Apparent nonlocality

Mark de Vries

University of Groningen

1. Introduction and overview

Syntactic processes and dependencies are normally restricted to certain domains.[*] This phenomenon of locality has been a central object of study for decades, and it is still relevant in the Minimalist Program, especially in connection with the idea of phases/cycles. A standard example is provided in (1), where the underscore indicates the regular surface position of the extracted *wh*-phrase, the direct object of the participle *gegeten* 'eaten'. In this paper, I will restrict the empirical domain to Dutch.

(1) a. *Wat* heeft de man _ gegeten?
what has the man eaten
'What did the man eat?'

b. * *Wat* zag Joop de man die _ had gegeten?
what saw Joop the man who had eaten
'* What did Joop see the man who had eaten?'

In (1b), the extraction site is embedded in a complex noun phrase involving a relative clause, which is unacceptable. In other words, nonlocal movement across island boundaries is impossible.

There are, however, recalcitrant data. An example is the potential nonlocal behavior of a particular type of ellipsis, called backward conjunction reduction or right node raising (RNR). Consider (2), where capitals indicate contrastive focus:

(2) a. Joop heeft een CAdillac _, maar Jaap (heeft) een
Joop has a cadillac but Jaap has a
EEND *gehuurd*.
citroën-2CV (lit. 'duck') rented
'Joop rented a cadillac, but Jaap rented a citroën-2CV.'

b. Joop kende iemand die een CAdillac _, en Jaap
Joop knew someone who a cadillac and Jaap
kende iemand die een EEND *bezat*.
knew someone who a 2CV possessed
'Joop knew someone who possessed a cadillac, and Jaap knew someone who possessed a citroën-2CV.'

In (2a), there are two conjoined clauses, and the right-hand part of these clauses (here a participle) is common, resulting in ellipsis in the first conjunct. In (2b) the ellipsis site is buried inside a relative clause. Unlike the situation in (1b), (2b) is fine; thus, RNR may involve a nonlocal dependency, at least superficially.

Such examples might be taken as an indication that RNR is not a syntactic process (cf. Hartmann 2000). However, such a conclusion is far from inevitable. Instead, I argue that the nonlocal behavior in (2b) is only apparent. This reasoning involves two major steps. First, it presupposes an analysis of RNR in terms of structure sharing (following McCawley 1982, and many others since). Second, it is necessary to show that the relevant examples can indeed be derived by the grammar. In section 2, I argue that a generative syntax involving recursive Merge enables us to derive both regular movement and structure sharing as in RNR. The latter possibly creates a structural bypass, leading to apparent nonlocal behavior, even if every single step of the derivation is local.

This approach leads to new questions and predictions, which have not been addressed in the literature, as far as I know. The main question that is discussed in section 2 is the following:

Q: How can we prevent the solution for apparently nonlocal structure sharing to generalize to regular movement constructions?

In other words, if creating a bypass is theoretically allowed (in the way to be explicated below), is it not the case that we predict massive overgeneration? Regular movement should not become unconstrained by some mechanism to circumvent known locality boundaries. We will see that the answer is simple, and falls out naturally from the basic system.

The main empirical prediction is discussed in section 3. It can be formulated as follows:

P: All construction types involving external remerge (i.e., structure sharing) potentially show nonlocal behavior.

Apart from RNR, I will discuss two candidate constructions: cleft amalgams and *wh*-amalgams. Some basic examples are given in (3a/b), respectively. Here, the so-called 'interrupting clause' is printed in Italics, and the 'content kernel' is underlined. What is relevant for us in these examples is not movement or ellipsis, but the fact that there is a selectional relationship of the kernel by some element in both the matrix and the interrupting clause:

(3) a. Joop is naar *ik geloof dat het* <u>*Epe*</u> *was* vertrokken.
Joop is to I believe that it Epe was left
'Joop left to I think it was Paris.'

b. Joop heeft *je raadt nooit hoeveel* <u>*mensen*</u> uitgenodigd.
Joop has you guess never how.many people invited
'Joop invited you will never guess how many people.'

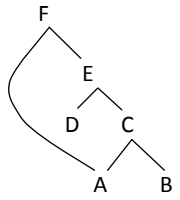
Joining in on ideas by Guimarães (2004), Van Riemsdijk (2006), Kluck (in preparation), and others (*pace* Zwart 2006), I assume that such sentences involve structure sharing, such that the underlined phrase is part of both clauses at the same time. Section 3 explores if they involve apparently nonlocal dependencies, too, which would be the case if the interrupting clause can be made more complex than a single locality domain. It will turn out that this is indeed so – which confirms the prediction.

