Multidominance and locality

Abstract. Merger of a phrase for the second time leads to structure sharing, which can be represented by a multidominance graph. Depending on the configuration, this corresponds to either traditional movement or 'sideward' sharing. These two types have somewhat different properties. From basic Minimalist principles, it is predicted 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. It is also explained why they 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

1. Introduction

Syntactic heads or phrases can often be related to more than one sentence position.[*] Whether this concerns displacement or just agreement of some sort, such structural dependencies are normally constrained by locality principles. A standard example 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 an embedded position, and this is infelicitous:

(1) 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. Ann loves _ and Jules hates, *this man*.
b. Ann 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 (3):

(3) * *Who* does Ann know someone that loves _ and Jules know someone that hates _?

This situation corresponds to (1b).

[*] Acknowledgments to be added.

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) involves ellipsis instead of movement. However, this turns out to be problematic as well. While ellipsis may well involve a phonological process of deletion (or simply not spelling out the words), it generally does contain a syntactic component in the sense that structural distance is relevant. Compare, for instance, the examples of gapping of a finite verb in (4) to the sentences above. As in the case of *wh*-movement, we note that a gap buried inside a relative clause cannot be licensed:

(4) a. Ann *bought* a car, and Jules _ a bike.
b. * Ann knows someone who *bought* a car, and Jules knows someone who _ a bike.

Since RNR as in (2) behaves differently, this suggests that it does not involve ellipsis either: *a priori*, it is undesirable to relativize the working of locality principles with respect to particular ellipsis constructions.

In this article, I will explore a different approach to apparently nonlocal dependencies, namely in terms of *structure sharing*. Reasoning from basic Minimalist principles, I will show that the operation of Merge allows for the generation of structures involving multidominance, which can be considered inevitable if *remerge* (Merge again) is possible to begin with. Depending on the input, the resulting configuration of remerge can be one out of two types. The first type corresponds to regular movement, which is necessarily sensitive to locality. The second type corresponds to 'sideward' sharing. Though locality conditions are actually never violated, this type enables the grammar to generate structures that circumvent island boundaries, resulting in sentences that apparently involve nonlocal dependencies. 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:

Q3: How can the solution for Q2 be prevented from overgeneralization?

All of this is the subject of section 2, which also leads to an interesting prediction:

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

We can then start looking specifically for sentence types (next to RNR) that have been claimed, or might be claimed, to involve 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 then turns to concrete sentence constructions, with natural language data from English and Dutch. I briefly discuss Right node raising from the present theoretical perspective. Next, I introduce two other candidates for sharing: so-called cleft and sluicing amalgams. Some basic illustrations are given in (5):

(5) a. Ann is leaving for *I think it's* <u>*Brussels*</u>.
b. Ann got *you will never guess how many* <u>*presents*</u> for her birthday.

What is special about these construction types is 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 (5b) requires a nominal object such as *presents*. In section 3.2 I argue that this relationship can become apparently nonlocal, and also that this can be explained by a sharing analysis of sentence amalgamation.

Amalgams thus confirm our prediction. Of course that does not prove that hypothesis P is *always* correct. In fact, we can answer question four negatively:

Q4: Is P true regardless of the syntactic context?

A principled exception to P is the situation where the derivation involves remerge of both types (sharing and regular 'movement') with respect to the same phrase. This is probably the case in across-the-board movement and parasitic gap constructions. These sentence types are discussed in section 4. 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 deals with some potentially problematic aspects of the system. Section 2.3 brings in the topic of locality.

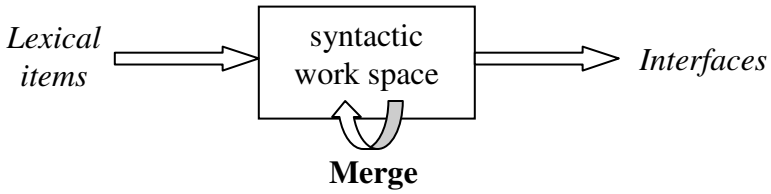
2.1. Merge, remerge, and multidominance representations

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) → 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 can be 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 accesible? 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.

(6)



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, to appear), but that does not concern us here.

It is possible 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 – an assumption that seems intuitively plausible and also maximally simple – three 'kinds' of input objects for Merge can be distinguished from a meta-perspective: objects newly imported from the lexicon, complex objects that are the result of a previous instance of Merge within the same derivational cycle, and objects that have been merged before, i.e. '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. One can call this *external (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, β) with respect to the object to be remerged (α). If β is the root in which α is embedded before Merge applies (hence α is a term of β), the result corresponds to regular movement. We can call this *internal remerge*. If there is no inclusion relationship between α and β before merger (hence β is an independent object), the result corresponds to a 'sideward sharing' structure (to be illustrated shortly below). We can call this *external remerge*. Needless to say, the last option is 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):

(7) Merge (α, β) → γ constitutes
   a. *external (first-time) merge* iff α and β are independent roots before merger;
   b. *internal remerge* iff β is a root and α is included in β (or the other way around) before merger;

c. *external remerge* iff α is included in some root δ, and β 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

type of Merge	*copying* or *multidominance**	*authors*	*terminology*
(first-time) merge	– (d.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

* 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 operation of Merge (which deserves a capital).[1] Depending on what it is applied to, the structural effect can be different. The distinction between these effects is relevant, so they deserve a name (but not a capital).

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) → M_1 and later in the derivation Merge (A, S_2) → 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).

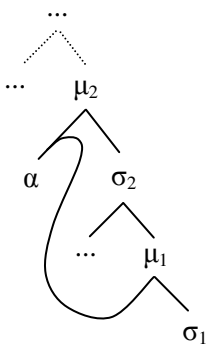
Another question is how to *represent* a syntactic structure whose derivation involves remerge. A set notation or a bracket notation like [$_{M2}$ A [$_{S2}$ ... [$_{M1}$ A S_1]]] is deceptive in that it necessarily suggests copying of the remerged node (here, A), or some device involving traces

[1] Nevertheless, there are proposals for different Merge operations: symmetrical Merge (set merge) versus asymmetrical Merge (pair merge); regular Merge versus parenthetical Merge. This is outside the scope of the present article; see REF for discussion.

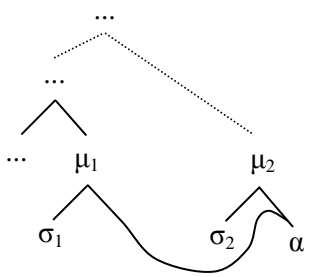
and indexes. The same, in fact, is true for standard syntactic trees. A better way of reflecting the underlying theory is therefore a multidominance graph.[2]

An illustration involving internal remerge is (8a), and one involving external remerge is (8b). In both cases, the remerged object is α, 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 α is contained in σ_2 in the former, but not in the latter. As a consequence, μ_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 I think have to) be united by a later instance of Merge, as is indicated by the highest dotted lines.

