

## Rightward DP Movement and Parasitic Gaps

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### Abstract

*The ultimate goal of this article is to verify the fact that the so-called adjunct gap structures are derived not by parasitic gap structures but by coordinate gap structures. A point to note about the phenomenon of parasitic gaps is that the outer spec/inner adjunct configuration forces the appearance of parasitic gaps. A further point to note is that an intermediate trace needs to be above an adjunct in order to license a parasitic gap. Furthermore, it is significant to note that Overfelt's (2016) arguments that adjunct gap structures are not derived via coordinate gap structures serve as counterexamples to Postal's (1994) hypothesis that adjunct gap structures are derived not by parasitic gap structures but by coordinate gap structures. In this article, we review the two analyses and demonstrate that adjunct gap structures and parasitic gap structures cannot be derived via the same mechanism and that in all three cases, adjunct gap structures in Korean have the same properties as coordinate gap structures in Korean, which jibes not with Overfelt (2016) but with Postal (1994).*

**Keywords:** parasitic gap structure, adjunct gap structure, coordinate gap structure, rightward DP movement, heavy NP shift, parasitic gap licensing

### 1. Introduction

Linguists have been intensively investigating parasitic gaps and leftward parasitic gap licensing since the late 1970s. Parasitic gaps and leftward parasitic gap licensing have attracted considerable interest since Taraldsen (1979) and Engdahl (1983) called attention to the phenomenon. The phenomenon was first pointed out by Ross (1967). Ross (1967) argues that parasitic gaps are gaps that arise as the result of a pronoun deletion rule. Chomsky (1982) contends, on the other hand, that parasitic gaps are analyzed as PRO in D-structure, but as a variable at S-structure and LF. Simply put, a parasitic gap is syntactically a variable in that it falls within the scope of an operator, while it is semantically a pronominal as indicated by its status at D-structure. Contreras (1988) maintains that in the parasitic gap constructions, null operators and overt relatives are anaphors which must be either A- or A'-bound. Nissenbaum (2000) argues that parasitic gaps can be licensed by wh-in-situ and that any DP in a vP-specifier position that is structurally higher than a clausal modifier adjoined to the vP must be associated with a parasitic gap. Niinuma (2010) contends that a parasitic gap is not a trace created by movement and that a parasitic gap in the adjunct cannot be phonetically realized in the parasitic gap constructions. Overfelt (2016) argues against Postal's (1994) hypothesis that adjunct gap structures are derived not by parasitic gap structures but by coordinate gap structures. Many linguists have been researching a lot on parasitic gaps and they have found out what is going on with this topic.

A specific empirical objective of this article is to demonstrate that adjunct gap structures cannot be derived via parasitic gap structures and that adjunct gap structures must instead be derived via coordinate gap structures involving Right Node Raising. The organization of this article is as follows. In section 2, we illustrate the phenomenon of parasitic gaps and show how they are licensed. In section 3, we examine Postal's (1994) arguments demonstrating that adjunct gap structures are derived not by parasitic gap structures but by coordinate gap structures. Also, we examine Overfelt's (2016) arguments proving that adjunct gap structures are not derived by coordinate gap structures. In section 4, we demonstrate that adjunct gap structures and parasitic gap structures cannot be derived via the same mechanism. Also, we provide three arguments verifying the fact that adjunct gap structures are derived via coordinate gap structures. There are tangible reasons to argue for them.

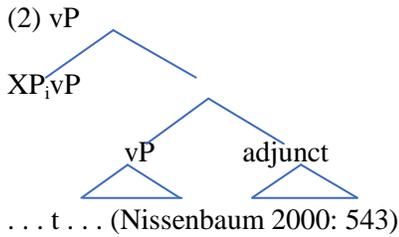
Given the hypothesis that adjunct gap structures are derived not by parasitic gap structures but by coordinate gap structures, there are two advantages. The first advantage is that we can reduce the derivation cost of deriving adjunct gap structures. The derivation cost of parasitic gap structures is expensive since a parasitic gap is not a trace created by movement, whereas another gap is a trace created by movement. On the other hand, the derivation cost of a coordinate gap and an adjunct gap is much cheaper since both of them are gaps created by rightward movement. That's why we postulate that adjunct gap structures and coordinate gap structures are derived via the same operation. Another advantage is that if we posit that adjunct gap structures are derived via coordinate gap structures, the claim can receive widespread support from both English and Korean data, giving validity to the hypothesis. Thus, the hypothesis that adjunct gap structures and coordinate gap structures are derived via the same mechanism coincides with the spirit of Universal Grammar which is aimed at meeting the so-called explanatory adequacy

**2. Parasitic Gaps**

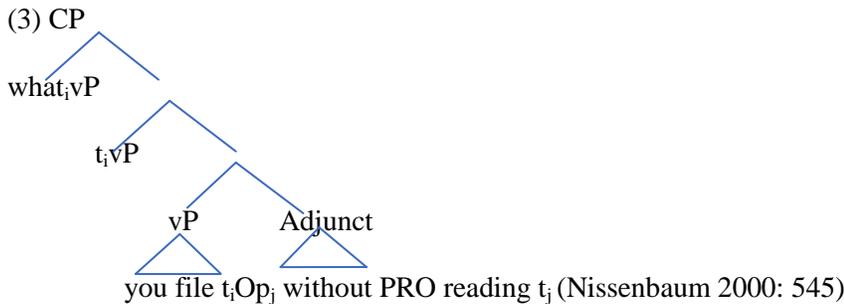
This section is devoted to examining the phenomenon of parasitic gaps and showing how they are licensed in the parasitic gap constructions. To begin with, we define a parasitic gap as a gap that is dependent on the existence of another gap, as alluded to in (1):

- (1) a. Which articles<sub>i</sub> did John file t<sub>i</sub> without reading e<sub>i</sub>?
- b. Mary's the person who<sub>i</sub> we called t<sub>i</sub> up [after meeting with e<sub>i</sub>]
- c. John<sub>i</sub>, I talked to t<sub>i</sub> [in order to impress e<sub>i</sub>]

In general, there is a one-to-one correspondence between fillers and gaps, but parasitic gaps generally occur in constructions where a real gap exists. Hence, a parasitic gap is dubbed as a gap that is dependent on the existence of a real gap. Nissenbaum (2000) maintains that (1a), (1b), and (1c) have in common a matrix vP configuration which makes a parasitic gap not only possible but also obligatory. The common configuration involves an outer specifier and an inner adjunct:



