On Linearizing Multidominance Structures and the Proper Analysis of Right Node Raising Constructions[1]

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1. Introduction

The primary goals of this paper are to address the treatment Right Node Raising constructions (RNR) in the literature and to advance a theory of linearization capable of handling multidominance structures (MD). A structure involving multidominance is a parse tree where the Single-Mother Condition is not respected (cf. Zwicky 1985, Partee, Ter Muelen and Wall 1993), e.g.:

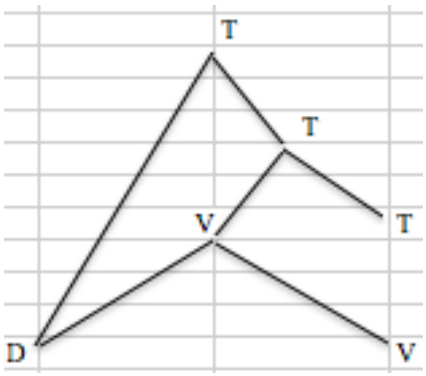

Figure 1.

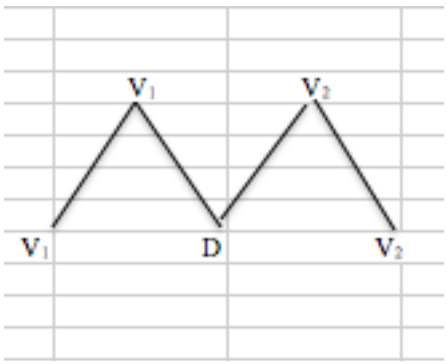

Figure 2.

In figure 1, D has more than one mother (T and V). In figure 2, D also has more than one mother, V_1 and V_2. Several researchers, in accounting for displacement phenomena in natural language, have adopted MD structures such as these. Displacement phenomena involve constructions where there is a gap where some constituent is expected to be in the surface string; that constituent is (usually) found elsewhere in the string. Under the assumption that the mapping from syntactic structure to phonetic output is constrained such that one syntactic terminal is spelled out only once, MD representations make the right prediction. For instance, structures such as those in figure 1 have been proposed for Wh-movement constructions like the Wh-question in (1) (cf. Chenmain 2006, Frampton 2004):

[1] I would like to thank my advisor Ken Safir, and my committee members, Mark Baker, and Jose Camacho for insightful feedback and criticism on this material. Without their guidance this work would not have been possible. I would also like to thank my colleagues at the Department of Linguistics at Rutgers University for many helpful discussions and particularly for feedback acquired in the Qualifying Paper Workshop in the Fall semester of 2009. I am particularly indebted to Luis Vicente; many of the ideas in section 2 stem from our many discussions about RNR, ellipsis, and multi-dominance (especially regarding the availability of sentence internal readings under RNR as a diagnostic for MD, a central data point supporting the pluralist hypothesis defended in section 2). All mistakes herein are my own. Unless explicitly mentioned, the judgements are from informal acceptability judgement experiments (i.e. the judgements are from the author and his colleagues).

1) Who did Bill shoot __?

The underscore in (1) marks a gap where some XP is missing; in (1), this is the object of the transitive verb *shoot*. In (1), *who* is understood as the direct object of the verb, which normally requires a direct object immediately following it:

2) *Bill shot.

Under various instantiations of the linearization algorithm for syntactic terminals proposed in Kayne (1994) or Fox and Pesetsky (2004) (e.g. see Wilder 1999, Frampton 2004, Johnson 2007), an MD representation for the structure underlying (1) would yield a surface string where only one of the relations that D is involved in is represented, that being the Specifier of C relation.

Wh-movement configurations such as that standardly assumed to underlie the string in (1) share certain crucial defining properties with that in Figure 1 as opposed to Figure 2. The defining difference between the two structures (modulo the fact that the structure in figure 1 obeys the Single Root Condition, cf. Partee, Ter Muelen and Wall 1993, henceforth PTW) involves the relationship between the multiple mothers of the shared element. In Figure 1, D's highest mother (the root node) dominates its lowest mother, V, whereas in Figure 2, this relationship does not hold. For convenience, let us refer to the configuration in Figure 1 as *asymmetric multidominance* (or A-MD for short) and the configuration in Figure 2 as *symmetric multidominance* (or S-MD for short).

S-MD structures have also been proposed for various constructions, for instance, Right Node Raising (RNR) (Johnson 2007, Kluck 2006, Vicente and De Vos 2008). RNR constructions are coordinate structures containing a gap in all non-final conjuncts that corresponds to some XP in the final conjunct. For instance:

3) Jack shot __ and Mary kicked <u>the rampaging zombie</u>.

4) Jack does __ but Mary doesn't <u>like stories about ugly rampaging aliens</u>.

The underlined XP's in (3,4) indicate a phrase that corresponds anaphorically to the gap. In (3), *the rampaging zombie* is understood as the object of both *shoot* in the first conjunct and *kick* in the final conjunct. In (2), the VP *like stories about ugly rampaging aliens* is understood as predicating something of Jack in the first conjunct as well as Mary in the second conjunct. I refer to the underlined phrase in RNR constructions as the target.

The challenge in accounting for RNR constructions lies in deriving the grammaticality of the gap(s) in the non-final conjunct(s). RNR constructions have been variously analyzed as involving across the board movement (ATBM) of the target (Ross 1967, Sabbagh 2007 inter alia), backwards ellipsis (Ha 2008, Boskovic 2004 inter alia) or Multidomination of the target (Johnson 2007, Kluck 2006 inter alia). The position I defend here is that RNR constructions can involve either backwards ellipsis on the one hand or both MD on the other.

In line with many researchers (Johnson 2007, Wilder 1999, McCloskey 1986, De Vos and Vicente 2005 inter multi alia), I assume RNR constructions do not involve ATBM. ATBM analyses make reference to the Coordinate Structure Constraint (CSC) in Ross (1967):

7) CSC: In a coordinate structure, neither conjunct, nor any element contained in a conjunct may be moved out of the coordinate structure.

Ross himself notes that the CSC may be partially violated in instances where an element within a conjunct is extracted, provided that the same element is extracted from every conjunct. This is ATBM. For instance:

8) What$_1$ did Bill [eat $\_\_{}_1$ and drink $\_\_{}_1$]?

In (8), the underscores mark gaps which are extraction sites for the Wh-phrase, brackets enclose the coordinate structure and the index serves an identifying function indicating an (abbreviated) derivational history of (8) where before extraction, there were two instances of *what*:

9) Bill ate what$_1$ and drank what$_1$.

ATBM analyses of RNR posit that RNR constructions contain two gaps; only one is visible, however, because the target has undergone string-vacuous movement in the right conjunct:

10) Bill played $\_\_{}_1$ and Sally listened to $\_\_{}_1$ <u>the Funeral March</u>$_1$.

Backwards ellipsis analyses of RNR constructions derive the gap in non-final conjuncts via some formulation of deletion under identity with the target in the final conjunct. In (11) (and throughout), ~~strikethrough~~ indicates an elided constituent:

11) George drove ~~the carriage~~ and Mary rode <u>the carriage</u>.

Multidomination analyses of RNR derive the gap by adopting the assumption that syntactic structures are not subject to the Single Mother Condition.

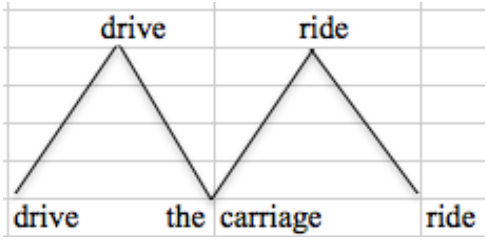

Figure 3

In Figure 3, *the carriage* is the object of both *drive* and *ride*. When the terminal nodes become linearized, since there is only one syntactic instance of *the carriage*, it can only show up in one place in the string; one of the verbs is spelled out preceding a gap where its direct object should be.

Many researchers assume that ATBM is not a precondition for deriving RNR and therefore that the appropriate analysis for RNR does not involve movement. I refrain from

repeating the evidence and argumentation in support of this position here and adopt the simplifying assumption that movement does not derive RNR.

The analysis defended here is that RNR can involve ellipsis or MD. Backwards ellipsis analyses and MD analyses are incompatible. This is because there is only one instance of the target in an RNR construction involving MD; ellipsis requires at least two XP's, one to serve as the antecedent for the elided XP and one to be elided. The theory of MD proposed here in tandem with standard assumptions about ellipsis provides us with diagnostics to tease the two analyses apart. Minimally modifying the test items will force one or the other analysis. The result, then, is that either mechanism may be active in deriving a given RNR construction, depending on the construction's properties. This analysis differs from other accounts of RNR in the literature in that it does not treat all RNR constructions equally. Other analyses are too strong in that they attempt to account for RNR constructions with one theoretical mechanism.

A secondary goal of this paper is to address the role of MD representations in syntactic theory, specifically with respect to two questions; first, "why should we adopt MD over a copy-theoretic approach to representing multiple relations in a parse tree?"; and second, "how are MD structures to be linearized"? With respect to the first question, in line with Citko (2005), it can be shown that MD representations come for free under standard assumptions about structure building in Minimalism. Furthermore, insofar as copies can be construed as multiple occurrences of the same syntactic object, MD representations and copy-theoretic representations can be seen as notational variants.[2]

With respect to the second question, I elaborate on a theory of "branch deletion" proposed in Vicente (2009), where PF sees only a single dominance relation involving a multidominated syntactic object. I argue that the same problems that arise under MD representations for linearization arise in the copy theory for chains; under the copy theory, a choice must be made as to which copy in a chain is spelled-out in the linear output and which copies are not; under MD theory, the choice concerns which dominance relation the linearization algorithm "sees" in determining a linear output for a given syntactic structure.

2.0 Against a Unitary Account of RNR Constructions

The primary goal in this section is to establish the advantages of a hybrid account for RNR constructions over accounts that posit either backwards ellipsis or MD alone. Researchers have generally adopted the strategy of taking the empirical evidence in favor of one or the other account and advancing the corresponding hypothesis, either attempting to extend whichever theoretical mechanism they adopt to account for the data that is problematic for their position or leaving it to further research. I refer to this strategy as the "exclusivist strategy" and the hybrid approach I defend here as the "pluralist strategy".

That the exclusivist strategies can be successful at all indicates something about the data surrounding RNR constructions that has been marshaled in support of either MD or ellipsis. There are two possibilities, the diagnostics involved are based on faulty assumptions

[2] Note, this is only true if one adopts an axiom such as "any operation affecting a copy in a chain affects all copies in a chain" in a copy theoretic approach. This follows from the MD assumption that there is truly ever only one syntactic object involved in non-trivial chains. Operations that affect only one element in a chain, such as "trace conversion" (Fox 2002, 2003), are therefore incompatible with an MD hypothesis (as noted in Vicente 2009).

about the proper analysis of ellipsis or MD, requiring the extension of the theories of ellipsis or MD to cover the recalcitrant data (the tack generally taken by exclusivists), or that the data supports a pluralistic hypothesis that does not require the revision of the theory of ellipsis or MD.