Needless to say, there are many relevant issues that cannot be discussed in this short paper. Concerning the linearization of graphs, and for more details on the formal structure and the distribution of (theta) roles, I refer to De Vries (2009) and (to appear). Subjects still to be explored in depth from the present perspective are across-the-board movement and asymmetric extractions. I do not think these extensions would affect the course of the argument in the present paper, which is rather straightforward. Below, I start with the general theory, and then turn to the empirical consequences.

2. Remerge and (non)locality

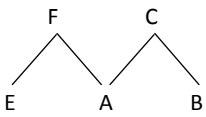
The structure building operation Merge takes two input objects and joins them into a more complex object. This process is recursive, so the output of Merge can be used as input for another instance of Merge, yielding a syntactic hierarchy. In order to account for displacement phenomena, a 'term' of a complex object can also be selected as input for Merge again, according to standard assumptions. For instance, after creating the object $[_E$ D $[_C$ A B]] by subsequent mergers, i.e. Merge (A, B) → C and Merge (D, C) → E, the system could select the embedded A and *remerge* it with E simply by performing, say, Merge (A, E) → F, yielding $[_F$ A $[_E$ D $[_C$ A B]]]. This means that A is used/interpreted in two 'positions', that is, it is involved in more than one set of basic relationships. In fact, the bracket notation just used is misleading: there are no two As. A is used twice, but not magically multiplied. Ideally, there are no copies or traces or other artifacts or enhancements in core syntax – see especially Gärtner (2002) on this. A more adequate way to represent 'movement' is therefore a multidominance graph, as indicated in (4):

(4) Merge (A, B) → C
Merge (D, C) → E
Merge (A, E) → F



Traditional movement can thus be reanalyzed as 'internal remerge'. Interestingly, this does not exhaust the possibilities, as has been observed by Van Riemsdijk (2006), De Vries (2005b), Citko (2005), and others. If a term A of an existing structure $[_C$ A B] is selected for Merge again, and the other input object is an independent object E (a possibility independently needed for simple 'external merge'), the result is a doubly-rooted structure:

(5) Merge (A, B) → C
Merge (E, A) → F

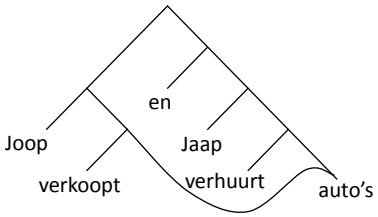


This can be called 'external remerge'.[1] In subsequent steps, both roots can be expanded. Eventually, they can, and I think must, be united, so that the complex object can be interpreted as a whole at the interfaces (linearization at PF is one of

several relevant issues here). Concretely, we could use external remerge to create a RNR construction, as is sketched in (6). Here, the crucial step of merger is 1b, where *auto's* 'cars' is remerged:

(6) Joop verKOOPT _, en Jaap verHUURT *auto's*.
Joop sells and Jaap rents cars
'Joop sells and Jaap rents, cars.'

1a. Merge (verkoopt, auto's) → [verkoopt auto's]
1b. Merge (verhuurt, auto's) → [verhuurt auto's]
2a. Merge (Joop, [verkoopt auto's]) → [Joop [verkoopt auto's]]
2b. Merge (Jaap, [verhuurt auto's]) → [Jaap [verhuurt auto's]]
3. Merge (en, [Jaap [verhuurt auto's]]) → [en [Jaap [verhuurt auto's]]]
4. Merge ([Joop [verkoopt auto's]], [en [Jaap [verhuurt auto's]]]) →
[[Joop [verkoopt auto's]] [en [Jaap [verhuurt auto's]]]]



The order of mergers in steps 1a/b and 2a/b is irrelevant; either permutation leads to the same result.[2,3]

It is important to see that there is just one operation of Merge (that is, leaving aside issues concerning asymmetry and parenthesis, see De Vries 2009, to appear); only the structural effect of Merge varies, depending on the input. Definitions of this are provided in (7):

(7) Merge (α, β) → γ constitutes
a. *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 β is included in some root δ, and α is an independent root (or the other way around) before merger.

