# The eclectic nature of Right Node Raising[1]

**Abstract**

Existing analyses of Right Node Raising (RNR) implicitly assume that all instances thereof can be subsumed under a single mechanism, whether it be movement, ellipsis, or multidomination. We challenge this assumption by showing that English RNR can be divided into (at least) two distinct subtypes, one which shows properties of ellipsis and one which shows properties of multidomination. Moreover, we also show that these two subtypes are in complementary distribution, and that neither one can be reduced to the other. The overall result is that RNR is not a single process, but rather a cover term for a family of processes with superficially identical outputs.
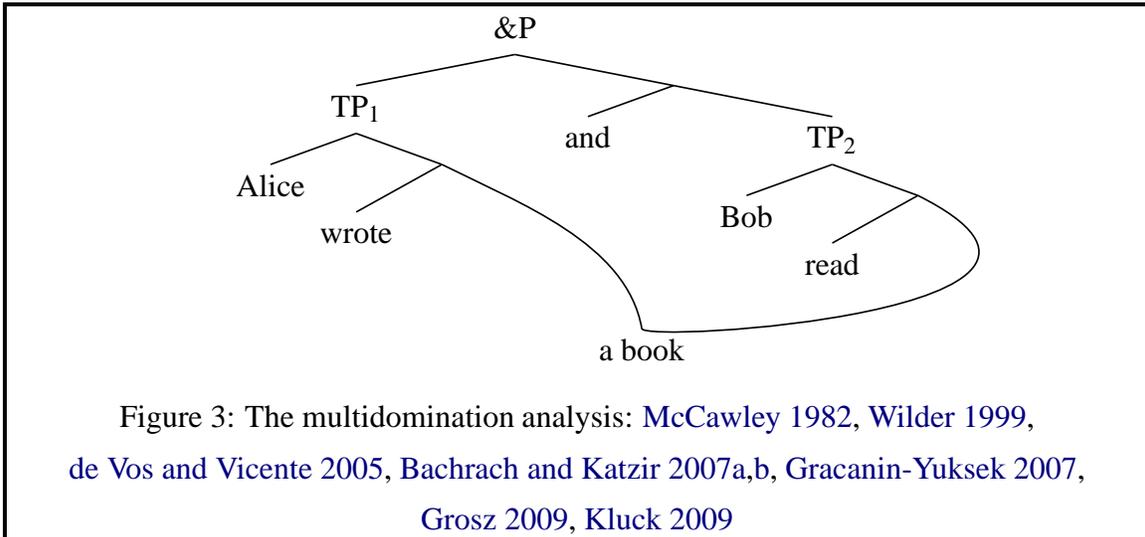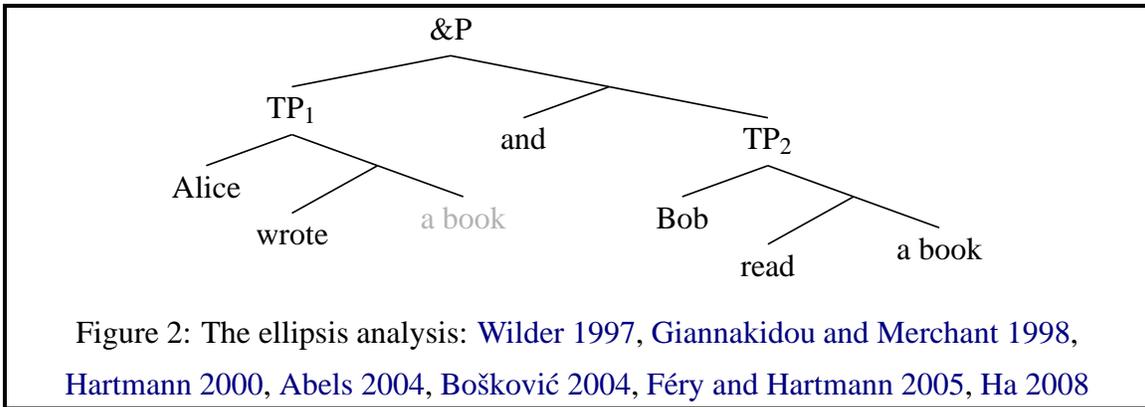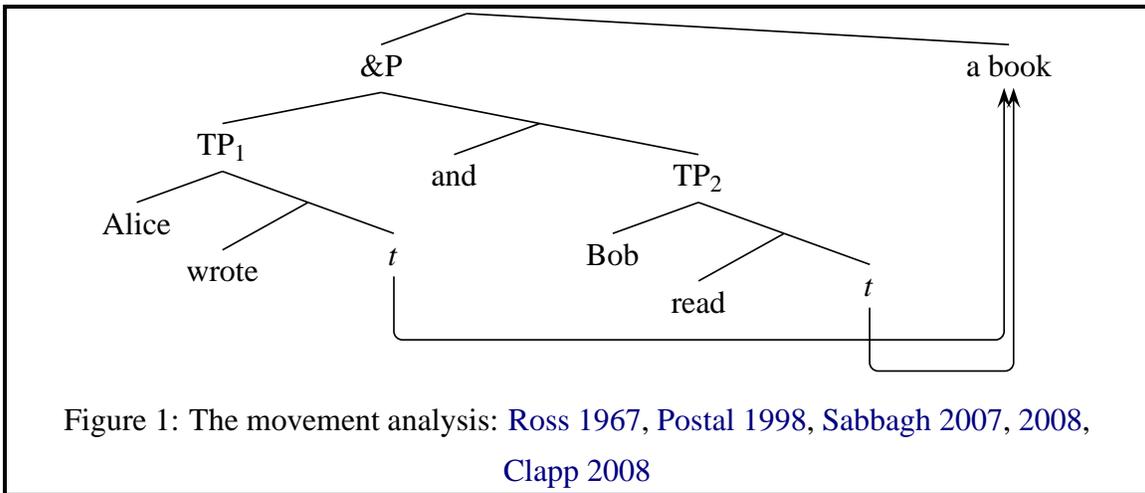
**Key words:** Right Node Raising, ellipsis, multidomination, English.

## 1 Introduction

Given an example like (1a), the rule of Right Node Raising (RNR, Ross 1967) produces the output in (1b), with [__] marking the position of the missing surface string.

(1)    a.  Alice has written a book, and Bob has read a book.      *[base structure]*

          b.  Alice has written [__] and Bob has read a book.      *[Right Node Raising]*

However, as many have pointed out (e.g., Postal 1998:97), "RNR" is only a superficial descriptive term: it tells us that there *some* relation between (1a) and (1b), but it doesn't tell us what the nature of this relation is. As a consequence, figuring out the exact grammatical mechanism underlying RNR has been the focus of most of the work done on this construction. The resulting scholarship can be divided into three classes of analyses. Chronologically, the first one to be proposed was the *movement analysis* (Figure 1), which

1

Figure 1: The movement analysis: Ross 1967, Postal 1998, Sabbagh 2007, 2008, Clapp 2008

Figure 2: The ellipsis analysis: Wilder 1997, Giannakidou and Merchant 1998, Hartmann 2000, Abels 2004, Bošković 2004, Féry and Hartmann 2005, Ha 2008

Figure 3: The multidomination analysis: McCawley 1982, Wilder 1999, de Vos and Vicente 2005, Bachrach and Katzir 2007a,b, Gracanin-Yuksek 2007, Grosz 2009, Kluck 2009

states that RNR is the rightward counterpart of the more familiar leftward ATB extraction rule.[2] More recently, two alternatives to the movement analysis have been proposed. One

of them is the *backward ellipsis analysis* (Figure 2), which posits that RNR involves deletion of part of the first conjunct under identity with the second conjunct (throughout this paper, we represent elided material with a light grey font).[3] The other alternative is the *multidomination analysis* (Figure 3), wherein the RNRed string is shared across conjuncts and linearized at the right edge of the coordinate structure.

Our contribution to this debate starts from the observation that all the works cited above, regardless of the type of analysis they advocate, share an implicit assumption —namely, that all cases of RNR can (and therefore must) be covered by one single analysis, whether it be movement, ellipsis, or multidomination. We will refer to this assumption as the *exclusivist* hypothesis.[45] We appreciate that, given its theoretical parsimony, an exclusivist approach to RNR is an attractive one; however, it is not a logical necessity. In fact, our proposal here is that it is incorrect. In contrast to it, we propose an *eclectic* alternative, where "RNR" is a cover term for a family of syntactic processes that have identical superficial outputs. As a simplifying assumption, we are going to restrict the hypothesis space by excluding the movement analysis (see section 2 for justification). With this assupmtion in place, we can define our proposal as follows:

(2)   *An eclectic theory of Right Node Raising*
        English RNR is not a homogeneous construction: rather, it can be divided into
        two distinct subtypes, one derived by backward ellipsis and the other derived by
        multidomination.

In order to demonstrate that (2) is correct, we begin by examining a number of existing arguments in favor of each analysis. As a consequence, sections 3 and 4 are largely reviews of the arguments in favor of each analysis that one can find in the literature. Specifically, in section 3 we show that there exists a well-defined class of RNR sentences that can only be derived via multidomination. However, there are also equally good arguments in favor

of the existence of a class of RNR examples that can only be derived via ellipsis (section 4).[6] The fact that we can distinguish two such disjoint classes suggests that both ellipsis and multidomination can underlie RNR. In the second part of the article, we reinforce this conclusion by showing that neither subtype is reducible to the other. We begin by showing (section 5) that the ellipsis and the multidomination analyses impose mutually incompatible structural requirements and therefore stand in complementary distribution. This conclusion makes a clear prediction —namely, that RNR examples containing prompts for both ellipsis and multidomination will be invariably ungrammatical, as no single structure can satisfy the requirements of both analyses simultaneously. We then proceed (section 6) to show that this prediction is correct: examples containing only ellipsis prompts or only multidomination prompts are grammatical, but as soon as we try to combine ellipsis and multidomination prompts, ungrammaticality obtains (section 6). Therefore, it becomes necessary to recognize that RNR is not the result of a single process, but rather a label for a family of processes, which just happen to have superficially identical outputs.[7]

At this juncture, we want to point out that we will deliberately ignore various aspects of the grammar of RNR that are not directly relevant to the attainment of our goal, as stated in the previous paragraphs. To begin with, and purely in the interest of conciseness, we will concentrate exclusively on RNR in English. Ideally, the argument that we construct here for English should be reproducible in other languages; however, doing so would require examining individual languages as minutely as we do English here, which would multiply the length of this article accordingly. Similarly, we will not say anything about the more exotic subtypes of RNR, such as Right Node Wrapping[8] or non-coordinate RNR.[9] Finally, we will not say anything about various constraints inherent to RNR, such as the Right Edge Restriction —i.e., the fact that the RNRed strings must be right-peripheral within each conjunct. We appreciate that a complete theory of RNR should be able to account for this and other restrictions; however, this task is orthogonal to our goal in this article. What we are

attempting to establish here is that RNR is not a single process, but a family of processes. Why these processes should share some constraints like the Right Edge Restriction is a different question. [10]

## 2   Some notes on multidomination and ATB extraction

As mentioned above, we are going to assume that the movement analysis of RNR (Figure 1) is not correct for English.[11]  In doing so, we are following the conclusions of a line of research that has uncovered a number of inadequacies of this particular analysis —see Wexler and Culicover (1980), McCloskey (1986), Levine (2001), Abels (2004), Bachrach and Katzir (2007a), Ha (2008), and references therein. These authors observe that RNR, if analyzed via movement, would have to be allowed to violate several well-established restrictions on movement —namely, locality constraints, scope-taking constraints, lexical integrity restrictions, and bans on adposition stranding. From these facts, they conclude that RNR cannot be movement, unless one is willing to postulate that RNR is exempt from all the restrictions listed above.[12]  In contrast, the ellipsis and multidomination analyses don't suffer from these problems: since these analyses leave the RNRed constituent in situ, no movement constraints are violated. We take these arguments to be essentially correct.