The position I defend here is that a given RNR construction may be 1. ambiguous between an MD analysis or a backwards ellipsis analysis or 2. analyzed as either MD or backwards ellipsis, depending on properties of the construction in question. I therefore consider a pluralistic account of RNR constructions as a descriptive class.

I begin by defending the following hypothesis:

12) In a given English RNR construction, if the target is a DP, only MD can be involved. If the target is VP or TP, either MD or backwards ellipsis can be involved.

I therefore adopt an exclusivist approach to DP RNR, and a pluralistic approach to VP and TP RNR. I take this to be a reasonable hypothesis, given that English lacks forward DP ellipsis:

13) *Jack loves Sally, but the Boogeyman hates __.
14) Jack loves __, but the Boogeyman hates Sally. (RNR with DP target, "DP RNR")

This fact is problematic for a backwards ellipsis account for (14) because it would be mysterious if DP ellipsis were only possible in English when it applied backwards; generally, ellipsis processes apply in a forward manner, where the ellipsis site takes a preceding antecedent (see e.g. Hankamer and Sag 1976). Backwards ellipsis should therefore be seen as a marked case which could reasonably imply that the set of possible backwards ellipses should be a subset of the class of forward ellipses. Granted, this does not mean that the theory of ellipsis cannot be complicated to account for the data in (12, 13) (this is precisely the approach adopted in Ha 2008), but if we can motivate MD in DP RNR independently of this fact, we can then adhere to a more restrictive theory of ellipsis.

On the other hand, English does have VP ellipsis and TP ellipsis:

14) Jack loves Halloween, and Bill does __ too.
15) Jack does __, but Bill doesn't love Halloween. (RNR with VP target, "VP RNR")
16) The cops arrested some of the protestors, but I don't know which ones __.
17) I don't know which ones __, but the cops arrested some of the protestors.
(RNR with TP target, "TP RNR")

In example (14), we have what is standardly analyzed as an instance of VP ellipsis (VPE). RNR examples with a VP target, such as that in (15), have been analyzed as involving backwards VPE in Boskovic (2004) and Ha (2008). If the theory of ellipsis must be extended to account for the possibility of backwards application, then taking (15) to involve backwards VPE doesn't pose the same problems as taking (13) to be backwards DP ellipsis[3].

[3] As a native speaker of English, RNR constructions strike me as stylistic. I haven't tested this yet, but I would not be surprised if a corpus study showed that RNR constructions were rarer in spoken language than in written language and that in both written and spoken corpuses, VP RNR would be rarer than tokens involving forward VPE. The same reasoning applies for the sluicing example in (16) and its RNR counterpart in (17).

The diagnostics I bring to bear on RNR constructions in supporting the hypothesis in (12) draw on the (standard) assumption adopted in exclusivist ellipsis analyses where there are two instances of the target; only one is visible, that in the right conjunct, while the other has been elided. Ellipsis thus differs from MD in accounting for RNR in that MD analyses assume that the RNR target is truly shared between the conjuncts and constitutes a single syntactic object. A structure for (16) under the backwards ellipsis analysis would be as in (18), Figure 4 illustrates the alternative MD structure:

18) Jack does ~~love Halloween~~, but Bill doesn't love Halloween.

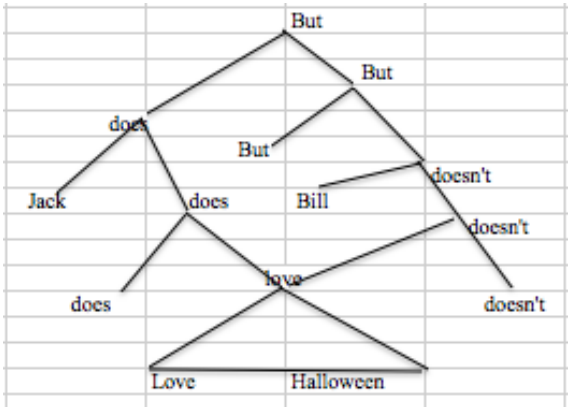

Figure 4

These assumptions make many predictions. The rest of this section is devoted to examining these predictions, which can be characterized as having a "one vs. two" character. Structures that involve two instances of the target (backwards ellipsis) make different predictions than structures that involve only one (MD).

2.1. Morphological mismatches in VP RNR

It is reasonable to assume that the target in Figure 4 respects the selectional restrictions active in either conjunct with which it is associated. As such, the tense/aspect morphology of the verb in the shared DP in Figure 4 should be compatible with that determined by any auxiliaries, modals or tense morphemes in the left conjunct as well as the final conjunct. Deviations from this expectation should be as ungrammatical as (19):

19) *Jack might eaten the burger.

Example (19) is unacceptable because modal verbs in English force the heads of their complements to be in their bare form. This means *eaten* in (19) should be *eat*. Example (20) would be predicted to instantiate the only acceptable form for *eat* if MD were the only mechanism capable of generating VP RNR:

20) Jack might and Sally will, eat a McDonald's hamburger.

This is because if the VP headed by *eat* in (20) is shared between both conjuncts, it is the complement of *might* and *will* in both the left conjunct and the right conjunct. As such, if one of the heads that takes the shared VP as a complement forces the verb to be in a different form than the other head does, the conflict between forms would be irresolvable under the assumption that at least one form would be incompatible with the selectional requirements of one of the selecting heads.

As Boskovic (2004) points out, this prediction is not borne out:

21) John will __, and Peter already has, slept in her house.

The selectional requirements of *will* in the left conjunct are violated by the form *slept* in its VP complement headed by a verb in the form *slept*:

22) *John will slept in her house.

VPE, on the other hand, allows for morphological mismatches between the ellipsis site and its antecedent:

23) Peter already has slept in her house, and John will __, too

Boskovic (2004), proposes an exclusivist account of RNR constructions based on data involving VP RNR where the availability of morphological mismatches allowed in VP RNR constructions tracks the availability of mismatches allowed in forward VPE. Boskovic (2004) argues, based on this data, that RNR involves backwards deletion.

In forward VPE, a bare form can be elided under identity with a progressive and a participle, and a participle can be deleted under identity with a progressive and a bare form (data and judgements from Boskovic 2004):

24) Peter will sleep in her office, and John already has ~~slept in her office~~.
25) ?Peter was sleeping in her office, and John already has ~~slept in her office~~.
26) John already has slept in her office, and Peter will ~~sleep in her office~~ too.
27) ?John was sleeping in her office, and Peter will ~~sleep in her office~~ too.

Boskovic (2004) cites Lasnik (1995) showing that not all inflectional differences can be ignored under VPE:

28) *John won't enter the Championship, but Jane is ~~entering the championship~~.
29) *John was being obnoxious and Jane will ~~be obnoxious~~ too.

These exact patterns are also observed in VP RNR:

30) John already has ~~slept in her office~~, and Peter will, sleep in her office.
31) ?John already has ~~slept in her office~~, and Peter was, sleeping in her office.
32) Peter will ~~sleep in her office~~, and John already has slept in her office.
33) ?Peter will ~~sleep in her office~~, and John was sleeping in her office.
34) *Jane is ~~entering the championship~~, but John won't enter the championship.
35) *Jane will ~~be obnoxious~~, and John was being obnoxious.

This correlation would be unexpected if VP ellipsis were not involved in VP RNR. This is not problematic for the pluralistic hypothesis, however. When MD is involved in deriving VP RNR, morphological matching will obtain. When backwards VPE is involved in deriving RNR, morphological mismatches may obtain. Since mismatches will entail that backwards VPE is involved, the allowable morphological mismatches should be those we see in forward VPE. Forwards VPE is also possible with morphological matching:

36) John will sleep in her office, and Jack will ~~sleep in her office~~ too.

The only conclusion we're forced to, then, is that backwards VPE can be involved in deriving VP RNR, which does not entail that MD is not involved. That the class of VP RNR constructions involving mismatch should pattern with the class of forwards VPE tokens involving mismatch is unsurprising, then, since mismatch is only allowed in VPE and not MD. If both phenomena can yield the same string, this data does not distinguish between a pluralistic or exclusivist analysis of RNR.

This argument only factors out an exclusivist analysis, but does not argue in favor of a pluralist analysis. From the standpoint of theoretical parsimony, adopting an exclusivist analysis is inherently preferred, so the argument in Boskovic (2004) is strong, at least with respect to VP RNR. However, if it can be shown that a pluralistic analysis makes different predictions than an exclusivist analysis, and that those predictions are borne out, then the exclusivist analysis entails a complication of the theory. This is because the only way in which a pluralist analysis can be evaluated as more parsimonious than an exclusivist analysis is by showing that the pluralist analysis is motivated on the grounds of theoretical parsimony. One way in which this can be done is by showing that the predictions of a pluralist analysis differ from those of an exclusivist analysis in a manner that allows standard assumptions about the workings of the grammar to remain less complicated than they otherwise would be.

Insofar as a pluralistic analysis allows us to avoid complicating the theory of ellipsis (or any theoretical component of the grammar), this would be a desirable result. The manner in which this can be done is by appealing to the "one vs. two" conflict, and specifically with respect to the behavior of *relational* adjectives in VP RNR constructions that involve morphological mismatch.

2.2 Relational adjectives and sentence internal readings

Independent evidence for (12) comes from the availability of what has been referred to in the literature as a *sentence internal* reading for relational adjectives such as *different*, *same*, and *similar*. Forward VPE and VP RNR can differ with respect to whether this reading is available; when the RNR construction can be analyzed as involving MD, the internal reading is available, when it cannot (due to, for instance, morphological mismatch), the internal reading becomes unavailable.

Before illustrating the empirical contrasts between VPE and VP RNR, I lay out the theoretical assumptions I adopt for relational adjectives that motivate their use as a diagnostic in distinguishing between the MD and ellipsis analyses. Specifically, I adopt the semantics for relational adjectives proposed in Carlson (1986). As I show below, the theory in Carlson (1986) bears directly on the "one vs. two" character of the conflict between these analyses.

Carlson (1986) uses a wider range of relational adjectives in developing the proposal therein (e.g. similar, same, distinct etc.) than I will use here. I restrict my discussion to just *different* since my judgements are strongest with respect to an internal reading for *different*. I assume the claims made in this section with respect to RNR generalizes to other relational adjectives – I leave this assumption unexamined in this paper.

2.2.1 Carlson (1986) and the sentence-internal reading

Carlson (1986) distinguishes between the availability of a special reading in (38) that is missing in (37):

37) John read different books.
38) John and Sally read different books.