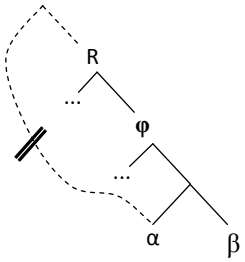
We are now in a position to address the central question where locality conditions come in. It turns out that external remerge can be used to create *apparent* long-distance relationships, but internal remerge cannot.

What constitutes a locality domain needs to be determined independently of Merge *per se*. A common view is that locality boundaries are related to certain categorial heads. For instance, the category C closes the clausal domain, and in current terminology it is therefore a 'phase head' that triggers another syntactic cycle. The details are of no concern to us here, but what is relevant is that an element embedded in some syntactic domain is no longer accessible outside of that domain (i.e. in a subsequent cycle), apart from successive cyclic movement via the left edge (a possible view is that the edge is in effect part of the higher domain; see Chomsky 1995, etc. for discussion). As a consequence, not everything can be remerged, since not every embedded syntactic object is accessible as input for Merge:

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

Now consider the following potential movement configuration, and the corresponding derivation, which would involve internal remerge of α in the final step. In this example, φ represents a locality boundary:

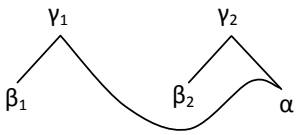
(9) Merge (α, β) ...
Merge ... → φ
Merge (..., φ) → R
* Merge (α, R)



Since α resides in an embedded domain (and is not in the edge), it is no longer accessible as input for Merge at the level of R. Therefore, the last step is illicit or simply impossible. This explains – in general terms – the ungrammaticality of examples such as (1b) '* What did Joop see the man who had eaten?'.

For derivations involving external remerge, the same locality condition applies (after all, there is just one operation of Merge), but here an interesting possibility shows up. Consider (10) through (12). First, a simple external remerge configuration is created by remerging α:

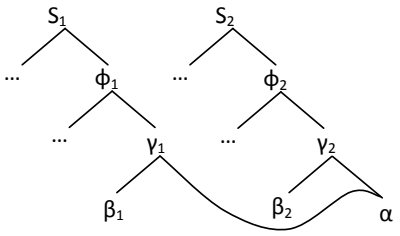
(10) Merge (β_1, α) → γ_1
Merge (β_2, α) → γ_2



The head or phrase α is now locally related to both β_1 and β_2, which are independent of each other. Next, the two roots are expanded by subsequent mergers, thereby possibly creating new locality domains:

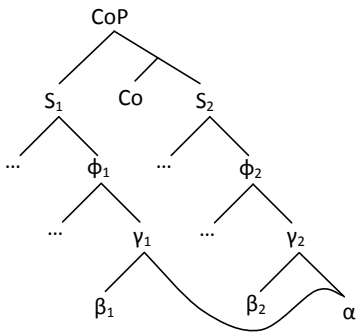
(11) ...
Merge (..., γ_1) → φ_1
Merge (..., φ_1) → S_1

Merge (..., γ_2) → φ_2
Merge (..., φ_2) → S_2



Finally, the two roots are united, for instance by coordinating the two partial structures S_1 and S_2, as shown in (12). Concrete examples could be the RNR examples in (2) above.

(12) ...
Merge (Co, S_2) → Co'
Merge (S_1, Co') → CoP



Though every step in the derivation is perfectly local, the resulting representation has a non-local appearance because the two positions of α are widely apart. The 'trick' is that external remerge can take place *before* the locality boundaries are created.[4] As long as there is such a 'bypass', it does not matter how complex the two partial structures will eventually become: the required relationships (β_1, α) and (β_2, α) have already been established and cannot be undone.

Importantly, such an 'early remerge strategy' is impossible in regular movement constructions. In (9), for instance, α cannot be internally remerged

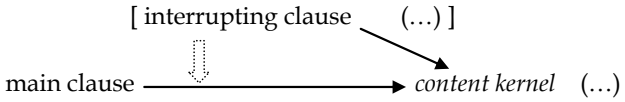
with R before φ is created, for the obvious reason that R does not exist before φ exists, as it is a projection on top of φ.

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 apparent non-local dependencies.