We assume along with Nissenbaum (2000) that (1) has a structure like (3) and that the intermediate trace of wh-movement in the outer vP-specifier position and the vP-adjunct are necessary for parasitic gap licensing:

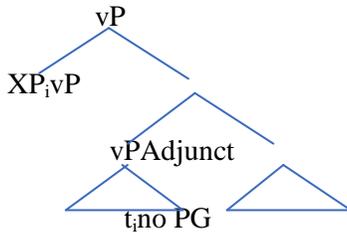


It has been pointed out by Nissenbaum (2000) that this outer spec/inner adjunct configuration makes a parasitic gap obligatory since such a configuration is ill-formed if there is no parasitic gap in the adjunct. His claim is summarized in (4):

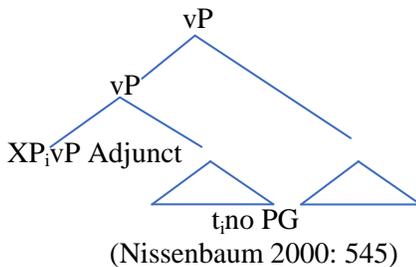
- (4) Any DP in a vP-specifier position that is structurally higher than a modifier adjoined to the vP must be associated with a parasitic gap in that adjunct. (Nissenbaum (2000: 545)

With respect to the distribution of parasitic gaps, it is important to note that clausal vP-adjuncts do not always contain parasitic gaps. As Nissenbaum (2000) points out, the condition stated in (4) allows an alternative structure in which a DP would not license a parasitic gap—namely, a structure in which the DP is below the adjunct, as in (5b):

(5a) ill-formed: no PG in this structure



(5b) Well-formed



As pointed out by Nissenbaum (2000), it is noteworthy is that any sentence in which a vP-adjunct contains a parasitic gap will have the structure (2), whereas any sentence in which a vP-adjunct does not contain a parasitic gap will instead have the structure (5b).

Larson (1988a) observes that although Heavy NP Shift (HNPS) licenses parasitic gaps, an NP cannot appear to the right of an adjunct with a pronoun instead of a parasitic gap. Interestingly, the same adjuncts without a parasitic gap may appear to the right of an NP that has undergone HNPS. Examples (6)-(8) are adapted from Larson (1988a):

- (6) a. John filed  $e_i$  [without reading  $e_i$ ] a recent article about Amazonian frogs $_i$
- b. \*John filed  $e_i$  [without reading it $_i$ ] a recent article about Amazonian frogs $_i$
- c. \*John filed  $e_i$  [without reading your e-mail] a recent article about Amazonian frogs $_i$
- (7) a. I hired  $e_i$  [without interviewing  $e_i$ ] Mary's favorite uncle from Cleveland $_i$
- b. \*I hired  $e_i$  [without interviewing him $_i$ ] Mary's favorite uncle from Cleveland $_i$
- c. \*I hired  $e_i$  [without talking to the chair] Mary's favorite uncle from Cleveland $_i$
- (8) a. John filed  $e_i$  in the top drawer a recent article about Amazonian frogs $_i$  [without reading it/\* $e$ ]
- b. I hired  $e_i$  with no hesitation Mary's favorite uncle from Cleveland $_i$  [without interviewing him/\* $e$ ]

These sentences provide confirmation that if the shifted NP is higher than the vP-adjunct, a parasitic gap is obligatory, whereas a shifted NP lower than the adjunct fails to license a parasitic gap.

Fox and Nissenbaum (1999) maintain that relative clause extraposition behaves like HNPS, as shown in (9) and (10):

- (9) a. Who $_i$  did you praise  $e_i$  [in order to impress  $e_i$ ] [that teaches literature at Harvard]
- b. \*Who $_i$  did you praise  $e_i$  [in order to impress him] [that teaches literature at Harvard]
- c. \*Who $_i$  did you praise  $e_i$  [in order to surprise me] [that teaches literature at Harvard]
- (10) a. ?What film $_i$  would you see  $e_i$  [if I could get tickets for  $e_i$ ] [that John recommended]
- b. \*What film $_i$  would you see  $e_i$  [if I could get tickets for it] [that John recommended]
- c. \*What film $_i$  would you see  $e_i$  [if it doesn't rain] [that John recommended]

On the other hand, an extraposed relative clause that occurs to the left of a clausal vP adjunct does not allow a parasitic gap but is acceptable without a parasitic gap:

- (11) a. \*Who $_i$  did you praise  $e_i$  [that teaches literature at Harvard] [in order to impress  $e_i$ ]
- b. Who $_i$  did you praise  $e_i$  [that teaches literature at Harvard] [in order to impress him]
- c. Who $_i$  did you praise  $e_i$  [that teaches literature at Harvard] [in order to surprise me]
- (12) a. \*What film $_i$  would you see  $e_i$  [that John recommended] [if I could get tickets for  $e_i$ ]
- b. What film $_i$  would you see  $e_i$  [that John recommended] [if I could get tickets for it]
- c. What film $_i$  would you see  $e_i$  that John recommended] [If doesn't rain]

Nissenbaum (2000) contends that pattern (9)-(12) can be accounted for by the assumption that the extraposition is marking the site of an intermediate trace, together with the claim in (4).

Now we provide a final test for the claim that an intermediate trace needs to be above an adjunct in order to license a parasitic gap. Nissenbaum (2000) shows that both adjuncts may contain parasitic gaps and both may lack them:

- (13) a. Who<sub>i</sub> did you praise e<sub>i</sub> to the sky [after criticizing e<sub>i</sub>] in order to surprise e<sub>i</sub>]?  
 b. Who<sub>i</sub> will you hire e<sub>i</sub> [without interviewing e<sub>i</sub>] [if John recommends e<sub>i</sub>]?
- (14) a. Who<sub>i</sub> did you praise e<sub>i</sub> to the sky [after criticizing him] in order to surprise the poor man]?  
 b. Who<sub>i</sub> will you hire e<sub>i</sub> [without interviewing him] [if John recommends him]?
- (Nissenbaum 2000)

However, if one of two adjuncts contains a parasitic gap, it must be the innermost (15). Sentences in which only the outermost adjunct contains a parasitic gap are unacceptable (16):

- (15) a. Who<sub>i</sub> did you praise e<sub>i</sub> to the sky [after criticizing e<sub>i</sub>] [in order to surprise him]?  
 b. Who<sub>i</sub> will you hire e<sub>i</sub> [without interviewing e<sub>i</sub>] [if John recommends him]?
- (16) a. \*Who<sub>i</sub> did you praise e<sub>i</sub> to the sky [after criticizing him] [in order to surprise e<sub>i</sub>]?  
 b. \*Who<sub>i</sub> will you hire e<sub>i</sub> [without interviewing him] [if John recommends e<sub>i</sub>]?

