

The Rightward Movement Analysis of Gapping in NP and Its Structural Implications¹

Masaya Yoshida

University of Maryland at College Park

1. Introduction: Gapping in NP?

NP-deletion is generally analyzed as deletion of an NP under identity with a preceding NP. This identity constraint is typically combined with some general licensing condition on ellipsis (e.g., Lobeck, 1995). There seem to be cases, however, where the NP-deletion rule deletes less than an entire NP. This is illustrated in (1a), where the head noun of the NP in the second conjunct is deleted, and the subject and complement of the NP are left unaffected. This example, at least superficially, appears similar to the Gapping example in (1b). For instance, in both examples, the head of VP or NP in the second conjunct is deleted, and the subjects and complements are left unaffected. Based on this similarity, let us call the construction in (1a) nominal Gapping (NG); namely, a Gapping construction in the Nominal domain. On the other hand, I refer to Gapping construction in verbal domain as Verbal Gapping (VG) for the sake of distinguishing these two constructions.

- (1) a. Bill studied John's proof of this theorem and Mary's of that theorem.
b. John proved this theorem and Mary that theorem.

Although, VG has a long history in generative grammar (Jackendoff, 1971; Johnson, 1994; Lasnik and Saito, 1992; Neijt, 1980; Sag, 1976 among many others), NG has been left unstudied since (Jackendoff, 1971). The primary goal of this paper is to understand the syntactic properties of NG through a detailed comparison with VG. In the course of the discussion, we show that NG shows close parallelisms with VG. I argue that these parallelisms are derived from the nature of the operation that is responsible for these constructions, namely the rightward movement of complement phrases. This movement is similar to that involved in the so-called Heavy Shift construction (Pesetsky, 1995; Ross, 1967 among others). I propose that NG, as well as VG, is derived by the rightward movement of a complement phrase followed by NP-deletion or TP-deletion.

Once we reach the conclusion that NG is derived by the rightward movement of the complement phrase and NP-deletion, we discuss the consequences of this analysis. There are two points that we argue. First, the rightward movement analysis of NG provides us with a window into the internal structure of NP. Second, the revealed structure of NP has further implications to the internal structure of AP. Based on the behavior of the attributive adjective in the proposed structure of NP, I argue that attributive adjectives and predicative adjectives must have two different structures (c.f., Abney, 1987).

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2. Nominal Gapping, Verbal Gapping and Heavy Shift, the Parallelism

The goal of this section is to establish the claim that NG is derived by ellipsis of the NP following the rightward movement of the complement phrase. We show that NG and VG share some properties and argue that they are naturally accounted for if we adopt the rightward movement analysis (Jayaseelan, 1990; Lasnik and Saito, 1992 among others). Let us first review the major characteristics of VG. The properties we are concerned with are listed in (2) (Jackendoff, 1971; Johnson, 1994; Neijt, 1980; Sag, 1976 among many others).

- (2) a. Only two remnants are allowed in most instances of VG.
 b. Prepositions cannot be deleted.
 c. Distance between two remnants cannot be "too far".
 d. The verb can be gapped in the second conjunct, but not in the first conjunct.

Now, we suggest that all of these characteristics are seen in NG, as well as Heavy Shift, and that these three constructions form a natural class. Let us examine these properties one by one. (2a) states that, in VG, only two constituents can be gapping survivors. Thus, if there are three remnants, the example sounds worse, as in (3a). In the same way, if three constituents remain in NG, the example degrades (Jackendoff, 1971). This is illustrated in (3b). The example in (3c) illustrates that we cannot Heavy Shift more than one constituent. If rightward movement is responsible for (3a) and (3b), it is clear why there cannot be more than two remnants, i.e., rightward-movement of two constituents at the same time is prohibited, and because of that, one of the two complements cannot escape the scope of deletion.

- (3) a. Alan gave Sandy a book and Peter ~~gave~~ (*Betsy) a magazine.
 b. Ormandy's recording of Ive's 1st on Columbia and Von Karajan's ~~recording~~ (*of Mozarts 40th) on Angel can be recommended none too highly.
 c. *John built t_{NP} t_{PP} yesterday [$_{NP}$ the house that he will live in] [$_{PP}$ with a hammer].

