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Right Node Raising Requires both Ellipsis and Multidomination

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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.
Right Node Raising Requires both Ellipsis and Multidomination

Matthew Barros and Luis Vicente*

1 Introduction

Given an example like (1a), the rule of Right Node Raising (RNR, Ross 1967) produces (1b).

(1) a. Alice has written a book, and Beatrix has read a book. [base structure]
   b. Alice has written, and Beatrix 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 is 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, which stated that RNR is the rightward counterpart of the more familiar leftward A TB extraction rule (Figure 1). 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 (we represent elided material with a light gray font). The other alternative is the multidomination analysis (Figure 3), wherein the RNRed string is shared across conjuncts.

This paper aims at shedding some light on this question. Our starting point is the observation that all the proposals we have surveyed make an important 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. We appreciate that the exclusivist hypothesis is elegant and worth pursuing. However, it is not a logical necessity; in fact, our proposal 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 similar superficial outputs. As a simplifying assumption, we are going to exclude the movement analysis from consideration right from the outset, and define our proposal as follows.

(2) An eclectic theory of Right Node Raising

Both backward ellipsis and multidomination are possible sources for RNR.

In order to demonstrate that (2) is correct, we show that there exists a class of RNR examples that can only be plausibly analyzed as being derived via ellipsis. Then, we show that there

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1 We are aware of the fact that Postal (1998) is not, in a strict sense, a movement analysis, as 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 background assumption is the same one we 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 mechanism that derives leftward ATB extraction.

2 Throughout this paper, we are restricting ourselves to English VP ellipsis, which we take to involve PF deletion of a syntactically and semantically complete VP, rather than insertion of a verbal proform. We refer the readers to the relevant literature for supporting evidence.

3 Under a multidomination analysis, it must somehow be ensured that the shared string is invariably linearized after the second conjunct. Since our goal in this paper is not to explore the fine technical details of this analysis, we will simply assume that this result can be attained in a principled way. Readers interested in how this result can be attained are referred to Bachrach and Katzir (2007a), Gracanin-Yuksek (2007), and references therein, where the mechanics of the linearization of multidomination structures are discussed at length.

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.

5 See Wexler and Culicover (1980), McCloskey (1986), Abels (2004), Ha (2008), and references therein for justification. Essentially, these works argue that RNR cannot be movement because it does not obey several restrictions on movement, such as locality constraints, lexical integrity conditions, or bans on adposition stranding.
also exists a different class of examples that can only be plausibly analyzed as being derived via multidomination. The fact that we can distinguish two such disjoint classes entails that both ellipsis and multidominance can underlie RNR. Finally, we consider examples containing prompts for both ellipsis and multidomination, and show that these examples are invariably ungrammatical. This result confirms that neither mechanism is reducible to the other. 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.\footnote{As anecdotal evidence, we may cite the fact that, during our presentations of this material, some 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.}

2 Structural Diagnoses

2.1 Ellipsis

A well-studied property of ellipsis is that it permits the elided material and its antecedent to be morphosyntactically distinct, inasmuch as both constituents are semantically parallel (i.e., truth-conditionally equivalent, see Merchant 2001 and references). Consequently, if ellipsis underlies (at least some cases of) RNR, then we should expect to find such mismatches. The following two subsections provide some samples (taken from Ha 2008:74–100) that confirm this prediction.

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Figure 1: The movement analysis: Ross (1967), Postal (1998), Sabbagh (2007, 2008), Clapp (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)
2.1.1 Inflection Mismatches

We begin by considering person/gender mismatches in pronouns and tense/aspect mismatches on verbs. As the following examples show, such mismatches are unobjectionable under forward VP ellipsis (this property of ellipsis was already noticed as early as Chomsky 1965; for a more recent survey, see Merchant to appear and references therein).

(3)  
  a. Alice has slept in her office, but Bob will not [sleep in his office].
  b. Alice just went on vacation, and Bob is about to [go on vacation].