In (38), there is a distributive reading available for the *different NP* where for John, there was a single book that he read and for Sally, a single book that she read and that the books that John and Sally read differed from each other in some relevant respect. This is the sentence-*internal* reading, since its availability seems dependent on elements within the sentence.

This distributive reading is missing in (37), where (37) is only true if John read more than one book, and, furthermore, that these books differed in some relevant respect from some contextually available set of books. Contextual dependence such as that involved in the meaning of (37) indicates a sentence-*external* reading. In (38), the external reading is also available, but we will be concerned with the availability only of the internal reading (arguably, the external reading is always available).

Carlson notes that a range of XP's can license the internal reading in a given sentence, but that they share in common the property of being plural and capable of quantifying distributively over events. In Carlson's (1986) terminology, this plural/distributive XP is the *licensing XP*; and the *different NP* is the *dependent XP*. I restrict my discussion here to subject DP's as licensors (cf. Carlson 1986 for a wide range of licensor types), since this seems sufficient to illustrate the crucial facts regarding internal readings in RNR constructions.

In (38), the licensing XP is the coordinated subject and the dependent XP is *different books*. The coordinated subject in (38), in contrast to the singular subject in (37), allows for a distributive reading for the event denoted by the VP, where for each of John and Sally there was a separate reading event. This, in turn, allows the dependent XP to be interpreted distributively with respect to these events.

One aspect of Carlson's (1986) analysis for the semantics of dependent XP's is that they must scope over the licensing XP. This is because the semantics for the internal reading requires quantification over plural events; In (38), then, *different books* must scope over *John and Sally* since it is only after composing with the licensor that the VP receives a plural interpretation. The LF for (38) in Carlson (1986), then, wuld be as in (39):

39) (different $books_x$) [John and Sally read x]

As Carlson (1986) notes, the sentence internal reading is also available in RNR constructions with DP targets, even when the event in each conjunct is not interpreted distributively (e.g. in the absence of a plural or coordinated subject):

40) Bill sang __ and Sally hummed, different songs.
= The song that Bill sang differed from the song that Sally hummed.

When there are two instances of *different songs*, however, the internal reading is missing:

41) Bill sang different songs and Sally hummed different songs.
≠ The song that Bill sang differed from the song that Sally sang.

One issue with the availability of the sentence internal reading in (40) involves the fact that *different* songs is interpreted as if it were in both conjuncts; so for each conjunct, we might expect only an external reading to be available (as in 37, or as in 41). This is because each conjunct denotes a single event, since no element in either conjunct counts as a licensor.

Carlson (1986) suggests that the entire coordination in an RNR sentence satisfies the plurality requirement, since it denotes two events (humming and singing in 40). QR of *different songs* at LF allows it to scope over the coordination, yielding the sentence internal reading:

42) (different songs$_x$) [Bill sang x and Sally hummed x]

Having established this much, a slight digression is in order with respect to Carlson's (1986) analysis and the contrast between (40) and (41). Note that this analysis must assume that QR involving across the board movement of each instance of *different songs* in (41) is unavailable. If it were available, the LF for (40) after QR would identical to (42); the *different NP* would scope over the coordination just as in (40), incorrectly predicting no contrast between (40) and (41) regarding the availability of the sentence internal reading. Under the traditional construal of ATBM, there is no principled reason why LF ATBM of *different books* should be ruled out in (41).

However, under a theory where ATBM derives from MD structures (i.e. ATBM involves only one launching site), the fact that there are *two* instances of *different songs* in (41) precludes ATBM, correctly predicting the unavailability of the sentence internal reading in (41). For the moment, I set further elucidation of this idea aside, and revisit it in section 3.0 in discussion of Citko (2005)'s MD approach to ATBM.

2.2.2 The contrast between VPE and VP RNR

Returning now to the relevance of relational adjectives in distinguishing between MD and ellipsis analyses for RNR, note how a sentence internal reading is unavailable in VPE when each conjunct lacks a licensor:

43) Bill sang different songs, and Sally did too.
≠ The song that Bill sang differed from the song that Sally sang.

An important contrast between VPE and VP RNR involves the availability of the sentence internal reading: it is unavailable in VPE constructions but available under VP RNR as the following examples illustrate:

44) Bill should __ and Sally must, buy different books.
=The book that Bill buys should/must be different from the one that Sally buys.

45) Bill should __ and Sally must, sing different songs.
= The song that Bill sings must/should differ from the song that Sally sings.

Interestingly, the sentence internal reading for VP RNR becomes unavailable under inflectional mismatches between VPs across conjuncts:

46) Bill should __ and Sally already has, bought different books.
≠The book that Bill buys should be different from the one Sally has already bought.
47) Sally already has __ and Bill must, sing different songs.
≠The song Sally has sung must differ from the song Bill must sing.

VP RNR with morphological mismatches patterns like forward VPE, which, even with morphological matching, lacks an internal reading. This follows if the structure underlying VPE in (42) is like that in (41), in having two instances of the *different* NP:

48) Bill sang different songs and Sally did ~~sing different songs~~ too.

If VP RNR with morphological mismatches involves ellipsis, this correlation is expected. On the other hand, when morphological matching obtains, the availability of a sentence internal reading can be construed indicating an MD structure, patterning like DP RNR in (40). Modulo the lack of ellipsis in (41) (since English lacks DP ellipsis), the contrast between examples (42,43) and examples (44, 45) can be seen as parallel to the contrast between (40) and (41).

There is some noise in getting the sentence internal reading for VP RNR in examples like (44,45). In (45), for instance, this is because, in order for Bill's song to differ from Sally's, Sally must have also sung a song different from Bill's. If Sally ends up not singing a different song (a possibility licensed by modality here), there is only one singing event to distribute over. A sentence internal reading can be primed, however, for instance with the following context:

49) Context: Bill and Sally end up picking the same qualifying paper topic. This is the second time Bill has pulled this stunt. Also, the topic is not very promising. Their respective advisors are talking about the situation and decide that –

Bill must __ and Sally should, work on different topics.

In the context in (49), the new topic must be different in two respects; for both of Sally and Bill, it must differ from their initial (communal) topic (this is arguably an external component in the reading), and furthermore, the topic that Bill works on must differ from that which Sally works on (an internal component). Note how with the context in (48), a forward VPE example is ruled out, since no distributive reading is available; the only reading is one where Bill and Sally must work on multiple sets of topics respectively:

50) #Bill must work on different topics and Sally should ~~work on different topics~~ too.

The context in (51) is a continuation of the context in (49), and (51a,b) shows morphological mismatch across VP's in each conjunct; here a sentence internal reading is unavailable and the follow-up infelicitous in this context:

51) Context: Two weeks later, Bill still hasn't come up with a new idea for a topic for his qualifying paper, but Sally, being more studious and driven, has.

a. #Bill will __ and Sally already has, picked different topics.
b. #Sally already has __ and Bill will, pick different topics.

With morphological mismatch, only an external reading is possible, where Bill will pick more than one topic, and Sally already has. The pluralistic hypothesis therefore makes the right prediction regarding these contrasts; both backwards VPE and MD are possible sources for VP RNR constructions.

2.3 Double Extraction and the internal reading.

Another prediction that the VPE analysis for RNR constructions makes, is that extraction from the VPE site should be possible. Extraction from VPE sites is possible, as in (52):

52) I know which puppy$_1$ you should buy $\_\__1$, and which one$_2$ you shouldn't ~~buy $\_\__2$~~

In example (53), the subject in each conjunct has been extracted from the complement position of the passivized verb. Example (54) shows that this extraction is possible in a corresponding forward VPE example (from Ha 2008):

53) John$_1$ will be picked $\_\__1$ for different teams and Sally$_1$ won't be picked $\_\__1$ for different teams.
54) John$_1$ will be picked $\_\__1$ for different teams and Sally$_1$ won't be ~~picked $\_\__1$ for different teams~~.

Extraction in the right conjunct is good since there is silent structure in VP. Here, VPE and MD differ in predictions. Consider (56), a VP RNR version of (54).

55) Sally$_1$ won't __ and John$_2$ will, be picked $\_\__{1/2}$ for different teams.

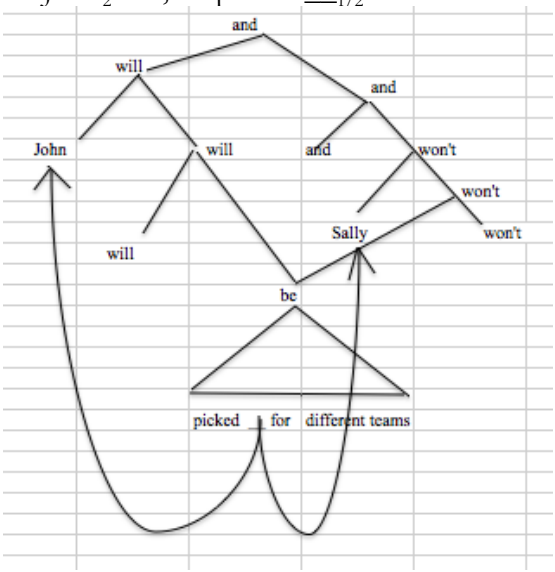

Figure 5

Under MD, (55) would be in trouble since only one launching site obtains.

It is reasonable to assume that another factor which forces a backwards ellipsis analysis for RNR is extractions to multiple landing sites from a putative single launching site contained in the RNR target.

Further evidence in support of this comes from the unavailability of an internal reading in (55), despite the lack of morphological mismatch. Example (55) does not have a reading where for the John-picking event, there is a single team involved such that it differs from that involved in the Sally-picking event. Instead, for John and for Sally, respectively, there are several teams that differ in some relevant respect from some set of contextually available teams.

The pluralistic analysis seems to be on the right track for VP RNR. If only MD or only backwards ellipsis were responsible for deriving VP RNR, the correlation between the availability of the internal reading, and morphological mismatches/double extraction would require complications of the theory of ellipsis or MD. Ha (2008) adopts an exclusivist backwards ellipsis account for RNR, but does not address these correlations. Boskovic (2004) only highlights the correlation between allowable mismatches in VP RNR and in forwards VPE. These patterns are expected and consistent alongside an MD analysis under a pluralistic approach.[4] In the next section I present evidence in favor of an exclusivist approach for DP RNR.

2.4. DP RNR does not involve backwards ellipsis

As mentioned at the start of this section, an exclusivist approach to DP RNR in English is motivated by the fact that English lacks forwards DP ellipsis (DPE). If only MD is involved in DP RNR, then, we should see evidence in support of the predictions made by an MD analysis over an elliptical analysis. This prediction is largely borne out.

In sections 2.2.1, 2.2.2, it was shown that the MD analysis makes the right prediction with respect to the availability of an internal reading under the assumption that there is only one instance of a DP containing the adjective *different* in a given RNR construction. The same logic applies in DP RNR:

56) John wrote __ and Sally sung, <u>different songs</u>.

