightward dislocation is headed by a functional head Focus (henceforth, Foc), which has no phonetic content.

For example, the dislocated constituent in (1a) *every one of my articles on lazy pronouns* is selected by Foc, as illustrated in (13). What is actually dislocated is the entire FocP.

\[(13)\] [FocP Foc [DP every one of my articles on lazy pronouns]]

Secondly, it is assumed that the edge of vP is a target of movement, following Chomsky (2000) and Fox (2000), among others.

Third, crucially, a moved phrase can project, which is originally proposed for free relatives by Larson (1998), Donati (2006), and Citko (2006), among others. Regularly, when a constituent undergoes movement, it does not project, as illustrated in (14a). For example, in the case of subject raising, T projects, not the moved subject. Similarly, when *wh*-movement takes place, C projects.

\[(14)\]
\[\begin{array}{ll}
a. & \begin{array}{c}
\text{B} \\
\text{A} \quad \text{B}
\end{array} \\
& \begin{array}{c}
\ldots t_1 \ldots 
\end{array} \\
b. & \begin{array}{c}
\text{A} \\
\text{A_1} \quad \text{B} \\
\ldots t_1 \ldots 
\end{array}
\end{array}\]

In contrast to regular leftward movement, it is proposed that rightward movement involves projection of a moved phrase, which is schematically illustrated in (14b).

Given these, it will be shown how rightward movement is derived. Let us take (1a), repeated as (15a), as an example. The derivation is given in (15b-c).
(15) a. I gave t₁ to Gary [every one of my articles on lazy pronouns].
   b. \[\text{Spec of FocP}\]
   c. \[\text{FocP}\]

(16) a. A goal can have the EPP-feature as well as a probe.
   b. Internal Merge (movement) is induced by the EPP-feature of either a probe or a goal.

The proposed analysis can be extended to extraposition. For example, CP-extraposition such as (17a) involves the derivation given in (17b) and (17c).

(17) a. We talked [about a claim t₁] yesterday [that Mary will hire Peter].
   b. \[\text{VP}\]
   c. \[\text{FocP}\]

CP is base-generated as a sister of Foc in (17b). Then, FocP moves to the edge of vP and is merged with vP. Crucially, FocP projects in a similar way to heavy NP shift. The structure given in (17c) yields the linear order where vP precedes CP at PF, because the former is in the specifier of FocP. Recall from the

---

5 The proposed analysis faces a non-trivial issue concerning Copy deletion. Nunes (2001) argues that c-command relation plays a crucial role for copy deletion at PF. On the assumption that c-command is restricted to categories and thus segments cannot c-command (Kayne 1994:16), however, the moved FocP in (15b) fails to c-command its lower copy, which prevents the latter from being deleted at PF. I leave this issue for future research. I thank Asaf Bachrach for bringing my attention to this issue.
discussion in section 2 that Kayne (1994) has the difficulty of deriving the grammaticality of (17a). Under his theory, the claim, is supposed to undergo movement in a leftward way, leaving the that-clause behind, but the and claim do not make a constituent. In contrast, the proposed analysis does not face such a constituency problem at all. Furthermore, nothing under the proposed analysis prohibits extrapolation out of PP, which is also problematic for Kayne’s head raising analysis.

To sum up, it has been proposed that rightward movement involves projection of a moved constituent, which is due to the EPP-feature of it. It moves to the edge of vP and projects up. vP precedes the moved constituent at PF because the former ends up being in [Spec, FocP]. Theoretically importantly, the proposed analysis derives “rightward movement effects” without appealing to rightward adjunction, which prohibited by Kayne (1994) and Fukui and Takano (1998).

3.2. On projecting DP after movement

Projecting a moved constituent is originally argued, based on free relatives such as (18), by Larson (1998), Donati (2006), and Citko (2006), among others (see also Bachrach and Katzir 2007 for extending the idea to ACD).

(18) John reads whatever book Mary recommends.