We have observed that the outer spec/inner adjunct configuration forces the appearance of parasitic gaps and that an intermediate trace needs to be above an adjunct in order to license a parasitic gap.

Niinuma (2010) maintains that a parasitic gap in the adjunct cannot be phonetically realized. However, the following sentences ((17a/b), (18b/c), (19b), and (20a/b)), repeated here, clearly illustrate the fact that a parasitic gap in the adjunct can be phonetically realized in the parasitic gap constructions. Note that even though a pronoun can occur instead of a parasitic gap in the adjunct, a parasitic gap cannot appear in that position where it is supposed to occur:

- (17) a. John filed e<sub>i</sub> in the top drawer a recent article about Amazonian frog<sub>i</sub> [without reading it/\*e]  
 b. I hired e<sub>i</sub> with no hesitation Mary's favorite uncle from Cleveland<sub>i</sub> [without interviewing him/\*e]
- (18) a. \*Who<sub>i</sub> did you praise e<sub>i</sub> [that teaches literature at Harvard] [in order to impress e<sub>i</sub>]  
 b. Who<sub>i</sub> did you praise e<sub>i</sub> [that teaches literature at Harvard] [in order to impress him]  
 c. Who<sub>i</sub> did you praise e<sub>i</sub> [that teaches literature at Harvard] [in order to surprise me]
- (19) a. \*What film<sub>i</sub> would you see e<sub>i</sub> [that John recommended] [if I could get tickets for e<sub>i</sub>]  
 b. What film<sub>i</sub> would you see e<sub>i</sub> [that John recommended] [if I could get tickets for it]
- (20) a. Who<sub>i</sub> did you praise e<sub>i</sub> to the sky [after criticizing him] in order to surprise the poor man]?  
 b. Who<sub>i</sub> will you hire e<sub>i</sub> [without interviewing him] [if John recommends him]?

Finally, the extraposition and stacked-adjunct tests provide strong support for the hypothesis that it is the intermediate trace of wh-movement that is crucial for parasitic gap licensing. Let us observe the following sentences, repeated here:

- (21) a. Who<sub>i</sub> did you praise e<sub>i</sub> [in order to impress e<sub>i</sub>] [that teaches literature at Harvard]  
 b. What film<sub>i</sub> would you see e<sub>i</sub> [if I could get tickets for e<sub>i</sub>] [that John recommended]

(21a) and (2b) crucially show that what is crucial for parasitic gap licensing is the intermediate trace of wh-movement. The main reason is that the extraposition is marking the site of an intermediate trace. We thus conclude that the outer spec/inner adjunct configuration forces the appearance of parasitic gaps, that an intermediate trace needs to be above an adjunct in order to license a parasitic gap, and that what is crucial for parasitic gap licensing is the intermediate trace of wh-movement.

### 3. The Previous Analyses of Parasitic Gaps and Adjunct Gaps

#### 3.1 The Right Node Raising Analysis of Adjunct Gap Structures (Postal 1994)

Postal (1994) suggests that the so-called adjunct gap structures cannot be derived via parasitic gap structures. He argues that they must instead be derived via coordinate gap structures involving Right Node Raising (RNR). The following schema shows coordinate gap structures and adjunct gap structures, respectively:

- (22) Coordinate gap structure  
 a. You saw e<sub>i</sub> and immediately recognized e<sub>i</sub>- [my favorite uncle from Cleveland]<sub>i</sub>  
 b. [[Conjunct . . . e<sub>i</sub> . . .] and [Conjunct . . . e<sub>i</sub> . . .]] - XP<sub>i</sub>

(23) Adjunct gap structure

- a. You offered  $e_i$  by not immediately recognizing  $e_i$ - [my favorite uncle from Cleveland];
- b. [<sub>Matrix</sub> . . .  $e_i$  . . . [<sub>Adjunct</sub> . . .  $e_i$  . . .]] -  $XP_i$

In this section, we will examine Postal's (1994) five arguments demonstrating that adjunct gap structures are derived not by parasitic gap structures but by coordinate gap structures involving RNR.

The following conditions on parasitic gaps and antecedents are established in Postal (1994):

(24) PG=DP

A Parasitic gap is a DP.

(25) PG-Licensing Restriction (PLR)

The licensing category of a parasitic gap is a DP.

First, Postal (1994) maintains that a parasitic gap and the element it is coindexed with are the category DP. Simply put, the chains of a PP, AP, and VP fail to permit a parasitic gap. The following examples illustrate this point:

(26) [<sub>DP</sub> Whose uncle]<sub>i</sub> did you offend  $e_i$  by not recognizing  $pg_i$ .

- (27) a. \*That is the woman [<sub>PP</sub> to whom]<sub>i</sub> gave my number  $e_i$  without talking  $pg_i$ .
- b. \* [<sub>AP</sub> How tried]<sub>i</sub> did Kim become  $e_i$  because the hike made her  $pg_i$ ?
- c. \*It was [<sub>VP</sub> riding a bike]<sub>i</sub> that Sam hated  $e_i$  after he tired  $pg_i$ .

The following examples from Postal (1994) suggest that coordinate gap structures, unlike parasitic gap structures, are compatible with categories other than DP:

- (28) a. It appeared to the first officer  $e_i$  but did not appear to the second officer  $e_i$ - [<sub>CP</sub> that suspect was intoxicated]<sub>i</sub>.
- b. They tried to speak  $e_i$  in person but ended up only writing  $e_i$  (letters) - [<sub>PP</sub> to the official in charge of frankfurters]<sub>i</sub>.
- c. No one asserted that Bob  $e_i$  or denied that Fred  $e_i$ - [<sub>VP</sub> had consumed more beer than was wise]<sub>i</sub>
- d. Marsha claimed she had long been  $e_i$  but certainly did not appear to me to  $e_i$  - [<sub>AP</sub> over 5 feet tall]<sub>i</sub>.
- e. He might learn when  $e_i$  and she might learn where  $e_i$  - [<sub>IP</sub> the victims will be buried]<sub>i</sub>.