Especially illuminating in this respect are Abels (2004) and Bachrach and Katzir (2007a), who show that an RNRed constituent can in principle be targeted by a movement operation. Crucially, though, they also show that movement necessarily applies to the output of RNR, and it is therefore independent of the process of RNR itself, which they identify as multidomination. A similar argument is advanced by Citko (2005), who proposes that multidomination is a prerequisite for leftward ATB extraction. In this section, we are going to review these ideas as a preparatory stage for the discussion in sections 3 and 4.

A system that doesn't allow multidomination structures is characterized by the Single Mother Condition (McCawley 1968:244),[13] which quite transparently states that any given non-root node may have only one immediately dominating node. The essence of a multidomination analysis lies on eliminating this condition, so that a node can have an arbitrary number of immediately dominating nodes. To explore some of the consequences of this hypothesis, consider again the multidomination structure given in Figure 3 above.

(3)    *Multidomination in a coordinate structure*
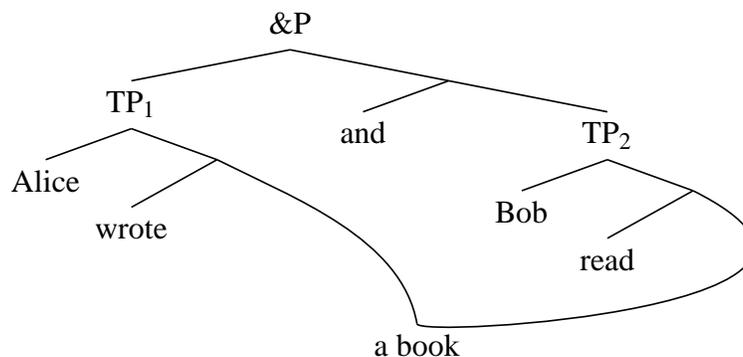


It hasn't escaped the attention of several theorists (i.a., Wilder 1999, Citko 2005, Bachrach and Katzir 2007a) that this kind of structures pose a problem for linearization algorithms along the lines of Kayne 1994 or Fox and Pesetsky 2004. These algorithms work by creating a set of total, antisymmetric linearization statements encompasing every terminal node in the structure —i.e., for any two terminals $a$ and $b$, their linear order must be unambiguously declared as either $\langle a,b \rangle$ or $\langle b,a \rangle$. This is relatively straightforward in trees that abide by the Single Mother Condition; however, once multidomination is allowed, the linear position of some nodes can no longer be unambiguously determined. By hypothesis, this ambiguity renders the structure in question unlinearizable. As an illustration, we provide in (4) the set of linearization statements for (3), which can be derived from both Kayne's and Fox and Pesetsky's algorithms (we leave the actual derivation of (4) as an exercise for the reader). As the reader can confirm, the offending terminal is *a book*: as the object of the

first conjunct, it should precede *and*, *Bob*, and *read*; however, as the object of the second conjunct, it should also follow *and*, *Bob*, and *read*.

(4)    *Linearization statements for (3): contradictory pairs boldfaced*

$$
\left\{
\begin{array}{llllll}
\langle A, bought\rangle & \langle bought, a\ book\rangle & \textbf{⟨a book, and⟩} & \langle and, B\rangle & \langle B, read\rangle & \textbf{⟨read, a book⟩} \\
\langle A, a\ book\rangle & \langle bought, and\rangle & \textbf{⟨a book, B⟩} & \langle and, read\rangle & \textbf{⟨B, a book⟩} & \\
\langle A, and\rangle & \langle bought, B\rangle & \textbf{⟨a book, read⟩} & \textbf{⟨and, a book⟩} & & \\
\langle A, B\rangle & \langle bought, read\rangle & & & & \\
\langle A, read\rangle & & & & &
\end{array}
\right\}
$$

Nonetheless, the literature offers various ways to solve this problem. Bachrach and Katzir (2007a) observe, that the problem raised by (3) can be traced down to what they call *Strict Linearization* —i.e., the hypothesis that if *A* is linearized the left of *B*, then every subconstituent of *A* is linearized to the left of every subconstituent of *B* (Kayne 1994, Uriagereka 1999). Strict Linearization creates an ambiguity in multidomination structures like (3) by virtue of the fact that there is a constituent that is present in both *A* and *B*. To solve this problem, Bachrach and Katzir propose to replace Strict Linearization with the following condition.

(5)    *Linearization Mapping Condition (Bachrach and Katzir 2007a)*

In ordering $A = \langle a_1, \ldots, a_m\rangle$ to the left of $B = \langle b_1, \ldots b_n\rangle$, where *A* and *B* are constituents and *a* and *b* are terminals, the two following conditions must be satisfied:

a. *Edge Alignment*: $a_1 \leq b_1$ and $a_m \leq b_n$.

b. *Conservativity*: $a_1 \leq a_2 \leq \ldots \leq a_m$ and $b_1 \leq b_2 \leq \ldots \leq b_n$

where $\leq$ is the reflexive precedence operator, i.e., if $a \leq b$, then either $\langle a, b\rangle$ or $a = b$.

Bachrach and Katzir show that, for non-multidominant structures, (5) is equivalent to Strict Linearization. The difference arises with multidominant structures like (3). Here, *A* corresponds to the first conjunct (⟨*Alice*, *read*, *a book*⟩) and *B* to the second conjunct (⟨*Bob*, *bought*, *a book*⟩). Edge alignment imposes two requirements. On the one hand, the leftmost element of *A* must either precede or be equal to the leftmost element of *B*. Since the former is *Alice* and the latter *Bob*, we derive ⟨*Alice*, *Bob*⟩. Next, the rightmost element of *A* must either precede or be equal to the rightmost element of *B*; since both *A* and *B* share the element in question (*a book*), the second clause of Edge Alignment is satisfied too. This much ensures that *A* precedes *B*. Finally, Conservativity requires that the internal orders of *A* and *B* are not tampered with —i.e., both (⟨*Alice*, *read*, *a book*⟩) and (⟨*Bob*, *bought*, *a book*⟩) must be respected.

As the reader can confirm, the surface order *Alice read and Bob bought a book* is the only one that satisfies all of these conditions. Note that the fact that the first conjunct is interrupted by the second is irrelevant, because the order of elements within each conjunct remains unaltered, i.e., it still holds that ⟨*Alice*, *read*, *a book*⟩ and ⟨*Bob*, *bought*, *a book*⟩. In contrast, the alternative linearization ∗*Alice read a book and Bob bought* is ruled out because it violates Conservativity, i.e., it changes the internal order of the second conjunct from ⟨*Bob*, *bought*, *a book*⟩ to ⟨*a book*, *Bob*, *bought*⟩. Similarly, the order *Alice read a book and Bob read a book*, while grammatical, cannot be generated from structure (3), for the same reason as above —i.e., spelling out *a book* in the first conjunct violates Conservativity (as Bachrach and Katzir argue, this last order can only be produced through a different, non-multidominant, structure).

In short, what Bachrach and Katzir (2007a) show is that the surface configuration known as RNR can be derived from a multidomination structure from the mechanics of linearization alone, without invoking movement. Importantly, this does not mean that movement and multidomination are inherently incompatible. Citko (2005), Bachrach and

Katzir (2007a), and Gracanin-Yuksek 2007, 2009) all observe that the linearization problem posed by (3) can also be solved if, in the presence of a suitable trigger, the multidominated constituent moves to a position outside the coordinate structure. This results in the config- uration known as ATB extraction, which we illustrate below with wh- movement (6). For simplicity, we ignore *do*-support.

(6)   a.   What did Alice buy and Bob read?

      b.
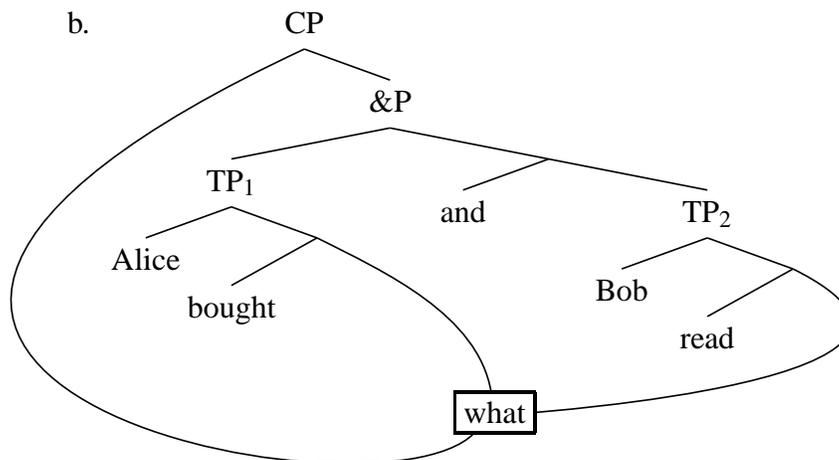


Extraction solves the linearization problem by forcing the multidominated constituent to be pronounced in their derived position outside the coordinate structure —i.e., its base position inside the coordinate structure is ignored for the purposes of linearization, however one might want to implement this fact. Consider first the &P constituent only: since *what* is not pronounced inside this constituent, it turns out that $A = \langle Alice, buy \rangle$ and that $B = \langle Bob, read \rangle$. As the reader can confirm, the two clauses of Edge Alignment ensure that $\langle Alice, Bob \rangle$ and $\langle buy, read \rangle$. Additionally, Conservativity ensures that $\langle Alice, buy \rangle$ and $\langle Bob, read \rangle$. The only linearization that satisfies these conditions is *Alice buy and Bob read*. Now consider the linearization of *what* with respect to the entire &P. Since *what* is atomic (i.e., $A = \langle what \rangle$), its leftmost and rightmost elements are by definition the same. Therefore, Edge Alignment ensures that $\langle what, Alice \rangle$ and $\langle what, read \rangle$. Conservativity applies trivially to *what* and and non-trivially to &P, where it ensures that the order $\langle Alice,$

*buy*, *and*, *Bob*, *read*⟩ obtains. Consequently, the entire structure can only be linearized as
*What (did) Alice buy and Bob read*.