3. Apparent nonlocal dependencies

Against this theoretical background, let us turn to the prediction already announced in the introduction, namely that all constructions whose derivation involve external remerge potentially show nonlocal behavior. For a more detailed discussion of right node raising in terms of structure sharing, I refer to De Vries (2005a), Kluck & De Vries (to appear), and the references therein. Here, let us focus on the less well-known constructions involving sentence amalgamation, first described in Lakoff (1974), and briefly introduced in (3) above. The structural details of the various types of amalgams do not concern us here, but what is important is the assumption that they involve structure sharing. The general idea is sketched in (13), where the content kernel is the shared part that needs to be externally remerged during the derivation.

(13)



In separate subsections, I will now provide some crucial data showing that cleft amalgams and *wh*-amalgams involve apparent non-local dependencies.

3.1. *Cleft amalgams*

Cleft amalgams involve a cleft construction inside an interrupting parenthetical (see also Kluck 2008), of which the small clause predicate is the relevant content kernel that is shared with the matrix. In the examples below, it functions as a direct object. Clearly, there is a selectional relationship between the matrix verb *kreeg* 'got', and the underlined kernel, even though it surfaces inside the parenthetical. The parenthetical must receive a *de re* reading: in (14), there exists some x (that the matrix subject got) of which the speaker believes that it is a didgeridoo. The kernel is focused.

(14) Joop kreeg *ik* *geloof* *dat* *het* *een didgeridoo* *was*
Joop got I believe that it a didgeridoo was
voor zijn verjaardag.
for his birthday
'Joop got I think it's a didgeridoo for his birthday.'

Since questions like 'What do you think (that) this is?' are possible, the kernel in (14) might be considered accessible for a relationship with the matrix verb even if the distance were measured through the interrupting clause. However, the intervening material can be made more complex, such that the apparent distance can become very large, involving normally impenetrable syntactic domain boundaries. I take this to confirm the picture in (13): the matrix verb is directly connected to the content kernel, and the interrupting clause is indeed a parenthetical, whose complexity is irrelevant for the matrix. See (15) and (16). Needless to say, such examples are on the verge of our processing capability, but they are possible in principle. Again, the kernel is to be stressed, and the parenthetical is pronounced faster than the main clause.

(15) Joop krijgt *ik* *vermoed* *dat* *ik* *je* *ervan* *moet overtuigen*
Joop gets I suspect that I you there.of must convince
dat *het* *een didgeridoo* *is* voor zijn verjaardag.
that it a didgeridoo is for his birthday
'Joop will get I presume I have to convince you that it's a didgeridoo for his birthday.'

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

The complex interrupting clause in (15) contains a factive island, the one in (16) a complex noun phrase island.

3.2. *Wh-amalgams*

A *wh*-amalgam is a sluicing parenthetical where part of the sluiced *wh*-constituent is shared with the matrix. The semantics involves characteristics of an exclamation.

(17) Joop heeft vandaag *je raadt nooit wat voor* <u>*mensen*</u> ontmoet.
Joop has today you guess never what for people met
'Joop met you'll never guess what kind of people today.'

For details concerning this complicated construction type, I must refer to Lakoff (1974), Guimarães (2004) and Kluck (2008). What is of interest here is again the apparent distance between *kreeg* in the matrix and the content kernel, that is, the depth of embedding of the kernel inside the interrupting clause. As in the other type of amalgam, it can be enlarged spectacularly. An example is (18):

(18) Joop kreeg *ik wed dat er niemand is die zich*
Joop got I bet that there nobody is who REFL
zelfs in zijn stoutste dromen maar voor kan
even in his wildest dreams but PTL can
stellen hoeveel <u>*kado's*</u> voor zijn verjaardag.
imagine how.many presents for his birthday
'Joop got I bet there's no one who can imagine even in his wildest dreams how many presents for his birthday.'

Performance difficulties aside, island boundaries do not seem to be relevant in principle in such constructions. This can be explained by the theory of sharing in terms of external remerge explicated above.

4. Conclusion

Syntactic processes and dependencies are subject to locality constraints – but not always. Bridge verb contexts, for instance, form a well-known exception, or rather apparent exception according to the standard theory of successive cyclic movement. On the basis of Dutch data, this paper uncovered a completely different class of apparent exceptions, which includes right node raising constructions and amalgamated sentences. Arguably, these involve structure sharing. I have shown that the basic theory of Merge allows for this. What is more, it follows straightforwardly that regular movement, which comes down to

'internal remerge' is local by necessity (against the background of certain theoretical assumptions, of course). By contrast, structure sharing involves 'external remerge', which may lead to an apparently non-local configuration. This is possible because an 'early bypass' can be created, that is, remerge can take place at a stage in the derivation before some locality boundary is reached.