The internal reading in (56) is one where John wrote one song, and Sally wrote another, and they differed. In (57), where different songs is in both conjuncts, only an external reading is possible, just as in forwards VPE examples discussed in section 2.1:

57) John wrote different songs and Sally sung different songs.

[4] The pluralistic analysis also makes a cross linguistic prediction. Languages that lack VPE that nonetheless have VP RNR, should disallow morphological mismatches in VP RNR, unlike English. Furthermore the internal reading for relational adjectives should be available. At least the first prediction appears to be borne out in Dutch: Kluck (2009) reports the results of an acceptability test experiment involving native speakers of Dutch where RNR constructions with morphological mismatches were shown to be less preferable than cases with matching; the mean rating on a 5 point Likert-scale for mismatching RNR in Dutch was 1.85, whereas for matching RNR, it was 3.97. Since Dutch lacks VPE (Van Craenenbroeck 2004, Goldberg 2005), the pluralistic approach predicts only MD to underlie Dutch RNR examples, and that mismatches should be unacceptable.

In (57), John wrote more than one song, and Sally sung more than one song, and the set of songs that John wrote differed from that consisting of songs sung by Sally (there are two external readings, each associated with a different conjunct). If (56) were derived via deletion, the underlying structure for (56) would be that of (58); the ellipsis hypothesis requires two identical DP's, one to serve as an antecedent and another to be elided under identity with that antecedent:

58) John wrote ~~different songs~~ and Sally sung, <u>different songs</u>.

The challenge for the ellipsis analysis lies in deriving why deletion can have this consequence for interpretation. Elided material still has consequences for interpretation, so the inaudibility of different songs in (56) should not license the internal reading.

2.4.1 DP RNR does not allow multiple extraction

In section 2.3, it was shown that an elliptical analysis makes the right predictions with respect to extraction where an MD analysis would be forced to map two or more landing sites to a single launching site. The ungrammaticality of (59) can be taken as an indication that the MD analysis makes the right prediction when it comes to DP RNR:

59) *[which poet]$_1$ did Alice read __ and [which singer]$_2$ did Bill write,
<u>a book about</u> __$_{1/2}$?[5]

This would be unexpected if backwards deletion were responsible, since in forward deletion, extraction is possible (repeated from section 2.3):

60) I know which puppy you should <u>buy</u>, and which one$_1$ you shouldn't ~~buy __$_1$~~

The elliptical analysis would predict that *which poet* could be extracted from the elided DP in the left conjunct in (61):

61) *[which poet]$_1$ did Alice read ~~a book about __$_1$~~ and [which singer]$_2$ did Bill write,
<u>a book about</u> __$_2$?

The unacceptability of (61) is predicted by an MD account, since in (61), the DP *a book about which poet* only provides one launching site.

2.4.2 Binding Conditions and RNR

The exclusivist MD analysis for DP RNR makes predictions about binding condition A, B, and C effects. Specifically, if the target is bound by the subject of either conjunct, it must respect these conditions. As Hardt (1993) notes, VPE can ameliorate binding condition violations in some circumstances:

62) I can marry a student that Mary$_1$ teaches but she$_1$ can't ~~marry a student Mary$_1$ teaches~~. Principle C (from Johnson 2007)

[5] Thanks to Luis Vicente for this example (p.c.)

63) Betsy$_1$ couldn't imagine herself$_1$ dating Sally, but Bill$_2$ could ~~imagine herself$_1$ dating Bernie~~. Principle A

64) Barbara will vote for him$_1$, Even if George$_1$ won't ~~vote for him$_1$~~. Principle B (adapted from Hardt 1993)

In example (62), the antecedent VP for the ellipsis site contains the proper name, *Mary*. If this proper name is contained in the ellipsis site, we expect a principle C violation where *she* would bind *Mary* in the ellipsis site. The fact that co-reference is possible follows from a view of ellipsis where the ellipsis site is not an identical syntactic copy of the antecedent.

The elided portion of the right conjunct in (62), then, is construed as not containing a proper name, but a pronoun:

65) She$_1$ can't [marry a student she$_1$ teaches].

In (63), the reflexive in the antecedent differs from that in the ellipsis site in gender, yet the interpretation is essentially that Bill could imagine himself dating Sally. This follows if ellipsis sites are not identical copies of their antecedents.

66) Bill$_1$ could [imagine himself$_1$ dating Sally].

In example (64), a condition B violation should obtain in the elliptical clause, which should block coreference between *George* and the pronoun. Since coreference is possible, the elided pronoun in the VP can be a reflexive:

67) George$_1$ won't [vote for himself$_1$].

Binding condition violations are not ameliorated in DP RNR:

Principle A:

68) *Bill$_1$ loves __, but Sally$_2$ hates, herself$_1$.

Principle C:

69) *She$_1$ can marry __, but I$_2$ can't even date, a student that Mary$_1$ teachers.

Principle B:

70) *Bill$_1$ loves __, but Sally hates him$_1$.

If DP RNR involved ellipsis, there should be two pronouns involved in the structures in (68-70). The pronoun in the ellipsis site should be capable of differing from the RNR target just like VPE ellipsis[6].

[6] Granted, this is not a necessary conclusion to draw. For instance, suppose that VPE differs from DPE in that the interpretation of a VP can differ up to the indices on its arguments from the interpretation of its antecedent because identity is calculated over events. If identity is calculated over the denotata of DP's, on the

Under the MD account, however, the patterns in (68-70) follow. Since there is only one DP involved, it either does or does not satisfy the binding conditions active in either conjunct. In example (68), the gender mismatch between *Bill* in the left conjunct and herself in the right conjunct yields a principle A violation, since feminine agreement on the reflexive requires a feminine binder for the reflexive. In Example (69), a principle C violation obtains where Mary is co-construed with its pronominal subject binder in the left conjunct. In (70), a principle B violation obtains where *him* is bound by the subject in the left conjunct.

Relevantly, VP RNR does ameliorate apparent binding condition violations:

71) She$_1$ can't __ but I can, marry a student that Mary$_1$ teaches.
72) Bill$_1$ can __ but Betsy can't imagine herself$_{1/2}$ dating Sally.
73) Even if George$_1$ won't ~~vote for him~~$_1$, Barbara will vote for him$_1$. (from Hardt 1993)

Examples (71-73) have the same readings as (62-64). This is expected if VP RNR can be generated by backwards VP ellipsis, as the pluralistic account of VP RNR predicts should be possible.

2.4.3 DP RNR and Sloppy Identity readings

In this section, I highlight a puzzle for the exclusivist account of DP RNR. This involves the availability of Sloppy Identity readings (Sloppy ID for short) in both DP RNR and ellipsis. Exclusivist researchers have marshaled this evidence in support of an ellipsis account for DP RNR. What I show in this section, in defending an exclusivist approach to DP RNR constructions, is that sloppy ID is not as readily available in DP RNR as it is in VPE.

Despite this, that sloppy ID should be available at all in DP RNR is problematic for the exclusivist MD account, under the assumption that a single shared pronoun should only be capable of denoting one individual. I do not have a good answer for this problem at the moment, and so will adopt another exclusivist tactic in defending hypothesis (12). Specifically, I take the lack of a complete parallel between DP RNR and VPE as indicative that DP RNR ≠ ellipsis. I also entertain the possibility that the sloppy reading for DP RNR involves accommodation.

Sloppy ID in ellipsis involves cases where an antecedent for the ellipsis site contains a pronoun bound by some element outside of the antecedent. The corresponding pronoun in the ellipsis site can either be interpreted as co-referential with the pronoun in the antecedent or it can be bound within its own clause. The former reading is a strict reading whereas the latter is a sloppy reading:

74) John$_1$ loves his$_1$ mother and Bill$_2$ does ~~love his mother~~ too.

In (74), the right conjunct can be interpreted as stating that Bill loves John's mother (a strict reading) or that Bill loves his own mother (a sloppy reading), but not both.

The same effect is possible in VP RNR;

---

other hand, an elliptical account of DP RNR could account for the impossibility of vehicle change effects in DPE.

75) Bill does __ but John doesn't, love his mother.

Example (75) has the same possible readings as (74). Interestingly, DP RNR allows this:

76) John hates __ but Bill loves, his mother.

This is problematic for an exclusivist MD account for DP RNR, because it would be mysterious if both subjects in either conjunct could bind a single (shared) pronoun. This is normally not possible, as example (77) illustrates:

77) John and Bill hate his mother.

In (77), his mother can only be interpreted as referring to one individual. This could be either John or Bill's mother or it may be someone else's mother.

The availability of a sloppy reading in (76) follows straightforwardly from an elliptical account, however, if there are two pronouns involved in (76):

78) John loves ~~his mother~~ but Bill hates his mother.

In (76), *his* can be bound by *John* in the left conjunct and *Bill* in the right conjunct, accounting straightforwardly for the sloppy reading.

However, the sloppy reading is not always readily available in DP RNR. The most natural examples (those cited in Ha 2008), involve the verbs love and hate. The sloppy reading is more difficult to achieve in the following examples:

79) Bill invited __ and Peter welcomed, his father.
80) Bill sold __ and Jack bought, his favorite book.
81) ?Peter worked on __ and Sally revised, her own homework.

In examples (79-81), a strict reading is more salient. The most natural strict reading involves co-construal between the pronoun in the RNR target and the subject in the left conjunct. VPE involving these predicates, on the other hand, allows for a sloppy reading:

82) $Bill_2$ invited his_2 father, and $Peter_1$ did ~~invite his_1 father~~ too.
83) $Bill_2$ sold his_2 favorite book, and $Jack_1$ did ~~sell his_1 favorite book~~ too.
84) $Peter_2$ worked on his_2 own homework, and $Sally_1$ did ~~work on her_1 own homework~~ too.
85) $Bill_2$ welcomed his_2 father, and $Peter_1$ did ~~welcome his_1 father~~ too.
86) $Jack_2$ bought his_2 favorite book, and $Bill_1$ did ~~buy his_1 favorite book~~ too.
87) $Sally_1$ revised her_1 own homework, and $Peter_2$ did ~~revise her_2 own homework~~ too.

So the generalization seems to be that psychological predicates in DP RNR constructions allow for a sloppy reading, whereas non-psychological predicates are interpreted with a strict reading.

Interestingly, there appears to be an inverse correlation between the availability of the sloppy reading and the availability of an internal reading with relational adjectives, with respect to the nature of the predicate. In (88), the internal reading is harder to arrive at:

88) Bill loves __ and Jack hates, different people.

Example (88) is most naturally interpreted as predicating of Bill, that he loves some plural set of individuals that differs from that plural set consisting of individuals hated by Jack. This is not so for the predicates involved in examples (89-91):

89) Bill invited __ and Peter welcomed, different people.
90) Bill sang __ and Jack listened to, different songs.
91) Peter worked on __ and Sally revised, different papers.