Let us turn to the second property. In both VG and NG, the complement of the preposition cannot be a gapping survivor, i.e., prepositions cannot remain in the scope of deletion.² This property is also readily captured by the rightward movement approach. As the minimal pair in (4c) and (4d) illustrates, Heavy Shift generally resists preposition stranding (Baltin and Postal, 1996; Ross, 1967; Wexler and Culicover, 1980). Given this property of Heavy Shift, it is clear why prepositions cannot be deleted in VG or in NG. This is because these constructions are derived by the rightward movement of the complement phrases, and this movement cannot leave a preposition behind. Consequently, prepositions must escape the scope of deletion.

- (4) a. Bill talked about Sue and John ~~talked~~ *(about) Mary.
 b. John read Mary's book about syntax and Bill's ~~book~~ *(about) semantics.
 c. *I talked about t_{NP} yesterday [$_{NP}$ the man I recently met].
 d. ^{ok}I talked t_{PP} yesterday [$_{PP}$ about the man I recently met].

The third property also demonstrates the close similarity among VG, NG and Heavy Shift. It is observed in various places that two gapping survivors are regulated by a certain type of locality constraint. As we can see in (5a) and (5b), if the two gapping survivors are separated by a CP or DP boundary, the examples are degraded. Compared to these examples, the regular Gapping examples in (1) sound much better, where ellipsis takes place within a clause or a NP/DP. This locality property, again, can be derived from the general property of rightward movement. (5c) shows that a constituent cannot be heavy-shifted out of a CP. Thus, the examples in (5a) and (5b) are unacceptable because complement phrases are rightward moved out of the embedded CP or DP, i.e., the same type of

² The possibility of P-stranding is discussed in (Kuno, 1976; Steedman, 2000). They observe that in some environments such as the answer for a multiple question, P-stranding in VG is allowed. This could be a general problem in analyzing VG. However, our primary purpose is to show that VG and NG form natural class, thus, I will leave this issue open here.

locality constraint as Heavy Shift is working in these constructions.

- (5) a. *John believes that gapping is important, and [Mary believes [_{CP} that sluicing is important]].
- b. *John read Mary's book about Halle's theory of phonology and [_{DP} Bill's ~~book about~~ _{DP} Chomsky's theory of syntax]].
- c. *John believes [_{CP} _{NP} is important] [_{NP} the construction that Mary was studying].

The last property of Gapping constructions we discuss must be treated independently of Heavy Shift because this construction has nothing to do with coordination. This property is related to the directionality of ellipsis. In general, VG can take place in the second conjunct but not in the first conjunct, as the minimal pair (6a) and (6b) indicates. The same is true for NG. If NG takes place in the first conjunct, the example is not acceptable. This is illustrated in the pair in (6c) and (6d). Again, we can observe the parallelism between the two constructions, and this strengthens our claim that these two constructions form a natural class.

- (6) a. John likes Mary and Bill ~~likes~~ Susan.
- b. *John ~~likes~~ Mary and Bill likes Susan.
- c. John read Bill's book about syntax and Mary's ~~book~~ about semantics.
- d. *John read Bill's ~~book~~ about syntax and Mary's book about semantics.

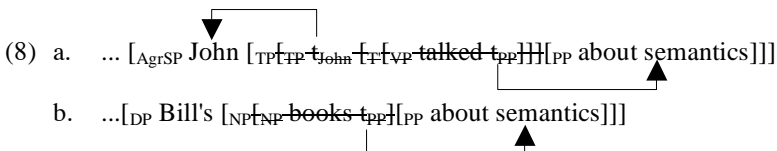
In summary, so far we have seen that VG and NG share core properties that can be largely derived by assuming that they involve rightward movement. In the next section, we propose an analysis of Gapping that can capture these properties and provide further argument for the claim that the rightward movement is responsible for deriving VG and NG.

3. That's the RIGHT Way to Go!: Rightward Movement Analysis

This section proposes a rightward movement analysis of VG and NG. In this section, we support the following two points.