In essence, what Citko (2005) and Bachrach and Katzir (2007a) are proposing is the
following:

(7)    *Multidomination and extraction*

       ATB extraction is extraction of a multidominated constituent.

As discussed extensively in these works, there is ample empirical evidence in favor of
this particular analysis of ATB extraction (which we do not reproduce here in the interest of
conciseness; interested readers are referred to the cited works, and the discussion in section
4.3), and we feel justified in adopting it. However, we want to point out an important
consequence for the analysis of RNR. Given that ATB extraction is multidomination plus
movement, and that multidomination alone can derive RNR, a multidomination analysis
will be preferable to a movement analysis on the grounds of simplicity. The only way in
which a movement analysis can be supported is if (i) there is evidence that movement has
taken place, and (ii) it can be shown that this movement is directly involved in the derivation
of RNR. We will follow this reasoning in the remainder of this section in arguing in favor of
a multidomination-without-movement analysis for various types of RNR. Specifically, the
data that we discuss in section 3.1 do not satisfy condition (ii) —i.e., there is movement,
but it is demonstrably independent of RNR—, and the data in section 3.2 don't satisfy
condition (i) and, by extension, condition (ii) either —i.e., there is no independent evidence
that movement has taken place, and therefore it is a moot question whether movement is a
necessity for this particular case of RNR.

## 3   Evidence for multidomination in RNR

Multidomination has been proposed as a possible analysis for RNR due to the existence of syntactic and semantic effects in which the RNRed string (or a subconstituent thereof) interacts with both conjuncts simultaneously in a way that cannot be attributed to ellipsis or movement (or, for that matter, to any other standard process). In keeping with this pattern, we assume that evidence for multidomination comes in the form of effects that resist elliptical or movement analyses and are, furthermore, amenable to a multidomination analysis. In this section, we will consider three such effects, namely (i) the sentence-internal readings of relational adjectives like *same*, *different*, or *similar*; (ii) the licensing conditions on binominal *each*; and (iii) cumulative agreement effects. Eventually, we will discard the latter effect largely for methodological reasons. However, we will show that the behavior of relational adjectives and binominal *each* in RNR examples resist elliptical and movement exclusivist analyses and lends itself to a multidomination analysis.

### 3.1   Internal readings of relational adjectives

#### 3.1.1   Basic data

Relational adjectives like *same*, *different*, *similar*, and others have two readings, called *internal* and *external*, and illustrated below.

(8)   Alice and Bob read different novels.

   *Internal reading*: Alice's novel is different from Bob's.

   *External reading*: the novels that Alice and Bob read differ in some relevant respect from some contextually salient set of novels.

Importantly, these two readings do not have the same distribution (Carlson 1987 *et seq*): specifically, the external reading is always available, but the internal reading is available

only when the nominal containing the relational adjective (the *dependent NP* in Carlson's terminology) can take scope over either a distributive quantifier or a distributively interpreted plurality.

(9)  a.  Alice read different novels.                    *[\*internal/✓external]*

     b.  Each girl read different novels.                *[✓internal/✓external]*

     c.  The girls read different novels.                *[✓internal/✓external]*

However, Jackendoff (1977) observed that a relational adjective contained in an RNRed constituent can exhibit an internal reading even if neither conjunct contains a distributive quantifier or a plurality (10).

(10)  Alice composed [__] and Bob performed different songs.          *[✓internal]*

In order to account for the availability of the internal reading here, assume that the entire coordinate structure qualifies as a plurality (cf. Abels 2004 and references); if so, then the internal reading falls out so long as one can ensure that the RNRed constituent (containing the dependent NP) takes scope over coordination. The pertinent question, therefore, is how this much can be ensured. We begin by pointing out that, as shown in Abels 2004, an ellipsis analysis cannot explain the availability of the internal reading in (10). The reason is that, as shown below, the internal reading is unavailable in both the putative source structure (11a) and an equivalent forward ellipsis example (11b).

(11)  a.  Alice composed two quite different songs, and Bob performed two quite different songs.                    *[∗internal]*

     b.  Alice composed two quite different songs, and Bob did too.    *[∗internal]*

The fact that (11a) and (11b) share interpretive properties regarding the availability of an internal reading is consistent with the assumption that the former is the underlying source for the latter. However, if (11a) were also the underlying source for (10), then we would expect the latter example to also *not* have an internal reading, contrary to fact. From this, we can conclude, as Abels (2004) does, that (10) is not derived from (11a) via ellipsis.

The remaining analytical options are movement and multidomination, to which we now turn.

### 3.1.2 Multidomination and movement

As just mentioned above, the internal reading in (10) depends on the dependent NP taking scope above the coordination. This seems to qualify as *prima facie* evidence in favor of a movement analysis of RNR, as illustrated in (12). Following the discussion in section 2, we model ATB extraction as extraction of a multidominated constituent.

(12)  *A movement analysis of (10): dependent NP scopes over coordination*
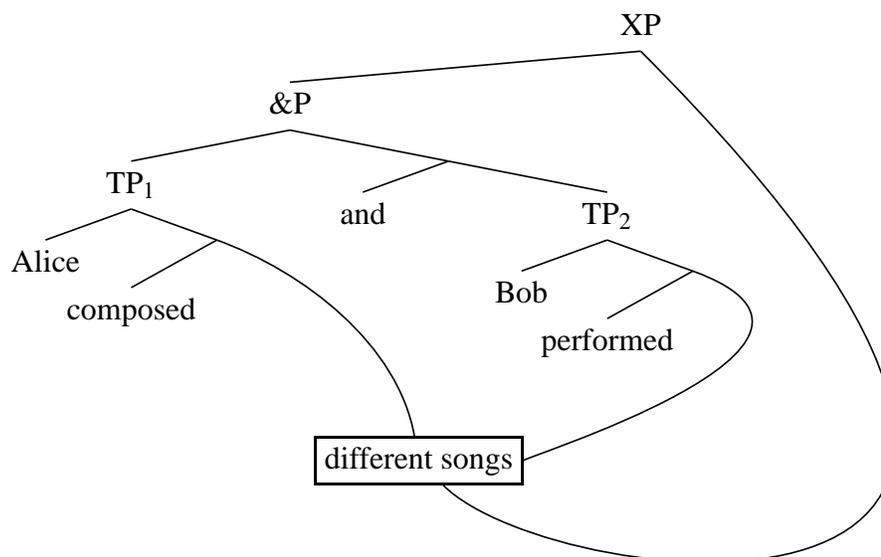


However, as noted in Abels 2004, the availability of an internal reading in (10) does *not* constitute evidence in favor of a movement analysis. The reason is that the internal reading persists even in cases where RNR alone fails to yield the required scopal relation —e.g., cases where the RNRed constituent is a full VP. Example (13) has a sentence internal reading (i.e., the songs that Friederike and Konrad record are different from each other).

(13)  John says that Friederike must [__], and that Konrad may record two quite different
      songs.                                        *[Abels 2004, ex. (23): ✓internal]*

This reading requires the dependent NP *two quite different songs* to scope over the coordination. However, as the following representation shows, *two quite different songs* is embedded inside VP, and therefore raising of VP alone will not suffice to derive the expected scopal relation.

(14)    *Movement of VP: dependent NP does not scope over coordination*
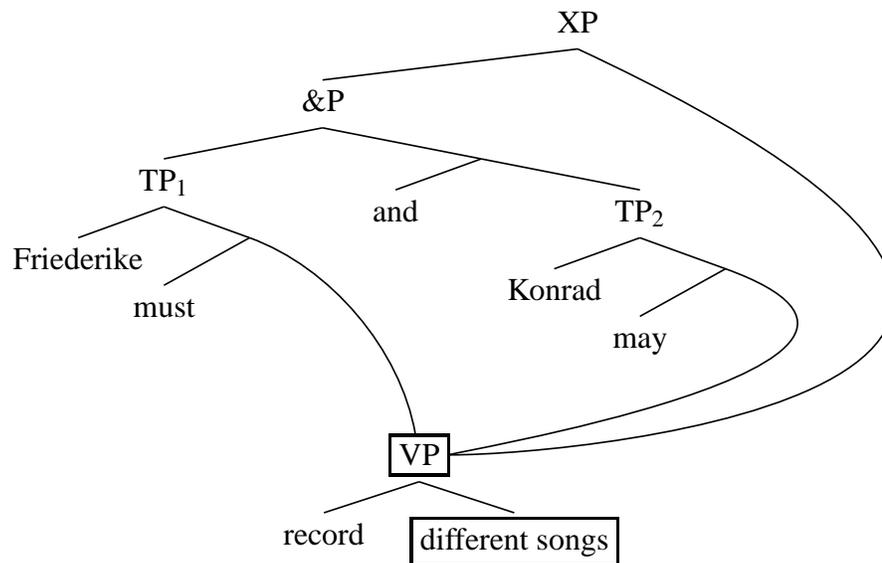


In order to derive the correct scope of the dependent NP, there has to be a further step of movement (which Abels 2004 dubs *Distributive Scoping*), which takes the dependent NP out of VP and to a position where it can scope over the coordination. The important aspect of this conclusion is that Distributive Scoping is required independently of the process (ATB extraction of VP) that would derive RNR under a movement analysis —in other words, the internal reading of (13), and by extension (10) does not depend on RNR being derived via movement, and therefore it does not provide evidence in favor of a movement analysis of RNR.

Additionally, Abels (2004) also constructs an argument against a movement analysis even in cases where movement alone could potentially derive RNR. His argument is based on the fact that the internal readings are island-sensitive (Carlson 1987, Brasoveanu 2009).