(Postal 1994: 101)

It is interesting to note that just as in the case of (28), adjunct gap structures also permit PP, VP, AP, and IP chains:

- (29) a. Helga mentioned the first problem  $e_i$  without mentioning the second problem  $e_i$  - [<sub>PP</sub> to the professor who taught Geek]<sub>i</sub>.
- b. Helga didn't know he could  $e_i$  before realizing he should  $e_i$  - [<sub>VP</sub> help elderly tuberculosis victims]<sub>i</sub>.
- c. Helga was determined to become  $e_i$  even after being told she could never be  $e_i$  - [<sub>AP</sub> extremely muscular]<sub>i</sub>.
- d. Helga learned when  $e_i$  before learning where  $e_i$  - [<sub>IP</sub> the accident had occurred]<sub>i</sub>.

(Postal 1994: 101)

These examples are intended to suggest that adjunct gap structures, like coordinate gap structures, are compatible with categories other than DP. The parallelism between the examples in (28) and (29) thus confirms the prediction that adjunct gap structures are derived not by parasitic gap structures but by coordinate gap structures involving RNR.

Second, Postal (1994) points out that coordinate gap structures allow a gap to be embedded in a wh-island (30a) or an adjunct island (30b) in the second conjunct:

- (30) a. Tim wants to meet  $e_i$  and Pam knows [who invited  $e_i$ ] - [the guy that makes potato salad at the local deli]<sub>i</sub>.
- b. Kim still eats  $e_i$  but Sam left [immediately after trying  $e_i$ ] - [the potato salad at this deli]<sub>i</sub>.

It is interesting to point out that adjunct gap structures also allow a gap to be embedded in a wh-island (31a) or an adjunct island (31b):

- (31) a. Tim was able to meet  $e_i$  because Pam knows [who invited  $e_i$ ] - [the guy that makes the potato salad at the local deli]<sub>i</sub>.
- b. Kim still ate  $e_i$  [even though Sam left after trying  $e_i$ ] - [the potato salad at this deli]<sub>i</sub>.

As Postal (1994) points out, in (30) and (31), adjunct gap structures pattern with coordinate gap structures, which leads to the assumption that adjunct gap structures and coordinate gap structures are derived via the same mechanism.

Third, Postal (1994) suggests that the following condition constrains the distribution of parasitic gaps:

(32) Pronominal Condition

Parasitic gaps cannot occur in positions incompatible with definite pronouns. (Postal 1994: 82)

Postal (1994) shows that both pronouns and parasitic gaps are blocked from name positions (33), from the associate position of existentialthere constructions (34), and from the argument position of inalienable possession PPs (35). In simplest terms, all of them disallow pronouns:

(33) a. He named his camel [Ernie/\*it].

b. \*[What]<sub>i</sub> did he name his dog e<sub>i</sub> after naming his camel pg<sub>i</sub>?

(34) a. There are [guns/\*them] in the cabinet.

b. \*[What]<sub>i</sub> did he look for e<sub>i</sub> in the closet without knowing there were pg<sub>i</sub> on the table?

(35) a. They touched him on [the arm/\*it].

b. \*[Which arm]<sub>i</sub> did they have to immobilize e<sub>i</sub> after accidentally touching him on pg<sub>i</sub>?

As Postal (1994) observes, it is significant to note that coordinate gap structures involving RNR is not subject to the Pronominal Condition:

(36) They might have named their dog e<sub>i</sub> and certainly named their camel e<sub>i</sub> - [something quite unusual]<sub>i</sub>.

In this instance, the fact that (36) is well-formed implies that the coordinate gap structure is not subject to this constraint. Likewise, as evidenced by the grammaticality of (37), the adjunct gap structure, like RNR constructions, is not subject to the Pronominal Condition. From this it can be inferred that adjunct gap structures are derived not by parasitic gap structures but by coordinate gap structures.

(37) She named her youngest dog e<sub>i</sub> after naming her oldest camel e<sub>i</sub> - [exactly what she was told to name them]<sub>i</sub>.

Fourth, Postal (1994) provides the Predicate Nominal Condition as a condition on the distribution of parasitic gaps, as in (38):

(38) The Predicate Nominal Condition

Neither a parasitic gap nor its licensing category can be a predicate nominal. (Postal 1994: 84)

This condition states that neither a parasitic gap nor its licensing category can be the object of a predicate. Postal (1994) provides the following examples as illustrations:

(39) a. \*[What kind of derelicts]<sub>i</sub> did they analyze e<sub>i</sub> after their children turned into pg<sub>i</sub>?

b. \*[What kind of derelicts]<sub>i</sub> did they turn into e<sub>i</sub> after their children analyzed pg<sub>i</sub>?

As pointed out in Postal (1994), both coordinate gap structures (40) and adjunct gap structures (41) are not subject to the Predicate Nominal Condition. This result in (40) and (41) is predicted, given the hypothesis that coordinate gap structures are able to target adjunct gap structures:

(40) a. Melvin may have become e<sub>i</sub> and Jerome certainly did become e<sub>i</sub> - [a highly competent linguist]<sub>i</sub>.

b. She wanted to turn into e<sub>i</sub> and did turn into e<sub>i</sub> - [a ruthless executive]<sub>i</sub>.

(41) a. They only determined to analyze e<sub>i</sub> right after their children turned into e<sub>i</sub> - [the sort of derelicts who cause such problems in our cities]<sub>i</sub>.

b. They ended up turning into e<sub>i</sub> not long after their children analyzed e<sub>i</sub> - [the sort of derelicts who cause such problems in our cities]<sub>i</sub>.

Finally, Postal (1994) discusses preposition stranding, which originally appeared in Williams 1990. As illustrations, his examples are provided here:

(42) a. \*I talked to e<sub>i</sub> yesterday - [all the members who voted against Hinkly]<sub>i</sub>.

b. I talked to e<sub>i</sub> but Kim dined with e<sub>i</sub> - [all the members who voted for Hinkly]<sub>i</sub>.

c. I talked to e<sub>i</sub> without actually meeting e<sub>i</sub> - [all the members who voted against Hinkly]<sub>i</sub>.

(Postal 1994: 104)

The HNPS in (42a) resists preposition stranding, but coordinate gap structures involving RNR and adjunct gap structures do not show the same resistance to preposition stranding.

That is to say, the fact that (42b) and (42c) are both well-formed indicates that coordinate gap structures and adjunct gap structures show the same pattern with regard to preposition stranding. This, again, is predicted, given the hypothesis that adjunct gap structures are derived via coordinate gap structures involving RNR. In conclusion, Postal (1994) suggests that adjunct gap structures cannot be derived via parasitic gap structures. He maintains that they must instead be derived via coordinate gap structures involving RNR.

In section 4, we contend that adjunct gap structures are radically different from parasitic gap structures and that adjunct gap structures and coordinate gap structures can be derived via the same mechanism.