- (7) a. VG is TP-deletion following a rightward movement of object DP.³
- b. NG is NP-deletion following a rightward movement of the complement PP.

To establish these claims, we would like to adopt the following three assumptions. The first is that a segment of category can be a target of a syntactic operation, following Hornstein, 1994) analysis of adjunct Antecedent Contained Deletion (ACD). The second is the AgrSP analysis (Chomsky, 1995; Pollock, 1989), and the third is the DP analysis (Abney, 1987). With this much in mind, let us look at the structures of VG and NG.

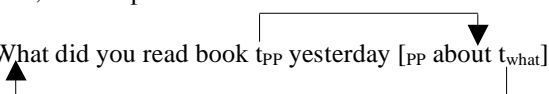
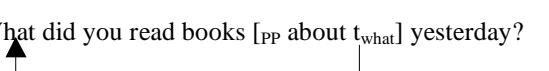


Under the proposed analysis, VG is treated in the following way. The complement PP is moved and adjoined to the TP, and the lower segment of the TP is deleted. This is illustrated in (8a). For VG, we are adopting the TP-deletion analysis rather than VP-deletion analysis (cf., Sohn, 1999). This is simply because if we adopt the VP-deletion analysis rather than TP-deletion analysis there can be a place for Auxiliary verb, and the surface string is Pseudogapping rather than Gapping. It is reported that there are systematic differences between Pseudogapping and Gapping (Lasnik, 1999), and the distinction between these two constructions seems to result from the presence of Aux. So here, we would like to stipulate that VG is TP-deletion rather than VP-deletion. Turning to NG, this construction is also

³ Cases of VG with gapping survivors other than complement phrases are observed in various places (Sag, 1976 among others), but here we pay attention to the cases with complement phrases to establish the rightward movement analysis.

analyzed in the same way as VG. In NG, the complement PP is rightward-moved and adjoined to NP. The lower segment of NP is deleted, as illustrated in (8b). As in many other analyses of Gapping, this analysis also holds the position that Gapping is not deletion of a head of a phrase (Lasnik and Saito among others). Rather, it is a process of deleting an entire phrase. The deletion of the phrase is made possible by the movement of the complement phrase. Thus, as long as the movement of complement phrases holds true, we do not need to assume the deletion of a head. In the later section, we show further examples indicating that Gapping actually deletes more than a head.

We have proposed the rightward movement analysis mainly on the basis of the parallelisms between VG and NG on the one hand, and Heavy Shift on the other. Next, we would like to show two pieces of evidence that directly support the analysis that VG and NG are derived by movement and deletion, and that the relevant movement is rightward movement, rather than leftward movement. First, the evidence for movement comes from the phenomenon known as the derived position island (Merchant, 2001; Takahashi, 1994; Wexler and Culicover, 1980). The derived position island is an island effect that shows up when a constituent is extracted out of a moved constituent. For example, if the complement PP is moved, as in (9a), overt *wh*-movement out of the moved PP is not allowed. On the other hand, if a *wh*-phrase is extracted out of a PP in its base position, the example is fine.

- (9) a. *What did you read book t_{PP} yesterday [PP about t_{what}]

- b. What did you read books [PP about t_{what}] yesterday?


With the discussion of the derived position island above in mind, let us examine the relevant examples of VG and NG. If VG or NG is derived by ellipsis following the movement of complement phrases, we expect that these complement phrases become islands. This prediction is borne out. (10b) is an example of VG, and (11b) is an example of NG. If the coordinated phrases contain no ellipsis, as in the (a) examples, across-the-board *wh*-movement out of complement PPs is possible. However, once Gapping takes place, *wh*-movement is not allowed, as in the (b) examples. This contrast can easily be accounted for under analyses that posit movement of the complement phrase, i.e., because the complement phrases are moved, they become islands.

- (10) a. I wonder which topic John talked about t and Mary talked about t too?
 b. *I wonder which topic John talked about t and Mary ~~talked~~ about t too?
- (11) a. I wonder which topic you read few books about t rather than many books about t ?
 b. *I wonder which topic you read few books about t rather than many ~~books~~ about t ?