(15)   I wonder when Konrad wrote [__] and you would like to know when Friederike

recorded two quite different songs.                    *[Abels 2004, ex. (27): ?∗internal]*

The status of (15) is expected from Carlson's proposal that the dependent NP must move covertly to a position above a plurality. However, it cannot be derived from a movement analysis. As noted in section 2, RNR is notoriously island-insensitive (Wexler and Culicover 1980 *et seq*). Proponents of the movement analysis have interpreted this property as an indication that the movement deriving RNR is not subject to standard locality constraints. Given this much, we would expect RNR of a dependent NP to be island-insensitive too. However, as (15) shows, this is not the case. Consequently, a movement analysis is incorrect unless we are willing to say that whatever factor liberates standard RNR from locality constraints is somehow inactive in just this particular set of cases.

These results confirm that the movement of the dependent NP to a position above a plurality is independent of the process responsible for RNR. The conclusion, therefore, is that this particular case of RNR is not derived by movement. As argued at the end of section 2, in the absence of evidence that movement is directly involved in the derivation of RNR, it is more parsimonious to assume that RNR is plain multidomination. Thus, we agree with Abels (2004) in assuming that the following structure is a more accurate analysis of this class of examples: multidomination of VP derives RNR, and then the independently required process of Distributive Scoping derives the internal reading of the dependent NP.

(16)   *Multidomination of VP plus Distributive Scoping of the dependent NP*
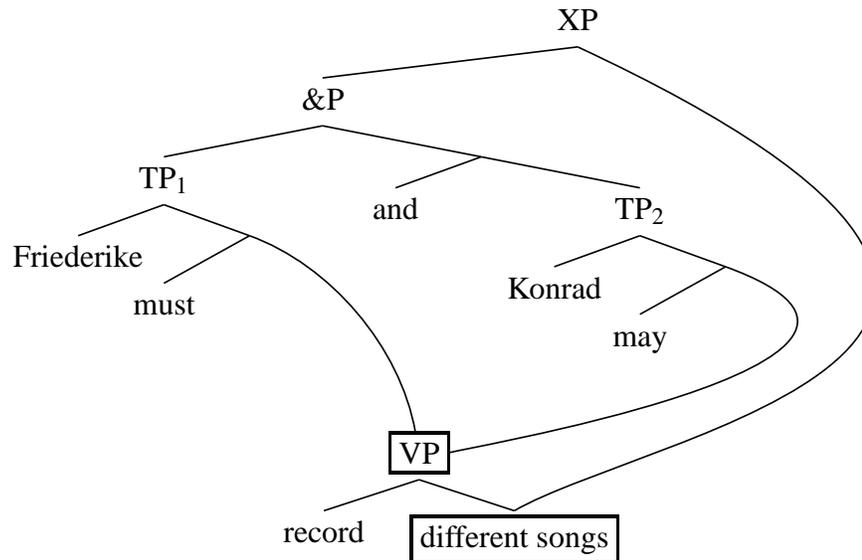


## 3.2   Binominal *each*

### 3.2.1   Basic data

A similar argument can be constructed with binominal *each*. In the same way as the internal reading of relational adjectives, binominal *each* requires the presence of a plurality that can be interpreted distributively.

(17)   a.     The students have read one book each.

    b.     Alice and Bob have read one book each.

    c.   *  Alice has read one book each.

Also in the same way as in section 3.1 above, RNR creates a loophole in the generalization that binominal *each* requires the presence of a distributively interpreted plurality. As the following example shows, an instance of binominal *each* contained in an RNRed constituent is grammatical even if neither conjunct contains the requisite plurality.

(18)   Alice has written [__], and Bob has plagiarized, one book each.

It is possible to show that the backward ellipsis analysis is inadequate for examples like (18). The argument is the same as in section 3.1, i.e., binominal *each* is ungrammatical in both the putative source of ellipsis (19a) and in a comparable forward ellipsis example (19b). If (18) were derived from (19a) via ellipsis (that is, if it were the the backward ellipsis counterpart of (19b)), then we would expect it to be ungrammatical, contrary to fact. Consequently, we conclude that backward ellipsis cannot underlie RNR examples containing binominal *each*.

(19)   a.   * Alice has written one book each and Bob has plagiarized one book each.

       b.   * Alice has written one book each and Bob has too.

### 3.2.2   Multidomination and non-movement

Having discarded an ellipsis analysis, let us turn now to consider the movement and multidomination analyses. Safir and Stowell (1989) originally proposed that binominal *each* must undergo (covert) movement to a position where it can scope over its distributive key (i.e., *the students* in (17a)). If this analysis were correct, it would suggest that the movement analysis would be the correct way to account for (18), as rightward ATB extraction would yield the desired semantic configuration. Graphically:

(20)   *A movement analysis of (18)*
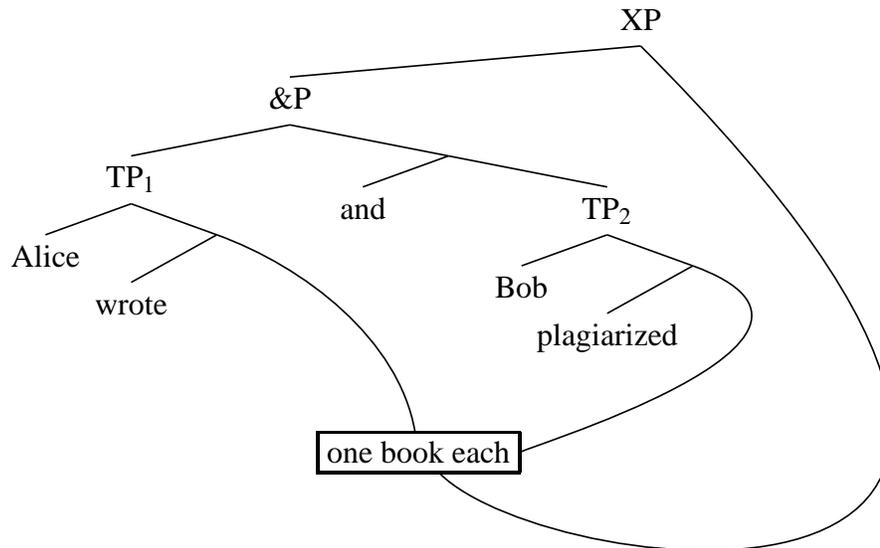


However, there are at least two arguments against a movement analysis. The first one is that, contrary to Safir and Stowell's claim, there is no evidence that binominal *each* moves to a high scope position. Rather, there is evidence that it has to be interpreted in situ: Zimmermann 2002:120–124 notes that binominal *each* and its distributive key can be separated by a variety of robust island boundaries, such as coordinate structures (21a) and adjunct phrases (21b).[14] If binominal *each* required movement (overt or covert) to a position where it could take scope over the distributive key, examples like these ought to give rise to island violations. Since they do not, Zimmermann concludes that binominal *each* must be interpreted in situ. We refer the reader to Zimmermann 2002, Blaheta 2003, and Dotlačil 2011 for the technical details of an in situ analysis.

(21)   a.   The victorious boys received [$_{\&P}$ [the cup] and [one medal each]].

       b.   Ten children wore a jumper [$_{AdvP}$ for six months each].

If no movement is involved in the derivation of binominal *each* in non-RNR sentences, then there is no reason to postulate movement in RNR sentences. Consequently, the correct structure for (18) is not (20) above, but rather (22) below, where the surface order is derived

by multidomination alone (see Bachrach and Katzir 2007a and the discussion in section 2) and *each* is interpreted in situ. In other words, RNR sentences containing binominal *each* are best analyzed as cases of multidomination without movement.

(22)  *A multidomination analysis of (18)*
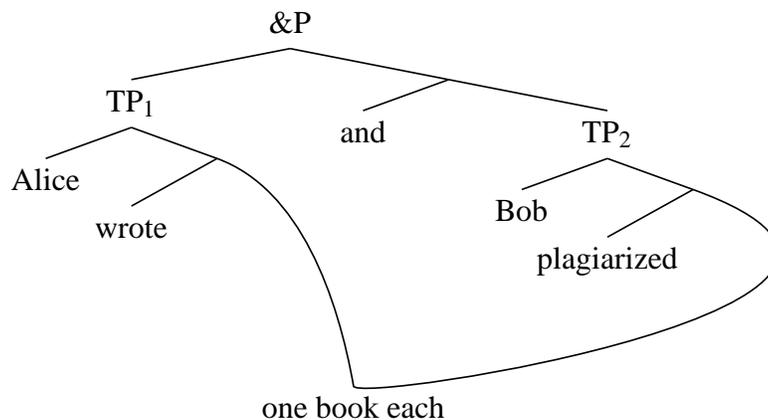


Our second argument against (20) is the same one we developed in subsection 3.1.2 above —namely, that binominal *each* is still acceptable even in cases where the RNRed constituent is a VP containing the distributive DP.

(23)    Alice says that Bob must [__], and Claire thinks that David may, record two songs each.

Suppose that we attempted to derive (23) by rightward ATB extraction of the VP *record two songs each*. Importantly, this movement alone would not derive the configuration required by Safir and Stowell's (1989) analysis. The reason is that *each* would be embedded deep inside VP and therefore it would not be able to take scope over the distributive key. If we wanted to maintain Safir and Stowell's analysis, then we would have to say that the putative movement of *each* is different from, and independent of, the process that derives RNR itself.

In a nutshell, there is no evidence that binominal *each* undergoes movement, and even if one wanted to postulate movement nonetheless, this movement would have to be construed

as unrelated to the process of RNR. The conclusion, therefore, is the same one as in section 3.2 above: the class of RNR examples where the RNRed string contains a binominal *each* are best analyzed as cases of multidomination, rather than either rightward movement or backward ellipsis.

## 3.3 Cumulative agreement effects

In recent work, Grosz (2009) has argued in favor of the multidomination analysis of RNR on the basis of *cumulative agreement* effects (see Ross and Perlmutter 1970, Postal 1998, Yatabe 2003, and references therein for further discussion of this effect). We agree with Grosz's argumentation and conclusions, but nonetheless we have chosen not to use this effect as a diagnosis for multidomination under RNR. In this subsection, we explain the rationale behind our decision.