### 3.2. Overfelt's (2016) Hypothesis

Overfelt (2016) contends that both parasitic gap structures and coordinate gap structures involving RNR can target adjunct gap structures. He demonstrates the distinct behavior of adjunct gap structures and coordinate gap structures with respect to the supposed properties of RNR. In this section, we will examine Overfelt's (2016) three arguments demonstrating that adjunct gap structures are not derived via coordinate gap structures.

First, Overfelt (2016) observes that adjunct gap structures pattern with HNPS, but not with coordinate gap structures with respect to the derived-island constraint:

- (43) a. \*Who<sub>2</sub> did Sam e<sub>1</sub> yesterday - [an autographed picture of e<sub>2</sub>]<sub>1</sub>? (Heavy NP Shift)  
b. Who<sub>2</sub> did Kim steal e<sub>1</sub> and Pam buy e<sub>1</sub> - [an autographed picture of e<sub>2</sub>]<sub>1</sub>? (Coordinate Gap Structure)  
c. \*Who<sub>2</sub> did Kim steal e<sub>1</sub> because she couldn't afford e<sub>1</sub> - [an autographed picture of e<sub>2</sub>]<sub>1</sub>? (Adjunct Gap Structure)

In opposition to the pattern that we saw in Postal (1994), adjunct gap structures pattern with HNPS, but not with coordinate gap structures, as illustrated in (43). The same can be said about (44):

- (44) a. \*Who<sub>2</sub> did Pam develop e<sub>1</sub> in order to display e<sub>1</sub> - [an embarrassing picture of e<sub>2</sub>]<sub>1</sub>? (Adjunct Gap Structure)  
b. \*Who<sub>2</sub> did Tim burn e<sub>1</sub> after finding e<sub>1</sub> - [an incriminating picture of e<sub>2</sub>]<sub>1</sub>? (Adjunct Gap Structure)

As shown by the grammaticality of (43b) and the ungrammaticality of (43c) and (44a/b), adjunct gap structures pattern with HNPS, but not with coordinate gap structures, from which it may be inferred that adjunct gap structures and coordinate gap structures are not derived via the same mechanism.

Second, Overfelt (2016) keeps arguing against Postal's (1994) hypothesis that adjunct gap structures and coordinate gap structures are derived via the same operation:

- (45) Sam and Kim read the same book.  
a. Sentence-external  
[Sam read [the same book x] and Kim read [the same book x]]  
'Sam and Kim read the same book that someone else read.'  
b. Sentence-internal  
[the same book x][Sam read x and Kim read x]  
'Sam and Kim each read the same book that the other one read.'

When a relational adjective like *same* or *different* is used in the sentence, two readings are available, as alluded to in (45a/b). Citing Jackendoff (1977: 192-194), Overfelt (2016) maintains that in the case of coordinate gap structures a sentence-internal reading is available for a relational adjective:

- (46) Sam bought e<sub>1</sub> and Kim bought e<sub>1</sub> - [a different book about Bengal tigers]<sub>1</sub>(Coordinate Gap Structure)  
'Sam and Kim each bought a different book about Bengal tigers than the other.'

Overfelt (2016) contends, on the other hand, that adjunct gap structures permit only the sentence-external reading of the relational adjective:

- (47) Sam bought e<sub>1</sub> after Kim bought e<sub>1</sub> - [a different book about Bengal tigers]<sub>1</sub>.  
a. Sentence-external  
'a book different from the book some else bought'  
b. \*Sentence-internal  
'a book different from the book the other bought'  
(48) Pam didn't make e<sub>1</sub> so that Tim could make e<sub>1</sub> - [the same dessert for the party]<sub>1</sub>  
a. Sentence-external  
'a desert the same as the one someone else made'

## b. \*Sentence-internal

‘the same dessert that the other one made’

The fact that adjunct gap structures and coordinate gap structures do not behave alike with respect to relational adjectives like *same* or *different* leads Overfelt (2016) to hypothesize that all adjunct gap structures are not derived via coordinate gap structures.

Third, Overfelt (2016) provides further confirmation for the claim that coordinate gap structures cannot target adjunct gap structures. He assumes along with Wilder (1999) and Hartmann (2000) that RNR is subject to a constraint that requires the displaced element to be the rightmost one in each conjunct before RNR can apply. This constraint is formalized as the Right Edge Restriction, as illustrated in (49):

## (49) Right Edge Restriction

$$[_{\alpha} \dots X \dots ] \text{ Conj } [_{\beta} \dots X \dots ]$$

X must be rightmost within A and B before X can undergo RNR. (Sabbagh 2007: 355)

Let us observe the following examples:

(50) a. Tim met  $e_1$  and gave a present to  $e_1$  - [his best friend from college]<sub>1</sub>. (Coordinate Gap Structure)

b. \*Tim meet  $e_1$  and gave  $e_1$  a present - [his best friend from college]<sub>1</sub>. (Coordinate Gap Structure)

Overfelt (2016) contends that (50a) is grammatical in accordance with (49) since  $e$  in (50a) is the rightmost element within  $\alpha$  and  $\beta$ , whereas (50b) is ungrammatical since  $e$  in (50b) is not the rightmost element. Overfelt (2016) argues, on the other hand, that as shown in (51), adjunct gap structures behave differently from coordinate gap structures. These results seem to provide further confirmation that adjunct gap structures and coordinate gap structures are not derived via the same operation:

(51) a. Tim met  $e_1$  in order to give a present to  $e_1$  - [his best friend from college]<sub>1</sub>

b. Tim met  $e_1$  in order to give  $e_1$  a present - [his best friend from college]<sub>1</sub>

Overfelt (2016) interprets this contrast as evidence that coordinate gap structures are subject to the Right Edge Restriction but adjunct gap structures are not. Overfelt (2016) argues that this contrast provides another case where adjunct gap structures and coordinate gap structures each exhibit distinct behaviors. Overfelt (2016) further argues that all coordinate gap structures are derived via RNR but that at least some adjunct gap structures are not derived via RNR.

In conclusion, Overfelt (2016) argues against Postal's (1994) hypothesis that adjunct gap structures and coordinate gap structures involving RNR are derived via the same mechanism. That is, Overfelt's (2016) claim serves as counterexamples to Postal's (1994) hypothesis that all adjunct gap structures are derived via coordinate gap structures. In section 4, we review the two analyses and argue, in support of Postal (1994), that adjunct gap structures are not derived via parasitic gap structures and that adjunct gap structures are the product of the RNR operation that derives coordinate gap structures.