(8) a. Merge $(\alpha, \sigma_1) \rightarrow \mu_1$
Merge $(..., \mu_1) \rightarrow \sigma_2$
Merge $(\alpha, \sigma_2) \rightarrow \mu_2$
Merge $(..., \mu_2) \rightarrow ...$



b. Merge $(\sigma_1, \alpha) \rightarrow \mu_1$
Merge $(..., \mu_1) \rightarrow ...$
Merge $(\sigma_2, \alpha) \rightarrow \mu_2$
Merge $(..., \mu_2) \rightarrow ...$



Concrete examples part of whose structure may correspond to the abstract pictures in (8a/b) are *wh*-movement and right node raising, respectively:[3]

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

These sentences show that the linearization procedure at the PF interface must be sensitive to the different configuration 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 must refer the reader to REF; here, let me just indicate some significant points.

If one mother (here, μ_2) of a remerged node α includes the other (μ_1), the higher position becomes the spell-out position of α (i.e., structural prominence gets priority). This is the case for internal remerge. If α 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 α becomes the last occurrence of α (a kind of postponed effort effect). What counts as 'last'

[2] 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.

[3] Right node raising is discussed in more detail in section 3.1.

depends on the eventual linear asymmetry between (the ancestors of) μ_1 and μ_2. In (8b/9b), μ_1 is part of the first conjoined clause (possibly, the specifier of a coordination phrase), and μ_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 (σ_2, α) $\rightarrow$ μ_2 takes place directly before Merge (σ_1, α) $\rightarrow$ μ_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 α 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.

2.2. Some notes on cyclicity and overgeneration

Before we go on, a few remarks about the (non-)restrictiveness of the system are in order. Undoubtedly, the possibility of remerge increases the generative power of the grammar. Since not every possible structure may correspond to acceptable sentence types, we may ask to which extent there are principled restrictions.

First, notice that the strict cycle is an inherent property of the system. It is equivalent to the 'extension condition' (Chomsky 1995) or the 'no-tampering condition' (Chomsky 2005). 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 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 $_{D}\wedge_{A}\wedge_{B}$ comparable to the situation in (8b).

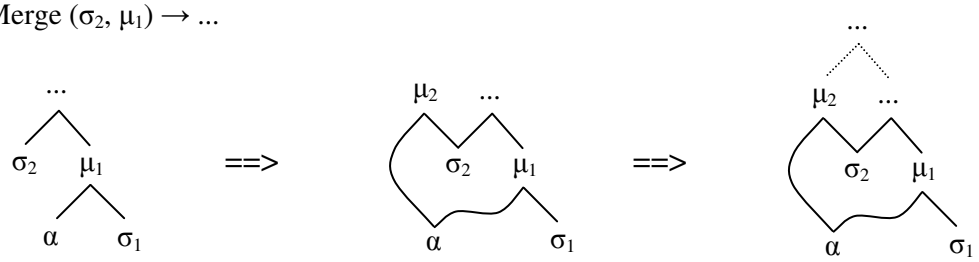
Clearly, a doubly-rooted structure can be generated during the derivation, but it is not an object that can be interpreted at the interfaces itself. First, it cannot be linearized at PF, essentially because an asymmetry between the two roots is lacking. Second, it cannot be interpreted at LF either, 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.[4] Again, this is an observation from a meta-perspective – it is not a rule of core syntax. The autonomy of syntax has the consequence that the operation Merge (whether it concerns first-time merge, internal remerge, or external remerge) only needs local justification at each step (e.g., by means of selection or feature valuing). Higher-level requirements such as the ones just alluded to can be imposed by the interfaces, which then act as filtering devices.

Let us continue with a desirable restriction that is part of syntax more directly. So far, remerge of a term with a root has been discussed. But what would happen if a term is remerged with another term? The strict cyclic character of Merge prohibits the insertion of a new

[4] In this I depart from Van Riemsdijk's work on 'grafting', which, if I am not mistaken, does not address in any detail the interface problems created by multiple-rooted structures.

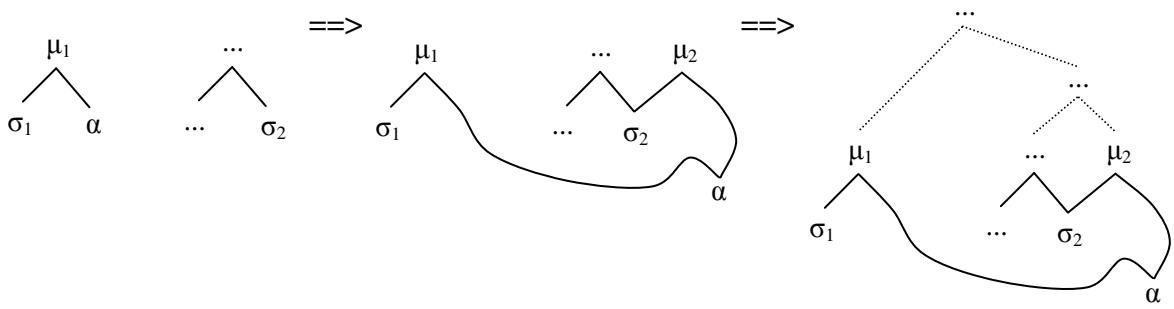
embedded level, so an additional root will be created. For 'quirky' internal remerge this leads to the situation sketched in (10):

(10) a. Merge $(\alpha, \sigma_1) \rightarrow \mu_1$ c. Merge $(\alpha, \sigma_2) \rightarrow \mu_2$ d. Merge $(\mu_2, ...) \rightarrow ...$
b. Merge $(\sigma_2, \mu_1) \rightarrow ...$



Step (10c) looks like a failed attempt to move α to an embedded position. Instead, an additional root μ_2 is automatically created, which in turn leads to the necessity of a uniting step as in (10d) which would be hard to justify independently. Notice also that there is no inclusion relationship between the two mothers of α, so α will be spelled out in the linearly last position, which is next to the first sister σ_1 in this case. The whole state of affairs seems unwanted. For 'quirky' external remerge a similar conclusion can be drawn. Consider the sketch in (11):

(11) a. Merge $(\sigma_1, \alpha) \rightarrow \mu_1$ c. Merge $(\sigma_2, \alpha) \rightarrow \mu_2$ d. Merge $(..., \mu_2) \rightarrow ...$
b. Merge $(..., \sigma_2) \rightarrow ...$ e. Merge $(..., ...) \rightarrow ...$



In (11a) two independent structures are created. In (11b), α is externally remerged with the embedded σ_2, which results in a third root μ_2, which eventually requires to two uniting steps as in (11d/e). Again, the configuration created does not seem to correspond to real sentence structures.