Let us begin by briefly describing the argument in Grosz 2009. The term "cumulative agreement" describes a configuration in which a shared agreement target exhibits plural agreement with two unshared agreement controllers, even if the latter are both singular. An example of cumulative agreement is given in (24), where the auxiliary in the RNRed string exhibits plural agreement despite the fact that there is no plural subject in the sentence. Grosz argues, and we agree, that this example cannot be derived via ellipsis, given that the putative source structure (25) doesn't allow any kind of cumulative agreement.[15] The logic of this argument is, *mutatis mutandi*, the same one as in sections 3.1 and 3.2 above.[16]

(24) Alice is proud that Beatrix [__], and Claire is happy that Diana {✓have/*has} travelled to Cameroon.

(25) Alice is proud that Beatrix {*have/✓has} travelled to Cameroon, and Claire is happy that Diana {*have/✓has} travelled to Cameroon.

The reason why we will not consider cumulative agreement effects anymore in this paper is that their acceptability is subject to a large degree of idiolectal variability. To illustrate this point, consider the results of Yatabe's (2003) survey of 23 speakers who rated the acceptability of plural agreement in (26) below using a 4-point scale:

(26)   The pilot claimed that the first nurse [__], and the sailor proved that the second

nurse, were spies.                                         $[\checkmark = 7; ? = 12; ?? = 3; * = 1]$

In order to confirm Yatabe's findings, we conducted our own survey by embedding the following two examples as fillers within a questionnaire on an unrelated topic administered by the first author of this paper.

(27)   a.   Matt is upset that Sally [__], and Chris is upset that Jenny **has** left the continent.

b.   Jack is happy that Sally [__], and Bill is glad that Christine **have** gone to

Cameroon.

A total of 65 participants rated both items on a 5-point scale; example (27a) has a mean score 2.07, and example (27b) of 1.96. This difference is not statistically significant ($p = .5206$). If the results are broken down by speaker, then one can observe that 29 speakers rated both items as equally (un)acceptable; 17 rated (27a) as more acceptable than (27b); and 19 rated (27b) as more acceptable than (27a). In short, there is no overwhelming preference for cumulative agreement in the relevant set of sentences, and a speaker picked at random is about as likely to use cumulative agreement as he is not. This situation resembles to a certain extent the findings of Morgan and Green's (2005) study on agreement with subjects that do not have an unambiguously defined number (e.g., *Is/Are there an orchestra or two digital pianos in that room?*), of which they comment that "there were as many response patterns as there were respondents". They further speculate that "the inconsistent performance of speakers appears to be a consequence of the fact that the rules in their

internal grammars have nothing to say about some classes of noncanonical cases". We assume that a comparable unspecification underlies the variability of cumulative agreement judgements.

These results reveal that cumulative agreement effects, while real, remain poorly understood —for example, Yatabe (2003) also reports that the acceptability of plural vs. singular agreement is also affected by factors like the type of conjunction (*and* vs. *or*), the reference of the agreement controllers, or their quantificational or non-quantificational nature. Importantly, the argument that we will develop in section 6 relies on combining, within the same sentence, a diagnosis for ellipsis (cf. section 4) and a diagnosis for multidomination (cf. subsections 3.1 and 3.2). As it should be obvious, the strength of the argument we will develop there is dependent on the reliability of the diagnoses we employ. Resorting to a diagnosis like cumulative agreement effects, which exhibits variable results, would only weaken our overall argument, and therefore we feel justified in not using this effect as a diagnosis for multidomination under RNR.

## 4   Evidence for ellipsis in RNR

The previous section has established that there are at least two context that require a multidomination analysis of RNR, namely, binominal *each* and internal readings of relational adjectives. In this section, we will present two different contexts where a backward ellipsis analysis is demonstrably the correct one. We will build our argument around a well-established property of elliptical structures —namely, that an elided constituent and its antecedent need not be morphosyntactically identical. Rather, morphosyntactic mismatches are tolerated inasmuch the elided constituent and its antecedent are semantically parallel (Chomsky 1965, Sag 1973, Rooth 1992, Fiengo and May 1994, Merchant 2001), where "semantic parallelism" is currently usually defined as truth-conditional equivalency

*modulo* the replacement of focus-marked constituents with ∃-bound variables (Merchant 2001:14–31 —the formulations in the other works cited above are somewhat different, but the ultimate empirical coverage is virtually identical). As various authors have observed (Bošković 2004, Ha 2008), this property provides us with a way of determining whether some cases of RNR are derived through ellipsis: specifically, if this hypothesis is true, then the same kind of morphosyntactic mismatches that have been extensively observed in ellipsis should also be observable under RNR. We concentrate on two specific such mismatches —namely, $\phi$-feature mismatches in pronouns and verb agreement (subsection 4.1) and Vehicle Change effects (subsection 4.2). In these two subsections, we will present evidence that some cases of RNR exhibit this kind of mismatches. We will complete the argumentation in subsection 4.3, where we develop a general argument to the effect that these data are not amenable to either a movement or a multidomination analysis.

## 4.1 Morphological mismatches

The examples below illustrate the $\phi$-feature and tense mismatches usually discussed in works on ellipsis (see Sag 1973, Rooth 1992 and the other works cited above). In (28a), *negotiate* and *her* in the antecedent correspond to *negotiated* and *his* in the elided constituent, respectively. Similarly, in (28b), *chosen* and *my* correspond to *choose* and *her*.

(28)  a.  Alice won't negociate her salary with the company, but Bob already has.

   [= …but Bob already has *negotiated his* salary with the company.]

   b.  I have already chosen my dissertation topic, but Alice still has to.

   [= …but Alice still has to *choose her* dissertation topic.]

As Bošković (2004) and Ha (2008) point out, if RNR (or at least a subset of cases thereof) is derived through ellipsis, then we should expect to find similar mismatches under RNR too. The following examples confirm this prediction.

version of September 8, 2011

(29)  a.  Alice won't [__], but Bob already has negotiated his salary with the company.

     b.  I already have [__], but Alice still has to choose her dissertation topic.

## 4.2  Vehicle Change effects

Vehicle Change (VC) is the name of the effect whereby ellipsis repairs a Condition C violation. For illustration, (30a) provides an ungrammatical non-elliptical example and (30b) its grammatical elliptical counterpart.

(30)  a.  * I hope that the boss won't fire Alice$_i$, but she$_i$ fears that he will fire Alice$_i$.

     b.  I hope that the boss won't fire Alice$_i$, but she$_i$ fears that he will.

Here we assume Fiengo and May's (1994) analysis, who classify this repair effect as a subtype of morphosyntactic mismatch. Specifically, they claim that the elided constituent does not contain the proper name *Alice*, like its antecedent does; rather, it contains a coindexed pronoun *her*. Given that pronouns are only subject to Condition B, no illicit binding configurations obtain. This mismatch is allowed because the semantic parallelism between the elided constituent and its antecendent is not disrupted. Example (31) provides the hypothesized underlying structure of (30b), with elided material rendered in a light grey font.

(31)  I hope that the boss won't fire Alice$_i$, but she$_i$ fears that he will [fire her$_i$].

As Ha (2008:75–82) points out, if RNR is derived via ellipsis, then one should expect to find VC effects under RNR too. The following examples show that this prediction is correct.

(32)  a.  * She$_i$ hopes that he won't fire Alice$_i$, but I fear that the boss will fire Alice$_i$.

     b.  She$_i$ hopes that he won't [__], but I fear that the boss will fire Alice$_i$.

## 4.3 Against movement and multidomination

In the previous two subsections, we have shown that some cases of RNR exhibit a range of morphological mismatches widely associated with elliptical structures, which suggests that they are derived through backward ellipsis. In order to complete the argumentation, it is necessary to show that alternative analyses in terms of ATB movement or multidomination are not feasible. Here we make the crucial assumption that ATB extraction itself stems from a multidomination structure, as proposed in Citko 2005 (see the discussion in section 2); this is important because it will enable us to constract a general argument against both the movement and the multidomination analyses.

Citko supports her analysis by pointing out a pervasive restriction on ATB extraction —namely, a matching effect, whereby the ATB-extracted constituent must satisfy the requirements imposed on the gaps in both conjuncts (see Dyła 1984, Franks 1993). This restriction is illustrated in (33), which show that ATB extraction is grammatical when both extractees have the same case, but ungrammatical otherwise (*nienawidzić* 'to hate' assigns genitive, which is realized as *czego*).[17] The examples in (34), from Fanselow 2002, illustrate the same point with German (here, *helfen* 'to help' assigns dative).

(33)  *Polish*

    a.    Co        Jan lubi $t_{ACC}$ i    Maria uwielbia $t_{ACC}$?

          what.ACC Jan likes      and Maria adores

          "What does Jan like and Maria adore?"

    b.  * { Co      / czego    } Jan lubi $t_{ACC}$ i    Maria niewawidzi $t_{GEN}$?

            what.ACC   what.GEN   Jan likes      and Maria hates

          "What does Jan like and Maria hate?"

(34)  *German*

    a.    Den    Arzt    unterstützt Hans $t_{ACC}$ und behindert Maria $t_{ACC}$.

            the.ACC doctor supports    Hans       and obstructs  Maria

            "Hans supports the doctor and Maria obstructs him"

    b.  * { Den    / dem    } Arzt    hilft    Hans $t_{DAT}$ und unterstützt Maria $t_{ACC}$.

              the.ACC   the.DAT    doctor helps Hans       and supports    Maria

            "Hans helps the doctor and Maria supports him"

As Citko points out, this restriction follows straightforwardly if multidomination underlies ATB extraction: since there is only one extractee (albeit shared across conjuncts), its form cannot vary across conjuncts. Examples (33b) and (34b) are ungrammatical because the verbs of each conjunct impose different case requirements (accusative vs. genitive and accusative vs. dative) that cannot be satisfied by any form of the multidominated constituent.

It is easy to extrapolate this conclusion to the realm of RNR. On the assumption that a movement analysis of RNR is simply a rightward version of leftward ATB extraction (cf. Postal 1998, Sabbagh 2007), form mismatches are predicted not to arise.[18] This is clearly the incorrect prediction, as we have shown in the previous two subsections. Moreover, note that this conclusion is directly based on the assumption that multidomination necessarily underlies ATB movement, and therefore it extends to the multidomination analysis too — i.e., a multidomination analysis of RNR predicts that form mismatches should not arise, contrary to fact. The overall result is that we have delimited a class of RNR examples that are amenable to a backward ellipsis analysis, but which resist both movement and multidomination based analyses.

## 5   Interim summary and prospects

The data reviewed in section 3 show that there exist cases of RNR that can only be analyzed as the result of multidomination, not backward ellipsis; conversely, the data discussed in section 4 reveal that there also exist cases that can only be analyzed as the result of ellipsis, and not multidomination. Additionally, neither of the examples we have discussed is amenable to a movement analysis. These results taken together suggest that both ellipsis and multidomination are necessary to account for the whole range of RNR effects;[19] in other words, an exclusivist approach to RNR is incorrect, and only an eclectic approach can eventually succeed.