#### 4. Alternative views to Previous Analyses

##### 4.1. Adjunct Gap Structures and Parasitic Gap Structures

In this section, we intend to argue that parasitic gap structures are radically different from adjunct gap structures and that adjunct gap structures are not the product of the operation that derives parasitic gap structures. Note that adjunct gap structures cannot be derived via parasitic gap structures (Postal 1994), whereas adjunct gap structures can be derived via parasitic gap structures (Overfelt 2016). A serious criticism against Overfelt (2016) is based on the following arguments. First, as noted by Koster (1984b), previous approaches which assume that adjunct gap structures can be derived via parasitic gap structures cannot account for the fact that only NP chains in the case of parasitic gaps can be composed, not PP or AP chains, as shown by the ungrammaticality of (52):

(52) a. \*This is the man to whom<sub>i</sub> we gave a present  $e_i$  without talking  $e_i$ .

b. \*How<sub>i</sub> did you solve the problem  $e_i$  without knowing that you could do  $e_i$

Parasitic gap structures permit only NP chains, as alluded to in (52), whereas both adjunct gap structures and coordinate structures permit NP, AP, IP, and PP chains, as illustrated in (28) and (29), which indicates that adjunct gap structures cannot be derived via parasitic gap structures. Theoretically, to assume that adjunct gap structures can be derived via parasitic gap structures seems possible in the case of NP chains but totally impossible in the case of AP, IP, and PP chains.

Note that our claim serves as counterexamples to Overfelt's (2016) hypothesis that adjunct gap structures can be derived via parasitic gap structures. In this respect our claim jibes with Postal's (1994) hypothesis that adjunct gap structures cannot be derived via parasitic gap structures. As expected, it may be misleading to think that adjunct gap structures can be derived via parasitic gap structures. What we expect is that the properties of adjunct gap structures and the very existence of the phenomenon will reduce to independently established principles of UG.

Second, it has been argued by Chomsky (1982) and Contreras (1988) that there are relatively well-formed cases of parasitic gap structures where no other gap occurs:

- (53) a. Which professor did you go England [in order to impress e].  
b. Which article did you file e [without PRO reading e].

As alluded to in (53a/b), parasitic gap structures have two options in that they can permit either one gap or two gaps, but adjunct gap structures always permit two gaps, as illustrated in (54):

- (54) a. They only determined to analyze  $e_i$  right after their children turned into  $e_i$  - [the sort of derelicts who cause such problems in our cities]<sub>i</sub>.  
b. They ended up turning into  $e_i$  not long after their children analyzed  $e_i$  - [the sort of derelicts who cause such problems in our cities]<sub>i</sub>.

We take this fact as indicating that adjunct gap structures cannot be derived via parasitic gap structures.

Third, it is worthwhile noting that a parasitic gap is licensed by an object case-marked trace, as illustrated in (55a/b/c). The crucial evidence for this is based on the observation that as alluded to in (55a/b/c), if there is no object case-marked trace created by wh-movement, the structure involving a parasitic gap will be ruled out:

- (55) a. \*Which book did you file the report [without PRO reading e]  
b. \*The report was filed e without [PRO reading e]  
c. Which book did you file e [without PRO reading e]

As pointed out in Kim and Kang (2013), in the case of (55a), extraction from adjunct is blocked and the parasitic gap cannot be licensed since there is no object case-marked trace. Likewise, it can be argued that (55b) is ill-formed because the trace  $e$  is not object case-marked. On the other hand, the well-formedness of (55c) poses no problem for our analysis since there is an object case-marked trace created by wh-movement after *file*. These results provide support for the idea that a parasitic gap is licensed by an object case-marked trace. However, let us observe the following example:

- (56) She named her youngest dog  $e_i$  after naming her oldest camel  $e_i$  - [exactly what she was told to name them]<sub>i</sub>.

A parasitic gap is licensed by an object case-marked trace, but two gaps in the adjunct gap structures are licensed by the moved element, as illustrated in (56). That is, in (56), the two gaps are licensed by the moved element *exactly what she was told to name them*. Therefore, it seems reasonable to assume that adjunct gap structures are not derived via parasitic gap structures.

Fourth, one more possible explanation for the different behaviors of the two constructions may be that a parasitic gap can be phonetically realized in the parasitic gap constructions, but not always. Even if a pronoun can occur instead of a parasitic gap, a parasitic gap cannot appear in that position where it is supposed to occur, as alluded to in (57):

- (57) a. \*Who<sub>i</sub> did you praise  $e_i$  [that teaches literature at Harvard] [in order to impress  $e_i$ ]  
b. Who<sub>i</sub> did you praise  $e_i$  [that teaches literature at Harvard] [in order to impress him]  
c. Who<sub>i</sub> did you praise  $e_i$  [that teaches literature at Harvard] [in order to surprise me]

However, noteworthy is that an adjunct gap can always be phonetically realized in the adjunct gap structures together with another gap, as indicated in (58) and (59):

- (58) a. Tim met  $e_1$  in order to give a present to  $e_1$  - [his best friend from college]<sub>1</sub>  
b. Tim met  $e_1$  in order to give  $e_1$  a present - [his best friend from college]<sub>1</sub>  
(59) a. Tim met his best friend from college in order to give a present to him from college.  
b. Tim met his best friend from college in order to give him from college a present.

The two gaps in (58a/b) can be phonetically realized without strings, as alluded to in (59a/b). We take this fact as support for the idea that adjunct gap structures are not derived via parasitic gap structures. They do not behave alike in the relevant respect.

Fifth, it is standardly assumed that a parasitic gap is not a trace created by movement, as discussed by Haik (1985), Cinque (1990), Frampton (1990), Lasnik and Stowell (1991), and Niinuma (2010). On the other hand, an adjunct gap is a trace created by rightward movement. Let us observe the following examples:

- (60) a. \*Who<sub>i</sub> did you praise e<sub>i</sub> [that teaches literature at Harvard] [in order to impress e<sub>i</sub>]  
 b. Who<sub>i</sub> did you praise e<sub>i</sub> [that teaches literature at Harvard] [in order to impress him]

If a parasitic gap is a trace created by movement, just as in the case of (60a), (60b) must not be grammatical. On the other hand, two gaps in adjunct gap structures are traces created by rightward movement, as illustrated in (61):

- (61) a. Tim met [his best friend from college]<sub>i</sub> in order to give a present to [him from college]<sub>i</sub>.  
 b. Tim met e<sub>1</sub> in order to give a present to e<sub>1</sub> - [his best friend from college]<sub>1</sub>

This result gives weight to the claim that adjunct gap structures and parasitic gap structures are not derived via the same mechanism. Clearly, examples (60) and (61) indicate that they do not behave alike in the relevant respect. Thus, structures like (60) and (61) constitute the empirical core of our proposal.