Each of (89-91) has a singular distributive reading where for each event denoted by either conjunct, one person/song/paper is involved.

This data can be marshaled in support of an exclusivist MD account. Unfortunately, I have nothing compelling to say about this conflict at this point. And will have to leave the answer to this puzzle to further research.

That a sloppy reading could be available is not necessarily damning to an exclusivist account of DP RNR. For instance, it is possible that a single pronoun can be bound twice, once in each conjunct; as the interpretation for either conjunct is determined, the pronoun could saturate the meanings of the VP's in each conjunct.

What I have shown in this section is that despite the availability of a sloppy reading in DP RNR, an exclusivist account still has promise. Insofar as the data in this section argues in favor of an exclusivist account for DP RNR, adhering to the hypothesis in (12) is desirable. The behavior of DP RNR constructions with respect to an internal reading for *different*, and the unavailability of double extraction in DP RNR argue in favor of the hypothesis in (12).

2.5 TP RNR

Merchant and Giannakidou (1998) analyze examples such as (92) as backwards *sluicing* (interrogative TP ellipsis). The underlying structure for (92) would then be as in (93) under a backwards sluicing account:

92) I don't know if or when the police will arrest the protestors.
93) I don't know if the police will arrest the protestors or when ~~the police will arrest the protestors~~.

The problem for this analysis lies in the inability of *if* to license sluicing:

94) *I don't know when the police will arrest the protestors, or even if __.

Examples such as (92) could then be analyzed as involving MD of TP. Furthermore, the analysis in Merchant (2001) for sluicing takes advantage of the fact that sluicing usually requires a Wh-phrase remnant in the left periphery of the elided clause:

95) John likes someone, I wonder who ~~John likes __~~.

Merchant (2001) proposes an E(llipsis) feature on C bearing an uninterpretable Wh-feature. When the uninterpretable Wh-feature on C is checked, E instructs PF to not parse the

complement of C (TP). In examples such as (92), there is no Wh-phrase to check such an uninterpretable feature, so sluicing should be ruled out.

The example in (96), on the other hand, should be analyzed as backwards sluicing:

96) I don't know who __, but someone left the refrigerator open last night.

An MD analysis for (96) would take who to be extracted from the TP shared between both conjuncts, however, there is no gap in the right conjunct, suggesting that there is no launching site for the Wh-phrase in the right conjunct. As such, (96) should be analyzed as having the structure in (97):

97) I don't know who$_1$ ~~__$_1$ left the refrigerator open last night~~, but someone left the refrigerator open last night.

In summary, a pluralistic approach to RNR can be extended to TP RNR. To conclude this section, the pluralistic approach seems to fare better than either the MD exclusivist approach or the ellipsis exclusivist approach in accounting for RNR constructions as a descriptive class. To my knowledge the contrast between VP RNR and VPE regarding the availability of the internal reading for *same* and *different* has not been previously discussed in the literature and the approach defended here automatically accounts for this contrast. It is not clear how the exclusivist approaches can handle this data (not to say that such isn't possible).

In the next section, I focus on addressing some aspects of the role of MD representations in syntactic theory, with a mind to showing that the role should be construed as unexceptional. In short, structure building in Minimalism gets us MD for free, as Citko (2005) illustrates. Furthermore, the adoption of MD structures raises the question of whether or not MD should be adopted alongside the copy theory. The position I defend is that this is an empirical question, and as far as I can tell at this time, it may be unanswerable considering that the fundamental assumptions underlying the copy theory can largely be translated into an MD theory, suggesting that these may be merely notational variants.

3.0 S-MD, A-MD and Minimalism

In this section, I discuss a Minimalist approach to structure building capable of generating MD representations in addressing a question alluded to in the intro: "why should we adopt MD over a copy-theoretic approach to representing multiple relations in a parse tree?". The answer stems from the insight in Citko (2005) where MD representations are theoretical possibilities that follow from basic assumptions about Merge. In line with Citko (2005), I assume that MD, as a theoretical possibility, follows from Chomsky (2001)'s formulation of basic structure building operations, external merge and internal merge.

One point of departure between the theory advanced here and that of Citko (2005), involves the claim in Citko (2005) that MD representations are unlinearizable under the influential theory of linearization proposed in Kayne (1995), whereas parse trees containing chains of copies, under the assumption that copy deletion blinds the linearization algorithm to those copies, are linearizable. What I show is that there is no principled reason to make this distinction; insofar as copy-deletion must be adopted to avoid antisymmetry violations in the output under the copy theory, it is perfectly reasonable to adopt a similar mechanism

for MD representations. The mechanism to be adopted is that proposed in Vicente (2009) dubbed "branch deletion".

3.1 ATBM, MD, Copies, and Structure Building in Citko (2005)

Citko (2005) proposes that S-MD structures are a natural consequence of Chomsky (2001)'s view of structure building. In the minimalist framework, phrase markers are built incrementally from the bottom up through applications of merge. Chomsky (2001) distinguishes between two types of merge; external merge, and internal merge. External merge takes two distinct rooted structures and joins them to form one:

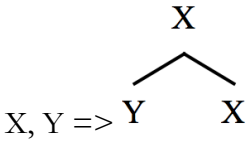

Figure 6

With internal merge, one of the elements involved is a subpart of some existing structure, and yields the effects of syntactic movement. Internal merge can apply to the output of figure 6, for instance, with Y, contained in X, targeting X, with X projecting:

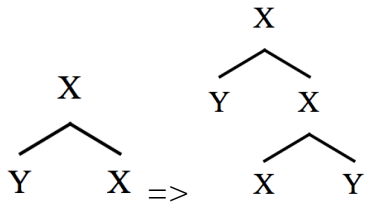

Figure 7

As Citko (2005) notes, the existence of both internal and external merge allows for the possibility of what she calls parallel merge. Parallel merge is like external merge in that it involves two distinct rooted structures (X and Z below), but like internal merge in that it involves a subpart of one of these structures:

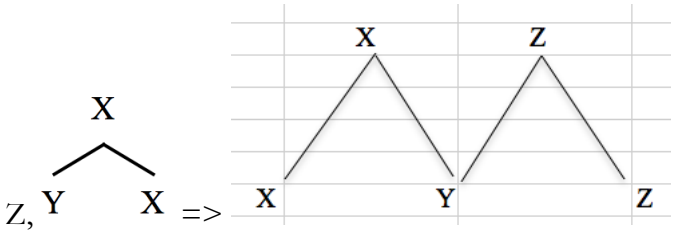

Figure 8

Parallel merge in Figure 8 merges Z and Y, which is contained in X, with Z projecting. The output of parallel merge is an S-MD structure. As Citko (2005) notes, S-MD structures are unlinearizable under Kayne's (1995) proposal for linearization. I refrain from presenting the

theory of linearization proposed in Kayne (1995) in full detail here, and instead assume the following simplified version, as it is sufficient for our purposes:

LCA: ('>' is read as "precedes")

1. Specifiers > heads > complements.

2. If X dominates Y, and Z dominates W, and X > Z, then Y > W.

3. The output of the algorithm must yield a total, antisymmetric and transitive order between the terminals.

If we complete an abbreviated derivation for the structure in figure 8 as in figure 9, and subject it to Kayne's LCA for linearization, the output fails to satisfy anti-symmetry. Consider Figure 9 below and the following ordering table generated by the LCA:

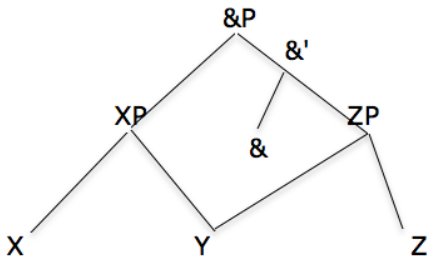

Figure 9

Figure 9: Assume Y is the complement of X and Z, ZP is the complement of &P and XP is the specifier of &P.

100) X>Y Y>& &>Y Z>Y
X>& Y>Z &>Z
X>Z

In the ordering table in (100), Y>Z and Z>Y, Y>& and &>Y, failing the antisymmetry requirement. Citko (2005) proposes that movement can fix this problem by placing the shared element into a position where it can be linearized.

For instance, internal merge could place Y in figure 9 in a position where it asymmetrically c-commands all the terminals, as in Figure 10:

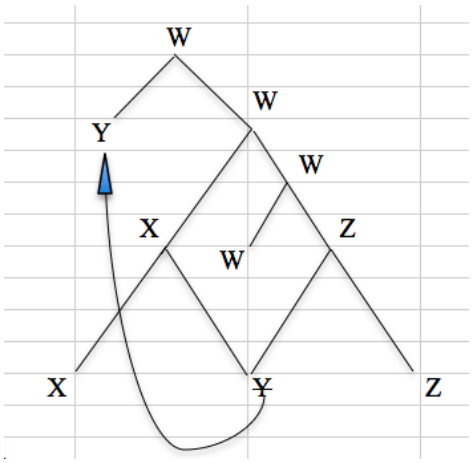

Figure 10

Copy deletion, applying to the lower instance of Y in Figure 10, blinds the linearization algorithm to the lower copy, preventing the generation of any ordering statements that violate antisymmetry.

Citko extends this logic to cases of ATBM. ATBM constructions are, in many ways, the Wh-movement counterpart of RNR constructions:

101) What did Jack eat __ and Sally drink __?

In (101), an ATBM construction, we have two gaps, and only one Wh-phrase. This is problematic for two reasons; first, we have *two* launching sites for *one* Wh-word; second, we have an apparent violation of the Bijection Principle.

Example (101) appears to violate the bijection principle under the copy theory of movement. The bijection principle (BP for short), is a constraint proposed to account for Weak Crossover Effects in Chomsky (1982), Koopman and Sportiche (1982), and Reimsdijk and Williams (1986). The BP essentially constrains operators from binding more than one variable. In (102), a Weak Crossover violation, the Wh-phrase binds both the possessive contained in the subject, and the trace of the Wh-phrase in its base position:

102) *Who$_1$ does his$_1$ mother love ~~who~~$_1$.

In the structure in (101, 103), the same state of affairs arguably holds:

103) What$_1$ did Jack eat ~~what~~$_1$ and Sally drink ~~what~~$_1$?
104)

Under Citko (2005)'s MD account of ATBM, however, the landing site for *what* corresponds to only one launching site, since it is the shared object of both eat and drink:

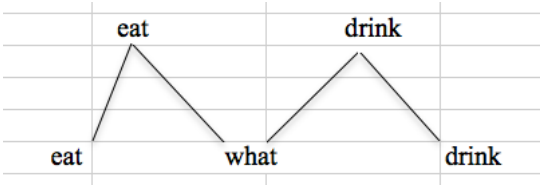

Figure 11

Thus, if the structure underlying examples like (103) involve only one launching site, another consequence (besides linearizability) of Citko's approach is that the BP is obeyed in ATBM constructions since the (single) WH-phrase only binds one position in the structure.