Under this type of analysis, the head of a free relative clause moves and then projects, as illustrated in (19).

(19) [DP [CP whatever1 Mary recommends t₁ ]]

However, the proposed analysis is incompatible with their analysis. It is expected that Mary recommends should precede whatever, because CP adjoins to DP, based on the structure given in (19). The correct linear order cannot be obtained. It is suggested that free relatives should not involve projecting a moved constituent. The proposed analysis is compatible with a head raising analysis of Chinese relative clauses, as argued by Aoun and Li (2003).

In Chinese, the head of a relative clause follows the relative clause, as shown in (20a). Adopting Vergnaud’s (1974) head raising analysis, Aoun and Li argue that (20a) involves the derivation given in (20b), where the head of the relative clause raises and is merged with CP. Then, the raised head, shuo ‘book’ projects.

(20) a. [ta kan de] shuo he read DE book ‘the book he read’
   b. [DP [CP ta kan t₁ de] shuo1 ]

Aoun and Li argue that the reconstruction effect observed in (21b) is readily captured by the head raising analysis.

(21) a. wo jiao zhangsan quan mei-ge-ren kai ziji de chezi lai.
    I ask Zhangsan persuade every-CL-person drive self DE car come ‘I asked Zhangsan to persuade everyone to drive self’s car over.’
   b. [wo jiao zhangsan quan mei-ge-ren kai t₁ lai de] [ziji de chezi].
    I ask Zhangsan persuade every-CL-person drive come DE self DE car ‘self’s car that I asked Zhangsan to persuade everyone to drive over’ (Aoun and Li 2003:132)

In (21b), the head of the relative clause includes ziji, which is supposed to be bound by its antecedent in
the relative clause. The grammaticality of (21b) shows that reconstruction of the head of the relative clause takes place, which is directly expected under the head raising analysis.

4. Deriving the Right Roof Constraint

In this section, it will be shown how the proposed analysis derives the RRC. The relevant example is repeated as (22).

(22) *I have expected [that I would find t₁ to Mary] since 1939 [the treasure said to have been buried on that island]. (Postal 1974:93)

The heavy NP undergoes movement to the edge of vP in the embedded clause and FocP projects, as schematically illustrated in (23). If the heavy NP could undergo further movement in a similar way to wh-movement, then rightward movement should not be clause-bounded. (22) should be grammatical, contrary to fact.

(23) a. vP(In the embedded clause)  b. FocP

Foc  DP

It is argued that the lower FocP in (23b) cannot undergo movement, which is due to the ban on movement of intermediate projections. Recently Hornstein (2005) derives the immovability of an intermediate projection from the A-over-A principle (Chomsky 1964). It is important to mention that only DP cannot undergo movement, leaving behind Foc, because it is plausible to assume that the locus of the feature relevant to Focus movement is on the head of FocP.6

It is expected that nothing prevents the higher FocP in (23b) from undergoing movement. The

---

6 Rightward movement in Turkish does not seem to obey the RRC, as observed in (i).

(i) Ayşeye [Ahmet’in t₁ konuşduğuunu bilıyor öğrencierle₁.  
‘Ayşe knows that Ahmet spoke with the students.’ (Kural 1997:501)

It is speculated that the availability of long distance rightward movement in Turkish hinges on that of long distance scrambling such as (ii) in the language.

(ii) Kimsenin₁, Ahmet [t₁ uymadığı]ni biliyor.  
‘Ahmet knows no body slept.’ (Kural 1997:503)

(i) has the derivation given in (iii), where öğrencierle is scrambled across the clause boundary first, as shown in (iiia). It is assumed that the landing site of scrambling in Turkish is the edge of TP. Given that uninterpretable focus features can be given to C as well as v, the matrix C induces Agree with öğrencierle. The latter is merged with the matrix CP and projects in a similar way to English rightward movement, as illustrated in (iiib).