How can we plausibly restrict the grammar in order to prevent the generation of structures like (10) and (11)? What these have in common is that the offensive step of remerge in (10c/11c) leads to the creation of an additional root. That is, the number of roots increases by one upon Merge. Crucially, this is not the case for regular internal remerge and neither for regular external remerge as illustrated in (8a/b): here, the number of roots stays the same. With first-time merge, the number decreases by one. Thus, it seems that the proliferation of roots must be prevented. Formally, this can be stated as follows:

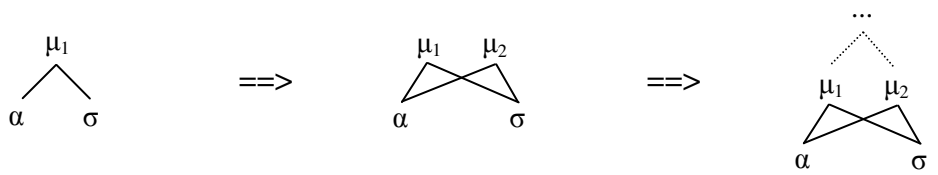
(12) *No proliferation of roots condition*

If the derivation proceeds from stage i to i+1 through Merge $(\alpha, \beta) \rightarrow \mu$, then $|\{ \rho \in \{\alpha, \beta, \mu\}: \rho \text{ is a root at stage i+1}\}| \leq |\{ \rho \in \{\alpha, \beta\}: \rho \text{ is a root at stage i}\}|$.

Put differently from a practical perspective, at least one of the input objects for Merge must be a root. As discussed in more detail in REF, there is independent justification for this condition. First, it may well be that derivations are active at the top, which is the most recently added structural layer. The attention can be shifted between independent roots, but there is always one root involved. Second, Merge is essentially a combinatory device; it is used to create a single-rooted sentential structure out of a number of lexical items, which are all independent roots originally. First-time merge is the fastest way to obtain this goal; regular remerge, which does not reduce the number of roots, causes some apparently necessary delay; but quirky remerge, which increases the number of roots, is completely counterproductive from this perspective.

A special case that is also excluded by the condition in (12) is illustrated in (13). Here, α and σ are merged and become terms of μ_1. They are merged together for the second time in (13b); this gives rise to a second mother μ_2. Both mothers are united in (13c).

(13) a. Merge $(\alpha, \sigma_1) \rightarrow \mu_1$ b. Merge $(\alpha, \sigma_1) \rightarrow \mu_2$ c. Merge $(\mu_2, \mu_2) \rightarrow$ ...



Since (13) does not make any sense, it may be considered a welcome result that it cannot be generated in the first place.

To sum up, the possibility of remerge, both internally and externally, follows from the derivational system without stipulations. This paves the way for many interesting structural configurations, but there is also a danger of overgeneration. Fortunately, it is not the case that anything goes. In this section, three general restrictions were discussed: i) the extension condition, which simply follows from the way Merge is defined, ii) the interface requirements resulting in the demand that derivations eventually become single-rooted, and iii) the condition against the proliferation of roots during the derivation, which in effect prohibits several quirky structures that would result from attempts to remerge in embedded positions. In section 3, I will briefly adress the issues of theta roles and semantic (a)symmetry in the context of particular sentence types.

2.3. Locality

After the preceding introduction into a the idea of remerge, we can now turn to the main theoretical point of this article, which relates to 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.

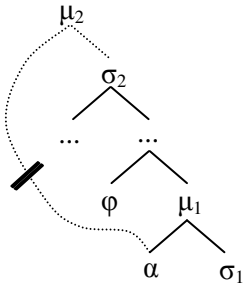
I will not be concerned with the definition and explanation of locality as such. Following standard practice, I assume that syntactic locality domains exist, and that a domain boundary can be determined by certain categorial head. In current terminology, such heads are phase heads, which trigger syntactic 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:

(14) *Locality of remerge:* A term α of some syntactic root ρ can only be selected as input for Merge if α belongs to the same syntactic locality domain as ρ.

Consider the following potential derivation, in which an attempt is made to 'move' across some domain boundary determined by the category φ. In (15), α is part of the lowest domain, it is not in the edge, and in the cycle in which σ_2 is created, α can no longer be selected as input for Merge. Step (15d), which would involve internal remerge of α, is therefore impossible.

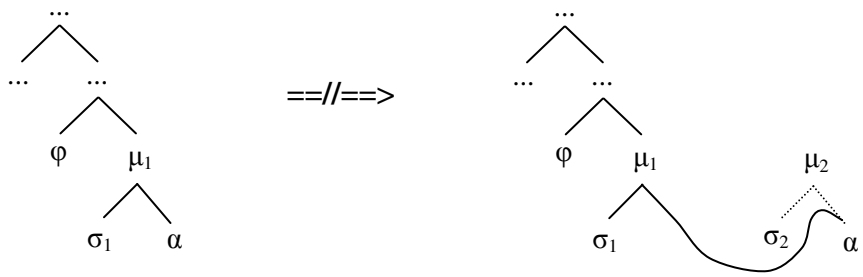
(15) a. Merge $(\alpha, \sigma_1) \rightarrow \mu_1$
b. Merge $(\varphi, \mu_1) \rightarrow$ ...
c. Merge (... , ...) $\rightarrow \sigma_2$
d. * Merge $(\alpha, \sigma_2) \rightarrow \mu_2$



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 apply – after all, there is just one operation of Merge. For instance, in (16) external remerge of α is no longer possible after extending the derivation beyond φ.