Citko (2005) adopts the copy-delete theory of movement, so movement prevents symmetry in the linear output since deletion ensures that there is only one copy to be spelled out, but she also adopts MD representations (a hybrid approach). One consequence of the analysis in Citko (2005) is that an MD analysis for RNR must involve ATBM to avoid the linearization problem posed by S-MD structures. However, I believe this is a hasty conclusion to draw. Specifically, it is not clear that the analysis in Citko (2005) succeeds in motivating a clear distinction between the linearizability of S-MD structures vs. those involving movement chains.

Since, in figure 11, there is only one copy to be deleted, copy deletion cannot save the problem for linearization and so movement must apply creating multiple copies. However, the logic motivating the adoption of MD outputs to parallel merge can be reversed, so that parallel merge is also capable of generating copies in Citko's theory. As Citko (2005) highlights, parallel merge and internal merge are similar in that they target a non-root object. In internal merge, a copy of this object is merged into a more prominent position in the structure (and the lower copy deleted). Figure 7 is repeated below:

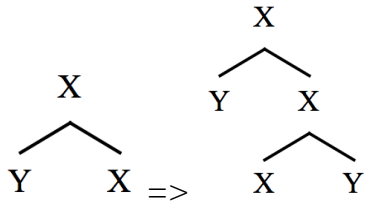

Figure 7: Copy-generating internal merge

Parallel merge should also be capable of copying the targeted non-root object:

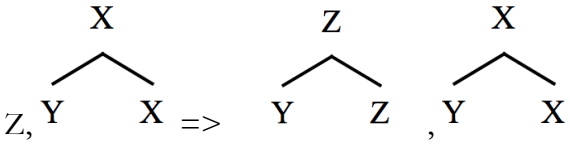

Figure 12: Copy generating parallel merge

In Figure 12, Parallel merge has targeted Y contained in X and merged a copy of Y with a distinct rooted object, Z. By the same token, internal merge should be capable of generating MD representations instead of merging a copy:

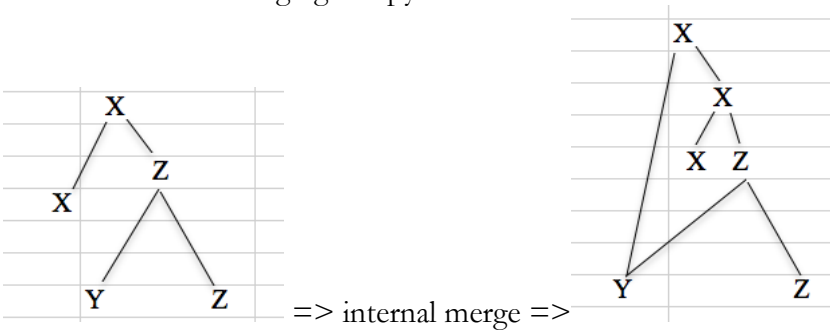

Figure 13: A-MD generating internal merge

In the output for figure 13, antisymmetry is violated since Y both precedes and follows X (since it is both the specifier of X and contained in X's complement). In a hybrid approach such as Citko (2005)'s, it seems like what we have to say is that A-MD configurations such as that in figure 13 are never generated, whereas S-MD structures are, so long as they can be saved by (copy-generating) internal merge. I find this rather stipulative, though the hybrid system does raise many interesting empirical and theoretical possibilities and questions. We might, for instance, construe the existence of A-MD configurations as an indication that Merge, as formulated, is too powerful.

The overall effect of Citko's construal of Merge is to produce the system just outlined, where both copy-generating internal and parallel merge, and MD-generating internal and parallel merge exist side by side, rendering her discussion of the relevance of this state of affairs to Kayne's theory of linearization superfluous, since copy deletion, instead of raising, can fix parallel merge outputs.

The view I adopt here is that both copy-generating and MD-generating merge operations are notational variants, and furthermore, that MD representations more accurately represent the syntactic facts. The problem for MD configurations, as pointed out in Citko (2005), is that they necessarily yield symmetry, and furthermore, copy deletion cannot save things since there is only one instance of the object to be deleted. This challenge for MD theory can be met by the adoption of a mechanism introduced in Vicente (2009) dubbed "branch deletion"; essentially the MD-theoretic equivalent of copy-deletion.

Branch deletion in Figure 13 would blind the linearization algorithm to the asymmetric c-command relation generating an X>Y order by deleting the branch expressing the dominance relation between Z and Y, so that the linearization algorithm only sees Y in its spec, X position:

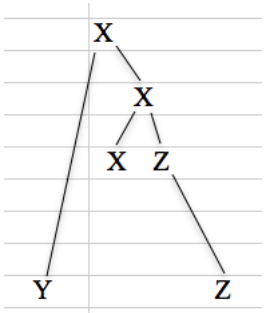

Figure 14: Output of Branch deletion in Figure 13

To summarize, in line with Citko (2005), MD structures are a theoretical possibility that follows straightforwardly from standard assumptions about structure building in minimalism. Adopting Vicente (2009)'s Branch Deletion (henceforth BD) allows us to translate copy deletion into a theory without copies and Citko (2005)'s analysis for ATBM. One result of this is that we can also adhere to a restrictive theory of linearization, which can take the output of BD and generate a total, antisymmetric, and transitive order.

Just as chains are linearizable in a copy-delete framework, multiply dominated XP's are linearizable in an MD framework; there is no conceptual reason to make a distinction on grounds of linearizability, then, between the copy theory and MD theory. One consequence for S-MD structures is that movement need not apply to save would-be antisymmetry violations, as BD can apply with the same effect. With respect to the discussion on RNR constructions in section 2, we can unproblematically adhere to the growing consensus in the

literature regarding the role of movement in RNR constructions (i.e. RNR does not involve movement).

In the next section, I formulate, more explicitly, how Branch Deletion works in S-MD structures. Specifically, one question raised by the discussion above involves how we can prevent the target in an RNR construction like that in (104) from being linearized in the left conjunct, such as in (105), lending the appearance of forward DP deletion:

104) Jack loves __ and Peter hates, his mother.
105) *Jack loves his mother and Peter hates __.

The output in (105) would result from branch deletion applying to the branch expressing the dominance relation between *his mother* and V' in the right conjunct in figure 15 below[7] (here and henceforth, I represent deleted branches with dotted lines):

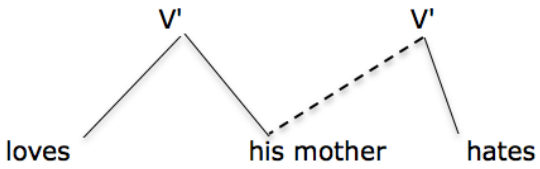

Figure 15

3.2 Branch Deletion and Order Preservation (Fox and Pesetsky 2004)

Given that unconstrained Branch Deletion could generate the output in (105), an important issue to address is how BD should be formulated to prevent this sort of output. The solution to this puzzle I propose here assumes the theory of linearization and successive cyclicity proposed in Fox and Pesetsky (2004) (henceforth F&P). What I show, under specific assumptions about the timing of Spell-out in coordinate structures is that deleting the right branch in figure 15 is unmotivated since it fails to fix an antisymmetry violation in F&P's *ordering table*.

In short, previously established ordering statements persist throughout the derivation in the ordering table, and cannot be contradicted by any new ordering statements added at later applications of Spell-out; precisely such a contradiction arises in S-MD configurations when the right-hand branch is deleted in figure 15, but not when the left branch is. The discussion in this section also addresses the compatibility of A-MD structures under BD with F&P's theory.

3.2.1 F&P and Order Preservation

In Fox and Pesetsky (2004) (henceforth F&P), Phases are sub-parts of syntactic structures that get "shipped off" to PF for Spell-out in the course of structure building. At Spell-out, a linear ordering statement for the elements in the phase (the Spell-out domain) is added to an ordering table, which grows monotonically throughout the course of the derivation as larger

[7] Note that the same problem arises under a copy-theoretic approach involving parallel merge, as the right-most copy could be deleted yielding the same output.

and larger phases are spelled out. Crucially, as each phase is spelled out, any ordering statements introduced in the later Spell-out domains must respect previously established ordering statements; F&P refer to this constraint on derivations as "Order Preservation" (or OP for short).

As F&P note, OP derives successive cyclic movement. Assuming English phrases are ordered such that specifiers precede the head/complement projection and that heads precede complements, the following derivation illustrates that a Wh-phrase must move, successive cyclically in non-string vacuous movements:

106) $[_{CP}$ John $[_{vP}$ bit what]].

Suppose that vP and CP are Spell-out domains. If structure building is from the bottom-up, vP is constructed and shipped to the PF interface (Spelled out) before CP is constructed. Under F&P's assumptions, at Spell-out of vP, *bit* is ordered before *what*, adding the following statement to the ordering table:

107) bit>what

Suppose vP is spelled out and this ordering statement is in the ordering table. The rest of the structure is merged, and an uninterpretable Wh-feature on C drives Wh-movement of the Wh-phrase into Spec, C:

108) $[_{CP}$ what $[_{C'}$ [John $[_{vP}$ bit ~~what~~]]]]

At Spell-out of CP, *what* is linearized before *John* and *bit*, yielding symmetry, under the assumption that ordering preservation ensures that the previously established *bit>what* ordering persists:

109) What > John
What > bit

If *what* moves to the left edge of vP before Spell-out of vP, on the other hand, the ordering generated at that point is:

110) what>bit

Ordering *what* before *bit* in the higher Spell-out domain would therefore respect order preservation and fail to yield a contradictory ordering statement (antisymmetry is satisfied).
In the next section, I show how order preservation gets us the inability of BD to apply to the structure in figure 15 with (105) as output (only 104 is possible).

3.2.2 F&P and S-MD

In line with Sabbagh (2007) and Johnson (2007), I adopt the assumptions that 1. Coordinate structures and their conjuncts are islands and 2. Islands are phases (Spell-out domains).

