# **Multidominance and locality**

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**Abstract.** Merger of a phrase for the second time (i.e. remerge) leads to structure sharing, which can be represented by a multidominance graph. Depending on the configuration, this corresponds to what is traditionally considered either regular movement or sideward sharing. These two types of remerge exhibit somewhat different properties. Basic Minimalist principles predict that locality constraints can be circumvented by the second type, yielding apparently nonlocal dependencies. Such effects are indeed attested in right node raising, insubordination, and amalgamated sentences. The fact that the first type cannot circumvent locality constraints is shown to explain why apparent nonlocal dependencies are absent in across-the-board movement and parasitic gap constructions.

**Keywords:** multidominance, locality, (re)merge, amalgams, right node raising, across-the-board movement, insubordination, parasitic gaps, structure sharing

### **1. Introduction**

Syntactic heads or phrases can often be related to more than one sentence position.<sup>\*</sup> Such structural dependencies are normally constrained by locality principles. A standard example involving displacement concerns *wh*-movement. In (1a), the direct object *what* surfaces in the left periphery, but it is also the complement of the verb *buy*. The underscore indicates the gap. In (1b), *what* is moved from a particular embedded position, and this is infelicitous:

a. *What* did the man buy \_?
b. \* *What* did Ann see the man that bought \_?

As is in fact well-known, a noun phrase containing a relative clause constitutes a syntactic domain whose boundary normally cannot be crossed.

Interestingly, there appear to be construction types that allow for nonlocal dependencies. The so-called right node raising construction (RNR), also known as backward conjunction reduction, is illustrated in (2). This example, like (1), involves an object gap.

- (2) a. Anne loves \_ and Jules hates, *this man*.
  - b. Anne knows someone that loves \_ and Jules knows someone that hates, *this man*.

In (2b), the gap is embedded in a relative clause – still, the sentence is fine. This is remarkable, also because similar sentences involving leftward across-the-board movement (ATB) are completely unacceptable, witness (3b). This situation corresponds to (1b). The example in (3a) shows that ATB is fine if the configuration is local, as in (1a) and (2a).

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- (3) a. *Who* does Anne love \_ and Jules hate \_?
  - b. *\*Who* does Anne know someone that loves \_ and Jules know someone that hates \_?

It seems highly unlikely that locality principles would be relativized to directionality or construction type, especially if the same kind of A-bar licensing were involved. Therefore, RNR probably does not comprise movement – to be precise, rightward ATB.

A potential alternative analysis for (2) postulates ellipsis instead of movement. However, this turns out to be problematic as well. While ellipsis may involve a phonological process of deletion (or simply not spelling out the words), it generally does contain a syntactic component in the sense that argument structure, potential proforms, and (in various cases) structural distance are relevant. In (2), for instance, the gap corresponds to just a direct object. By contrast, in forward deletion constructions it is never possible to elide an argument without its selecting head:

(4) \* Anne loves *this man*, and Jules hates \_.

From this alone, one might conclude that RNR is not ellipsis (cf. De Vries 2005, Barros & Vicente 2009, among others). Again, if grammatical principles are to be independent of directionality, another solution needs to be found.<sup>1</sup> For this and other reasons, it seems worthwhile to explore a third type of approach, which involves *structure sharing*.

This article is concerned particularly with the potential nonlocal character of RNR as well as various other construction types. I argue that locality constraints can be circumvented by means of sideward structure sharing/multidominance, yielding apparently nonlocal dependencies. Starting out from basic Minimalist principles, **section 2** shows that the operation of Merge allows for the generation of structures involving multidominance, presupposing that it is possible to merge an item more than once (remerge). Depending on the input, the resulting configuration can be one out of two types. The first type corresponds to regular movement (internal remerge), which is necessarily sensitive to locality. The second type (external remerge) corresponds to sideward sharing. This enables the grammar to generate structures that that circumvent island boundaries, resulting in sentences that apparently involve nonlocal dependencies. Locality conditions are never actually violated, though. I argue that these possibilities follow from core syntax, without any additional assumptions. The theory thus answers the following questions on an abstract level:

- Q1: What is the connection between Merge and locality?
- Q2: How can apparently nonlocal behavior be explained?

It will also become clear why the remerge analysis does not always lead to nonlocality effects. For instances of traditional movement, it would clearly be incorrect if island boundaries can be circumvented. The third question is therefore also important:

<sup>&</sup>lt;sup>1</sup> RNR is more liberal, but generally, backward ellipsis is also more constrained than forward ellipsis (e.g., Langacker's (1969) Backward Anaphora Constraint). This is suspicious, and it should not come as a surprise that in fact many cases have been reanalysed as involving RNR in terms of multidominance (see below), or resulting from leftward movement of a larger constituent containing a forward-elided part.

Q3: How can it be made sure that the analysis of nonlocal dependencies (Q2) does not overgeneralize?

The answers to Q1-3 lead to a more concrete prediction, already alluded to above:

P: Construction types whose derivation involves external remerge (resulting in sharing of the sideward type) potentially yield apparently nonlocal behavior.

We can then start looking specifically for sentence types that have been claimed – or might be claimed – to involve sideward sharing, and test for potential nonlocality effects. Needless to say, this is no trivial issue, since many interfering factors may play a role.

Section 3 turns to natural language data from Dutch and English. First, the standard right node raising construction is briefly discussed from the present theoretical perspective. Next, three other candidates for sideward sharing are introduced: so-called 'insubordination', Horn amalgams, and Andrews amalgams. Some basic illustrations are given in (5a-c):

- (5) a. It can be hard to separate objective \_ from subjective *information*.
  - b. Anne is leaving for *I think it's <u>Brussels</u>*.
  - c. Anne got you will never guess how many presents for her birthday.

Insubordination is similar to RNR, except that there is no syntactic coordination. Amalgams are special in the sense that there is a selectional relationship between an element in the matrix and an element (underlined) embedded in an intrusive clause (italics). For instance, the verb *got* in (5c) requires a nominal object such as *presents*. We will see that this relationship can become apparently nonlocal, and also that this can be explained by a sideward sharing analysis of sentence amalgamation.

RNR, insubordination, and amalgams confirm the prediction. Of course that does not prove that hypothesis P is *always* correct. In fact, question four can be answered negatively:

Q4: Is P always true, regardless of the syntactic context?

As discussed in **section 4**, a principled exception to P is the situation where the derivation involves remerge of both types (sideward sharing and regular 'movement') with respect to the same phrase. This is arguably the case in across-the-board movement and parasitic gap constructions. Finally, **section 5** concludes the article.

# 2. Remerge and locality

Following the basic tenets of the Minimalist Program (Chomsky 1995 *et sequitur*), I assume that syntactic structures are derived by recursively applying the essential operation Merge. This operation combines input objects into a more complex output object, such that the components are left intact. Crucially, the output of Merge can be used as input for a subsequent instance of Merge. In this way, we create a complex hierarchy. Section 2.1 discusses what happens if we merge an item that has been merged before. Section 2.2 brings in the topic of locality.

#### 2.1. Merge, remerge, and multidominance representations

Merge is both structure-preserving and structure-building. It is a structure-preserving operation in the sense that the input objects remain as they are. For example, if some A is merged with a complex [B C], the result cannot be [A B C], since that would destroy the existing [B C]. Merge is also structure-building, since it creates an output object that did not exist before. Merger of A and [B C] produces a more inclusive object [A [B C]] that contains both input objects. I will use the straightforward notation Merge (input 1, input 2)  $\rightarrow$  output. By definition, the yielded output object (directly) dominates the input objects, and the input objects become syntactic sisters. Thus, Merge can be said to create basic syntactic relationships.

There are also boundary conditions associated with Merge. For instance, the number of input objects is standardly restricted to two, resulting in binary branching. Furthermore, and this is relevant for the present discussion, only accessible syntactic objects can be used as input for Merge. The question, then, is which objects are accessible? Consider the model in (6), which postulates a syntactic work space that is fed by lexical items and whose output is sent to the interfaces with the other cognitive components relating to grammar.