(16) a. Merge $(\sigma_1, \alpha) \rightarrow \mu_1$
b. Merge $(\varphi, \mu_1) \rightarrow$ ...
c. Merge (..., ...) $\rightarrow$ ...
d. * Merge $(\sigma_2, \alpha) \rightarrow \mu_2$

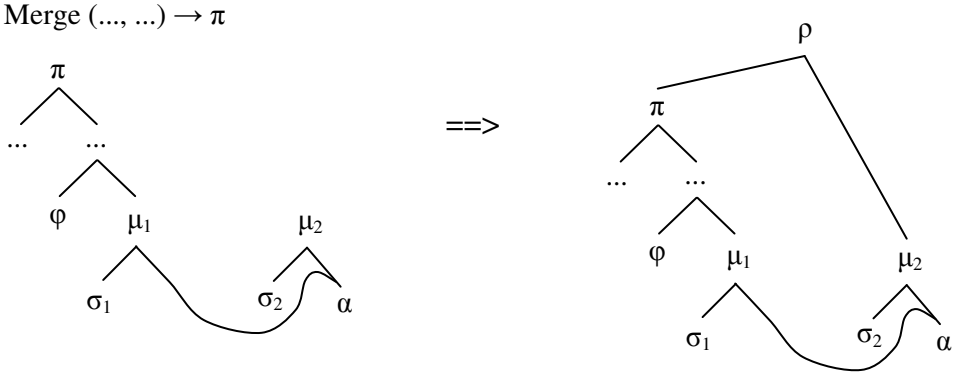


However, there is a straighforward way of circumventing such restrictions. How that works is illustrated in (17a) through (17e). First, a simple external remerge configuration is created by merging α with its first sister (17a), and immediately remerging it with its second sister (17b):

(17) a. Merge (σ_1, α) → μ_1 b. Merge (σ_2, α) → μ_2

The syntactic object α (whether a head or a phrase) is now locally related to both sisters σ_1 and σ_2, and it is a daughter of both μ_1 and μ_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 μ_1 (17c). Thereby, a new local domain can be entered (17d). Since μ_2 has not been embedded, it is still active in the syntactic work space, and we can unite both structures at the top (17e):

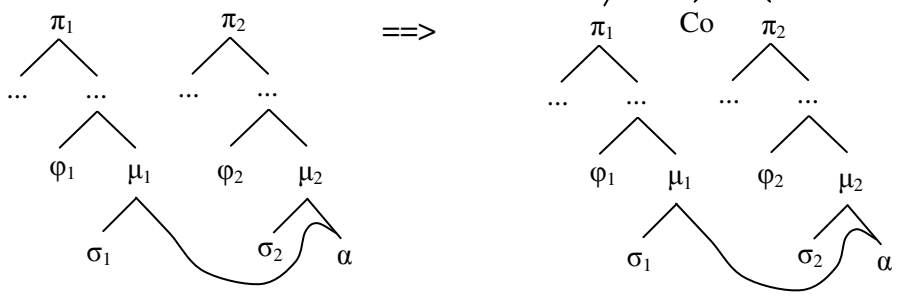
c. Merge (φ, μ_1) → ...
d. Merge (..., ...) → π
e. Merge (π, μ_2) → ρ



Interestingly, we have now arrived at something that seemed impossible in (16). Though every step in the derivation is perfectly local, the resulting representation has a non-local appearance when viewed from the top. The trick 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 (18a-f). Eventually, these complex parts may be combined in a coordination phrase, for instance; see (18g):

(18) a. Merge (σ_1, α) → μ_1
b. Merge (σ_2, α) → μ_2
c. Merge (φ_1, μ_1) → ...
d. Merge (φ_2, μ_2) → ...
e. Merge (..., ...) → π_1
f. Merge (..., ...) → π_2
g. Merge (Co, π_2) → Co´
h. Merge (π_1, Co´) → CoP



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 α (*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 (σ_1, α) and (σ_2, α) 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 (15), for instance, α cannot be internally remerged with σ_2 before φ closes off the locality domain for the obvious reason that σ_2 does not exist before φ is created, as it is a projection on top of φ.

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 non-local 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 cause apparent non-local behavior. The next section discusses some actual language data that support this hypothesis.

3. Apparent nonlocality effects

In separate subsections I will address 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.

(19) An KOCHT _, Mieke STAL _ en Ilse verNIELde *een boek over Plato*.
An bought Mieke stole and Ilse demolished a book about Plato
'An 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 are shown at once in (20), which contains a complex subject clause.

(20) Dat An een eigen HUIS _ en Ilse een eigen TUIN *zou willen hebben* is
that An a own house and Ilse a own garden would want have is
algemeen bekend.
generally known
'It is common knowledge that An 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 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 (to appear), 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).

A strong argument against a movement approach is the non-local character of RNR already commemorated in the introduction (see also Neijt 1979, Hartmann 2000), even apart from the trigger problem, the problem of non-constituent RNR (see below), and the fact that the 'right node' only surfaces once, though originally there supposedly are two phrases. Particularly revealing is the contrast between RNR and regular leftward ATB movement in minimal pairs like the following:[5]

(21) a. Ann knows a girl that BOUGHT _ and Mike (knows) a boy that STOLE, *a book about Plato*.
b. * *What* does Ann know a girl that BOUGHT _ and Mike (know) a boy that STOLE _?

Unlike RNR, leftward ATB is clearly locality-sensitive; see further section 4.2.

Left-right asymmetries can also be counted as evidence against backward ellipsis. A minimal pair from Dutch is shown in (22):

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

Apart from locality issues, it can be noted that the Head condition on remnants of forward 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 (23):

(23) a. Ann LOVES _ and Ilse HATES *boys with big toys*.
b. * Ann LOVES *boys with big toys* and Ilse HATES _ .

[5] It is surprisingly easy to combine RNR with regular forward gapping. This is why I put the finite verb *know(s)* in the second conjunct in (21) between brackets.

Furthermore, contrary to forward ellipsis, RNR generally requires morpho-phonological identity between the implied and the overt form (modulo some interesting counterexamples discussed in Ha 2008). Consider the asymmetry in (24), from Dutch, where the implied form is indicated with strikethrough for comparison (here, the finite verb's number inflection is relevant):

(24) a. An *gaa**t*** naar BELgië, en haar ouders ~~***gaan***~~ naar ZWEden.
An goes to Belgium, and her parents go to Sweden
'An is going to Belgium, and her parents (are going) to Sweden.'

b. * Ik dacht dat AN ~~op vakantie ***is***~~, maar jij (dacht) dat haar OUders
I thought that An on holiday is but you thought that her parents
op vakantie ***zijn***.
on holiday are
'I thought that An *(is on holiday), but you (thought) that her parents are on holiday.'

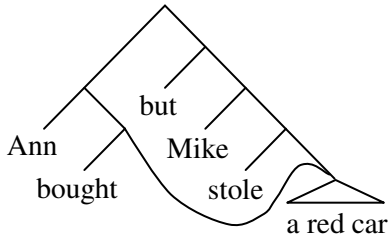
Another difference, which might be related, is that RNR shows condition C effects as in (25), unlike forward ellipsis, which can be saved by vehicle change (see also Johnson 2007):

(25) a. * He_i PRAISED _, and she CRITicized *the woman $Mike_i$ loved*.
b. She praised the woman $Mike_i$ loved, and he_i did _ too.