The following examples show that equivalent mismatches are allowed under RNR too. If we take morphological mismatches to be directly correlated with ellipsis, then we are forced to conclude that ellipsis can underlie RNR too.7

(4)  
  a. I usually don’t [wake up early every day], but Alice wakes up early every day.
  b. I didn’t [pass my math exam], but I’m sure that Alice will pass her math exam.

We want to emphasize the fact that examples like (4) cannot be subsumed under a multidomination analysis. Consider, for example (4b), for which multidomination proponents would have to posit a structure along the lines of (5). Here, the multidominated part contains one single pronoun, and therefore it will be unable to produce the sloppy reading attested for (4b). This sloppy reading can only be derived through a structure containing two independent instances of the RNRed string, each of them containing a different pronoun.

(5)  
\[ \text{I didn't} \quad \text{Alice} \quad \text{will pass her math exam} \]

2.1.2 Vehicle Change Effects

Vehicle change (VC, Fiengo and May 1994) is the name of the effect whereby ellipsis appears to repair a Condition C violation: compare (6a) and (6b). Fiengo and May’s conjecture is that VC exists because, under ellipsis, it is possible to replace a name with a pronoun, which is only subject to Condition B (6c). This substitution is licit because both the name and the replacing pronoun refer to the same individual, hence semantic parallelism is maintained.

(6)  
  a. * I hope that the boss won’t fire Alicei, but shei fears that he will fire Alicei.
  b. ✓ I hope that the boss won’t fire Alicei, but shei fears that he will [____].
  c. ✓ . . . but shei fears that he will [fire heri].

The same logic as above applies: if ellipsis underlies RNR (at least in some cases), then we should expect to find some cases of VC under RNR. The following example shows that this prediction is correct.

(7)  
  a. Shei hopes that he won’t [____], but I fear that the boss will fire Alicei.
  b. Shei hopes that he won’t [fire heri], but . . .

7We are aware of the fact that an elliptical analysis of RNR violates the ban on backward ellipsis within coordinate structures (which itself follows as a corollary of the Backward Anaphora Constraint, Ross 1967, Langacker 1969). However, given data like (3), we are inclined to conclude that the formulation of this ban is inaccurate. Unfortunately, we are currently not able to develop a reformulation thereof that captures observed restrictions on backward ellipsis while at the same time ruling (3) in.
As in the previous subsection, we can add that such examples cannot be subsumed under a multidomination analysis: the reason is that the multidominated constituent would contain the proper name Alice, which, contrary to fact, would trigger a Condition C violation with respect to the first conjunct.

2.2 Multidomination

Empirical evidence for multidomination usually comes in the form of syntactic or semantic effects in which a subconstituent of the shared constituent appears to affect both conjuncts simultaneously, in a way that cannot be attributed to ellipsis (or, for that matter, to any other known process). In this subsection, we will consider two such effects, one pertaining to verbal agreement and the other to the interpretation of a certain class of adjectives.

2.2.1 Cumulative Agreement

Grosz (2009) provides examples like (8a), in which plural agreement in the auxiliary is determined by the cumulative contribution of the subjects of both conjuncts. As Grosz points out, examples of this kind cannot be analyzed in terms of ellipsis because the putative source structure (8b) would incorrectly lead us to expect singular agreement on both conjuncts.8

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

Given the absence of any plurality in (8a), the only way in which the auxiliary can exhibit plural agreement is by having a single T0 head agreeing simultaneously with both singular subjects. Grosz’s proposal is that this particular agreement configuration can be achieved through multidomination. We appreciate that the mechanics of this kind of multiple agreement are far from straightforward, but due to space constraints we cannot offer a proper discussion thereof here. Instead, we refer interested readers to Grosz’s work.