Sixth, it is significant note that Spec (CP) in the parasitic gap structures must be filled with the null operator *O*. If Spec (CP) in the parasitic gap constructions is already filled with overt operators such as *why* and *how*, the structure will be ruled out. Kim and Kang (2013) contend that for a parasitic gap to be licensed, a null operator must be bound to an object case-marked trace that does not *c*-command it. Let us observe the following examples:

- (62) a. \*Who did you ask t [<sub>CP</sub> why you should visit e]?  
 b. \*Who did you ask t [<sub>CP</sub> how you should address e]]

In (62a) and (62b), Spec (CP) is already filled with overt operators such as *why* and *how*, which results in the ungrammaticality of (62a) and (62b). Simply put, (62a) and (62b) are ungrammatical since the structure of (62a) and (62b) cannot house a null operator. This fact is taken as evidence for the null operator analysis of parasitic gap constructions. As Kim and Kang (2013) point out, everything falls into place under the null operator analysis:

- (63) Which book did you file e [without [O believing [Mary would like e]

The structure (63) is correctly predicted to be grammatical since the null operator *O* in (63) is bound to the object case-marked trace *e*. We attribute the grammaticality of (63) to the fact that the structure of (63) can house a null operator. Conversely, there is no need to assume that there must be a null operator in adjunct gap structures:

- (64) a. They only determined to analyze e<sub>i</sub> right after their children turned into e<sub>i</sub> - [the sort of derelicts who cause such problems in our cities]<sub>i</sub>.  
 b. They ended up turning into e<sub>i</sub> not long after their children analyzed e<sub>i</sub> - [the sort of derelicts who cause such problems in our cities]<sub>i</sub>.

(64a) and (64b), repeated here, are well-formed, despite the fact that the structure of (64a/b) cannot house a null operator. In effect, in (64a/b), Spec (CP) is already filled with the overt operator *after*. Thus, the adjunct gap structures (64a/b) cannot house a null operator. These facts in turn suggest that parasitic gap structures require a null operator, whereas adjunct gap structures do not require a null operator. It is clear from this that adjunct gap structures are not derived via parasitic gap structures. We thus conclude that parasitic gap structures and adjunct gap structures each exhibit distinct behaviors and that parasitic gap structures and adjunct gap structures are not derived via the same mechanism.

#### 4.2. Adjunct Gap Structures and Coordinate Gap Structures in Korean

Overfelt (2016) provides three arguments demonstrating the different behavior of adjunct gap structures and coordinate gap structures. On the basis of the three arguments, he argues against Postal's (1994) hypothesis that adjunct gap structures and coordinate gap structures involving RNR are derived via the same operation. In this section, however, we demonstrate that adjunct gap structures in Korean have the same properties as coordinate gap structures in Korean, which lends support to not Overfelt (2016) but Postal (1994). Three points are worth mentioning for the claim that adjunct gap structures are derived via coordinate gap structures.

First, Overfelt (2016) provides the following coordinate gap structure where the direct object is displaced rightward:

- (65) Who<sub>2</sub> did Kim steal e<sub>1</sub> and Pam buy e<sub>1</sub> - [an autographed picture of e<sub>2</sub>]<sub>1</sub>?

Interestingly, as the status of (66) suggests, the adjunct gap structure does not pattern with RNR with respect to the derived-island constraint:

(66) \*Who<sub>2</sub> did steal e<sub>1</sub> because she couldn't afford e<sub>1</sub> - [an autographed picture of e<sub>2</sub>]<sub>1</sub>?

As indicated in (65), the coordinate gap structure is well-formed, whereas as illustrated in (66), the adjunct gap structure is ill-formed. On the basis of the grammaticality of (65) and the ungrammaticality of (66), Overfelt(2016) maintains that coordinate gap structures and adjunct gap structures cannot be derived via the same mechanism. It seems to us that his data tell us that he is on the right track. It must be noted, however, that Korean data do not back up Overfelt's (2016) hypothesis that the so-called adjunct gap structures are not derived via coordinate gap structures. Let us observe the following examples:

(67) Kim-i e<sub>1</sub>humchyess-ko Pam-i e<sub>1</sub>sassnunya - [nwukwu-uy  
NOM stole and NOM bought who-GEN  
kulim-ul]  
picture-ACC (Coordinate Gap Structure)  
(Who<sub>2</sub> did Kim steal e<sub>1</sub> and Pam buy e<sub>1</sub>-[an picture of e<sub>2</sub>]<sub>1</sub>?)

(68) Kim-ikunye-ka e<sub>1</sub>salyeyukaepsese e<sub>1</sub>  
NOM she-NOM couldn't afford  
humchyessnuya - [nwukwu-uykulim-ul]<sub>1</sub>  
stolewho-GEN picture-ACC  
(Who<sub>2</sub> did Kim steal e<sub>1</sub> because she couldn't afford e<sub>1</sub> - [a picture of e<sub>2</sub>]<sub>1</sub>? (Adjunct Gap Structure)

As exemplified in (67) and (68), these two Korean examples are both well-formed, which indicates that adjunct gap structures pattern with coordinate gap structures. This in turn suggests that Korean data support Postal's (1994) hypothesis that coordinate gap structures and adjunct gap structures are derived via the same mechanism rather than Overfelt's (2016) hypothesis that adjunct gap structures are not derived via coordinate gap structures.

Second, it is noteworthy that as Overfelt (2016) observes, a sentence-internal reading is available in the displaced DP of coordinate gap structures, whereas a sentence-external reading is available in that DP of adjunct gap structures.