Cases like (10b) or (11b) strongly suggest that gapping survivors are actually moved. However, these examples do not tell us the directionality of the relevant movements. This is because a leftward-moved phrase also creates an island effect, as illustrated in (12b). (Lasnik, 2001) shows that examples like (12b) contain leftward movement of an NP crossing the particle *up*. Compared to (12a), (12b) is clearly degraded. Lasnik attributes the unacceptability of (12b) to the movement out of a moved phrase, i.e., the example is unacceptable because the *wh*-phrase is extracted out of the moved NP. This suggests that even leftward movement creates the derived position island. Thus, evidence from the derived position island alone does not tell us the directionality of movement.

- (12) a. Who did Mary call up [NP friends of t_{who}]?
 b. *Who did Mary call [NP friends of t_{who}] up t_{NP} ?

There is, however, a case where leftward movement and rightward movement show a clear contrast. It is the possibility of P-stranding. As we have already seen, rightward movement like Heavy Shift resists P-stranding (Baltin and Postal, 1996; Ross, 1967; Wexler and Culicover, 1980). The relevant examples are repeated here as (13).

- (13) a. I talked t_{PP} yesterday [PP about [NP the man I recently met]]
 b. *I talked [PP about t_{NP}] yesterday [NP the man I recently met]

Unlike Heavy Shift, leftward movement like topicalization generally allows P-stranding (Ross, 1967). For example, the complement of the preposition can be topicalized, as well as the whole PP. The relevant examples are presented in (14).

- (14)a. [_{PP} about [the man I recently met]], I talked _{TP} yesterday.
 b. [_{NP} the man I recently met], I talked about _{NP} yesterday.

Given this contrast between rightward and leftward movement, we can now diagnose the directionality of movement involved in Gapping constructions. Let us examine an example we saw earlier. The examples in (15) show that in both VG and NG, prepositions cannot be deleted together with a verb or a noun. If the movement of the complement phrases is leftward movement, we would not expect this ban on deletion of prepositions. If movement is leftward, we expect that the preposition can be stranded, and thus it can be deleted together with the verb. Instead, these examples support the claim that the relevant movement is rightward rather than leftward, i.e., prepositions cannot be under the scope of deletion because rightward movement cannot strand the preposition.

- (15)a. John talked about Sue and Bill ~~talked~~ *(about) Mary.
 b. John read Mary's book about syntax and Bill's ~~book~~ *(about) semantics.

In summary, we have established the following two claims in this section. First, NG is derived by NP-deletion following the movement of the complement. We have seen that VG is also best understood as movement of the complement, which is followed by TP-deletion. The evidence for movement comes from the island effects shown by the Gapping remnants. Second, the relevant movement is rightward rather than leftward. This claim is supported by the impossibility of P-stranding. Leftward movement generally allows P-stranding and rightward movement does not. This property of rightward movement can account for, without any stipulation, why a preposition cannot be deleted in both NG and VG.

4. Structural Implications

In the previous section we proposed a rightward movement analysis of NG. There, we argued that NG is best analyzed as rightward movement of the complement phrase followed by NP-deletion. In this section, we explore the some consequences of this analysis. In the first subsection (Sec. 4.1), we show that NG can provide a clue about how to investigate the internal structure of NP. In the following subsection, we see some further consequence of the proposed analysis of the internal structure of NP. Through the investigation of the interaction between NG and attributive adjectives, we argue that the attributive and predicative adjectives must have two different structures.

4.1. The Internal Structure of NP

The purpose of this subsection is to examine the hierarchical structure in NPs, using the data of NG as a clue. Through a detailed examination of the interaction of NG and various modifiers in NP, we shall see that we require a particular structure of NP to capture the distribution of NG.

The first set of examples illustrates the behavior of attributive adjectives in NG. If an attributive adjective is present in an NP, it must be deleted together with the head noun when NG takes place⁴ (Jackendoff, 1971). This is illustrated by the minimal pair in (16). The difference in acceptability arises from the presence and absence of the attributive adjective in the second conjunct. Attributive adjectives that undergo NG must be deleted together with the head noun as shown in (16a).