It can be concluded that RNR is fundamentally different from both leftward ATB 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 (26):

(26) Ann BOUGHT _ but Mike STOLE, *a red car*.

a-1 Merge (stole, [a red car]) → [stole [a red car]]
a-2 Merge (bought, [a red car]) → [bought [a red car]]
b-1 Merge (Mike, [stole [a red car]]) → [Mike [stole [a red car]]]
b-2 Merge (Ann, [bought [a red car]]) → [Ann [bought [a red car]]]
c. Merge (but, [Mike [stole [a red car]]]) → [but [Mike [stole [a red car]]]]
d. Merge ([Ann [bought [a red car]]], [but [Mike [stole [a red car]]]]) →
[[Ann [bought [a red car]]] [but [Mike [stole [a red car]]]]]

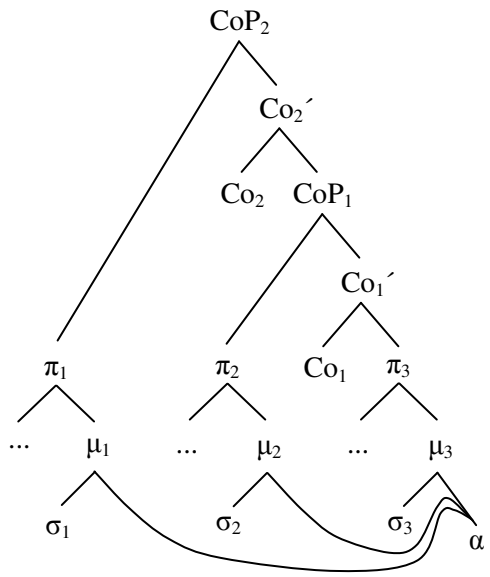


Note that the order of mergers in steps a1/a2 and b1/b2 is irrelevant; either permutation leads to the same result. Also, recall from section 2.1 that it is decided at PF that an externally remerged

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 (19), can be derived simply by remerging a object more than once. An abstract derivation for sentences of this type is given in (27):

(27) a-1 Merge (σ_1, α) → μ_1
a-2 Merge (σ_2, α) → μ_2
a-3 Merge (σ_3, α) → μ_3
b-1 Merge (..., μ_1) → π_1
b-2 Merge (..., μ_2) → π_2
b-3 Merge (..., μ_3) → π_3
c. Merge (Co_1, π_3) → $Co_1´$
d. Merge (π_2, $Co_1´$) → CoP_1
e. Merge (Co_2, CoP_1) → $Co_2´$
f. Merge (π_1, $Co_2´$) → CoP_2



In (27), the three conjuncts are joined by means of recursive coordination.

As discussed in section 2.3, derivations involving external remerge can lead to apparently non-local 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 (28), which illustrates an embedded complement clause island, a factive island, a *wh*-island, a clausal adjunct island, a phrasal adjunct island, and an embedded position within a phrasal adjunct, respectively. All examples are acceptable.

(28) a. Ann complained about the fact that MIKE _, and Lisa complained about the fact that JULES *had an affair*.
b. Ann regretted that MIKE _, and Lisa regretted that JULES *had an affair*.
c. Ann wondered who MIKE _, and Lisa wondered who JULES *had an affair with*.
d. Ann was angry because MIKE _, and Lisa was angry because JULES *had an affair*.
e. Ann dumped Mike AFter _, but Lisa already dumped Jules beFORE *his affair*.
f. Ann 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. Notice that the depth of embedding does not need to be equal in both conjuncts, witness the following examples from Dutch:

(29) a. [Piet zei dat AN _] maar [Jan riep dat Marie beweerde dat Jacob mompelde
Piet said that An but Jan cried that Marie claimed that Jacob mumbled
dat HENK *een boek had gekocht*].
that Henk a book had bought
'Piet said that An, 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 AN *een boek had gekocht*].

All these data confirm the theoretical possibilities laid down in section 2.

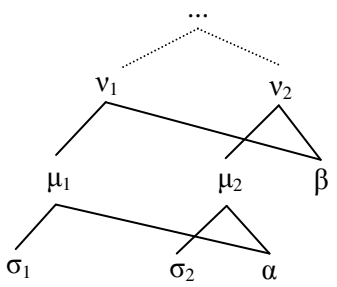
Let us finally turn to a number of points that deserve further discussion. First, it is now well-known that RNR does not need to involve a constituent. Some examples from Dutch are given in (30), where brackets indicate the relevant constituent boundaries:

(30) a. An heeft VOOR _ en Ilse (heeft) [NA *het ontbijt*] *gedoucht*.
An has before and Ilse has after the breakfast showered
'An took a shower before breakfast and Ilse took a shower after breakfast.'

b. An heeft een man die TWEE _ en Ilse heeft [een man die [DRIE *huizen*]
An has a man who two and Ilse has a man who three houses
bezit] *gehuwd*.
possesses married
'An 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 might be taken as evidence against a multidominance account of RNR. That argument does not go through, however. The solution is actually straightforward: the process of structure sharing by means external remerge can be applied to more than one constituent in the sentence (REF). A simple abstract configuration showing this is (31):

(31) a-1 Merge (σ_1, α) → μ_1
a-2 Merge (σ_2, α) → μ_2
b-1 Merge (μ_1, β) → ν_1
b-2 Merge (μ_2, β) → ν_2
c. Merge (ν_1, ν_2) → ...



Here, both α and β are externally remerged. The nodes σ_1 and σ_2 may correspond to the contrastive foci. The shared nodes α and β do not form a constituent but are linearly adjacent, and they will form a string at PF. Interestingly, the idea of multiple sharing has been proposed independently for another construction type (namely, coordinated double *wh* clauses) by Gracanin-Yuksek (2007), who calls it 'non-bulk sharing'.

The second point of discussion is the right periphery condition related to RNR: both the shared phrase (or the combined shared phrases) and the corresponding gap must be rightmost in their respective conjuncts. 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, to appear) for more elaborate discussion.

However, 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 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. However interesting such ideas are, I believe that they are ultimately untenable for a several reasons, even apart from the question where the phonological and semantic effects just mentioned come in, and from the problematic aspects of LCA-based linearization itself (REF), and the fact that the modified LCA is not fully descriptively adequate (cf. Kluck & De Vries, to appear). The main point is that the approach lacks general applicability. If the linearization procedure is designed especially for one construction type (RNR), it would not be possible to use the general remerge mechanism to generate other constructions that do not display the right periphery effect (see the next sections). What is more, the adapted LCA is only meant to deal with multidominance created by external remerge, but as it stands cannot adequately accommodate internal remerge (which corresponds to regular leftward movement), as is also acknowledged by Wilder.