Attentive readers might have noticed that the statements in the previous paragraph presuppose the correctness of the standard theories of ellipsis and multidominance. It might be argued, however, that this is not a necessary assumption; in particular, it might be argued that it is possible to extend the current theory of multidomination so that it covers what we are calling ellipsis effects —or, alternatively, that it is possible to extend the current theory of ellipsis so that it covers what we are calling multidomination effects.[20] If any of these extensions were feasible, an exclusivist analysis of RNR would also be feasible, contrary to our claim in this paper. In what follows, we provide an argument against attempts to construct such extensions.

Our argument is based on the observation that ellipsis and multidomination are necessarily in complementary distribution. The reason is that, as shown in Figures 2 and 3 in section 1, each process imposes different requirements on the structure of the RNRed constituent: on the one hand, the ellipsis analysis requires the presence of two independent constituents, one of which happens to be phonetically null; on the other hand, the multidomination analysis requires the presence of exactly one constituent, which is then shared across conjuncts. In the terminology of early minimalism, we would say that these

two analysis correspond to two different numerations. Due to this incompatibility, eclectic and exclusivist analyses make different predictions. On the one hand, an eclectic analysis predicts that sentences exhibiting simultaneously ellipsis and multidomination effects will be invariably ungrammatical, since one would be imposing mutually incompatible requirements on the structure. On the other hand, an exclusivist analysis doesn't make this prediction: since all cases of RNR are derived in the same way (whether it is ellipsis or multidomination), it is impossible to create the relevant kind of conflicting structural requirements.[21]

Section 6 below shows that the predictions of the eclectic analysis are the correct ones. Consequently, we find additional support for our proposal of an eclectic approach to RNR.

## 6 Complementary distribution of ellipsis and multidomination

### 6.1 Conflict #1: Morphological mismatches vs. relational adjectives

We begin this section by considering the interaction of morphological mismatches and internal readings of relational adjectives. We provide (35) and (36) as a baseline, showing again that both $\phi$-feature and tense/aspect mismatches (ellipsis effect) and internal readings of morphological adjectives (multidomination effect) are grammatical on their own. Example (37) shows that combining both types of effects within one sentence is impossible: given the presence of a morphological mismatch effect (*worked* vs. *work*), the internal reading of *different* is blocked. If one chooses to force the internal reading of *different*, then (37) comes out as ungrammatical.

(35) *No relational adjective, morphological mismatch OK*

Alice has [__], and Beatrix wants to work on Binding Theory.

(36) *No morphological mismatch, internal reading OK*

Alice must [__], and Beatrix should work on different topics.

(37)   *Morphological mismatch blocks internal reading*

Alice has [__], and Beatrix wants to work on different topics.

The ungrammaticality of (37) suggests that our proposal (2) is correct. An eclectic analysis of RNR accounts for the mutual incompatibility of morphological mismatch effects and the internal reading of *different* as a consequence of the incompatible structural requirements of ellipsis and multidomination. If the internal reading requires multidomination, and multidomination does not tolerate morphological mismatches, the unacceptability of (37) under an internal reading follows from the morphosyntactic requirements imposed on a multidominated VP. Now consider how the ungrammaticality of (37) could be explained under an exclusivist analysis, where one cannot resort to conflicting structural requirements. One would have to effectively posit some kind of interdependence between the internal reading of *different* on the one hand and the morphology of verbs and pronouns on the other hand. This strikes us as a particularly difficult task, given that these two factors are not known to interact other wise —i.e., so far as we know, there is no relation between aspectual morphology (37) and the semantics of *different*.

## 6.2   Conflict #2: Morphological mismatches vs. binominal *each*

We turn now to the interaction of morphological mismatches (ellipsis effect) with binominal *each* (multidomination effect). As before, we provide first grammatical examples with a morphological mismatch only or binominal *each* only in order to provide a baseline.

(38)   *No binominal 'each', morphological mismatch OK*

Alice already has [__], and Beatrix wants to record two songs.

(39)   *No morphological mismatch, binominal 'each' OK*

Alice must [__], and Beatrix may record two songs each.

However, the combination of binominal *each* and a morphological mismatch results in ungrammaticality.

(40)   *Incompatibility of morphological mismatch and binominal 'each'*

     * Alice already has [__], and Beatrix wants to record two songs each.

Our comment here is the same one as in 6.2 above. The eclectic analysis we are advocating can capture the ungrammaticality of (40) as a consequence of the fact that we are imposing mutually incompatible requirements on the structure. In contrast, this line of attack is not open to an exclusivist analysis, given that (by definition) no structural incompatibility of the kind can arise. Rather, proponents of an exclusivist analysis would have to postulate that there is some sort of interdependence between binominal *each* and tense/aspect morphology. Again, this is a difficult claim to support, since these two factors do not show any kind of interaction otherwise.

### 6.3   Conflict #3: Vehicle Change vs. relational adjectives

Consider next the interaction between Vehicle Change (ellipsis effect) and the internal readings of relational adjectives (multidomination effect). As in all the previous cases, both effects are grammatical in isolation, but the combination of both within one sentences is unacceptable: in (43), any attempt to keep the internal reading of *different* results in the blocking of the Vehicle Change effect (and the consequent disjoint indexing of *she* and *Alice* so as to avoid the Condition C violation); conversely, forcing a coindexed reading of *she* and *Alice* results in the loss of the internal reading of *different*.

(41)   *No internal reading, Vehicle Change OK*

     She$_i$ thinks that he must [__], but Bob fears that he won't [__], come up with a topic that satisfies Alice$_i$.

(42)  *No Vehicle Change, internal reading OK*

Alice absolutely must [__], and Beatrix is obliged to , come up with different topics.

(43)  *Either Vehicle Change or internal reading blocked*

She$_i$ absolutely must [__], and Bob is obliged to [__], present different topics to Alice's$_i$ supervisor.

The same comment as in the three previous subsections applies here too: an eclectic approach can handle the mutual blocking of Vehicle Change effects and internal readings as a consequence of conflicting structural requirements. In contrast, there is no obvious line of attack for an exclusivist analysis, given the generalized lack of interaction between the reference of names and pronouns on the one hand and the internal readings of adjectives on the other.

### 6.4   Conflict #4: Vehicle Change vs. binominal *each*

The final interaction we need to consider is the one between Vehicle Change effects (ellipsis effect) and binominal *each* (multidomination effect). As in the previous three subsections we provide the following examples as a baseline to show that both VC and binominal *each* are grammatical on their own.

(44)  *No binominal 'each', Vehicle Change OK*

She$_i$ thinks that he will [__], but Bob fears that he won't come up with a topic that satisfies Alice$_i$.

(45)  *No Vehicle Change, binominal 'each' OK*

Alice absolutely must [__], and Beatrix is obliged to write two term papers each.

However, it is not possible to combine a Vehicle Change effect and binominal *each* in the same sentence. If one chooses to interpret *she* as correferent with *Alice*, then the

presence of *each* is ungrammatical. Conversely, if one tries to accommodate *each*, then disjoint reference of *she* and *Alice* becomes obligatory.

(46)   *Either Vehicle Change or binominal 'each' blocked*

   \* She$_i$ absolutely must [__], and Bob is obliged to [__], present two reports each to Alice's$_i$ supervisor.

Again, an eclectic approach can explain the ungrammaticality of (46) as a consequence of the incompatible structural requirements imposed by the ellipsis and multidomination analyses. In contrast, an exclusivist approach has no obvious way of dealing with this example, given that pronominal reference and the licensing of binominal *each* are not known to interact otherwise.

## 6.5   Interim conclusion

This section has corroborated the prediction we made in section 5 above. Given that the ellipsis and multidomination analyses impose mutually incompatible structural requirements, examples containing prompts for both ellipsis and multidominance are invariably ungrammatical, as no single structure can satisfy the requirements of both analyses simultaneously. Exclusivist approaches cannot resort to a similar reasoning in order to deal with this kind of examples, given that (by definition) they do not acknowledge any structural differences between what we have been calling ellipsis cases and multidomination cases. If all cases of RNR are derived in the same way (whether it be ellipsis or multidomination), then the ungrammaticality of (37), (40), (43), and (46) must be explained through a non-structural incompatibility of the constituents involved. However, we have shown that this kind of approach is not easily justifiable, as the relevant constituents are not known to have any interactions otherwise.

## 7 Division of labor

We have shown that, while both the ellipsis and the multidomination analyses can each account for a proper subset of RNR examples, neither one can cover the full range of cases. This result entail that an exclusivist approach to RNR, as implicitly assumed in the existing literature, is untenable. Rather, the proper approach must be eclectic in nature, resorting to either ellipsis or multidomination depending on the individual case under consideration. The obvious question at this point is whether there is a way of predicting which particular process will be used in any given case.

The attentive reader might have noticed that all the RNR examples in section 4 ("Evidence for ellipsis in RNR") involve RNR of a VP. We believe that this is not accidental. That is, we want to propose the following generalization.

(47)   *Division of labor in English RNR*

RNR can always be derived via multidomination; additionally, it can also be alternatively derived via backward ellipsis if the corresponding type of forward ellipsis exists.

In other words, RNR of both VPs and DPs can be derived in terms of multidomination. However, only RNR of VPs will offer an alternative derivation in terms of backward ellipsis, given the availability of forward VP ellipsis in English. In contrast, this alternative is not available in the case of RNR of DPs, given that English forbids forward DP ellipsis (and also verb-stranding VP ellipsis, which can create the illusion of DP ellipsis).

(48)   * Alice bought a book, and Bob read [$_{DP}$ a book].

One apparent problem for this hypothesis is that, as noted in Ha 2008:86–90, RNR of DPs allows for sloppy identity effects (49), which is one of the classical diagnoses for ellipsis. This seems to falsify (47).

version of September 8, 2011

(49)   Mary loved [__], and Sue hated her twin sister.                    *[✓ sloppy identity]*

We want to argue, though, that examples like (49) are not a challenge to (47), despite initial appearances. To begin with, note that (49), as well as all the relevant examples in Ha 2008, involves no morphological mismatch. Rather, there is only an assignment of a different referential index in each conjunct. This is a relevant factor because sloppy identity without an accompanying morphological mismatch is less of a good diagnosis for ellipsis than commonly believed. For instance, Culicover and Jackendoff (1995), Depiante (2000), and Merchant (to appear) provide a number of examples of sloppy identity in environments that arguably do not involve ellipsis:

(50)   a.   Jack called his mother, but Bill did something else.

b.   Ralph ate his ice cream with a spoon, and Seymour did the same thing.

c.   Harvey stubbed his toe on the doorstop, and it happened to Max, too.

d.   Undergraduates can be covered under their parents' health plans if desired; that goes for grad students too.

e.   Max kissed his friend, and Oscar did so too.