8Importantly, one cannot dismiss cumulative agreement effects as a speech error, as these effects are sensitive to subtle restrictions on agreement. For illustration, consider the following paradigm (Grosz 2009): German also shows cumulative agreement effects, but only as long as we restrict ourselves to sentences (like regular transitives) that can exhibit a distinction between plural and singular agreement (ia). Other kinds of sentences, like impersonal passives, exhibit invariable default singular agreement regardless of the number of their subject (ib); in such environments, cumulative agreement effects are also suspended (ic), which shows that cumulative agreement is a genuine syntactic effect.

(i) a. Die Maria ist froh, dass der Hans [___], und die Susi is stolz, dass der Otto [___] in der Kamerun gereist {✓ sind / ?? ist }.
   b. dass den Traktor und den Wagen zu verkaufen versucht {✓ wurden / ✓ wurde} that the tractor and the car to sell tried were was ‘that someone tried to sell the tractor and the car’
   c. dass den Traktor zu reparieren [___], und den Wagen zu verkaufen [___], versucht {✓ wurden / ✓ wurde} that the tractor to repair and the car to sell tried were was ‘that someone tried to repair the tractor and to sell the car’
2.2.2 Internal Readings of Relational Adjectives

Relational adjectives like *same*, *different*, or *similar* have two readings, called *internal* and *external* (10). However, 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 relational adjective can take scope over either a distributive quantifier or a distributively interpreted plurality (11).

(10) Alice and Beatriz read different gothic novels.
   a. Internal reading: Alice’s novels are different from Beatriz’s.
   b. External reading: Alice and Beatriz’s novels are different from some contextually salient novels.

(11) a. Alice read different novels. [✓internal/✓external]
   b. Each girl read different novels. [✓internal/✓external]
   c. The girls read different novels. [✓internal/✓external]

Interestingly, Jackendoff (1977) observed that a relational adjective contained in an RNR string can exhibit an internal reading even if neither conjunct contains a distributive quantifier or a plurality (12). Given that the internal reading requires the adjective to take scope over the plurality, this paradigm appears to be *prima facie* evidence in favor of a movement analysis of RNR (see Sabbagh 2007 for an extended argument to this effect).

(12) Alice composed [___], and Beatriz performed [___], different songs. [✓internal]

However, the internal reading of (12) can also be derived through a multidomination analysis. We adopt here the solution proposed in Bachrach and Katzir (2007a,b), which is a corollary of their linearization algorithm for multidomination structures. In essence, Bachrach and Katzir argue that multidominated constituents cannot be Spelled Out in their merged position because they violate their proposed formulation of the LCA; rather, Spell Out has to be delayed until a suitable point is reached. In the case of RNR, this point coincides with the top node of the coordinate structure. The semantic consequence of this delay in Spell Out is that the multidominated constituent (containing the relational adjective) is enabled to take scope over the entire coordinate structure (containing the two subjects that make up a plurality). This much derives the observed internal reading of (12).9 To finish with this section, we want to point out that, while a multidomination analysis of (12) is possible, an elliptical analysis is not. The latter type of analysis is ruled out for the same reason as in the previous subsection, that is, because the putative source structure (13a) lacks an internal reading. Abels (2004) also points out that the internal reading is not available either in an equivalent forward VP ellipsis structure (13b), thus further supporting the hypothesis that ellipsis cannot underlie this particular case of RNR.

(13) a. Alice composed different songs, and Beatriz performed different songs. [*internal]
   b. Alice composed different songs, and Beatriz did [___] too. [*internal]

3 Interim Conclusion and Prospects

The data reviewed in section 2.1 show that there exist cases of RNR that can only be analyzed as the result of backward ellipsis, not multidomination; conversely, the data discussed in section 2.2 show that there also exist cases that can only be analyzed as the result of multidomination, not ellipsis. These two results taken together suggest that both ellipsis and multidomination are necessary to account for the whole range of RNR effects; in other words, an exclusivist approach to RNR is incorrect, and only an eclectic approach can eventually succeed.