Merge operates on items inside the syntactic work space, and as such it constitutes the primary recursive loop in the grammar. It is highly likely that there is a second, higher-order loop as well, namely from the output of the syntax back to lexical insertion (that is, derivation layering, cf. Ackema & Neeleman 2004, Zwart, 2011), but that does not concern us here.

It has been suggested to limit Merge to syntactic roots (in the sense of 'top nodes'). This would lead to a restrictive grammar in which there is no movement; see especially Koster (2007) for discussion. An item, once merged, can then not be merged again. But that comes at the cost of some limitative stipulation for which I don't see an obvious rationale (despite Koster's lucid remarks about redundancy in the grammar). I will therefore stand by the standard view that an object can in principle be used again as long as it is within the syntactic work space. Recall that Merge does not *destroy* syntactic objects; it just *relates* them to others.

If everything inside the syntactic work space is available for Merge – a plausible and maximally simple assumption – three 'kinds' of input objects for Merge can be distinguished from a meta-perspective: objects newly imported from the lexicon, complex objects that result of a previous instance of Merge, and objects that have been merged before, that is, 'terms' of more complex objects. Depending on the input, a number of structural possibilities ensue. The most straightforward situation is the one where objects are merged for the first time, whether they themselves are atomic or complex. This corresponds to expanding the structure by adding material, also known as *external* (or *first-time*) *merge*.

A more intricate situation arises if a syntactic object is *remerged*, that is, merged again. What this situation amounts to depends on the status of the other input object (say,  $\beta$ ) with respect to the object to be remerged ( $\alpha$ ). If  $\alpha$  is embedded in the root  $\beta$  before Merge applies (hence  $\alpha$  is a term of  $\beta$ ), the result corresponds to what is traditionally called movement. We can

call this *internal remerge* (following De Vries's (2009) straightforward expansion of Chomsky's terminology). If there is no inclusion relationship between  $\alpha$  and  $\beta$  before merger (hence  $\beta$  is an independent object), the result corresponds to a sideward sharing structure (to be illustrated shortly below). This is called *external remerge*. This last option is somewhat unconventional, but it has been observed several times in the literature that it simply follows from a combination of two standard assumptions: merger with an external object is possible, merger of a term is possible. A formal characterization is provided in (7), quoted from De Vries (2009: 348):

- (7) Merge  $(\alpha, \beta) \rightarrow \gamma$  constitutes
  - a. *external (first-time) merge* iff  $\alpha$  and  $\beta$  are independent roots before merger;
  - b. *internal remerge* iff  $\beta$  is a root and  $\alpha$  is included in  $\beta$  (or the other way around) before merger;
  - c. *external remerge* iff  $\alpha$  is included in some root  $\delta$ , and  $\beta$  is an independent root (or the other way around) before merger.

The result of *remerge* has been described from a movement/copying perspective and from a structure sharing/multidominance perspective, which has led to diverging terminology. See Table 1 for a brief overview. Note that the table contains some relevant references, but is not nearly bibliographically complete.

Table 1. Various perceptions of Merge										
effect of Merge	<i>copying</i> or <i>multidominance</i> <sup>*</sup>	authors	terminology							
(first-time) merge	- (n/a)	Chomsky (1995)	external merge							
internal remerge	copying	Chomsky (1995)	internal merge, move							
	multidominance	Gärtner (2002), Epstein et al. (1998), Starke (2001),	multidominance							
external remerge	copying	Bobaljik & Brown (1997) Nunes (2001)	interarboreal movement sideward movement							
	multidominance	Citko (2005) Van Riemsdijk (2006) Wilder (2008), Gracanin-Yuksek (2007),	parallel merge grafting sharing							

Table 1. Various perceptions of Merge

\* The idea of structure sharing is of course older than the Minimalist Program. See Sampson (1975), Karlgren (1976), Williams (1978), McCawley (1982), Goodall (1987), Blevins (1990), among others.

The above may lead to the impression of theoretical complexity concerning Merge. That would be a misconception, however. At least for the purposes discussed in this article, there is just *one* basic operation of Merge (which deserves a capital).<sup>2</sup> Depending on what it is *applied to* (that is, the status of the input), the structural *effect* can be different. The distinction between these effects is relevant, so they deserve a name (but not a capital).

<sup>&</sup>lt;sup>2</sup> Nevertheless, there are proposals for Merge operations different from symmetrical (set) Merge: *asymmetrical* (pair) Merge, cf. Jaspers (1998), Chomsky (1995, 2004), Langendoen (2003), Di Sciullo & Isac (2008), Zwart (2011), De Belder & Van Craenbroeck (2011); and *parenthetical* Merge, cf. Heringa (2012), Kluck (to appear, b). This is outside the scope of the present article, but see De Vries (2012) for more discussion.

On minimalist principles, the copying view of remerge (whether internal or external) must be rejected (see Gärtner 2002 and Zhang 2004, among others). Merge establishes basic relations between syntactic objects. Objects can be part of multiple relationships, and so they can be merged again. This is all we need. No additional theoretical machinery is necessary. Suppose we Merge  $(A, S_1) \rightarrow M_1$  and later in the derivation Merge  $(A, S_2) \rightarrow M_2$ . In order for A to acquire a second sister and mother, it does not need to be 'magically' multiplied (and neither do acquired features, feature values or check marks associated with certain positions need to be transferred in some way to other copies of A).

Another question is how to *represent* a syntactic structure whose derivation involves remerge. A set notation or a bracket notation like  $[_{M2} A [_{S2} ... [_{M1} A S_1]]]$  is deceptive in that it necessarily suggests copying of the remerged node (here, A), or some device involving traces and indexes. The same, in fact, is true for standard syntactic trees. A better way of reflecting the underlying theory is therefore a multidominance graph.<sup>3</sup>

An illustration involving internal remerge is (8a), and one involving external remerge is (8b). In both cases, the remerged object is  $\alpha$ , which is pictured in its eventual spell-out position for presentational clarity. The order between sister pairs is not of syntactic importance, here. The crucial difference between (8a) and (8b) is that  $\alpha$  is contained in  $\sigma_2$  in the former, but not in the latter. As a consequence,  $\mu_2$  becomes the unique root in (8a) when it is generated, but not in (8b), where the structure becomes temporarily doubly-rooted. The two roots can – and have to (see below) – be united by a later instance of Merge, as is indicated by the highest, dotted lines.



Concrete examples part of whose structure may correspond to the abstract pictures in (8a/b) are *wh*-movement and right node raising, respectively (RNR is discussed in more detail in section 3.1):

- (9) a. *Which man* did Anne love \_?
  - b. Anne loves \_ and Jules hates, *this man*.

<sup>&</sup>lt;sup>3</sup> Needless to say, there is an unfortunate practical disadvantage, since multidominance may lead to complicated drawings. For this reason, conventional tree diagrams with movement indications may sometimes be preferred, as long as no theoretical significance is attached to it. In this article, I will follow the principled stance.

These sentences show that the linearization procedure at the PF interface must be sensitive to the different configurations created by internal and external remerge. Generally, while spelling out and linearizing a syntactic structure, (at least) two complications must be dealt with: i) remerged material is pronounced only once, and ii) the results of internal and external remerge have to be treated differently. For elaborate discussion, I refer the reader to Chen-Main (2006), Johnson (2007), Bachrach & Katzir (2009), Citko (2011), and Gracanin-Yuksek (2013), among others. Here, let me just indicate some significant points, with reference to De Vries (2009) for details. According to this analysis, a hierarchical structure (a collection of basic dominance relations, etc., established by iterated Merge during the derivation) is transformed into a linear string of terminal heads by means of a top-down depth-first algorithm.<sup>4</sup> The linearization procedure is non-phasal, i.e. operates on the structure as a whole after the complete syntactic derivation (which of course can be cyclic).<sup>5</sup>

If one mother (here,  $\mu_2$ ) of a remerged node  $\alpha$  includes the other ( $\mu_1$ ), the higher position becomes the spell-out position of  $\alpha$  (that is, structural prominence gets priority). This is the case for internal remerge. If  $\alpha$  has been externally remerged, there is no inclusion relationship between the mothers. In this case, an elsewhere condition comes into play, and the spell-out position for  $\alpha$  becomes the last occurrence of  $\alpha$  (a kind of postponed effort effect). What counts as 'last' depends on the eventual linear asymmetry between (the ancestors of)  $\mu_1$  and  $\mu_2$ . In (8b/9b),  $\mu_1$  is part of the first conjoined clause (possibly, the specifier of a coordination phrase), and  $\mu_2$  is part of the second clausal conjunct (the complement of the coordinating head).