The final structure for a sentence such as that in (104) (repeated below), would be as in Figure 16:

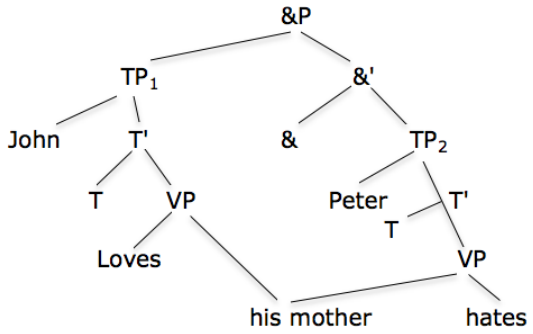

Figure 16: John loves __ and Peter hates his mother

Each coordinated TP in Figure 16 is a Spell-out domain. So when each conjunct has been constructed, it is Spelled-out and a set of ordering statements are added to the ordering table. At this point in the derivation, before the coordinator has been added to the structure, we have the structure in Figure 17:

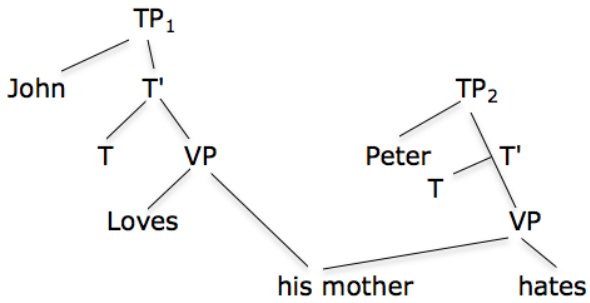

Figure 17

The ordering statements that are added to the table at this point, for the structure in 17 are:

111)

John>loves	loves>his mother	Peter>hates	hates>his mother
John>his mother		Peter> his mother	

Once the conjuncts are coordinated, the coordinate structure is Spelled-out. Here we run into trouble, since the MD configuration yields symmetry in the ordering statements. This is because *his mother* is linearized both in the right and left conjuncts, so it both precedes and follows the coordinator and every element in the right conjunct. The ordering table for Figure 16 is in (112):

112) (all contradictory statements underlined)

John>loves	loves>his mother	his mother>&	&>Peter
John>his mother	loves>&	his mother>Peter	&>hates
John>&	loves>Peter	his mother>hates	&>his mother
John>Peter	loves>hates		
John>hates			
Peter>hates	hates>his mother		
Peter>his mother			

Suppose, however, that BD can apply before a linearization is determined for the final structure. At this stage, then, the only statements in the ordering table are those in (111). Assume BD targets the association line linking *his mother* to the right conjunct yielding the output in figure 18:

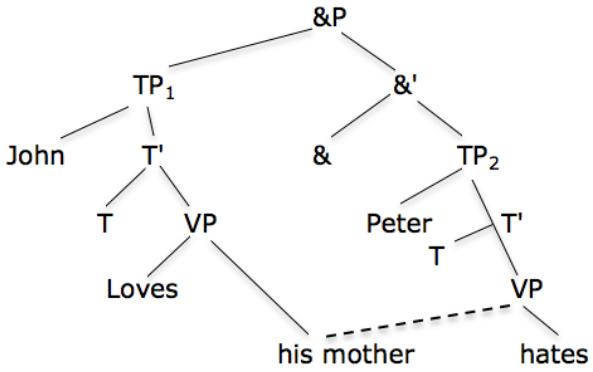

Figure 18: *John loves his mother and Peter hates __.

In Figure 18, the output of BD is what is linearized. Just as before, TP_1 is linearized before TP_2 and the following statements are added to the ordering table in (111):

113)

John>loves	loves>his mother	his mother>&	&>Peter
John>his mother	loves>&	his mother>Peter	&>hates
John>&	loves>Peter	his mother>hates	
John>Peter	loves>hates		
John>hates		Peter>hates	

As expected, there are no contradictory ordering statements generated in linearizing the structure in figure 18. However, some of the ordering statements in (111) contradict the ordering statements in (113):

114)

113:

John>loves	loves>his mother	his mother>&	&>Peter
John>his mother	loves>&	<u>his mother>Peter</u>	&>hates
John>&	loves>Peter	<u>his mother>hates</u>	
John>Peter	loves>hates		
John>hates		Peter>hates	

111:

John>loves	loves>his mother	Peter>hates	<u>hates>his mother</u>
John>his mother		<u>Peter> his mother</u>	

The underlined statements in (114) illustrate that BD fails to prevent antisymmetry in figure 18. This correctly rules out examples such as (105) since it is only conceivable to achieve the order in (105) (with *his mother* being linearized in the left conjunct), by ignoring certain of the contradictory ordering statements in the ordering table (such as *hates*>*his mother*); this violates Order Preservation in F&P's theory.

Deleting the branch linking *his mother* to the non-final conjunct, however, satisfies order preservation. Consider the output of BD below in Figure 19:

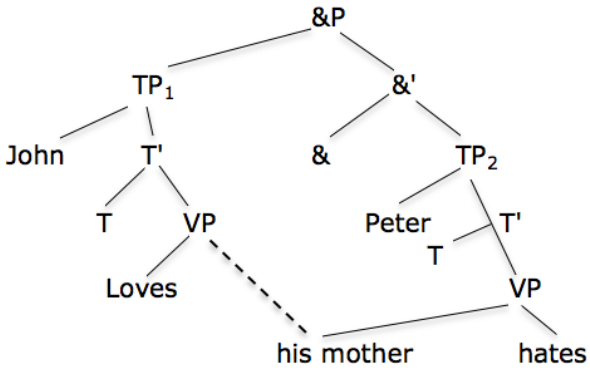

Figure 19

This yields the following ordering statements to be added to the ordering table in (111):

115)

John>loves	loves>his mother	&>Peter	Peter>hates
John>his mother	loves>&	&>hates	Peter>his mother
John>&	loves>Peter	&>his mother	
John>Peter	loves>hates		hates>his mother
John>hates			

As expected, no ordering contradictions arise. Crucially, even after the ordering statements in (111) are considered, there are still no contradictions. This follows since in (111), *his mother* follows everything in both conjuncts, just as it does in Figure 19:

116)

115:

John>loves	loves>his mother	&>Peter	Peter>hates
John>his mother	loves>&	&>hates	Peter>his mother
John>&	loves>Peter	&>his mother	
John>Peter	loves>hates		hates>his mother
John>hates			

111:

John>loves	loves>his mother	Peter>hates	hates>his mother
John>his mother		Peter> his mother	

To conclude this section, the theory of linearization proposed in F&P in tandem with the assumptions about the phasehood of conjuncts and coordinate structures together derive the unacceptability of examples like (105) (the appearance of forward DP deletion). The same arguments can be extended straightforwardly to VP RNR and TP RNR.

3.2.3 F&P and A-MD

F&P's theory of phases and linearization is also compatible with A-MD configurations. I briefly sketch this here. Consider the case of Wh-movement to the edge of VP yielding the A-MD structure in Figure 20 below:

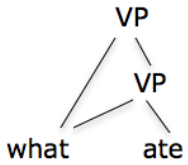

Figure 20 e.g. under the copy theory: Bill [$_{VP}$ **what** [$_{VP}$ ate **what**]]

Assuming VP is a Spell out domain, and *what* is both the specifier and complement of *ate* after displacement, linearizing the structure in figure 20 would place *what* before *ate* and after it, violating antisymmetry. Suppose before Spell-out BD applies, deleting the dominance relation between the lower projection of VP and *what* so that the linearization algorithm sees *what* only in the Spec, VP relation. Then *what* is ordered before *ate* unproblematically:

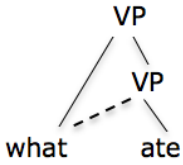

Figure 21: What>ate

In the next highest Spell-out domain, *what* will still be ordered before *ate*, so no problem arises there, but when *what* merges into Spec CP, it will be multidominated, and presumably ordered both before and after the clausal subject and any adverbs intervening between Spec,

CP and Spec, VP. BD must apply before linearization in the higher Spell-out domain as well, deleting, once again, the lower association line yielding figure 22:

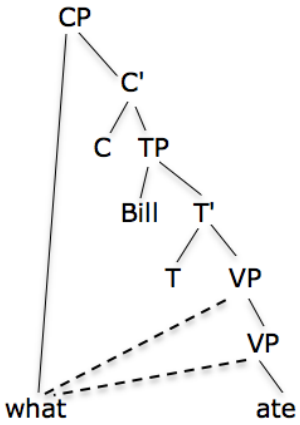

Figure 22: (I don't know…) What Bill ate.

I do not have an answer as to why it is always the lowest dominance relation that is targeted by BD in A-MD configurations. The same question is relevant in the copy theory. There are several possibilities, and weighing between them is not germane to the main topic of discussion in this paper. Once you have this much established – Fox and Pesetsky's theory is fully compatible with BD since information from the ordering table is never deleted.

BD is basically equivalent to other approaches in the literature at arriving at a linearization algorithm that can handle MD structures. These approaches all have the property of encoding some mechanism in the algorithm that allows it to ignore the offending MD configuration.

For instance, the linearization algorithm proposed in Johnson (2007) is allowed to generate antisymmetric statements, but a principle of *tolerance* allows certain of those statements to be ignored in the output. In Wilder (1999), Kayne (1994)'s LCA is modified to make reference to a notion of "full dominance" with essentially the same result. Frampton (2004)'s approach is similar to these approaches, though it is intended primarily to deal with A-MD configurations. Under Frampton's approach, contradictory ordering statements involving lower copies in A-MD configurations are simply omitted.

BD differs from these approaches in allowing the linearization algorithm to remain untroubled by symmetry-generating MD configurations, which also allows us to adhere to a theory of linearization that does not have to countenance MD configurations (allowing us, in turn, to avoid introducing concepts such as "full dominance" into the theory). Arguably, linearization of syntactic structures happens at PF; that syntax should be capable of generating configurations that are untranslatable into a linear string is expected under the assumption that PF and syntax are autonomous modules. BD essentially makes communication between the modules possible, though some information about the underlying syntactic structure is lost in translation.

3.3 Interim summary

In section 3 I provided answers to the two questions raised in the intro: "why should we adopt MD over a copy-theoretic approach to representing multiple relations in a parse tree?" and "how are MD structures to be linearized?". The answer to the first question was that essentially, the Minimalist theory of structure building in Chomsky 2001 gives us MD representations automatically, in line with Citko (2005). With respect to the second question, I illustrated in sections 3.2 and 3.3 that MD representations, with the adoption of BD, pose no problems for linearization theories.

In the following section, I revisit the debate surrounding MD analyses for RNR constructions vs. ellipsis analyses. I postponed section 4.0 until after the discussion on linearization because the theory of linearization for MD structures discussed above plays a crucial part in resolving the issue discussed in the next section. Specifically, in the next section I highlight an empirical problem for an exclusivist MD approach for RNR; I illustrate that morphological mismatches are allowed in DP RNR. Therefore, the exclusivist approach to DP RNR runs into trouble, since morphological mismatches have been argued to be a defining property of ellipsis. In defending the hypothesis in (12), I extend the theory of BD discussed in the previous section to account for the problematic data.

4.0 Morphological mismatches in DP RNR

Unlike verbs and their selecting heads in English, DP's do not agree with their selecting verbs. Nonetheless, certain relations between object DP's and other elements in their containing clause can have consequences for morphology on the DP. Negative Polarity Items (NPI's) constitute such an instance.