Attention 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, 9Our goal in this subsection is to show that it is possible to define a multidomination analysis of the internal reading of (12). Due to space restrictions, we cannot compare this analysis to Sabbagh’s (2007) movement alternative. Instead, we refer the interested reader to Bachrach and Katzir (2007b), where this comparison is made. In a nutshell, Bachrach and Katzir show that (12) and related examples show a number of restrictions on the scope-taking possibilities of the multidominated constituent that follow from a delayed Spell Out analysis, but which are difficult to capture under a pure movement analysis.
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, extend the current theory of ellipsis so that it covers what we are calling multidomination effects.\footnote{As an illustration of this line of reasoning, see, e.g., Ha 2008:279–282, who argues that the data in section 2.2.2 can be covered by an ellipsis analysis.} 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 each process imposes different requirements on the structure of the RNRd constituent: on the one hand, ellipsis requires the presence of two constituents, one of which happens to be phonetically null; on the other hand, multidomination requires the presence of exactly one constituent, which is then shared across conjuncts. Due to this incompatibility, eclectic and exclusivist analyses make different predictions:

- 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.
- An exclusivist analysis, in contrast, does not predict this class of examples to be ungrammatical; since all cases of RNR have the same underlying structure (whether it is ellipsis or multidomination), it is impossible to create the relevant kind of conflicting structural requirements.\footnote{More precisely, an exclusivist analysis doesn’t preclude the possibility that some of the relevant examples will be ungrammatical; however, it very clearly predicts that the ungrammaticality of such examples must necessarily stem from something other than incompatible structural requirements.}

Section 4 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.

4 Pitting Ellipsis against Multidomination

4.1 Conflict #1: Morphological Mismatches and Cumulative Agreement

We begin this section by considering the interaction of morphological mismatches (ellipsis effect) and cumulative agreement (multidomination effect). As a first step, we provide (14) and (15) as a baseline, to show once again that both morphological mismatches and cumulative agreement effects are grammatical when they do not appear in the same sentence with an effect of the opposite type.

(14) \textit{No morphological mismatch, cumulative agreement possible}

Alice is happy that Beatrix [___], and Claire is proud that Diane [___]. {√ have/*has} negotiated with the manager.

(15) \textit{No cumulative agreement, morphological mismatch possible}

Alice already has [___], and Bob is about to [___], negotiate his salary with the manager.

However, ungrammaticality results when trying to combine both types of effects in one and the same sentence. Speakers we have consulted unanimously agree that the presence of cumulative agreement in (16) blocks the morphological mismatch effect: i.e., in contrast to (15), this example only has a strict reading is which Beatrix has negotiated Daniel’s salary, rather than her own.

(16) \textit{Cumulative agreement, potential morphological mismatch blocked.}

Alice is happy that Beatrix [___], and Claire is proud that Daniel [___]. {√ have/*has} negotiated his salary with the manager.

This result clearly supports the eclectic analysis, which reduces the ungrammaticality of (16) to the incompatible requirements imposed by ellipsis and multidomination. In contrast, an exclusivist analysis would have to claim that the loss of the morphological mismatch effect in (16) is due to a different (non-structural) type of incompatibility. We are highly skeptical that the
latter approach is feasible, though: the type of mismatch blocked in (16) is a gender mismatch on pronouns and, as far as we know, determination of gender on pronouns is totally independent of number agreement on verbs. If these two processes are independent elsewhere, it is difficult to see why they should influence each other under RNR.

4.2 Conflict #2: Morphological Mismatches vs. Internal Readings

The second mismatch follows the same logic: first, we provide (17) and (18) as a baseline, showing again that both morphological mismatches (ellipsis effect) and internal readings of morphological adjectives (multidomination effect) are grammatical on their own. Example (19) 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 (19) comes out as ungrammatical.

(17) *No relational adjective, morphological mismatch OK*
Alice has [___], and Beatrix wants to [___], work on Binding Theory.