Importantly, no look-ahead is necessary in order to establish this. Consider a derivation (8b') in which Merge ( $\sigma_2$ ,  $\alpha$ )  $\rightarrow \mu_2$  takes place directly before Merge ( $\sigma_1$ ,  $\alpha$ )  $\rightarrow \mu_1$ , which is then the remerging step. If everything else remains the same, this would lead to the exact same structure, and hence to the same linearized word string, as is required. It is irrelevant whether  $\alpha$  is first-merged in what is later to become the first conjunct, or first-merged in what is to become the second conjunct. Thus, there is no need for an artificial system that keeps track of which position is some object's first-merge position, and which position is its second-merge position, etc. It is the result that counts.

Before we go on, a few remarks about the (non-)restrictiveness of the system are in order. Undoubtedly, the possibility of remerge (internal or external) increases the generative power of the grammar. There are, however, some natural restrictions. First, notice that the strict cycle is an inherent property of the system. This is also known as the 'extension condition' (Chomsky 1995) or 'no-tampering condition' (Chomsky 2005). The word *condition* here is misleading because it concerns a corollary as it stands. If two syntactic objects are merged, a new root is created by definition, and hence the structure is extended. The input objects themselves are left intact: they cannot be tampered with. Consequently, the creation of a new structural layer below an original root is simply impossible. For instance, merger of D with [A B] results in [D [A B]] and *not* in [[D A] B]] or [A [D B]] or [D A B]. If D were to be merged with the embedded A, this would amount to external remerge of A. The result is *not* [[D A] B]], but a doubly-rooted structure  $_{D} \Lambda_{A} \Lambda_{B}$  comparable to the situation in (8b).

A doubly-rooted structure can be generated during the derivation, but it is not an object that can be interpreted at the interfaces itself. First, it cannot be linearized at PF, essentially

<sup>&</sup>lt;sup>4</sup> Note that a mathematical total linear order does not need to be established in this way.

<sup>&</sup>lt;sup>5</sup> A potential source of confusion here is Chomsky's notion of *spell-out*, which simply means that syntactic material is shifted to the interfaces; it does not imply that there is immediate linearization in the phonological component.

because an asymmetry between the two roots is lacking. Second, it cannot be interpreted at LF either, since the relationship between the two semi-connected structures as a whole is undefined. For all of this, some direct or indirect syntactic connection between the two roots needs to be established (coordination as in (9b) is one possibility; other ways will be discussed below). As a result, every instance of external remerge must be compensated by a root-uniting merger later on in the derivation. Again, this is an observation from a meta-perspective – it is not a rule of core syntax.<sup>6</sup> The autonomy of syntax has the consequence that the operation Merge may fulfil local demands, but higher-level requirements such as the one just mentioned can only be imposed by the interfaces, which then act as filtering devices.

In short, the possibility of remerge – internal and external – follows from the derivational system without stipulations. This paves the way for many interesting structural configurations, with certain restrictions.

#### 2.2. Locality

After the preceding introduction into the idea of remerge, let us now turn to the main point of this article, which concerns locality. I will show that external remerge can be used to create an apparent long-distance relationship by means of a structural bypass, but internal remerge cannot.

I will not be concerned with the definition and explanation of locality as such. Following standard practice, I assume that syntactic locality domains exist, and that a domain boundary can be determined by certain categorial heads. In current terminology, such heads are phase heads, which trigger syntactic cycles. Whether phase heads are absolute or determined relatively to the situation is irrelevant to the discussion at hand. The main point is that an element embedded in a certain domain is no longer accessible outside of that domain (that is, in a subsequent cycle). Syntactic objects can escape a certain domain if they are moved via the edge to the next cycle. In effect, the edge functions as a hatch between adjacent domains. It is often the case that the edge is not available for a particular object, which gives rise to all kinds of island effects. From the perspective of Merge, we can state that not every embedded syntactic object is accessible as input for Merge:

(10) *Locality of remerge:* A term  $\alpha$  of a syntactic root  $\rho$  can only be selected as input for Merge if  $\alpha$  belongs to the same syntactic locality domain as  $\rho$ .

Consider the following potential derivation, in which an attempt is made to 'move' across some domain boundary determined by the category  $\varphi$ . In (11),  $\alpha$  is part of the lowest domain, it is not in the edge, and in the cycle in which  $\sigma_2$  is created,  $\alpha$  can no longer be selected as input for Merge. Step (11d), which would involve internal remerge of  $\alpha$ , is therefore impossible.

<sup>&</sup>lt;sup>6</sup> Thus, there is no stipulated Single Root Condition active during the syntactic derivation. See also Wilder (2008), whose approach yields the same conclusion, but from a somewhat different perspective.



This general mechanism explains the ungrammaticality of examples such as (1b), which is a clear island violation: \* *What did Ann see the man that bought* \_?

For derivations involving external remerge, the same locality conditions must apply – after all, there is just one operation of Merge. For instance, in (12) external remerge of  $\alpha$  should no longer be possible after extending the derivation beyond  $\varphi$ .



However, there is a straighforward way of circumventing such restrictions. How that works is illustrated in (13a) through (13e). First, a simple external remerge configuration is created by merging  $\alpha$  with its first sister (13a), and immediately remerging it with its second sister (13b). Just to be clear, nothing *forces* external remerge at this point, but since Merge is free, this derivational possibility *can* be pursued.



The syntactic object  $\alpha$  (whether a head or a phrase) is now locally related to both sisters  $\sigma_1$  and  $\sigma_2$ , and it is a daughter of both  $\mu_1$  and  $\mu_2$ , which are still independent of each other. Both mergers take place before the boundary of a locality domain is reached. Subsequently, it is possible to extend the structure at each root. Suppose material is added to  $\mu_1$  (13c). Thereby, a new local domain can be entered (13d). Since  $\mu_2$  has not been embedded, it is still active in the syntactic work space, and we can unite both structures at the top (13e):



Interestingly, we have now arrived at something that seemed impossible in (12). Though every step in the derivation is perfectly local, the resulting representation has a nonlocal appearance when viewed from the top. The point is that external remerge can take place before the locality boundary is created.

It is also possible to extend both parts of the structure after remerge, and produce two parallel complex clauses; see (14a-f). Eventually, these complex parts may be combined in a coordination phrase, for instance; see (14g):



A concrete example that could be analyzed in such a way is sentence (2b): Ann knows someone that loves \_ and Jules knows someone that hates, this man. The two linear positions of the phrase  $\alpha$  (this man) are widely apart, and the gap is embedded in an island, at least from a top-down perspective. However, as long as there is a structural bypass at the bottom, it does not matter how complex the two partial structures (here, the conjoined clauses) eventually become: the required relationships ( $\sigma_1$ ,  $\alpha$ ) and ( $\sigma_2$ ,  $\alpha$ ) have already been established and cannot be undone.

It is important to see that no such 'early remerge strategy' is possible in derivations involving internal remerge, that is, regular movement constructions. In (11), for instance,  $\alpha$  cannot be internally remerged with  $\sigma_2$  before  $\varphi$  closes off the locality domain for the obvious reason that  $\sigma_2$  does not exist before  $\varphi$  is created, as it is a projection on top of  $\varphi$ .