It is known that RNR constructions can be non-local in the sense that either the ellipsis site is inside an island, or the postcedent, or both. This follows from an analysis in terms of external remerge. Taking all that as a starting point in section 3, I showed that cleft-amalgams and *wh*-amalgams can be constructed that involve a kind of (apparent) non-local dependency, too. Perhaps, then, such behavior can be taken as a diagnostic for external remerge, which would open up an interesting new direction of research. At any rate, it seems that the kind of data discussed above strengthen the sharing approach to amalgams, as well as the underlying basic theory.

Notes

[*] I would like to thank the anonymous reviewers and the TIN-dag audience for useful comments. This research was financially supported by the Netherlands Organisation for Scientific Research (NWO).

[1] An alternative representation of (5), (6), (10), etc. involves so-called interarborial or 'sideward' movement (Bobaljik & Brown 1997, Nunes 2001). This crucially involves a copying mechanism, which I reject. Nevertheless, such structures would result from the exact same sequences of mergers, so the basic theoretical idea is in fact the same.

[2] It is the linearization procedure at PF that spells out the last occurrence of an externally remerged phrase (i.e., 'last' from the perspective of a top-down structure scan, when the structure is complete). Thus, ungrammatical sentences like * *Joop sells cars and Jaap rents* _ could never surface. For internally remerged material the situation is different; see De Vries (2009) for elaborate discussion.

[3] Another issue worth mentioning is that there are a number of interface conditions related to RNR specifically that cannot (and should not) be attributed to the general mechanism of external remerge (*pace* Wilder 1999). Most notably, the right edge effect is related to right alignment following contrastive foci; see Hartmann (2000) and Kluck & De Vries (to appear) for discussion. Furthermore, Across-The-Board movement presumably also involves structure sharing (see Citko 2005, among others), but in this construction there is clearly no right edge condition on the base position of the moved phrase.

[4] At the point of the derivation where external remerge takes place, there is no coordinate structure yet. From this, we might predict that there are structure sharing constructions that do not involve syntactic coordination. Though this leads to some overgeneration that needs to be prevented by independent conditions, the prediction itself is indeed correct. In the next section we encounter an example of sharing with a parenthetical insertion. An example of RNR-style sharing with subordination is the following: *It can be hard to distinguish syntactic* _ *from semantic factors*. Furthermore, Nunes (2001) analyzes prepositional phrases containing parasitic gaps as involving sideward movement, and hence external remerge.

References

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

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

Citko, Barbara. 2005. "On the nature of Merge: External Merge, Internal Merge, and Parallel Merge". *Linguistic Inquiry* 36, 475-497.

Gärtner, Hans-Martin. 2002. *Generalized Transformations and Beyond: Reflections on Minimalist Syntax*. Berlin: Akademie Verlag.

Guimarães, Maximiliano. 2004. *Derivation and Representation of Syntactic Amalgams*. Doctoral dissertation, University of Maryland.

Hartmann, Katharina. 2000. *Right Node Raising and Gapping: Interface Conditions on Prosodic Deletion*. Amsterdam: John Benjamins.

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.

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.]

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

Nunes, Jairo. 2001. "Sideward movement". *Linguistic Inquiry* 32, 303–344.

Riemsdijk, Henk van. 2006. "Grafts follow from Merge". *Phases of Interpretation* ed. by Mara Frascarelli, 17-44. Berlin: Mouton de Gruyter.

Vries, Mark de. 2005a. "Ellipsis in nevenschikking: voorwaarts deleren maar achterwaarts delen". *Tabu* 34, 13-46.

Vries, Mark de. 2005b. "Merge: Properties and boundary conditions". *Linguistics in the Netherlands* 22, 219-230.

Vries, Mark de. 2009. "On multidominance and linearization". *Biolinguistics* 3, 344-403.

Vries, Mark de. To appear. "Unconventional mergers". *Ways of Structure Building* ed. by Myriam Uribe-Etxebarria & Vidal Valmala. Oxford: Oxford University Press.

Wilder, Chris. 1999. "Right node raising and the LCA". *West Coast Conference on Formal Linguistics (WCCFL)* 18, 586–598.

Zwart, Jan-Wouter. 2006. "Over het enten van interpolaties". *Tabu* 35, 163-180.