(iii) a. [TP[Foc₁ Foc öğrencierle₁] Ayşe [Ahmet’in t₁ konuşduğuunu bilıyor].  
At PF, the matrix CP precedes öğrencierle, because the former is a specifier of FocP. An important question is why the scrambled phrase does not project on the way to the matrix clause. Nothing prevents it from stopping at the edge of vP and projects, on the assumption that scrambling takes place in a successive cyclic fashion. One of the possibilities is that scrambling is not a syntactic movement but rather involves base-generation at the surface position, as argued by Bošković and Takahashi (1998), among others. Under this possibility, öğrencierle is base-generated in the matrix clause and undergoes Focus movement. The speculation here is not compatible with the view that long distance scrambling involves some sort of post-syntactic operations at PF, proposed by Ueyama (2002) and Fukui and Kasai (2004). Further investigation, including empirical properties of rightward movement in Turkish, is needed but this will be left for future research.
higher FocP, that is, vP and the rightward dislocated phrase are expected to be moved. This expectation is borne out by (24).

(24) Everyone said that John would give to Mary all of the money that he won at the track, and [give \(t_1\) to Mary [all of the money that he won at the track]]; he did \(t_2\).
(Rochemont and Culicover 1990:119)

In (24), the preposed predicate phrase includes *all of the money that he won at the track*, which undergoes rightward dislocation. The proposed analysis has another prediction that nothing prevents movement of only vP, which is in [Spec, FocP]. This prediction is confirmed by Rochemont and Culicover’s (1990) observation, which is given in (25).

(25) *Everyone said that John would give to Mary something very valuable to him, and [\(vP\) give \(t_1\) to Mary] \(t_2\) he did \(t_2\) [all of the money that he won at the TRACK]. (ibid.:120)

Rochemont and Culicover (1990) observe that the example is grammatical, although it is a little degraded. It is possible to prepose the predicate phrase, leaving behind the rightward dislocated phrase.

To sum up, it has been argued that the RRC, which has been a long-standing problem, is reducible to the ban on movement of an intermediate projection, which would be reducible to the A-over-A principle ultimately (Hornstein 2005).

5. On the ban on P-stranding

It has been well-known that Heavy NP shift does not allow P-stranding, which has been also a long-standing puzzle in the literature. The relevant example is given in (26).

(26) *I can’t talk [about \(t_1\)] to my father-in-law [the terrible dreams I’ve been having].
(Riemsdijk 1978:142)

If the proposed analysis is correct, (26) partially involves a structure given in (27) before movement.

(27) ……[PP about [FocP Foc \[DP the terrible dreams I’ve been having\]]]

It is speculated that the ill-formedness of (26) is due to the selectional relation between P and FocP. At this point, there is no explanation for why P cannot select Foc and a deeper explanation is needed in the future, but before concluding the paper, it will be demonstrated that some focus particles in Japanese behave in a similar way to Foc, which is involved in rightward movement, with respect to this point. *Sika* and *mo* are such particles. The relevant examples are given in (28) and (29).7

(28) a. \([FocP [PP Taro nituite] sika]\)
Taro about only

b. *\([PP [FocP Taro sika] nituite]\)
Taro only about

(29) a. \([FocP [PP Taro nituite] mo]\)
Taro about also

b. *\([PP [FocP Taro mo] nituite]\)
Taro also about

6. Conclusion

In this paper, a new analysis of rightward movement has been offered. Rightward movement involves projection of a moved FocP. There are two theoretical advantages with the proposed analysis. One is to obtain “rightward movement” effects without appealing to rightward adjunction, which is prohibited by Kayne (1994) and Fukui and Takano (1998). The other is to reduce the RRC to the

7 Note that either order is available to *dake* ‘only’.

(i) a. Taro dake nituite b. Taro nituite dake
Taro only about Taro about only
immovability of an intermediate projection, which Hornstein (2005) argues is derivable from the A-over-A principle.

References