To summarize briefly, locality has an effect on the selection of input for Merge. Derivations involving internal remerge are local by necessity; derivations involving external remerge can create an early local bypass, and eventually lead to seemingly nonlocal dependencies. This difference in behavior between internal and external remerge follows without any additional stipulation. Thus, this section has provided the theoretical answers to the first three questions raised in the introduction, which leads to the prediction that all construction types whose derivation involves external remerge may show apparently nonlocal behavior. The next section discusses some actual language data that support this hypothesis.

### **3.** Apparent nonlocality effects

In separate subsections this section addresses the familiar right node raising construction (§3.1), 'insubordination' (§3.2), and two cases of sentence amalgamation (§3.3).

## 3.1. Right node raising

Right node raising (RNR) is usually associated with coordination, and descriptively involves ellipsis of righthand material in non-final conjuncts. The Dutch example below shows double RNR of a noun phrase. In what follows I will capitalize relevant pitch accents, and italicize the shared part of the sentence.

(15) Anne KOCHT\_, Mieke STAL\_ en Ilse verNIELde *een boek over Plato*. Anne bought Mieke stole and Ilse demolished a book about Plato 'Anne bought, Mieke stole, and Ilse demolished, a book about Plato.'

RNR may also involve other categories, for instance a final verb, verb phrase, or verb cluster. Furthermore, notice that RNR is not necessarily sentence-final, but coordination-final. Both properties are shown at once in (16), which contains a complex subject clause.

(16) Dat Anne een eigen HUIS \_ en Ilse een eigen TUIN zou willen hebben is that Anne a own house and Ilse a own garden would want have is algemeen bekend. generally known

'It is common knowledge that Anne would like to have a house of her own, and that Ilse would like to have a garden of her own.'

I will assume an analysis of RNR in terms of sideward structure sharing, which was first proposed by McCawley (1982), as far as I know, and defended more recently by Chung (2004), Chen-Main (2006), Johnson (2007), Wilder (2008), Bachrach & Katzir (2009), and Kluck & De Vries (2013), among others. This approach contrasts with a rightward ATB-movement analysis (Ross 1967, Postal 1998, Sabbagh 2007) and an ellipsis analysis (Hartmann 2000, Ha 2008). Although a defense of the sideward sharing approach is outside the scope of the paper, let me briefly reiterate a few relevant arguments.

As was highlighted also in Neijt (1979) and Hartmann (2000), there is a clear asymmetry between regular leftward movement and RNR. Particularly revealing is the contrast between RNR and across-the-board movement in minimal pairs like the following:<sup>7</sup>

- (17) a. Anne knows a girl that BOUGHT \_ and Mike (knows) a boy that STOLE, *a book about Plato*.
  - b. \* What does Anne know a girl that BOUGHT \_ and Mike (know) a boy that STOLE \_?

I will come back to the locality sensitivity of ATB in section 4.

Similarly, there are left-right asymmetries between RNR and various types of forward ellipsis. A minimal pair from Dutch is shown in (18), where again the gap is inside a complex noun phrase:<sup>8</sup>

- (18) a. Anne kent iemand die een AUto \_ en Ilse kent iemand die een Anne knows someone who a car and Ilse knows someone who a FIETS heeft gekocht.
  bike has bought
  'Anne knows someone who bought a car and Ilse knows someone who bought a bike.'
  - b. \* Anne kent iemand die een AUto heeft gekocht en Ilse kent iemand die een FIETS \_.

Even in simple clauses, it can be noted that the Head Condition on remnants of ellipsis (Fiengo 1974, Wilder 1994) does not apply to RNR. This condition says that if a head is overtly present, its arguments must be overtly realized, too. See the contrast in (19):

(19) a. Anne LOVES \_ and Ilse HATES *boys with big toys*.b. \* Anne LOVES *boys with big toys* and Ilse HATES \_.

Furthermore, there are contrasts between forward ellipsis and RNR with respect to morphophonological identity between the implied and the overt form.<sup>9</sup> Consider the asymmetry in (20), from Dutch, where the implied form is indicated with strikethrough for comparison (here, the finite verb's number inflection is relevant):

<sup>&</sup>lt;sup>7</sup> It is surprisingly easy to combine RNR with regular forward ellipsis. This is why I put the finite verb know(s) in the second conjunct in (17) between brackets.

<sup>&</sup>lt;sup>8</sup> I am aware that not every type of forward ellipsis behaves the same. Interestingly, Johnson (2009) argues that pure gapping is unlike VP ellipsis and pseudo-gapping. I do not think his alternative analysis can be easily extended to multiple constituent gapping and stripping, which are equally local as pure gapping. These issues go well beyond the scope of the present paper, and they do not essentially affect the argumentation in the main text.

<sup>&</sup>lt;sup>9</sup> A few interesting examples that do not conform to the pattern in (20) are discussed in Bošković (2004) and Ha (2008). These are claimed to be problematic for a sideward sharing approach, but this is far from clear because agreement arguably involves a post-syntactic component more generally (see Van Koppen 2004, Bobaljik 2006, De Vries & Heringa 2008, Boone 2011, among others). See also Kluck (2009) for relevant discussion.

(20) a. Anne gaat naar BELgië, en haar ouders gaan naar ZWEden. Anne goes to Belgium, and her parents Sweden go to 'Anne is going to Belgium, and her parents (are going) to Sweden.' b. \* Ik dacht dat ANne op vakantie is, maar jij (dacht) dat haar OUders I thought that Anne on holiday is but you thought that her parents op vakantie zijn. on holiday are 'I thought that Anne \*(is on holiday), but you (thought) that her parents are on holiday.'

Another difference, which might be related, is that RNR shows condition C effects as in (21), unlike forward ellipsis, which can be saved by vehicle change (see also Johnson 2007):

(21) a. \* He<sub>i</sub> PRAISED \_, and she CRITicized *the woman Mike<sub>i</sub> loved*.
b. She praised the woman Mike<sub>i</sub> loved, and he<sub>i</sub> did too.

It can be concluded that RNR is fundamentally different from both leftward movement and forward ellipsis, and is therefore not to be analyzed as the mirror image of one of these. The data strongly suggest that the target of RNR is syntactically *in situ* in both conjuncts at the same time, which indeed would follow from a multidominance configuration. A simplified derivation of a basic example is provided in (22):

(22) Anne BOUGHT \_ but Mike STOLE, a red car.

- a-1 Merge (stole, [a red car])  $\rightarrow$  [stole [a red car]]
- a-2 Merge (bought, [a red car])  $\rightarrow$  [bought [a red car]]
- b-1 Merge (Mike, [stole [a red car]])  $\rightarrow$  [Mike [stole [a red car]]]
- b-2 Merge (Anne, [bought [a red car]])  $\rightarrow$  [Anne [bought [a red car]]]
- c. Merge (but, [Mike [stole [a red car]]])  $\rightarrow$  [but [Mike [stole [a red car]]]]
- d. Merge ([Anne [bought [a red car]]], [but [Mike [stole [a red car]]]])  $\rightarrow$

[[Anne [bought [a red car]]] [but [Mike [stole [a red car]]]]]



Note that the order of mergers in steps a1/a2 and b1/b2 is irrelevant; either permutation leads to the same result. Also, recall from section 2.1 that it is decided at PF that an externally remerged phrase (here, *a red car*) is always pronounced in its linearly last occurrence. Thus, unacceptable sentences such as *Ann bought a red car*, *but Mike stole* \_ could never surface in this way.

Examples of multiple RNR, such as (15), can be derived simply by remerging an object more than once. An abstract derivation for sentences of this type is given in (23):



In (23), the three conjuncts are joined by means of recursive coordination.

As discussed in section 2.2, derivations involving external remerge can lead to apparently nonlocal configurations. So far, we have seen examples of RNR in which the gap is embedded in a relative clause. Several other island configurations can be tested, too. Consider (24a-f), which illustrate an embedded complement clause island, a factive island, a *wh*-island, a clausal adjunct island, and a deeply embedded position within a phrasal adjunct, respectively. All examples are acceptable.