A third issue concerns sharing of arguments in RNR constructions. Since Chomsky (1981) it is generally assumed that each argument is assigned and has to be assigned exactly one theta role. How can this be reconciled with a theory of external remerge where, say, an internal argument can be selected by more than one transitive verb? I do not think there is reason to worry here. There are two sides to the Theta Criterion. On the one hand, the available theta roles have to be assigned by the predicate at issue; this is not a point of concern for sharing. On the other hand, arguments can only bear 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 event, for instance (of course, this can be achieved indirectly in reflexive predicates). The condition, therefore, can be conceived as follows: an argument cannot bear *different* theta roles at the same time. I do not think there is any harm in being assigned the same feature (value) twice. Trivially, a set of features $\{\theta_i, \theta_i\}$ reduces to $\{\theta_i\}$. In fact, the Theta Criterion leads to the prediction of a theta matching effect for RNR of arguments. Indeed, it is hard to imagine acceptable instances of sharing involving semantically different types of arguments. Thus, matching effects induced by structure sharing contribute to the explanation of certain intuitively sensible parallelism requirements in reduced coordinated clauses.

3.2 Insubordination

In the previous subsection, external remerge in the context of coordination was discussed, in particular RNR constructions. This does not imply that structure sharing is only possible in syntactic coordinate structures; also notice that at the point of the derivation where external remerge takes place, there is no coordination phrase yet. Coordination is just one context in

which sharing makes sense, although probably the most obvious one. In the next subsection I will discuss examples of sharing in amalgams, which can be considered parenthetical insertions. There are also instances of sharing with hypotactic construal. 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 sharing with syntactically subordinated and semi-parenthetical phrases. Two examples in Dutch are given in (32) (see also Huybregts & van Riemsdijk 1985 for comparable data):

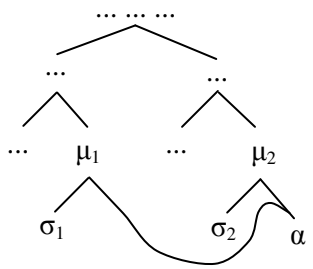
(32) a. Het kan moeilijk zijn om OBjectieve _ van SUBjectieve *informatie*
it can difficult be to objective from subjective information
te scheiden.
to separate
'It can be hard to separate objective from subjective information.'

b. An stemde, hoewel in haar hart TEgen _, uiteindelijk toch VOOR
An voted although in her heart against finally yet for
de verhoging van het parkeertarief.
the raise of the parking.rate
lit. 'An voted, although in her heart against, in the end still in favor of, the raise of the parking rate.'

In (32a), the adjectives *objectieve* 'objective' and *subjectieve* 'subjective' are contrasted, and in (32b) the two prepositions *tegen* 'against' and *voor* 'for'. Syntactically, the connection in (32a) 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 (32), there is no inclusion relationship between the mothers of the shared constituent. Consider (32a), 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 (33), with possible extensions:

(33) Merge (σ_1, α) → μ_1
Merge (σ_2, α) → μ_2
Merge (..., μ_1) → ...
Merge (..., μ_1) → ...
Merge (..., ...) → ...



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

Since the derivation involves external remerge, we may wonder if we can also find non-locality 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.[6] Needless to say, such examples are hard to parse, and require a clear pitch accent on the capitalized syllables. Nevertheless, they seem to be syntactically well-formed.

(33) 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 who are supporters of the Spanish football team.'

(34) Lucas is, ofschoon een speler die soms noodgedwongen zijn toevlucht
Lucas is although a player who sometimes forcedly his refuge
neemt TOT _, niettemin ook een voetballiefhebber die principieel gekant is
takes to nevertheless also a football.lover who principally opposed is
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 some initial confirmation of the prediction announced in the introduction. In the next subsection, this picture will be strengthened.

3.2. Amalgamated sentences

In a by now famous paper, Lakoff (1974) put on the agenda certain cases of sentence entangling. The most important ones can be called cleft amalgams and sluicing amalgams ('Horn' and 'Andrew' cases, in Lakoff's terms). Some more recent discussion of these construction types can be found in Tsubomoto & Whitman (2000), Guimarães (2004), Van Riemsdijk (2006), Zwart (2006), Kluck (2008, in prep.), and Grosu (to appear). Two examples in Dutch are (35a/b):

(35) a. An kreeg [ik dacht dat het *een citer* was] voor haar verjaardag.
An got I thought that it a zither was for her birthday
'An got I thought it was a cither for her birthday.'

[6] Comparable to the situation is (29), it is also possible have an uneven distribution of complexity here. For instance, variants of (33) 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 *aanhangers van...* 'supporters of...'.

b. An kreeg [je raadt nooit hoeveel *cadeaus*] voor haar verjaardag.
An got you guess never how.may presents for her birthday
'Ann 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 sluicing type is also a kind of exclamative. Verb second, among other things, shows that the intrusive clause is a main clause. 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 does not select for a clause, but requires a nominal object. Thus, there is a selectional relationship between an element in the matrix and the embedded content kernel.

The content kernel is clearly also part of the intrusive clause. In (35a) *een citer* 'a zither' is a predicate nominal; in (35b) *cadeaus* 'presents' is part of the sluice. 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.[7]

In what follows I will not be concerned with the details of the syntax and semantics of amalgams. Many aspects of these complicated construction types still have to be settled. For relevant discussion, see the references mentioned, and especially Kluck (this volume). What is of interest here is the hypothesis that amalgams 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 in the matrix (see REF for discusison). Finally, the matrix can be completed. The resulting structure contains a bypass at the bottom. 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.

We have seen that external remerge may lead to apparently non-local configurations. Since the interrupting clause in an amalgam is a main clause, even a basic example would involve apparent non-locality. 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 cleft amalgams; see (36) and (37). Notably, the complex intrusions in (36a/37a) contain a factive island, the ones in (36b/37b) a complex noun phrase island.

(36) a. Ann got [I guess I have to convince you that it's *a didgeridoo*] for her birthday.
b. Ann got [I think that it was Ilse who claimed that it's *a didgeridoo*] for her birthday.

[7] In cleft amalgams, what is shared is probably not a full (DP-level) argument but only the nominal projection. See REF for discussion.

(37) a. An krijgt [ik vermoed dat ik je ervan moet overtuigen dat het
An gets I suspect that I you there.of must convince that it
een didgeridoo is] voor haar verjaardag.
a didgeridoo is for her birthday
'An will get I presume I have to convince you that it's a didgeridoo for her birthday.'

b. An kreeg [ik dacht dat er wel iemand zou zijn die zou
An got I thought that there indeed someone would be who would
beweren dat het *een didgeridoo* was] – maar het is dus eigenlijk
claim that it a didgeridoo was but it is thus really
een midwinterhoorn.
a midwinter.horn
'An got I figured there would have been someone who claimed that it's a didgeridoo – but it is in fact a midwinter horn.'