- (16)a. *Bill's funny story about Sue and Mary's boring ~~story~~ about Kathy both amazed me.
 b. Bill's funny story about Sue and Mary's ~~funny story~~ about Kathy both amazed me.

⁴ A note is in order. David Pesetsky (p.c.) suggested that superlative adjectives can escape the scope of deletion in NG, as in (i). It may suggest that superlatives can move up to higher positions (Kayne 2003).

(i) John read Chomsky's shortest book about syntax and Halle's longest ~~book~~ about phonology.

The second set of examples tells us about the distribution of numerals in NG. Unlike attributive adjectives, numerals can remain undeleted, or can be deleted also. Thus, both examples in (17) are fine.

- (17)a. John read Bill's three books about syntax and Mary's two books about semantics.
 b. John read Bill's three books about syntax and Mary's ~~three books~~ about semantics.

The third and final set of examples demonstrate the behavior of determiners and genitive NPs in NG. In the core cases of NG that we have seen so far, genitive NPs such as *John's* are always present. But the following examples in (18) suggest that deletion of determiners seems to be possible. Although the determiner is absent, (18b) is acceptable. It apparently seems that the determiner can be deleted in NG in the same way as Numerals.

- (18)a. John read Bill's/few books about syntax and Mary's/many books about semantics.
 b. John read Bill's/few books about syntax and ~~Bill's/few books~~ about semantics.

However, I would rather conclude that the deletion of determiners in NG is not possible. Examine the examples in (19). If both of the two examples below are derived from the same underlying forms, we expect that they have the same interpretation in number, i.e., the interpretation about the number of the books should be the same. There is a difference, however. In (19a) the numeral does not apply to each of the conjuncts, thus there are just three books involved in this sentence. On the other hand, in (19b) the numeral does apply to each of the conjuncts, i.e., there are six books in total involved in (19b). Based on this difference, I propose that (19a), and (19b), an example of NG, have a different structure and derivation. Moreover, we propose that the scope of deletion in NG does not cover determiners and genitive NPs. Here, we simply adopt the structure (20) for (19a), where just the complement PPs are coordinated rather than the larger phrases without deletion.

- (19)a. John read Bill's three books about syntax and about semantics.
 b. John read Bill's three books about syntax and Mary's about semantics.
 (20) John read [_{DP} Bill's [_{three} [_{NP} books [_{PP} [_{PP} about [_{NP} syntax]]] and [_{PP} about [_{NP} semantics]]]]]

So far, we have seen that the scope of deletion must be large enough to include attributive adjectives, and small enough to exclude numerals and determiners. Now the question is how we can capture these properties of NG. What I propose here is that the scope of deletion in NG interacts with the hierarchical organization inside the NP. To capture the distribution of the modifiers and determiner in NG, we would like to adopt the following three assumptions: first, we adopt the DP analysis (Abney, 1987) and NumberP (#P) analysis (Ritter, 1991), i.e., there are two functional categories in NP; second, we assume that attributive adjectives are in the specifier of NP; third, we assume that a segment of a category can be a target of deletion. With these assumptions, the structure of a sentence containing NG can be something like (21). (21a) illustrates NG with numerals, and (21b) illustrates an example where a numeral is deleted. Let us consider the structures in detail. First, if the PP *about semantics* is rightward moved and adjoined to NP, the lower NP segment can be deleted. The adjective must be deleted, but numerals can stay out of the scope of deletion. This is so because, as we have assumed, the adjective is in the specifier of NP but #P is higher than NP. If the PP is moved higher and adjoined to #P, we can delete the lower segment of #P. In this case numerals must be deleted. In this way, we can capture the distribution of attributive adjectives and numerals correctly under this analysis. Adjectives must be deleted in any case because they are located in the specifier of NP that is always in the scope of deletion. On the other hand, numerals can sometimes escape from the scope of deletion because #P dominates NP, i.e., NP, independently from #P, can be a target of deletion.