- (24) a. Anne complained about the fact that MIKE \_, and Lisa complained about the fact that JULES *had an affair*.
  - b. Anne regretted that MIKE \_, and Lisa regretted that JULES *had an affair*.
  - c. Anne wondered who MIKE \_, and Lisa wondered who JULES had an affair with.
  - d. Anne was angry because MIKE \_, and Lisa was angry because JULES had an affair.
  - e. Anne dumped Mike AFter \_, but Lisa already dumped Jules beFORE his affair.
  - f. Anne dumped Mike after he had THREE \_, but Lisa already dumped Jules after he had TWO *affairs*.

Similar sentences can be constructed in Dutch and many other languages (depending on regular word order possibilities). Two examples are in (25), which correspond to (24a/b):

- (25) a. Anne klaagde over het feit dat MIKE\_, en Lisa klaagde over Anne complained about the fact that Mike and Lisa complained about het feit dat JULES *een affaire had*. the fact that Jules an affair had
  - b. Anne betreurde dat MIKE\_, en Lisa betreurde dat JULES *een affaire had*. Anne regretted that Mike and Lisa regretted that Jules an affair had

Notice that the depth of embedding does not need to be equal in both conjuncts, witness the following examples from Dutch:

- (26) a. [Piet zei dat ANne ] maar [Jan riep dat Marie beweerde dat Jacob Piet said that Anne but Jan cried that Marie claimed that Jacob mompelde dat HENK *een boek had gekocht*]. mumbled that Henk a book had bought
  'Piet said that Anne, but Jan cried that Marie claimed that Jacob mumbled that Henk had bought a book.'
  - b. [Jan riep dat Marie beweerde dat Jacob mompelde dat HENK \_ ] maar [Piet zei dat ANne *een boek had gekocht*].

All these data confirm the theoretical possibilities laid down in section 2, and hence directly or indirectly confirm the sharing approach to RNR.<sup>10</sup>

Let us finally turn to a number of points that deserve some clarification or further discussion. First, it is now well-known that RNR can cross constituent boundaries. Some examples from Dutch are given in (27), where brackets indicate the relevant phrases:

- (27) a. Anne heeft VOOR \_ en Ilse (heeft) [NA *het ontbijt*] gedoucht. Anne has before and Ilse has after the breakfast showered 'Anne took a shower before breakfast and Ilse took a shower after breakfast.'
  - b. Anne heeft een man die TWEE \_ en Ilse heeft [een man die [DRIE Anne has a man who two and Ilse has a man who three *huizen*] *bezit*] *gehuwd*. houses possesses married
    'Anne married a man who possesses two houses and Ilse married a man who possesses three houses.'

Since syntactic operations by necessity affect constituents, such facts may appear problematic (for any account). However, the solution is actually straightforward within a sideward sharing approach: the process of structure sharing by means of external remerge can be applied to more than one constituent in the sentence. A simple abstract configuration showing this is (28):



 $<sup>^{10}</sup>$  Note that various kinds of regular forward ellipsis are island-sensitive at least in certain ways (for discussion, see Johnson 2001, Merchant 2008, Temmerman 2013, Griffiths & Lipták to appear). Even non-contrastive sluicing, which repairs strong island violations (apparently – cf. Van Craenenbroeck 2010), is sensitive to weak islands according to Sauerland (1996).

Here, both  $\alpha$  and  $\beta$  are externally remerged. The nodes  $\sigma_1$  and  $\sigma_2$  may correspond to the contrastive foci. The shared nodes  $\alpha$  and  $\beta$  do not form a constituent but are linearly adjacent at PF. Interestingly, the idea of multiple sharing has been proposed independently for other construction types, including coordinated double *wh* clauses; see Gracanin-Yuksek (2007), who calls it 'non-bulk sharing'. See also Citko (2007) and Wilder (2008).

The second point of discussion is the right periphery condition related to RNR (as well as insubordination, treated in the next subsection): both the shared phrase (or the combined shared phrases) and the corresponding gap must be rightmost in their respective conjuncts (or phrasal domains). This has to do with alignment of focus. Notice that the shared phrase immediately follows the primary focus in each conjunct. Moreover, the relevant foci must be contrastive, and activate similar sets of alternatives (Rooth 1992) to be semantically excluded. The periphery effect is therefore an interface condition (see Hartmann 2000 and Kluck & De Vries 2013 for more elaborate discussion).

Alternatively, some authors have tried to relate the periphery effect for RNR more directly to the properties of external remerge, and the way the linearization system handles sideward sharing. Wilder (2008), for instance, adapts Kayne's (1994) Linear Correspondence Axiom such that it recognizes multidominance. The modified LCA then only allows right-peripheral sharing. Originally, the adapted LCA was meant to deal with multidominance created by external remerge, but as such it could not adequately accommodate internal remerge (that is, regular leftward movement). Following up on suggestions by Wilder, a recent attempt to repair this last problem is Gracanin-Yuksek (2013). Such ideas are quite interesting, but they do face a number of issues that need to be addressed (setting aside more general reservations concerning LCAbased linearization expressed in De Vries 2009). If the solution is purely structural, it is unclear where the phonological and semantic effects just mentioned come in. Furthermore, it needs to be studied if the approach can be maintained in the light of other constructions that may involve sideward sharing, but that do not display the right periphery effect. For instance, ATB constructions do not need to be conjunct-final, as is shown in (29) and (30a/b). The solution is probably that in this type of examples external remerge is followed by internal remerge (see section 4 for more details), which changes the configuration (see also Citko 2011):

(29) Which book did An read \_ yesterday, but Ilse \_ today?

(30)	a.	Welk	boek	heeft	Anne _	gelezen	maar	Ilse _	terzijde	gelegd?
		which	book	has	Anne	read	but	Ilse	aside	put
'Which book did Anne read but Ilse put aside?'										
	b.	Wie h	eeft A	nne_	een bo	ek gegev	ven e	n Ilse	_ een C	CD?

who has Anne a book given and Ilse a CD? '[to] who[m] did Anne give a book and Ilse (give) a painting?'

Another case concerns the final verb in Dutch Horn amalgams (discussed in section 3.3 below). In (31), the verb *was* linearly follows the phrase that appears to be shared (externally remerged). Differently from the situation in ATB, there is no additional movement to a high scope position.

(31) Anne heeft [ik dacht dat het *een citer* was] gekocht. Anne has I thought that it a zither was bought 'Anne bought I thought it was a zither.' Thus, the right periphery condition for RNR cannot be generalized, and hence hird-wiring the effect in the linearization procedure is potentially problematic, depending on various other assumptions.

A third issue concerns the status of the Theta Criterion (Chomsky 1981) from the perspective of sideward sharing of arguments in RNR constructions and elsewhere. Normally, each argument is assigned and has to be assigned exactly one theta role. Why is this so? We want to prevent semantic and syntactic confusion resulting from, say, raising the internal argument of a transitive predicate to the external argument position, which would result in one argument becoming both the theme and the agent of the same event (of course, this can be achieved indirectly in reflexive predicates). Within the context of coordination, this restriction does not necessarily apply. There is no obvious harm in the assumption that one argument can be related to more than one predicate (and hence that one participant can play a role in more than one event, etc.). If the situation is parallel in each conjunct, a hypothetical set of theta-features  $\{\theta_i, \theta_i, ...\}$  bestowed upon an argument by a series of predicates trivially reduces to  $\{\theta_i\}$ . Interestingly, however, it can be shown that ATB-moved phrases can even relate to *different* semantic roles and/or syntactic functions (examples from De Vries to appear):

- (32) a. *Which tree* did you say [Joop hugged \_] and [Mieke talked to \_]?
  - b. *Who* did you say [ \_ saw a crocodile], [ \_ ran for an hour], [ \_ arrived late], [ \_ seemed to cry], and [then \_ received the consolation prize] ?