For sluicing amalgams we arrive at the same picture, witness the examples in (38) and (39). Here, too, the interrupting clause can be enlarged spectactularly.

(38) a. Ann got [I am sure you will never guess how many *instruments*] for her birthday.
b. Ann got [I guess there's nobody here who can even imagine how many *instruments*] for her birthday.

(39) An kreeg [ik wed dat er niemand is die zich zelfs in zijn stoutste dromen
An got I bet that there nobody is who REFL even in his wildest dreams
maar voor kan stellen hoeveel *cadeaus*] voor haar verjaardag.
but PTL can imagine how.many presents for her birthday
'An 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.

4. Where external and internal remerge meet

So far, the results are very promising. Here, I will address question Q4 from the introduction, and briefly discuss some cases that encompass both internal and external remerge.

The first candidate is across-the-board movement (ATB). According to Willliams (1978), and more recently Citko (2005), among others, ATB involves structure sharing. Consider the simple example in (40):

(40) *Who* did An admire _ and Jules hate _?

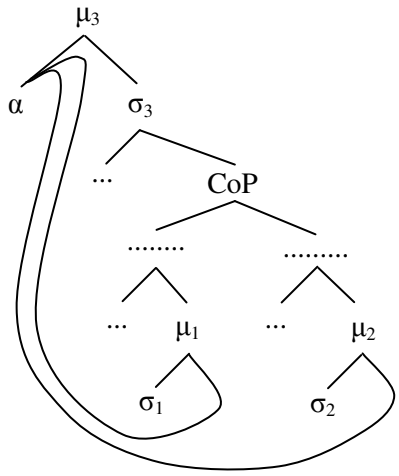
Here, the *wh*-phrase is related to two gaps, one in each conjunct. This raises several questions. If there originally were two *who*s, why do we not obtain one of the variants in (41)?[8]

(41) a. * *Who who* did An admire _ and Jules hate _?
b. * *Who* did An admire *who* and Jules hate _?
c. * *Who* did An admire _ and Jules hate *who*?

If *who* is shared in the base position, this mystery is solved: there is only one *wh*-phrase to begin with.

Since we have argued that regular movement is als a kind of structure sharing, namely multidominance caused by internal remerge, we obtain the following abstract structure for ATB:

(42) Merge (σ_1, α) → μ_1
Merge (σ_2, α) → μ_2
Merge (..., μ_1) → ...
Merge (..., μ_1) → ...
Merge (..., ...) → CoP
Merge (..., CoP) → σ_3
Merge (α, σ_3) → μ_3



Crucially, the phrase α 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 μ_3 dominates both μ_1 and μ_2, the shared phrase α will be spelled out in its highest position, as required. The fact that μ_1 does not include μ_2 or vice versa, which would trigger the elsewhere rule yielding spell-out in the last position is overruled by the fact that α is internally remerged later in the derivation. Therefore, (43) is also unacceptable:

(43) * Did An 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). A structural bypass early in the derivation would be impossible because σ_3 is a projection above CoP and does not yet exist at an early stage. Thus, internal remerge following external remerge cancels the special properties otherwise associated with external remerge.

Locality dictates that the distance between the original position of a phrase to be internally remerged cannot be too deeply embedded in the intended highest sister (the current root before

[8] Even in languages that allow for multiple *wh*-movement, such as Bulgarian, the variant in (41a) is never used for ATB constructions.

Merge takes place). It was already noted above that ATB is indeed locality-sensitive. Some more examples that confirm this are given in (44), in Dutch, and (45) in English:[9]

(44) * *Wie* kent An een meisje dat _ bewondert en Ilse een jongen die _ haat?
who knows An a girl who admires and Ilse a boy who hates
'Who does An know a girl that admires and Ilse a boy that hates?'

(45) a. * *Which movie* did a girl that loves _ laugh and a boy who hates _ cry?
b. * *What* was Ann angry because John bought _ and Bill demolished _?
c. * *To whom* did Ann regret that John gave a book _ and Bill (gave) a painting _?

Note, incidentally, that in ATB constructions there is no right edge condition active that is constraining the positions of the gaps; see also (46):

(46) Who did An give _ a book and Ilse (give) _ a painting?

In sum, ATB shows that, on closer inspection, not every construction involving external remerge necessarily has the ability to display apparent non-locality effects.

Another sentence type that the present perspective may shed some further light on is the parasitic gap construction. A standard example is (47), where the regular gap of *wh*-movement the is object position of *read*, and the parasitic gap is inside the adverbial phrase *without buying*:

(47) *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 (47) 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.

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 (48) are predicted to be unacceptable, which is correct:

(48) a. * *Which book* did Ann know a man who read _ without buying _?
b. * *Which book* was Ann angry because Ilse read _ without buying _?

[9] Data like (45b/c), and also (21b) 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).

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 remerged (merged again). Dispensing with a system of copying or traces, I argued that 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, we can distinguish i) regular external merge, which coresponds to first-time merger, 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 extension effect (the strict cycle) delimits the generative capacity of the grammar. Other conditions that reduce the amount of potential overgeneration are the PF/LF-interface demand that the eventual result of a syntactic derivation must be single-rooted, and the proposed condition against the proliferation of roots during the derivation.

The main point of the article concerns the effect of locality conditions on remerge. As a preliminary, I showed that locality can be seen as a restriction on the input for Merge. I then argued that 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 non-local behavior of the eventual resulting syntactic structure.

Right node raising is a construction type that indeed shows such behavior. I therefore argued in favor of a structure-sharing analysis of RNR. It would be strange, however, if the mechanism of external remerge is only fit for one particular construction type. We expect there to be more sentence types whose derivation involve sharing. Moreover, we predict such constructions to display similar non-local characteristics. I discussed insubordination, cleft amalgams and sluicing amalgams from this perspective. Finally, I briefly turned to two constructions whose derivation involves the interaction of internal and external remerge, namely across-the-board movement and parasitic gaps. Here, some of the special effects associated with external remerge are overruled by the application of internal remerge later in the derivation. In all cases, the patterns emerging from the data neatly correspond to the theoretical expectations, without any additional stipulations. I take this as evidence for a grammar involving multidominance.

Bibliography

Ackema, Peter & Ad Neeleman. 2004. *Beyond Morphology: Interface Conditions on Word Formation.* Oxford: Oxford University Press.

Blevins, James. 1990. *Syntactic complexity: Evidence for discontinuity and multi-domination.* Amherst, MA: University of Massachusetts dissertation.

Bobaljik, Jonathan & Samuel Brown. 1997. Interarboreal operations: Head movement and the extension requirement. *Linguistic Inquiry* 28, 345-356.