In the following examples we can see that NPI's are only licensed under the scope of negation:

117) *Mary bought any books.
118) Mary bought some books.
119) *She said she wasn't going to buy any books and buy <u>any books</u>, she didn't.
120) She said she was going to buy some books and buy <u>some books</u>, she did.
121) *Anyone hasn't arrived yet.

We can therefore conceive of an RNR construction where an NPI is under the scope of negation in one conjunct but not the other. Morphological mismatch would then take the form of the licensing of an NPI despite the NPI not being under the scope of negation in one of the conjuncts. Ha (2008) shows that this is indeed possible, taking this as evidence in favor of an exclusivist ellipsis analysis for RNR:

122) Jack has seen __, but he has not bought, <u>any of the latest Harry Potter books.</u>
123) Steve has not bought __, but he has seen, <u>some of the latest Harry Potter books</u>.

Thus, with respect to morphological mismatches, the exclusivist MD approach runs into a problem with this data.

Under an ellipsis analysis, a positive polarity item (PPI) may unproblematically underlie the gap position in the initial conjunct in (122), as may an NPI, in (123):

123) Jack has seen ~~some books of the latest Harry Potter books~~, but he has not bought, any of the latest Harry Potter books.
124) Steve has not bought ~~any books of the latest Harry Potter books~~, but he has seen, some of the latest Harry Potter books.

The same mismatch is possible under VPE:

125) Jack hasn't seen any of the latest Harry Potter books, but Steve has.
126) Steve has seen some of the latest Harry Potter books, but Jack hasn't.

Under an MD analysis, however, the targets in (122,123) are under the scope of both negative and positive polarity in both conjuncts. As such, we expect (122, 123) to be as unacceptable as (124) with an NPI under the scope over positive polarity and (125) with a PPI under the scope of negative polarity (note: 125 is acceptable under a wide scope reading for the indefinite – in which case it does not constitute a PPI, cf. Szabocsi 2002):

124) *Jack has seen any of the latest Harry Potter books.
125) Steve has not bought some of the latest Harry Potter books.

The problem with assuming that *some of the latest Harry Potter* books is an object in the left conjunct in (123) stems from an implicature that arises when *some* is chosen over *any* under the scope of negation. In (125), there is a reading where Steve has bought some subset of the latest Harry Potter books, but not all (a partitive reading).

The data in (123) is not fatally problematic since the reading where Steve did buy some books is arguably arrived at pragmatically. A cooperative listener will assume that the speaker of (123) is being maximally informative. The choice of *some* under the scope of negation in (123) yields an implicature where the indefinite scopes over negation. Crucially, this is calculated over the output string, when the choice of NPI vs. *some* is manifest.

Assume, for the moment, that an MD representation is correct for RNR examples such as (122, 123) and that the problem posed by (125) can be circumvented. If this much can be achieved, the fact that there is no NPI in the left conjunct in (123) would then have the consequence of avoiding the implicature in (70), licensing a reading for the left conjunct where Steve did not buy any of the latest Harry Potter books. The partitive reading in (125) is only an implicature, since it can be cancelled:

126) Steve has not bought some of the latest Harry Potter books, in fact, he has not bought any of them.

The datum in (124), however, is more problematic. It too can be circumvented by an exclusivist account. Kluck (2007), defends an exclusivist MD account for DP RNR and cites the data in Ha (2008) in (123,124) as a potential problem for such an approach. As a solution, Kluck (2007) appeals to the theory of Distributed Morphology (introduced by Morris Halle and Alec Marantz in 1994). In Distributed Morphology (DM), the Y model is extended to include post-syntactic morphological operations in the PF branch. In (127), below, I illustrate the section of the model in DM capable of handling the facts surrounding NPI mismatches in DP RNR:

127) Syntactic operations (Merge, Move, Copy) => Morphological Operations => Vocabulary insertion.

It has been observed that movement destroys the environment for NPI licensing. In examples (119-121), repeated below, the DP containing the NPI has been moved into a position outside the scope of negation, yielding unacceptability:

119) *She said she wasn't going to buy any books and buy <u>any books</u>, she didn't.
120) She said she was going to buy some books and buy <u>some books</u>, she did.
121) *Anyone hasn't arrived yet.

The generalization regarding NPI licensing therefore seems to be that NPI's are licensed under the surface scope of negation.[8]

In DM, we can say that, at the stage of Morphological Operations, an indefinite can be marked for NPI insertion only if, at that point, it is under the scope of negation. So if the output of syntax places an indefinite DP outside of the scope of negation, that DP will not be marked for NPI insertion.

Of course, in MD representations, the shared indefinite is under the scope of negation in at least one conjunct. This could be taken as sufficient to license the NPI at the stage of morphological operations. More must be said, however, given the unacceptability of (122):

122) *John didn't __ but Sally did, <u>buy any books</u>.

Example (122) allows us to make the following generalization:

123) When the RNR target contains an NPI, it must be under the scope of negation in the final conjunct.

The challenge for MD theory is to provide an account where the polarity of the left conjunct does not factor into NPI licensing at the stage of Morphological Operations. Appealing to BD as developed in the previous section can do this. Consider the structure in Figure 23:

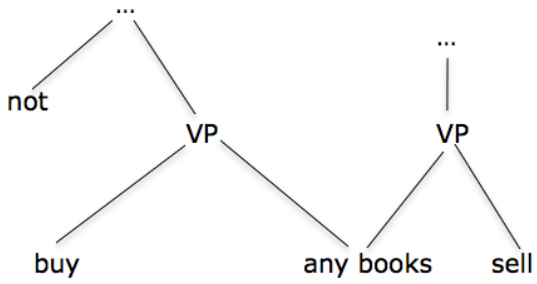

Figure 23

[8] The facts surrounding NPI licensing are more complicated than this, but this is sufficient for our purposes here (see especially Ladusaw 1980).

In Figure 23, any books is under the scope of negation in the left conjunct, but not in the right. If the left conjunct negation is sufficient to license an NPI, we predict (122) to be acceptable. This prediction is not borne out.

Suppose, however, that BD applies before Morphological Operations; the branch linking any books is deleted and the DP is only under the (surface) scope of positive polarity in the right conjunct. As such, NPI licensing in (123) is correctly ruled out. In Figure 24, we see the output of BD for the structure in Figure 23:

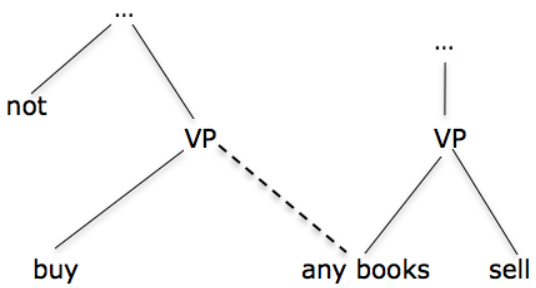

Figure 24

If BD happens after Spell-Out, the association line is still visible to the interpretive component. Therefore, the result of BD should only affect operations in the PF branch. Alternatively, BD could also be seen as a decision to ignore certain association lines, made at the stage of Morphological Operations (I take these options to be notational variants).

Many issues could be raised with the account for NPI licensing under RNR defended here. For instance, NPI's do not always require negation to be licensed; they are also licensed in the antecedent of a conditional, under the scope of affective operators, or any downward entailing context (cf. Ladusaw 1980, Linebarger 1987, Progovac 1993, Higginbotham 1993 inter multi alia). The crucial position to be defended regarding the analysis in this section is that there is a correlation between the semantic contexts in which NPI's are licensed and the syntactic contexts in which they are found and furthermore that NPI insertion at the stage of Morphological Operations is sensitive to the syntactic context in which the polarity item is found.

In this section, this was implemented by making reference to the surface scope of negation and the position of the NPI. This could be implemented alternatively, for instance, by assuming that downward entailing contexts always involve a null operator that must scope over the NPI (such as in Progovac 1993). If this much can be successfully adhered to, then the account here should be capable of handling the facts. I leave this as a project for future research.

In this section, I have shown that the exclusivist MD approach can handle morphological mismatches in DP RNR. The manner in which this can be done, specifically by adopting the theory of BD proposed here, along with some formulation of a DM style model (as argued for in Kluck 2007, 2009), is independently motivated by the observation that NPI licensing is sensitive to surface scope.

5.0 Conclusion

In this paper I addressed the conflict between the ellipsis analysis and MD analyses in the literature with respect to RNR constructions. Breaking away from the traditional exclusivist

approach for RNR was shown to be an advantageous move given the contradictory nature of the data involved. In section 2, I showed that a pluralistic hypothesis does better than an exclusivist hypothesis in accounting for RNR constructions. The strongest support for the pluralist approach comes from cases of VP RNR where the availability of a sentence internal reading for relational adjectives in the RNR target depends on morphological matching. When there are morphological mismatches, the internal reading is unavailable, and VP RNR behaves like forward VPE in this respect. This is exactly as expected if both MD and ellipsis are plausible sources for VP RNR. Conceptually, this is a good result since we are not faced with having to complicate our assumptions about MD or ellipsis in adopting a hybrid approach.

In section 3 I provided answers to the two questions raised in the intro: "why should we adopt MD over a copy-theoretic approach to representing multiple relations in a parse tree?" and "how are MD structures to be linearized?". The answer to the first question was that essentially, the Minimalist theory of structure building in Chomsky 2001 gives us MD representations automatically, in line with Citko (2005). Furthermore, the first question presupposes that the copy-theory and MD theory are somehow fundamentally different, a position I am currently unconvinced of, in light of the above discussion in section 3.1 regarding the insights in Citko (2005) with respect to linearization.

With respect to the conflict between the ellipsis analysis and the MD analysis, it worth mentioning that if it becomes necessary to jettison MD representations in favor of copy-theoretic representations, the fundamental insights of an MD approach to RNR constructions would still hold, insofar as the relationship between two copies of a given syntactic object differs from the relation between an ellipsis site and its antecedent. In such a scenario, for instance, parallel merge in RNR constructions would be copy-generating as opposed to MD-generating.

With respect to the second question, I illustrated in sections 3.2 and 3.3 that MD representations, with the adoption of BD, pose no problems for linearization theories. The same puzzles that exist for theories of linearization couched in copy-theoretic terms (e.g. which copy gets deleted in a movement chain) translate straightforwardly into an MD approach.

I include a short note here about crosslinguistic variation regarding RNR constructions. The main point I would like to make is that the claims regarding the proper analysis of RNR in section two are intended to address RNR constructions in English. The pluralistic approach was motivated at every point by taking into consideration theoretical mechanisms and empirically attested phenomena that are widely assumed to hold for English. An effort was made at every point to avoid modifying fundamental assumptions about what a theory of MD should look like and what extant theories of ellipsis do look like. This is behind the motivation for avoiding positing a pluralistic approach to DP RNR cases, which are argued, here, to not involve backwards ellipsis.

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