Similarly, non-parallelism is attested in RNR constructions (example due to an anonymous reviewer):

(33) The AIDS virus made its way into Africans who ate \_ or were bitten by *primates infected* with a closely related virus.

While it is undoubtedly easier to produce felicitous examples that involve completely parallel conjuncts, sentences as in (32) and (33) prove that there is no grammatical principle enforcing this.

### 3.2 Insubordination

So far, we have discussed examples of external remerge in the context of coordination. Let us now extend the empirical domain. Notice that at the point of the derivation where external remerge takes place, there is no coordination phrase yet. Therefore, sideward sharing cannot be expected to be limited to coordination contexts *a priori*. The next subsection discusses potential examples of sideward sharing in amalgams, which can be considered parenthetical insertions. There seem to be instances of sideward sharing with hypotactic construal as well. In section 4, adverbial prepositional phrases containing parasitic gaps will be analyzed as involving external remerge (following Nunes 2001). But it is also worth mentioning that there are RNR-style examples of sideward sharing with syntactically subordinated as well as parenthetical phrases. Two examples in Dutch are given in (34) (see also Huybregts & van Riemsdijk 1985 for comparable data):

(34) a. Het kan moeilijk zijn om OBjectieve van SUBjectieve informatie can difficult be to objective from subjective information it te scheiden. to separate 'It can be hard to separate objective from subjective information.' Anne stemde, hoewel in haar hart TEgen\_, uiteindelijk toch VOOR b. Anne voted although in her heart against finally vet for de verhoging van het parkeertarief. the raise of the parking.rate

*lit.* 'Anne voted, although in her heart against, in the end still in favor of, the raise of the parking rate.'

In (34a), the adjectives *objective* 'objective' and *subjective* 'subjective' are contrasted, and in (34b) the two prepositions *tegen* 'against' and *voor* 'for'. Syntactically, the connection in (34a) is subordinative, but semantically, verbs like *separate*, *distinguish*, *compare*, as well as comparative constructions and comitative constructions, are coordinative (see Postal 1993, Culicover & Jackendoff 1997, Van der Heijden 1999, and Lechner 2001 for more discussion). Such construction types have also been called 'insubordination': they are not really coordination, not really subordination, but something in between.

From the perspective of the linearization algorithm at PF, such examples are comparable to RNR. Linearization is insensitive to categorial information: what counts is the structural configuration, not whether a particular phrase is a CoP or a PP, for instance. Crucially, in examples like (34), there is no inclusion relationship between the mothers of the shared constituent. Consider (29a), for instance. Here, *informatie* 'information' is the nominal core of two noun phrases: first, [*objectieve informatie*] is created, and then *informatie* can be externally remerged yielding [*subjectieve informatie*], or the other way around. Subsequently, the two noun phrases are merged as parts of the matrix clause; they are not emdedded inside each other. Abstractly, the configuration is the by now familiar one pictured in (35). Concretely, (34a) may be analyzed as a DO + prepositional object construction.<sup>11</sup>

<sup>&</sup>lt;sup>11</sup> Both *objectieve informatie* and *van subjectieve informatie* form a major constituent within their clause; they are not necessarily adjacent. This becomes more evident when we use a main clause, in which they can be moved around by various means (topicalization, scrambling, extraposition). Passivization is also telling; this can be illustrated in English: *Objective information can be separated from subjective information*. Note that a potential small clause analysis seems excluded because extraposition of the PP is perfectly fine.

As in regular RNR constructions, the shared phrase will surface in its linearly last occurrence.

The same abstract configuration applies to (34b), but the details are of course different. The phrase *voor de verhoging van het parkeertarief* 'in favor of raising the parking rate' is a prepositional object, but *hoewel in haar hart tegen* 'although in her heart against' is an incomplete parenthetical. In De Vries (2012) and earlier work, I have argued for the integration of parentheticals in syntax (although in a special way that makes them nonrestrictive, cf. footnote 2); see also Griffiths & De Vries (2013). Unanchored types as this one behave as adjuncts. If indeed *hoewel... tegen* is parenthetically adjoined in the middle field in (34b), the apparently elliptical right edge (which would otherwise be mysterious) can be resolved by RNR, i.e. external remerge early in the derivation, as before.

Since the derivation of (34a/b) involves external remerge, we may wonder if we can also find apparent nonlocality effects in insubordination constructions. It turns out that this is indeed the case, witness the following sentences from Dutch, where the gap is embedded in a relative clause.<sup>12</sup> Needless to say, such examples are hard to parse, and require a clear pitch accent on the capitalized syllables. Nevertheless, they are clearly syntactically well-formed.

(36) Het is niet moeilijk om de mensen die aanhanger zijn van de NEderlandse \_\_\_\_\_\_\_ it is not difficult to the people who supporter are of the Dutch te onderscheiden van de mensen die aanhanger zijn van de SPAANse to distinguish from the people who supporter are of the Spanish *voetbalploeg.*\_\_\_\_\_\_\_ football.team *lit* 'It is not difficult to distinguish people who are supporters of the Dutch from people

*lit.* 'It is not difficult to distinguish people who are supporters of the Dutch, from people who are supporters of the Spanish football team.'

noodgedwongen zijn toevlucht (37) Lucas is, ofschoon een speler die soms player who sometimes forcedly refuge Lucas is although a his neemt TOT \_, niettemin ook een voetballiefhebber die principieel gekant is nevertheless also a football.lover who principally opposed is takes to TEgen het onderuitschoffelen van de andere partij. against the bottom.hoeing of the other party lit. 'Lucas is, although a player who sometimes resorts to, nevertheless also a football lover who is principally opposed to, taking down the other party.'

Thus, we have obtained further evidence for the prediction highlighted in the introduction. In the next subsection, this picture will be strengthened.

<sup>&</sup>lt;sup>12</sup> Comparable to the situation is (26), it is also possible have an uneven distribution of complexity here. For instance, variants of (36) can be obtained by changing either one of the complex noun phrase *mensen die aanhanger zijn van...* 'people who supporter are of...' to a simpler noun phrase *aanhanger van...* 'supporters of...'.

#### 3.3. Amalgamated sentences

In a by now famous paper, Lakoff (1974) put on the agenda certain cases of sentence entangling. The most relevant types for the present purposes are the so-called 'Horn' and 'Andrew' cases (or cleft and sluicing amalgams, respectively). Some more recent discussion of these construction types can be found in Tsubomoto & Whitman (2000), Guimarães (2004), Van Riemsdijk (2006), Zwart (2006), Kluck (2008, 2011, to appear, a), Grosu (2010), and Johnson (2012). Two examples in Dutch are (38) and (39):

- (38) Anne kreeg [ik dacht dat het *een citer* was] voor haar verjaardag. Anne got I thought that it a zither was for her birthday 'Anne got I thought it was a zither for her birthday.'
- (39) Anne kreeg [je raadt nooit hoeveel *cadeaus*] voor haar verjaardag. Anne got you guess never how.many presents for her birthday 'Anne got you will never guess how many presents for her birthday.'

In both cases, the matrix is interrupted by some intrusive clause (indicated with square brackets), which arguably has properties of a parenhetical with a modal import; in addition, the Andrews type in (39) involves a particular kind of degree semantics. The intrusive clause is a main clause, evidenced by verb second in Dutch, for instance. What is especially interesting is that there seems to be a phrase that is shared between the matrix and the interrupting clause (indicated in italics), the so-called 'content kernel'. In this respect, notice that the verb *kreeg* 'got' in the matrix never selects for a clause, but requires a nominal object. Thus, there must be a selectional relationship between an element in the matrix (here, the verb) and the embedded content kernel.