- (21)a. ... [_{DP} Mary's [_{#P} two [_{NP} [_{NP} [_{NP} ~~boring~~] [_N books ~~t~~]]] [_{PP} about semantics]]]]]
 b. ... [_{DP} Mary's [_{#P} ~~two~~ [_{NP} [_{NP} [_{NP} ~~boring~~] [_N books ~~t~~]]] [_{PP} about semantics]]]]]

Let us summarize the discussion so far. With the combination of independently motivated assumptions, we can correctly capture the behavior of NG. What we have seen here is that the distribution of the modifiers in NG can be correctly captured given the structure of NP/DP that we

have adopted, i.e., the scope of deletion in NG interacts with the hierarchical organization inside NP. One crucial point of this analysis of the structure of NP is that it can be true only under the movement analysis of NG. Under any analysis that does not postulate movement of complement phrases, it is difficult to capture the behavior of these modifiers in NG.

4.2. Structural Differences Between Attributive and Predicative Adjectives

In the previous subsection, we saw the internal structure of NP that can capture the distribution of the NP-internal modifiers. In the proposed analysis, we assumed that attributive adjectives are located in the specifier of NP. In this subsection, we discuss one further supporting argument for this view and a consequence of this analysis.

I based the analysis of attributive adjectives on their distribution in NG. As we have seen, if there is an adjective in an NP, it must be deleted together with the head noun when NG takes place. To capture this pattern, I assumed that the adjective is in the spec of NP. What if the attributive adjective heads an AP and can take NP as its complement (Abney, 1987)? The structure in question is presented in (22). Under this analysis, we expect that adjectives can escape the scope of deletion under NG because there is no way to exclude the derivation in (22b) where the complement PP is rightward moved and adjoined to the NP, and the lower NP segment is deleted. However, as in (16), which is repeated here as (23), this prediction was not correct. Thus, to exclude this possibility, it is necessary to assume that the attributive adjectives are located lower than NP, i.e., the specifier of NP as in (22c).

- (22) a. ... [DP Bill's [AP funny [NP story [PP about Sue]]]]
 b. ... [DP Bill's [AP funny [NP_T story_T t_{PP}] [PP about Sue]]]]
 c. ... [DP Bill's [NP_T t_{AP} [AP funny] [NP story t_{PP}] [PP about Sue]]]]
- (23) a. *Bill's funny story about Sue and Mary's boring story about Kathy both amazed me.
 b. Bill's funny story about Sue and Mary's funny story about Kathy both amazed me.

Given this analysis of attributive adjectives, one question arises: namely, whether all the adjectives have the same structure or not. To answer this question, let us now examine the examples below. In (24), Gapping of predicative AP takes place. In this case again, the head adjective in the second conjunct is deleted and other constituents remain unaffected. Now the question is whether the predicative adjective in (24) has the same structure as attributive adjectives as in (22c) or not. If the predicative adjective has the structure illustrated in (25a), where the adjective is located in the specifier of PP, how can we obtain the right surface form of (24)? Under this analysis, we have to assume the movement of X' level constituents and additionally, we have to assume the adjunction of non-maximal projection to maximal projection. Obviously, both of them are undesirable operations. On the other hand, if the predicative adjective has the structure in (25b) we do not need to make these unmotivated assumptions for achieving the surface string in (24). With the structure in (25b), the derivation of (24) would be (25c). In this derivation, the PP complement of the adjective *proud* is rightward moved and adjoined to the AP, and the lower AP segment is deleted. All of these operations are independently necessary in analyzing NG. Thus, on the basis of this discussion, we would like to conclude that the predicative adjectives have the structure of (25b) rather than (25a).

(24) John is proud of his brother and Mary is ~~proud~~ of her sister.

- (25) a. [PP proud [P' of [DP her sister]]]
 b. [AP proud [PP of [DP her sister]]]
 c. ...[AP_T t_{PP} [AP proud] [PP of [DP her sister]]]]

To conclude, based on the distribution of attributive and predicative adjectives, we have concluded that there must be two different structures for these two adjective classes.