(18) *No morphological mismatch, internal reading OK*
Alice must [___], and Beatrix should [___], work on different topics.

(19) *Morphological mismatch blocks internal reading*
Alice has [___], and Beatrix wants to [___], work on different topics.

We can draw the same conclusion as in the previous subsection: 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 (19) under an internal reading follows from the morphosyntactic requirements imposed on a multidominated VP. In contrast, an exclusivist analysis would have to posit some other kind of interdependence between these two processes. Again, this is a difficult task due to the independence of these processes elsewhere: the kind of mismatch attempted in (19) concerns aspectual morphology (worked vs. work), which does not interact with the semantics of relational adjectives.

4.3 Conflict #3: Vehicle Change vs. Cumulative Agreement

Following the pattern of the previous two subsections, examples (20) and (21) show that both Vehicle Change (ellipsis effect) and cumulative agreement (multidomination effect) are grammatical on their own. However, they cannot be combined: the presence of cumulative agreement prevents the application of the Vehicle Change process. Consequently, the pronoun she in the first conjunct must necessarily be interpreted as disjoint from *Alice*, lest a Condition C violation arise.

(20) *No cumulative agreement, Vehicle Change OK*
She fears [___], but Bob is not worried [___], that Alice might lose the election.

(21) *No Vehicle Change, cumulative agreement OK*
Alice fears that Beatrix [___], and Claire worries Diane [___], {✓ have/*has} decided to nominate Esther.

(22) *Cumulative agreement, Vehicle Change blocked*
She, k fears that Alex [___], and I worry that Bob [___], {✓ have/*has} decided to nominate Claire.

Also as in the previous cases, an eclectic analysis can account for the status of (22) easily, but it is not clear what the analysis would be under an exclusivist approach. The problem is the same as before: i.e., outside RNR, there is no interdependency between verbal agreement on the one hand and the reference of pronouns and names on the other. Therefore, there is no obvious reason why they should conflict in just this particular case.
4.4 Conflict #4: Vehicle Change vs. Internal Readings

Consider, finally, the remaining conflict between ellipsis and multidomination effects: i.e., the combination of Vehicle Change effects and internal readings of relational adjectives. As in all the previous cases, both effects are grammatical in isolation, but the combination of both within one sentence is unacceptable: in (25), 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.

(23) **No internal reading, Vehicle Change OK**
    She, thinks that he must [___], but Bob fears that he won’t [___], come up with a topic that satisfies Alice.

(24) **No Vehicle Change, internal reading OK**
    Alice absolutely must [___], and Beatrix is obliged to [___], come up with different topics.

(25) **Either Vehicle Change or internal reading blocked**
    She, absolutely must [___], and Bob is obliged to [___], present different topics to Alice’s, 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 pronouns on the one hand and the internal readings of adjectives on the other.

5 Conclusions and Outlook

We have shown in this paper that, while both ellipsis and multidomination analyses can each account for a proper subset of cases of RNR, neither analysis can cover the full range of cases. This result entails 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 multidominance depending on the individual case under consideration.

This conclusion raises a number of interesting questions. PWPL’s length restrictions prevent us from discussing them in detail, but we can at least list the ones that we deem most intriguing. Future work, whether ours or not, will hopefully deepen our current understanding of these issues.

- Are ellipsis and multidomination enough to cover all cases of RNR, or is there a subset of cases that require a further underlying mechanism? For instance, Sabbagh (2008) claims, in what we think is a convincing manner, that a movement analysis of RNR (cf. Figure 1) is the correct analysis for Tagalog RNR.
- Why is it that syntactic processes as different from each other as ellipsis and multidomination can end up producing superficially identical results? More specifically, what is the nature of restrictions like the Right Edge Effect, which apply regardless of the mechanism involved in any given case?
- Is there a way of predicting which mechanism will be used in each particular case? More specifically, is it possible to tie the availability of ellipsis as a source for RNR to the availability of standard forward ellipsis in a particular language or environment?

References


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