The content kernel is clearly also part of the intrusive clause. In (38) *een citer* 'a zither' is a predicate nominal; in (39) *cadeaus* 'presents' is part of the sluicing remnant. Therefore, we are facing a bracketing paradox: how can a phrase be part of two clauses at the same time? In the context of a story about remerge, the answer readily suggests itself: the kernel is structurally shared between the two clauses as the result of external remerge.<sup>13</sup> Unlike the situation in RNR or insubordination, the shared phrase is not necessarily structure-final in Horn amalgams – which might be related to the lack of parallel focus –, but it *is* final within the intrusive clause in Andrews amalgams because of the sluice.

In what follows I will not be concerned with the details of the syntax and semantics of amalgams. For an elaborate discussion and further references, see especially Kluck (2011). What is of interest here is the hypothesis that amalgams may involve external remerge. If this is indeed the case, it would straightforwardly resolve the bracketing paradox. The kernel can be merged with the selecting element that will be part of the matrix (here, *kreeg* 'got'), and it can be remerged in the required position in what is to become the interrupting clause. Subsequently, the interrupting clause can be finished, and inserted as a parenthetical specification of – and hence following – the phrase corresponding to the kernel in the matrix. Finally, the matrix can be completed. The resulting structure contains a bypass at the bottom (see De Vries 2012 for some details). This explains the apparent distance between the embedded content kernel and the selecting element in the matrix, very similar to the situation in RNR constructions. Notice that

<sup>&</sup>lt;sup>13</sup> In Horn amalgams as well as certain Andrews amalgams, what is shared is probably not a full (DP-level) argument but only the nominal projection. See the references below for more discussion.

the externally remerged content kernel will be linearized within the intrusive clause, as it contains the second occurence encountered by the linearization algoritm (recall the remarks below (9) in section 2.1).

We have seen that external remerge may lead to apparently nonlocal configurations. Since the interrupting clause in an amalgam is a main clause, even a basic example would involve apparent nonlocality. But let us try to push the situation to the limit by extending the interrupting clause across various syntactic domain boundaries. Again, the relevant examples are somewhat difficult, but quite acceptable in both English and Dutch. Ideally, the content kernel is heavily focused and the interrupting clause is pronounced somewhat faster than the matrix.

Let us start with Horn amalgams; see (40) and (41). Notably, the complex intrusions in (40a/41a) contain a factive island, the ones in (40b/41b) an additional cleft construction or complex noun phrase island.

- (40) a. Anne got [I guess I have to convince you that it's *a didgeridoo*] for her birthday.b. Anne got [I think that it was Ilse who claimed that it's *a didgeridoo*] for her birthday.
- (41) a. Anne krijgt [ik vermoed dat ik je ervan moet overtuigen dat het Anne gets I suspect that I you there of must convince that it *een didgeridoo* is] voor haar verjaardag.
  a didgeridoo is for her birthday
  'Anne will get I presume I have to convince you that it's a didgeridoo for her birthday.'
  - wel zijn die b. Anne kreeg [ik dacht dat er iemand zou zou thought that there indeed someone would be who would Anne got Ι beweren dat het een didgeridoo was] - maar het is dus eigenlijk didgeridoo was but it is thus really claim that it а een midwinterhoorn. midwinter.horn а

'Anne got I figured there would have been someone who claimed that it's a didgeridoo – but it is in fact a midwinter horn.'

For Andrews amalgams we arrive at the same picture, witness the examples in (42) and (43). Here, too, the interrupting clause can be enlarged spectacularly.

- (42) a. Anne got [I am sure you will never guess how many *instruments*] for her birthday.
  - b. Anne got [I guess there's nobody here who can even imagine how many *instruments*] for her birthday.
- (43) Anne kreeg [ik wed dat er niemand is die zich zelfs in zijn stoutste Anne got I bet that there nobody is who REFL even in his wildest dromen maar voor kan stellen hoeveel *cadeaus*] voor haar verjaardag. dreams but PTL can imagine how.many presents for her birthday 'Anne got I bet there's no one who can imagine even in his wildest dreams how many presents for her birthday.'

Performance difficulties aside, then, island boundaries do not seem to be relevant in amalgamated constructions, which mimics the situation in RNR. This can be explained by the theory of sharing in terms of external remerge explicated above.

I should mention that Kluck (2011, to appear, a) argues against the necessity of multidominance in amalgams, and works out an alternative solution in terms of ellipsis – in turn partly challenged by Johnson (2012). Example (38) would be analyzed approximately as in (44):

(44) Anne got something: [I thought it was a zither, that An got t, for her birthday] for her birthday.

Here, the matrix contains an empty indefinite proform whose reference is specified in the parenthetical clause. This clause contains an embedded sluice, such that the content kernel survives after A-bar movement. The elided clause corresponds to the matrix proposition, and therefore counts as 'E-given' (cf. Merchant 2001). Evidently, this solves the selection problem and the bracketing paradox. There is no direct dependency between the visible verb *got* in the matrix and the content kernel *a zither*, which can therefore be deeply embedded in an intrusive parenthetical.

But now the complexity of the matrix becomes relevant as well, since the content kernel must be related to the base position in the elided clause. As Kluck shows, amalgams are island-insensitive in this way as well. Consider an example like (45a), which on an ellipsis approach would receive an analysis as in (45b).

- (45) a. Anne envies a guy who owns I think it is a zither.
  - b. Anne envies a guy who owns something: [I think it is a zither<sub>i</sub> that An envies a guy who owns  $t_i$ ].

Since (46a) shows that the underlying cleft in (45b) is ungrammatical by itself, this is a potential problem. However, note that regular sluices show the same kind of island repair; see (46b).

- (46) a. \* It is a zither that Anne envies a guy who owns.
  - b. Anne envies a guy who owns something, but I don't know what.

Kluck therefore takes the reasonable perspective that the mechanism underlying island repair in sluices is extendable to amalgams.

Further discussion on sluicing and (complex) amalgams is beyond the scope of this paper, and I will leave the matter undecided, limiting myself to one final remark, namely, that under a pure multidominance account the complexity of examples like (45a) is completely irrelevant. Since the structural bypass of the shared phrase is in the bottom part of the construction, any extension of the structure on top of the kernal-selecting head is possible. In other words, no problem needs to be solved, as there is no problem in the first place.

#### 4. Where external and internal remerge meet

So far, the results are very promising. Here, I will address question Q4, repeated from the introduction:

- Q4: Is P true regardless of the syntactic context?
- P: Construction types whose derivation involves external remerge (resulting in sharing of the sideward type) potentially yield apparently nonlocal behavior.

I argue that the answer is negative, as there is a principled exception. This is based on certain cases that encompass both internal and external remerge.

The first relevant candidate is across-the-board movement (ATB). According to Willliams (1978), and more recently Citko (2005) and Kasai (2007), among others, ATB involves sideward structure sharing; see also De Vries (to appear) for discussion. Consider the simple example in (47):

(47) Who did Anne admire \_ and Jules hate \_?

Here, the *wh*-phrase is related to two gaps, one in each conjunct. This raises several questions. If there originally were two *whos*, why do we not obtain one of the variants in (48)?

- (48) a. \* *Who who* did Anne admire \_ and Jules hate \_?
  - b. \* *Who* did Anne admire *who* and Jules hate \_?
  - c. \* *Who* did Anne admire \_ and Jules hate *who*?

Note that even in languages that allow for multiple *wh*-movement, such as Polish or Bulgarian, the variant in (48a) is never used for ATB constructions (cf. Citko 2011, Bošković & Franks 2000). Now, if *who* is shared in the base position, this mystery is solved: there is only one *wh*-phrase to begin with.