Furthermore, examples like (49) fail to pass the ellipsis tests discussed in section 4: they do not allow morphological mismatches (51a) or Vehicle Change effects (51b).

(51)   a.    Alice passed [__], but $Bob_i$ failed $his_i$ calculus exam.

[$\neq$ $Alice_k$ passed $her_k$ calculus exam.

b.   *   $She_i$ fears that he will fire [__], but I hope that the boss will reward $Alice_i$.

We conclude, therefore, that RNR of DPs can only be derived via multidomination, in accordance with the generalization in (47). The question still remains of how to analyze the availability of a sloppy reading in (49). However, given that this problem is not specific to

RNR, we will not pursue a solution here. Instead, we turn now to RNR of TPs. Since English allows TP ellipsis (sluicing), it follows from (47) that RNR of TPs in English can be analyzed as either ellipsis or multidomination, depending on the particular case. Demonstrating the availability of the ellipsis analysis is easy, given that the relevant examples pass the tests that we discussed in section 4, i.e., the availability of morphological mismatches and Vehicle Change effects.

(52)   Alice wonders how many articles [__], and Bob wants to know how many book chapters he needs to publish to get tenure.

[= Alice wonders how many articles *she* needs to publish to get tenure]

(53)   a.   He$_i$ has told me which shirt [__], but I wanted know which tie Bob$_i$ is going to wear to his wedding.

       b.   * He$_i$ has told me which shirt Bob$_i$ is going to wear to his wedding, but I want to know which tie Bob$_i$ is going to wear to his wedding.

Demonstrating the availability of a multidomination parse for such examples, however, is somewhat difficult due to the fact that the tests discussed in section 3 cannot be applied here. The problem lies on the fact that, as the following examples illustrate, no finite clause boundary may intervene between internally-interpreted relational adjectives and binominal *each* on the one hand and the required plurality on the other hand.

(54)   a.   Alice and Bob think that Claire read different books.

            [$\neq$ the books that Alice thinks Claire read are different from the books that Bob thinks Claire read]

       b.   * Alice and Bob think that Claire read one book each.

Recall that the tests that we developed in section 3 relied on *different*/*each* being inside the RNRed constituent, while the relevant plurality was outside. Trying to replicate the

same configuration in cases where the RNRed constituent is a whole TP would result in *different*/*each* and the plurality being separated by a finite clause boundary, in violation of the restriction illustrated in (54). As a consequence, we predict the relevant examples not to support binominal *each* or an internal reading of a relational adjective. Importantly, though, the source of the ungrammaticality cannot be ascribed to the lack of a multidomination parse for this particular type of RNR.

(55)    Alice wonders if [__], and Bob wants to know when Claire will read different books.

[$\neq$ the books that Alice wonders if Claire ll read are different from the books that Bob wants to know when I will read.]

(56)    * Alice wonders if [__], and Bob wants to know when Claire will read one book each.

Fortunately for us, other researchers have independently identified signs of multidomination in RNR of TPs: specifically, Gracanin-Yuksek (2007, 2009) has built an extended argument to the effect that examples such as (57) involve sharing of a whole TP across conjuncts. Given that her argument is quite lengthy, we choose not to reproduce it here and instead refer interested readers to her work.

(57)    What and when does Peter sing

Additionally, there exist cases of RNR of TPs that resist an analysis in terms of backward ellipsis. Consider (58a), taken from Giannakidou and Merchant 1998. The putative ellipsis source for (58a) is (58b); however, it is not obvious how to derive the former from the latter via ellipsis, given that *if* does not support ellipsis of its complement (58c). Therefore, one either needs to say that backward ellipsis can apply in environments where forward ellipsis cannot (which seems to be the route taken by Giannakidou and Merchant 1998

and Ha 2008), or that examples like (58a) are derived from a process different from ellipsis. The latter possibility, combined with our proposal in (2), points towards a multidomination analysis of (58a).

(58)    a.    It is not clear if [__] or when the police will evict the squatters.

        b.    It is not clear if the police will evict the squatters or when the police will evict the squatters.

        c.    * It is not clear when the police will evict the squatters. In fact, it is not even clear if.

## 8  Conclusions and outlook

We started this article by noting that all existing analyses of RNR assume what we are calling the exclusivist hypothesis —that is, the idea that one single mechanism (whether movement, ellipsis, or multidomination) suffices to cover all cases of RNR. We have shown that this hypothesis is incorrect. Rather, in order to account for the whole range of RNR cases in English, one needs to resort to two different mechanisms. Additionally, we have conjectured that the availability of backward ellipsis as a source for RNR is dependent on the availability of the corresponding type of forward ellipsis. We repeat the relevant proposals here.

(2)    *An eclectic theory of Right Node Raising*
       English RNR is not a homogeneous construction: rather, it can be divided into two distinct subtypes, one derived by backward ellipsis and the other derived by multidomination.

(47)   *Division of labor in English RNR*

RNR can always be derived via multidomination; additionally, it can also be alternatively derived via backward ellipsis if the corresponding type of forward ellipsis exists.

Our analysis, however, raises an interesting question for which we regrettably have no satisfactory answer. As already mentioned in the Introduction, (2) amounts to saying that "RNR" is not the label of a single process, but rather the label for a family of processes with superficially identical outputs. However, we can see no obvious reason why the processes involved (i.e., backward ellipsis and multidomination) ought to share some of the surface properties associated with RNR —e.g., the Right Edge Restriction, which states that RNR might only target the rightmost constituent within each conjunct. This is a question that we are currently forced to defer to future research.

## References

Abels, Klaus. 2004. Right Node Raising: ellipsis or ATB movement? In *Proceedings of NELS 34*, ed. Moulton and Wolf, 44–59.

Bachrach, Asaf, and Roni Katzir. 2007a. Right Node Raising and delayed spellout. Ms., MIT.

Bachrach, Asaf, and Roni Katzir. 2007b. Spelling out QR. In *Proceedings of Sinn und Bedeutung 11*, ed. Puig-Waldmüller, 63–75. Barcelona: Universitat Pompeu-Fabra.

Blaheta, Don. 2003. Binominal *each*: evidence for a modified type system. Master's thesis, Brown University.

Bošković, Željko. 2004. Two notes on Right Node Raising. In *University of Connecticut Working Papers in Linguistics 12*, ed. Rodríguez-Mondoñedo and Ticio, 13–24.

Brasoveanu, Adrian. 2009. Sentence-internal *same*/*different* as quantifier-internal anaphora. In *Proceedings of WCCFL 27*, ed. Abner and Bishop, 72–80. Sommerville: Cascadilla Press.

Carlson, Greg. 1987. *Same* and *different*: some consequences for syntax and semantics. *Linguistics & Philosophy* 10:531–565.

Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge: MIT Press.

Citko, Barbara. 2005. On the nature of Merge: External Merge, Internal Merge, and Parallel Merge. *Linguistic Inquiry* 36:475–496.

Clapp, Jessica M. 2008. Right Node Raising: evidence from 'rule interaction'. In *Proceedings of WCCFL 26*, ed. Chang and Haynie, 129–137. Somerville: Cascadilla Press.

Culicover, Peter, and Ray Jackendoff. 1995. *Something else* for the Binding Theory. *Linguistic Inquiry* 26:249–275.

Depiante, Marcela. 2000. The syntax of deep and surface anaphora: a study of Null Complement Anaphora and Stripping/Bare Argument Ellipsis. Doctoral Dissertation, University of Connecticut, Storrs.

Dotlačil, Jakub. 2011. Binominal *each*: a new compositional analysis. Abstract, Sinn und Bedeutung 16.

Dyła, Stefan. 1984. Across-the-board dependencies and case in Polish. *Linguistic Inquiry* 15:701–705.

Fanselow, Gisbert. 2002. Quirky subjects and other specifiers. In *More than words*, ed. Kaufmann and Stiebels, 227–250. Berlin: Akademie Verlag.

Féry, Caroline, and Katharina Hartmann. 2005. The focus and prosodic structures of German gapping and Right Node Raising. *The Linguistic Review* 22:66–116.

Fiengo, Robert, and Robert May. 1994. *Indices and identity*. Cambridge: MIT Press.

Fox, Danny, and David Pesetsky. 2004. Cyclic linearization and syntactic structucre. *Theoretical Linguistics* 31:1–46.

Franks, Steven. 1993. On parallelism in Across-the-Board dependencies. *Linguistic Inquiry* 24:509–529.

Giannakidou, Anastasia, and Jason Merchant. 1998. Reverse sluicing in English and Greek. *The Linguistic Review* 15:233–256.

Gracanin-Yuksek, Martina. 2007. On sharing. Doctoral Dissertation, MIT.

Gracanin-Yuksek, Martina. 2009. What and why can't be shared. Ms., Middle East Technical University.

Grosz, Patrick. 2009. Movement and agreement in Right Node Raising constructions. Ms., MIT.

Ha, Seungwan. 2008. Ellipsis, Right Node Raising, and Across-the-Board constructions. Doctoral Dissertation, Boston University.

Hartmann, Katharina. 2000. *Right Node Raising and gapping: interface conditions on prosodic deletion*. Amsterdam: John Benjamins.

Hudson, Richard. 1976. Conjunction reduction, gapping, and Right Node Raising. *Language* 52:535–562.

Jackendoff, Ray. 1977. *X-bar syntax*. Cambridge: MIT Press.

Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.

Kluck, Marlies. 2009. Good neighbors or far friends: matching and proximity effects in Dutch Right Node Raising. Ms., Rijksuniversiteit Groningen.

Langacker, Ronald. 1969. Pronominalization and the chain of command. In *Modern studies in English*, ed. Schane and Reibel, 160–186. Englewood Cliffs: Prentice-Hall.

Levine, Robert. 2001. The extraction riddle —just what are we missing? *Journal of Linguistics* 37:145–174.

McCawley, James. 1968. Concerning the base component of a transformational grammar. *Foundations of Language* 4:243–269.

McCawley, James. 1982. Parentheticals and discontinuous constituent structure. *Linguistic Inquiry* 13:91–106.

McCloskey, James. 1986. Right Node Raising and preposition stranding. *Linguistic Inquiry* 17:183–186.