Chen-Main, Joan. 2006. On the generation and linearization of multi-dominance structures. Baltimore, MD: John Hopkins University dissertation.
Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
Chomsky, Noam. 2005. On phases. Ms., Massachusetts Institute of Technology, Cambridge.
Chung, Dae-Ho. 2004. Multiple dominance analysis of right node raising constructions. *Language Research* 40, 791-812.
Citko, Barbara. 2005. On the nature of Merge: External Merge, Internal Merge, and Parallel Merge. *Linguistic Inquiry* 36, 475-497.
Culicover, Peter & Ray Jackendoff. 1997. Semantic subordination despite syntactic coordination. *Linguistic Inquiry* 28, 195-217.
Epstein, Samuel David, Erich M. Groat, Ruriko Kawashima & Hisatsugu Kitahara. 1998. *A Derivational Approach to Syntactic Relations.* New York: Oxford University Press.
Fiengo, Robert. 1974. *Semantic conditions on surface structure*. Cambridge, MA: MIT dissertation.
Gärtner, Hans-Martin. 2002. *Generalized Transformations and Beyond: Reflections on Minimalist Syntax*. Berlin: Akademie Verlag.
Goodall, Grant. 1987. *Parallel Structures in Syntax: Coordination, Causatives and Restructuring*. Cambridge: Cambridge University Press.
Gracanin-Yuksek, Martina. 2007. *About Sharing*. Doctoral dissertation, MIT.
Grosu, Alexander. To appear. On the pre-theoretical notion 'phrasal head': Ignoring the left periphery is always at your own risk. In: *Interface properties: edges, heads and projections*, Anna-Maria Di Sciullo and Virginia Hill (eds.). Amsterdam: John Benjamins.
Guimarães, Maximiliano. 2004. *Derivation and Representation of Syntactic Amalgams*. Doctoral dissertation, University of Maryland.
Ha, Seungwan. 2008. Ellipsis, right node raising, and across-the-board constructions. Boston, MA: Boston University dissertation.
Hartmann, Katharina. 2000. *Right Node Raising and Gapping: Interface Conditions on Prosodic Deletion*. Amsterdam: John Benjamins.
van der Heijden, Emmeke. 1999. *Tussen nevenschikking en onderschikking*. PhD dissertation, Radboud University Nijmegen [LOT dissertation series 22].
Huybregts, Rini & Henk van Riemsdijk. 1985. Parasitic gaps and ATB. *North East Linguistic Society (NELS)* 15, 168-187.
Johnson, Kyle. 2007. LCA + alignment = RNR. Paper presented at the workshop on *Coordination, Subordination and Ellipsis*, Tübingen. [Eberhard-Karls-Universität Tübingen, 7-8 June 2007.]
Karlgren, Hans. 1976. Why trees in syntax? *Studia Linguistica* 30, 1-33.
Kayne, Richard. 1994. *The Antisymmetry of Syntax.* Cambridge, MA: MIT Press.
Kluck, Marlies. 2008. Intertwined clauses, interacting propositions. A note on the interpretive aspects of sentence amalgamation. *Proceedings of ConSOLE XVI*, 77-101.
Kluck, Marlies. In preparation. *The Structure and Meaning of Amalgams*. Doctoral dissertation, University of Groningen. LOT dissertation series.
Kluck, Marlies & Mark de Vries. To appear. Cumulative rightward processes. *Rightward Movement from a Cross-linguistic Perspective* ed. by Heike Walker, Manfred Sailer & Gert Webelhuth. Amsterdam: John Benjamins.
Koster, Jan. 2007. Structure Preservingness, Internal Merge, and the Strict Locality of Triads. In *Phrasal and Clausal Architecture: Syntactic derivation and interpretation*. In honor of Joseph E. Emonds, ed. by Simin Karimi, Vida Samiian & Wendy K. Wilkins, 188-205. Amsterdam: John Benjamins.
Lakoff, George. 1974. Syntactic amalgams. *Papers from the 10th meeting of the Chicago Linguistic Society* ed. by M. Galy et al., 321-344. [Reprinted in *The best of CLS: A Selection of Out-of-Print Papers from 1968-1975* ed. by Eric Schiller et al., 25-45.]

Lechner, Winfried. 2001. Reduced and phrasal comparatives. *Natural Language and Linguistic Theory* 19, 683-735.
McCawley, James. 1982. Parentheticals and discontinuous constituent structure. *Linguistic Inquiry* 13, 91-106.
Neijt, Anneke. 1979. *Gapping: A Contribution to Sentence Grammar* (Studies in Generative Grammar 7). Dordrecht: Foris.
Nunes, Jairo. 2001. Sideward movement. *Linguistic Inquiry* 32, 303-344.
Postal, Paul M. 1993. Parasitic gaps and the across-the-board phenomenon. *Linguistic Inquiry* 24, 735-754.
Postal, Paul. 1998. *Three Investigations of Extraction*. Cambridge, MA: MIT Press.
van Riemsdijk, Henk. 2006. Grafts follow from Merge. *Phases of Interpretation* ed. by Mara Frascarelli, 17-44. Berlin: Mouton de Gruyter.
Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1, 75-116.
Ross, John R. 1967. Constraints on variables in syntax. Cambridge, MA: MIT dissertation. [Published revised as *Infinite Syntax!* (Language and Being), Norwood, NJ: Ablex, 1986.]
Sabbagh, Joseph. 2007. Ordering and linearizing rightward movement. *Natural Language and Linguistic Theory* 25, 349-401.
Sampson, Geoffrey. 1975. The single mother condition. *Journal of Linguistics* 11, 1-11.
Starke, Michal. 2001. *Move Dissolves into Merge: a Theory of Locality*. Doctoral dissertation, University of Geneva.
Tsubomoto, Atsurô & John Whitman. 2000. A type of head-in-situ construction in English. *Linguistic Inquiry* 31, 176-182.
Wilder, Chris. 1994. Coordination, ATB and ellipsis. *Groninger Arbeiten zur Germanistischen Linguistik* 37, 291-329.
Wilder, Chris. 2008. Shared constituents and Linearization. In *Topics in Ellipsis*, ed. by Kyle Johnson, 229-258. Cambridge: Cambridge University Press.
Williams, Edwin. 1978. Across-The-Board Rule Application. *Linguistic Inquiry* 9: 31-43.
Zhang, Niina. 2004. Move is remerge. *Language and Linguistics* 5, 189-209.
Zwart, Jan-Wouter. 2006. Over het enten van interpolaties. *Tabu* 35, 163-180.
Zwart, Jan-Wouter. To appear. Structure and order: asymmetric merge. *Handbook of linguistic minimalism*, ed. by Cedric Boeckx, Oxford University Press.