Since regular movement is also a kind of structure sharing, caused by internal remerge, we obtain the following abstract multidominance structure for ATB:

(49) Merge  $(\sigma_1, \alpha) \rightarrow \mu_1$ Merge  $(\sigma_2, \alpha) \rightarrow \mu_2$ Merge  $(..., \mu_1) \rightarrow ...$ Merge  $(..., \mu_2) \rightarrow ...$ Merge  $(..., \omega) \rightarrow CoP$ Merge  $(..., CoP) \rightarrow \sigma_3$ Merge  $(\alpha, \sigma_3) \rightarrow \mu_3$ 



Crucially, the phrase  $\alpha$  is not only shared between the two conjuncts, but also internally remerged in a position outside the coordination phrase. From this, two things follow. First consider the linearization. Since  $\mu_3$  dominates both  $\mu_1$  and  $\mu_2$ , the shared phrase  $\alpha$  will be spelled out in its highest position, as required. The fact that  $\mu_1$  does not include  $\mu_2$  or vice versa, which would trigger the elsewhere rule yielding spell-out in the last position is overruled by the fact that  $\alpha$  is internally remerged later in the derivation. Therefore, (50) is also ungrammatical, next to (48):

(50) \* Did Anne admire \_ and Jules hate *who*?

Second, since the last step involves internal remerge, locality conditions will come into play. The reasons are the same as for simple internal remerge (see section 2.3). It is impossible to create a structural bypass to the third position by means of another instance of external remerge early on in the derivation because the third sister  $\sigma_3$  is a projection above CoP and does not yet exist at an early stage. Thus, the relationship with  $\sigma_3$  can only be created through internal remerge after the union of the two substructures in CoP. In other words, internal remerge following external remerge.

Locality (10) dictates that the distance between the original position of a phrase to be remerged cannot be too deeply embedded in the intended highest sister (the current root before Merge takes place). It was already noted above that ATB is indeed locality-sensitive. A nice minimal triple is the following. Example (51a) = (2b) represents RNR, (52b) = (3b) is ATB, and (51c), which I owe to an anonymous reviewer, is RNR with echoic *wh-in-situ*.

- (51) a. Anne knows someone that loves \_ and Jules knows someone that hates, *this man*.
  - b. \* *Who* does Anne know someone that loves \_ and Jules know someone that hates \_?
  - c. Anne knows someone that loves \_ and Jules knows someone that hates, *WHO*?

Some more examples confirming the locality-sensitivity of ATB are given in (52), in Dutch, and (53) in English:<sup>14</sup>

- (52) a. \* *Wie* kent Anne een meisje dat \_ bewondert en Ilse een jongen die \_ haat? who knows Anne a girl who admires and Ilse a boy who hates '[\*] Who does Anne know a girl that admires and Ilse a boy that hates?'
  - b. \* *Aan wie* betreurde Anne dat Jan een pen gaf \_ en Piet een boek (gaf) \_?
    to who regretted Anne that Jan a pen gave and Piet a book gave
    `[\*] To whom did Anne regret that John gave a book and Bill gave a pen?'
- (53) a. *\*Which movie* did a girl that loves \_ laugh and a boy who hates \_ cry?
  - b. \* *What* was Anne angry because John bought \_ and Bill demolished \_?
  - c. *\*To whom* did Anne regret that John gave a book \_ and Bill (gave) a painting \_?

Thus, not every construction involving external remerge has the ability to display apparent nonlocality effects.<sup>15</sup>

<sup>&</sup>lt;sup>14</sup> RNR counterparts of (52b) and (53b/c) are acceptable; those of (52a) and (53a) are not because of the right periphery condition, as discussed in section 3.1. Recall that ATB is not subject to such a condition.

Another sentence type that the present perspective may shed further light on is the parasitic gap construction. A standard example is (54), where the regular gap of *wh*-movement is in the object position of *read*, and the parasitic gap is inside the adverbial phrase *without buying*:

#### (54) *Which book* did Ann read \_ without buying \_?

At first sight, there seems to be ATB-like movement of *which book*. However, an adverbial PP is normally an island for extraction. A solution is provided by external remerge (sideward movement in the analysis due to Nunes 2001). The derivation of (54) goes as follows: merge *buying* with *which book*, externally remerge *which book* with *read* (note that *which book* is now shared between two predicates), merge *without* with *buying which book* (only now the island boundary is created, but this is harmless since the *wh*-phrase has already been remerged in the previous step), extend the matrix verb phrase by merging the subject and the adverbial phrase, and finally internally remerge *which book* in the highest position. The last step is possible because the *wh*-phrase can be locally selected from the object position.<sup>16</sup>

As in ATB constructions, the doubly shared phrase will be pronounced in the highest position, since the highest mother (CP) dominates the other two mothers, even though there is no inclusion relationship between these. One may now wonder where locality comes in; after all, it has just been shown that ATB is locality-sensitive. The answer is straightforward: it is the structural distance between the relevant object position and the CP domain that makes parasitic gap constructions local. Therefore, the examples in (55) are predicted to be unacceptable, which is correct:

- (55) a. *\*Which book* did Ann know a man who read \_ without buying \_?
  - b. *\*Which book* was Ann angry because Ilse read \_ without buying \_?
  - c. \* *Which book* did Ann regret that Ilse read \_ without buying \_?

Thus there are clear parallels between the behavior of ATB and parasitic gaps (see also Huybregts & Van Riemsdijk 1985).

### **5.** Conclusion

The starting point of this discussion is the assumption that syntactic objects can be merged more than once. Without a system of copies or traces, remerge results in multidominance. The one operation of Merge has three possible structural effects, depending on the original configuration of the input objects. For practical purposes, one can distinguish i) first-time (or external) merge,

<sup>&</sup>lt;sup>15</sup> Notice, incidentally, that data like (53b/c), and also (17b) contradict Bachrach & Katzir's (2009) claim that ATB with a right-peripheral gap can move out of islands, supposedly because ATB-movement can be fed by the locality-insensitive operation of RNR (an idea that is partly incompatible with the more general theory of remerge presented in this article).

<sup>&</sup>lt;sup>16</sup> In an attempt to generalize over the configuration in (54), a reviewer wonders why (i) is unacceptable, which would represent a combination of sentence amalgamation and *wh*-movement. The answer may lie in the fact that amalgams cannot be part of a non-declarative host for independent reasons (cf. Kluck 2011) – compare (ii):

<sup>(</sup>i) \* What did Jane get \_ I think it's \_ for her birthday?

<sup>(</sup>ii) \* Did Jane get I think it's a zither for her birthday?

ii) internal remerge, which corresponds to regular movement, and iii) external remerge, which corresponds to sideward structure sharing. Every instance of Merge leads to the creation of a new root. This automatic extension effect (the strict cycle) delimits the generative capacity of the grammar. A condition that further reduces the amount of potential overgeneration is the PF/LF-interface demand that the eventual result of a syntactic derivation must be single-rooted. Multiple rooted substructures can be united by means of coordination, subordination or a parenthetical connection.

The main point of the article concerns the effect of locality conditions on remerge. Generally, locality can be seen as a restriction on the input for Merge. Derivations involving external remerge provide a structural possibility that is impossible for internal remerge: the creation of a structural bypass early in the derivation. This results in apparently nonlocal behavior of the eventual resulting syntactic structure.

Right node raising is a construction type that indeed shows such behavior. This can be taken as indirect support for a sideward structure-sharing analysis of RNR. As it is unlikely that the mechanism of external remerge is only fit for one particular construction type, one expects there to be more whose derivation involves sideward sharing. These are then predicted to potentially display similar nonlocal characteristics. It turns out that insubordination, Horn amalgams and Andrews amalgams perfectly fit this picture.

Finally, the interaction between internal and external remerge can be studied. From a theoretical perspective, the special nonlocality effect associated with external remerge is expected to be overruled by the application of internal remerge later in the derivation. In practice, this can arguably be demonstrated in across-the-board movement and parasitic gap constructions. These show a sideward dependency characteristic of external remerge, but are still subject to locality restrictions related to subsequent movement.

Thus, the general patterns emerging from the data neatly correspond to theoretical expectations, without any additional stipulations, and without any construction-specific rule or constraint. From the current perspective, no left-right asymmetries need to be postulated concerning locality restrictions, and neither any decree that exempts external remerge from locality, since the attested effects fall out naturally from more basic components of the grammar.

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