Merchant, Jason. 2001. *The syntax of silence*. Oxford: Oxford University Press.

Merchant, Jason. to appear. Diagnosing ellipsis. In *Diagnosing syntax*, ed. Cheng and Corver. Oxford: Oxford University Press.

Morgan, Jerry, and Georgia Green. 2005. Why verb agreement is not the poster child for any general formal principle. In *Polymorphous linguistics: Jim McCawley's legacy*, ed. Mufwene, Francis, and Wheeler, 455–478. Cambridge: MIT Press.

Phillips, Colin. 1996. Order and structure. Doctoral Dissertation, MIT.

Postal, Paul. 1998. *Three investigations of extraction*. Cambridge: MIT Press.

Rooth, Mats. 1992. Ellipsis redundancy and reduction redundancy. In *Proceedings of the Stuttgart Ellipsis Workshop*, ed. Berman and Hestvik. University of Stuttgart.

Ross, John. 1967. Constraints on variables in syntax. Doctoral Dissertation, MIT.

Ross, John, and David Perlmutter. 1970. Relative clauses with split antecedents. *Linguistic Inquiry* 1:350.

Sabbagh, Joseph. 2007. Ordering and linearizing rightward movement. *Natural Language and Linguistic Theory* 25:349–401.

Sabbagh, Joseph. 2008. Right Node Raising and extraction in Tagalog. *Linguistic Inquiry* 39:501–511.

Safir, Ken, and Tim Stowell. 1989. Binominal *each*. In *Proceedings of NELS 18*, 426–450.

Sag, Ivan. 1973. Deletion and Logical Form. Doctoral Dissertation, MIT.

Sampson, Geoffrey. 1975. The Single Mother Condition. *Journal of Linguistics* 11:1–11.

Uriagereka, Juan. 1999. Multiple Spell Out. In *Working Minimalism*, ed. Epstein and Hornstein, 251–282. Cambridge: MIT Press.

de Vos, Mark, and Luis Vicente. 2005. Coordination under Right Node Raising. In *Proceedings of WCCFL 24*, ed. Alderete et al, 97–104. Somerville: Cascadilla Press.

Wexler, Kenneth, and Peter Culicover. 1980. *Formal principles of language acquisition*. Cambridge: MIT Press.

Whitman, Neal. 2004. Right Node Wrapping: multimodal categorial grammar and the "friends in low places" coordination. Ms.,.

Wilder, Chris. 1997. Some properties of ellipsis in coordination. In *Studies on Universal Grammar and typological variation*, ed. Alexiadou and Hall, 59–107. Amsterdam: John Benjamins.

Wilder, Chris. 1999. Right Node Raising and the LCA. In *Proceedings of WCCFL 18*, ed. Bird et al, 586–598. Somerville: Cascadilla Press.

Yatabe, Shûichi. 2003. A linearization-based theory of summative agreement in Peripheral-Node Raising constructions. In *Proceedings of the $9^{th}$ Iinternational Conference on HPSG*, ed. Kim and Weschler, 391–413. Stanford: CSLI.

Zimmermann, Malte. 2002. Boys eating two sausages each: syntax and semantics of distance distributivity. Doctoral Dissertation, University of Amsterdam.

**Notes**

[1]Acknowledgements: to be compiled

[2]We are aware that Postal 1998 is not, in a strict sense, a movement analysis, given that Postal assumes a theory of syntax (Arc-Pair Grammar) that does not include movement in its repertoire of operations. Nonetheless, we have chosen to include his analysis in this group due to the fact that his general claim is the same one can find in Ross 1967 and Sabbagh 2007 —namely, that RNR is a subtype of extraction, and therefore it should be accounted for by the same general mechanisms that derive leftward ATB extraction.

[3]The inclusion of Giannakidou and Merchant 1998 in this category deserves some explanation. They argue at length that the construction they focus on (*reverse sluicing*) is not a case of RNR; however, they also assume that "true" RNR is a subcase of ellipsis. Consequently, we are justified in taking this paper as an endorser of the ellipsis analysis.

[4]Although one can glimpse a hint of a non-exclusivist analysis in Sabbagh 2008, who simultaneously (i) accepts that English RNR should not receive a movement analysis; and (ii) claims that Tagalog RNR must receive a movement analysis. However, so far as we know, nobody has claimed that this division holds within a single language.

[5]After we submitted this article to *LI*, Anikó Lipták (p.c.) drew our attention to Valmala (2011), who also proposes that English RNR can be associated to either one of two different syntactic structures, depending on the placement of focal stress. Specifically, there is substantial evidence to the effect that the RNRed constituent obligatorily raises to a position outside the coordinate structure if it receives focal accent, but stays in-situ if focal accent falls on a non-RNRed constituent. From this, Valmala concludes that English RNR is ambiguous between aa multidomination and a movement analysis. Given our discussion in section 2 below, we hypothesize that Valmala's data reflect exclusively the multidominance type of RNR, with the additional requirement that the multidominated constituent must raise to a high position under certain circumstances. In any event, and as far as we can see, his data are compatible with our proposal.

[6]We are aware that this conclusion contradicts Langacker's (1969) *Backward Anaphora Constraint* (BAC), which (as a corollary) prohibits backward ellipsis within coordinate structures. However, given the evidence we discuss in section 4, we see this discrepancy not as a shortcoming of our proposal, but rather as an indication that the standard formulation of the BAC is not accurate enough. Providing a better formulation, though, is something that we defer to future work.

[7]As anecdotal evidence, we may cite the fact that, during past presentations of this material, a number of colleagues have commented that our examples intuitively feel like they belong to two different constructions. Such comments are expected, since our proposal is that we are indeed dealing with two different constructions.

version of September 8, 2011

[8]Whitman's (2004) definition is that Right Node Wrapping has the form [[A and B] C D] and the meaning [[A C] and [B C D]] rather than [[A C D] and [B C D]]. Some of his (naturally attested) examples follow.

(i)   a.   The blast upended [__] and nearly sliced an armored Chevrolet Suburban in half.

  b.   An undercover police officer followed [__] and shot a young motorist eight times.

[9]This type of RNR was originally described by Hudson (1976). Phillips (1996) provides additional examples, some of which follow:

(i)   a.   The people who liked [__] easily outnumbered the people who disliked the movie.

  b.   Spies who learn when [__] can be more valuable than those able to learn where major troop movements are going to occur.

[10]Interested readers, however, are referred to Féry and Hartmann 2005 for a discussion of the Right Edge Restriction within the ellipsis analysis, and to Gracanin-Yuksek 2007, 2009 for a discussion within the multidomination analysis.

[11]We want to point out that the argument we develop in this paper would not be adversely affected if it turns out that there is a proper subset of cases of RNR in English, or in other languages, that is derived via movement (see, e.g., the analysis of Tagalog in Sabbagh 2008). Our proposal (2) is that RNR is not a monolithic construction, but rather a cover term for a family of constructions with superficially identical outputs. Consequently, if it turns out that a proper analysis of English RNR requires movement besides, and independently of, ellipsis and multidomination, our proposal would be actually *reinforced*.

[12]This idea has been entertained in the relevant literature. For instance, Postal 1998:103 simply grants RNR a blanket exemption on locality constraints, claiming that "although

all extractions, including RNR, share many properties, the island types in question con-
strain only L-extractions" (that is, wh- movement, relativization, topicalization, and other
constructions typically used to illustrate locality constraints). Sabbagh (2007) attempts to
make the island insensitivity of RNR follow from the mechanics of Fox and Pesetsky's
(2004) system. We refer the reader to Levine 2001 for a critique of Postal's approach and
to Bachrach and Katzir 2007a for a critique of Sabbagh's.

[13]McCawley's formulation of the Single Mother Condition is embedded within his def-
inition of *tree*. Trees are defined as sets of nodes characterized by various relationships,
amongst them $\rho$ 'directly dominates'. Trees also have to satisfy various axioms, of which
the relevant one states that "if $x\rho y$, and $x'\rho y$, then $x = x'$ (i.e., a tree contains no 'loops')".
As a side note, we might note that the term *Single Mother Condition* doesn't actually ap-
pear in McCawley 1968. As far as we have been able to determine, it was introduced in
Sampson 1975.

[14]Zimmermann's argument is constructed around *jeweils*, the German equivalent to bi-
nominal *each*. However, as Dotlačil (2011) points out, the data carry over to English un-
problematically.

[15]We do not include the corresponding forward ellipsis example due to the fact that it is
ungrammatical irrespective of agreement. The ungrammaticality of (i) is attributable to the
fact that English does not support stripping in embedded clauses.

(i)    * Alice is proud that Beatrix {have/has} travelled to Cameroon, and Claire is
         happy that Diana [__].

[16]We are not aware of any fully worked-out attempt to tackle cumulative agreement
effects within a movement analysis of RNR, though this might simply be a reflection of
the fact that this phenomenon has received relatively little attention within the literature
on RNR. Postal (1998:173) remarks that "there is the possibility of seeing [cumulative

agreement] as some sort of realization of an *n*-ad of ATB-extracted singulars". In the absence of a more explicit proposal, we cannot comment on the merits or shortcomings of this analysis.

[17]Citko also notes that this is a purely morphological restriction, given that ATB extraction can target different cases as long as they have the same morphological realization. She provides the following Polish example, where *kogo* 'who' exhibits accusative/genitive syncretism:

(i)  $Kogo_{ACC/GEN}$ Jan lubi $t_{ACC}$ i   Maria nienawidzi $t_{GEN}$?

who           Jan likes      and Maria hates

"Who does Jan like and Maria hate?"

[18]There remains the possibility that the putative movement deriving RNR is qualitatively different from leftward ATB extraction, in that it permits form mismatches. However, we are not aware of any version of the movement analysis where this hypothesis is explored, so we will not say anything about it either.

[19]The question still remains of whether these two approaches are *sufficient*. In other words, is there an additional subset of cases that requires a third type of analysis? We will not attempt to answer this question here; however, we want to note that our proposal would not be adversely affected if such a subset of cases were to be discovered. If anything, such a discovery would strengthen our proposal, as it would provide additional support for the heterogeinity of RNR.

[20]As an illustration of this line of reasoning, see Ha 2008:279–282, where it is argued that Korean counterparts of the data in section 3.1 can be subsumed under an ellipsis analysis.

[21]More precisely, an exclusivist analysis doesn't preclude the possibility that some of the relevant examples be ungrammatical; however, it very clearly predicts that the ungram-

maticality of such examples must necessarily stem from something other than incompatible structural requirements.