5. Some Problems of the Proposed Analysis

So far, we have established that NG and VG are derived by deletion following the rightward movement of the complement phrases. To establish this claim, we have emphasized the similarities

between these two constructions. There is, however, one striking difference between the two constructions. It has been observed in various places that VG obeys an extremely strong locality constraint. So, for example, VG cannot take place in a finite complement clause, i.e., VG resists the embedding in CP (Johnson, 1994; Lasnik and Saito, 1992; Neijt, 1980). This is illustrated in (26b).

- (26)a. The boy likes ice cream and the girl ~~likes~~ pizza.
 b. John believes that the boy likes ice cream, and Mary believes [_{CP} that the girl ~~likes~~ pizza].

On the other hand, NG can rather freely be embedded, as the following examples illustrate.

- (27)a. John believes that Mary read Bill's book about syntax and David believes [that Sue read Ken's ~~book~~ about semantics].
 b. John's book about syntax was published [_{CP} because Mary's ~~book~~ about phonology was so successful]
 c. John met a man who read Bill's book about syntax and [_{NP} a girl [_{CP} who read Mary's book about semantics]].
 d. John read Mary's book about syntax [_{PP} after Bill's ~~book~~ about semantics].
 e. John read Mary's book about Sue's proof of this theorem and [_{DP} Bill's book about [_{DP} David's ~~proof~~ of that theorem]].

If the two constructions are derived from the same operation, this difference is not expected. Although, at this point, we are uncertain where this difference arises from, we would like to suggest that still the rightward movement analysis is still promising. One of the most widely accepted analyses of VG is the so-called Across-the-board verb movement analysis (ATB analysis) (Johnson, 1994; Lin, 2000 among others). Under the ATB analysis, VG is analyzed as VP coordination, and there is ATB head movement. Therefore there is no movement of the complement phrases and no ellipsis. A derivation under this analysis is illustrated in (28).

- (28) [_{TP} John [_T read [_{VP}[_{VP}[_{V'} t_v [_{NP} a book]]]]&[_{VP} Bill [_{V'} t_v [_{NP} a paper]]]]].

Under the ATB analysis, the locality of VG naturally follows. This analysis is supported by the locality of the two coordinated VPs. Johnson observes that if VG takes place, the tense of the two conjuncts must be identical. For the two conjuncts to share the tense information, they must be smaller than VP. If they are TP or a larger constituent, there is no reason that they have to share tense information. From this, the locality of VG follows, i.e., the two conjuncts must be smaller than VP, and thus the VG cannot be embedded because if it can be embedded, the conjunct must be larger than VP. This analysis is desirable in the sense that it correctly captures the tense property of VG, and can derive the locality constraint of VG. However, there is one disadvantage to this analysis. This analysis excludes the possibility of movement of Gapping remnants. However, there is a reason to believe that gapping survivors both in VG and NG are actually moved, i.e., they create an island effect for further movement. The relevant examples are repeated here as (29) and (30). These examples suggest that when VG or NG takes place, wh-movement out of the complement PPs is disallowed, i.e., Gapping creates an island effect. Our reasoning was that the (b) examples are unacceptable because the gapping remnants are moved and moved phrases are islands.

- (29)a. I wonder which topic John talked about t and Mary talked about t too?
 b. *I wonder which topic John talked about t and Mary ~~talked~~ about t too?
 (30)a. I wonder which topic you read few books about t rather than many books about t?
 b. *I wonder which topic you read few books about t rather than many ~~books~~ about t?

Under the ATB analysis, however, this contrast cannot be captured. Thus, I would like to conclude that, although the rightward movement analysis cannot explain the difference between NG and VG, it is still desirable at this point. In other words, as long as we take the parallelism between NG and VG seriously, the rightward movement analysis is the best. Of course, under this analysis, some reasonable account for the striking difference in locality between these two constructions, and also the tense sharing effect of VG, must be provided. I leave this problem open for future research.

6. Conclusion

In this study I have defended the rightward movement analysis of NG on the basis of the similarities between NG and VG. Furthermore, we have investigated the structural implications of this analysis. We have seen that the behavior of the modifiers in NG can provide a clue for tapping on the internal structure of NP and AP, and we have adopted particular structures for them.

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