(69) a. Sam bought e<sub>1</sub> and Kim bought e<sub>1</sub> - [a different book about Bengal tigers]<sub>1</sub>. (Coordinate Gap Structure)  
Sentence-internal  
'Sam and Kim each bought a different book about Bengal tigers than the other'  
b. Sam bought e<sub>1</sub> after Kim bought e<sub>1</sub> - [a different book about Bengal tigers]<sub>1</sub>. (Adjunct Gap Structure)  
a. Sentence-external  
'a book different from the book someone else bought'  
b. \*Sentence-internal  
'a book different from the book the other bought'

As observed earlier, (69a) and (69b) crucially show that the coordinate gap structure permits only a sentence-internal reading, whereas the adjunct gap structure permits only a sentence-external reading, from which it may be inferred that adjunct gap structures and coordinate gap structures are not derived via the same operation. It should be noted, however, that as the status of (70) and (71) suggests, coordinate gap structures in Korean pattern with adjunct gap structures in Korean with respect to relational adjectives:

(70) Sam-ie<sub>1</sub>sassko Kim-to e<sub>1</sub>saata - [bengalsan  
NOM bought and bought Bengal  
Holangieykwanhantalunchayk-ul]<sub>1</sub>  
tigerabout different book (Coordinate Gap Structure)  
a. Sentence-external  
'a book different from the book someone else bought'  
b. \*Sentence-internal  
'a book different from the book the other bought'

(71) Tim-ie<sub>1</sub>mantulswuisstolok Pam-i e<sub>1</sub>  
NOM to could make NOM  
mantulcianhassta - [ku-party-lulwihankath  
didn't make the party-ACC for the same  
dessert-lul]<sub>1</sub>.  
dessert-ACC (Adjunct Gap Structure)  
a. Sentence-external

‘a dessert the same as the one someone else made’

b. \*Sentence-internal

‘the same dessert that the other one made’

It is worth emphasizing that adjunct gap structures in Korean have the same properties as coordinate gap structures in Korean with regard to relational adjectives. As evidenced by the grammaticality of both (70) and (71), coordinate gap structures in Korean and adjunct gap structures in Korean behave alike. The fact that adjunct gap structures in Korean pattern with coordinate gap structures in Korean provides support for Postal’s (1994) hypothesis that adjunct gap structures are the product of the RNR operation that derives coordinate gap structures.

Finally, Overfelt (2016) contends that RNR is subject to a constraint that requires the displaced element to be the rightmost one in each conjunct. This constraint is formalized as the Right Edge Restriction:

(72) Right Edge Restriction

[[ . . . X . . . ] Conj[ . . . X . . . ]]

X must be rightmost within  $\alpha$  and  $\beta$  before X can undergo RNR.

Interestingly, coordinate gap structures are subject to the Right Edge Restriction, as indicated in (73), whereas adjunct gap structures are not subject to this constraint, as illustrated in (74):

(73) a. Tim met  $e_1$  and gave a present to  $e_1$  - [his best friend from college]<sub>1</sub>.

b. \*Tim met  $e_1$  and gave  $e_1$  a present - [his best friend from college]<sub>1</sub>.

(74) a. Tim met  $e_1$  in order to give a present to  $e_1$  - [his best friend from college]<sub>1</sub>.

b. Tim met  $e_1$  in order to give  $e_1$  a present - [his best friend from college]<sub>1</sub>.

More specifically, (73b) is subject to the Right Edge Restriction that requires the displaced element to be the rightmost one in each conjunct. Clearly, (73b) violates this constraint since  $e$  is not the rightmost element, which leads to the ungrammaticality of (73b). On the other hand, (74b) is not subject to the Right Edge Restriction since (74b) is grammatical even though the displaced element  $e$  is not the rightmost one. Simply put, (74b) is supposed to be ungrammatical, but is grammatical. These facts clearly indicate that adjunct gap structures do not pattern with coordinate gap structures with respect to the Right Edge Restriction. However, the following Korean examples in (72) and (73) do not underpin Overfelt’s (2016) hypothesis that adjunct gap structures are not the product of the RNR operation that derives coordinate gap structures:

(75) a. Tim- $ie_1$ mannass-kosenmuwl-ul  $e_1$ cwuessta

NOM met and a present gave

- [ku-uycelchin-eykey]<sub>1</sub>.

he-GEN best friend

(Tim met  $e_1$  and gave a present  $e_1$  - [his best friend]<sub>1</sub>)

b. Tim- $ie_1$ mannass-ko  $e_1$ senmuwl-ulcwuessta

NOM met and a present-ACC gave

- [ku-uycelchin-eykey]<sub>1</sub>.

he-GEN best friend

(Tim met  $e_1$  and gave  $e_1$  a present - [his best friend]<sub>1</sub>)

(76) a. Tim-Isenmwul-ul  $e_1$ cwukiwihay  $e_1$ mannassta

NOM a present-ACC to give met

- [ku-uycelchin-ul]<sub>1</sub>.

he-GEN best friend

(Tim met  $e_1$  in order to give a present to  $e_1$  - [his best friend]<sub>1</sub>.)

b. Tim-un  $e_1$ senmwul-ulcwukiwihay  $e_1$ mannassta

TOP a present-ACC to give met

- [ku-uycelchin-ul]<sub>1</sub>.

he-GEN best friend

(Tim met  $e_1$  in order to give  $e_1$  a present - [his best friend]<sub>1</sub>)

From (75a/b) and (76a/b), it is clear that there is no contrast between the two ditransitive frames in coordinate gap structures and adjunct gap structures. To put it simply, adjunct gap structures pattern with coordinate gap structures with regard to the two ditransitive frames, which in turn suggests that Korean data jibe not with Overfelt (2016) but with Postal (1994).

In conclusion, we have provided three arguments demonstrating the same behavior of adjunct gap structures and coordinate gap structures. Again, it is worth emphasizing that in all cases, adjunct gap structures in Korean have the same properties as coordinate gap structures in Korean. The fact that adjunct gap structures in Korean pattern with coordinate gap structures in Korean entertains Postal's (1994) thesis that coordinate gap structures involving RNR target adjunct gap structures.

### **5. Conclusion**

The main goal of this article is to demonstrate that adjunct gap structures are not derived via parasitic gap structures and that adjunct gap structures must instead be derived via coordinate gap structures. In section 2, we have shown that the outer spec/inner adjunct configuration forces the appearance of parasitic gaps and that an intermediate trace which is crucial for parasitic gap licensing needs to be above an adjunct in order to license a parasitic gap. In section 3, we have examined Postal's (1994) five arguments verifying the fact that adjunct gap structures are derived not by parasitic gap structures but by coordinate gap structures involving Right Node Raising. Also, we have examined Overfelt's (2016) three arguments demonstrating that adjunct gap structures are not derived via coordinate gap structures. In section 4, we have provided six arguments proving that parasitic gap structures and adjunct gap structures are not derived via the same mechanism. In this respect, our claim jibes with Postal's (1994) hypothesis that adjunct gap structures cannot be derived via parasitic gap structures. Also, we have provided three arguments demonstrating the same behavior of adjunct gap structures and coordinate gap structures. We have maintained that adjunct gap structures in Korean have the same properties as coordinate gap structures in Korean, which underpins not Overfelt (2016) but Postal (1994).

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