Be careful how you use the left periphery

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Abstract

The paper evaluates two left-peripheral analyses of gapping: one cartographic analysis, and a second Minimalist analysis, which aligns the left-peripheral movement of gapping with fronting for contrastive effects. It is shown that there are similar problems for both these analyses, in particular the movements postulated for gapping diverge quite strongly from other well-established information structure driven movements. The final section of the paper shows that an analysis according to which the movement for gapping targets a vP related periphery may overcome at least some of the problems that this paper raises.

1. Information structure and the left periphery

The goal of this paper is restricted: we focus on the left-peripheral analysis of gapping in English according to which gapping is movement of the gapping remnants to the left periphery followed by ellipsis of the TP they have vacated. This approach seems at first sight to align the movement of remnants to that independently observed in relation to the encoding

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of Information Structural properties of TP constituents. We will mainly focus on the cartographic implementation of this approach though much of what we say also carries over to a non-cartographic implementation. We will show that in spite of the initial attraction of this approach, it is fraught with problems.

Since the publication of Cinque's (1999) and Rizzi's (1997) seminal work in the cartographic tradition a line of work in formal syntax ties information structural notions to precise syntactic positions, in line with the cartographic remit as described by Cinque and Rizzi (2010):

> The cartographic studies can be seen as an attempt to "syntacticize" as much as possible the interpretive domains, tracing back interpretive algorithms for such properties as argument structure (Hale and Keyser 1993 and much related work), scope, and *informational structure* (the "criterial" approach defended in Rizzi 1997 and much related work; italics LH/TL]) to the familiar ingredients uncovered and refined in half a century of formal syntax. To the extent to which these efforts are empirically supported, they may shed light not only on syntax proper, but also on the structure and functioning of the cognitive systems at the interface with the syntactic module. (Cinque & Rizzi 2010: 63, our italics)

Topic and focus figure most prominently among the information structural concepts taken to be 'syntacticized'. Since a full characterization would lead us too far, let us just adopt Rizzi's own informal definitions from the following two quotations:

> The topic is a preposed element characteristically set off from the rest of the clause by 'comma intonation' and normally expressing old information, somehow available and

salient in previous discourse; the comment is a kind of complex predicate, an open sentence predicated of the topic and introducing new information (Rizzi 1997: 285).

The preposed element, bearing focal stress, introduces new information, whereas the open sentence expresses contextually given information, knowledge that the speaker presupposes to be shared with the hearer. (Rizzi 1997: 285)

According to Rizzi's own work, what was originally the CP layer of the clause was recast in terms of an articulated 'split CP' as in (1a). The examples in (1b-g) illustrate various instantiations of the left-peripheral space.

(1)   a.   ForceP   TopP   FocP   TopP   FinP   TP

             (Rizzi 1997)

       b.   [FocP FIDO [FinP they named their dog]] (Vallduvi and Engdahl 1996, Molnár and Winkler 2010)

       c.   [FocP Il TUO libro [FinP ho letto (, non il suo)]]. [italien] (Rizzi 1997: 286)

             the your book have-1SG read-PART (,not the his)

             'Your book I have read,(not his).'

       d.   [TopP A Gianni, [FocP QUESTO, [TopP domani, [FinP gli dovrete dire]]]].

             To Gianni, this, tomorrow him must-FUT-2PL say

             'This you should tell tomorrow to Gianni'

       e.   [TopP This dog, [FinP they'll name Fido.]]

       f.   [FocP Which book did [FinP you prefer?]]

       g.   He said [ForceP that [FocP at no point had [FinP he been aware of the problem]]].

Like overt movement to the CP area, overt movement to the articulated left periphery is generally considered to be A'-movement, i.e. movement driven for interpretive reasons which interacts, among other things, with *wh*-movement, and which does not interact with A-movement. Hence focalisation or topicalisation of a direct object DP (A'-movement), for instance, can cross a subject position (an A-position) without any problem.[2]

In parallel with the proposal that the CP be reanalysed as an articulated left periphery, a specialised domain for the encoding of information structural relations, it has also been proposed that a parallel left periphery must be postulated lower in the clause. (2a) is a schematic representation; proposals along these lines are made by Kayne (1998), Jayaseelan (1999, 2001, 2010), Butler (2004), and by Belletti (2001, 2004, 2009), a.o. Belletti (2001, 2004, 2009) argues, for instance, that the postverbal subject *Gianni* in Italian (2b,c) is located in the vP related focus position. For a discussion of the interpretive properties of these two 'peripheries', see among others Drübig (2006).

(2)   a. $[_{CP} \ldots\ldots [_{TP} \ldots\ldots\ldots [_{TopP} \ldots [_{FocP} \text{Foc} \ [_{TopP} \ldots\ldots vP]]]]]$

        b.   E   arrivato   Gianni.

              be-3SG   arrive-PART-MSG   Gianni.

              'Gianni has arrived.'

        c.   Ha   parlato   Gianni.

              have-3SG   speak PART   Gianni

              'Gianni has spoken.'

        d . $[_{CP} \ldots [_{TP} \textit{pro} \ldots \text{è arrivato/ha parlato} \ldots [_{FocP} \text{Gianni} \ [_{vP} \ldots\ldots]]]]]$

The focus of this paper is the syntax of gapping. For general discussion of the phenomenon and a survey of the literature, see Johnson (2014). Our focus is much narrower than his: we will examine some analyses of gapping according to which the constituents that survive gapping have been moved to the left periphery of the clause. These analyses are usually motivated on the basis of island effects that can be detected in gapping (see Neijt 1979, Johnson 2014: 18). At first sight, the attraction of such analyses is that the movement postulated is arguably driven by information structure requirements (see Kuno 1976 for an early discussion), and thus seems analogous to other well established information structure driven movements such as focus fronting and topicalisation. Indeed, the interpretive parallelism with such overt movement can be considered further support for analyses of gapping in terms of movement of remnants.

Though implementations diverge, there are problems for these analyses which have to the best of our knowledge not been addressed. The problems we will point out all relate to the conclusion that, while initially conceived as being parallel to well established information structure driven movements, the movements required to derive the gapping patterns consistently diverge markedly from what would be their analogues, and thus the movement required to derive gapping is *sui generis*. This considerably weakens the attraction of the left-peripheral movement analyses.

The paper is organised as follows: in section 2 we outline the main properties of gapping in English and we present two left-peripheral analyses, one deployed in full cartographic terms, another which simply aligns the left-peripheral movement of gapping with fronting for contrastive effects. In section 3 we list the problems for these analyses, focussing in particular on the fact that the left-peripheral movements postulated for gapping diverge quite strongly from other well-established information structure driven movements to the left periphery. In section 4 we briefly show how an analysis according to which the movement

deriving gapping remnants targets a vP related periphery may overcome at least some of the problems we raise. Section 5 is a conclusion.

2. Making most (too much?) of the CP periphery: the movement derivation of gapping

2.1. The pattern

Given the assumption that the articulated CP encodes information structural properties of the clause, it is not surprising that authors have sought to maximize its potential and expand it beyond the empirical domains at the basis of the first cartographic work. Two likely candidates for an analysis in terms of the left-peripheral articulation of information structure were *it* clefts (3a) and gapping (3b).

(3)   a.   It was the potatoes that Harry didn't like.

          b.   Harry cooked the beans and Henry the potatoes.

In this paper we concentrate on the derivation of gapping. For arguments against a left periphery analysis of clefts see Haegeman, Meinunger and Vercauteren (2014).

Since Neijt's seminal work (1979), gapping has been of continued interest in the generative literature. For recent surveys of the properties and analyses of gapping see among others, López and Winkler (2003), Repp (2007: 16-38), Vanden Wyngaerd (2009), Toosarvardani (in press) and especially Johnson (2014). In (4) and (5), two strings are coordinated. The first conjunct is a clause, in the second conjunct some material matching that

in the first clause has been deleted or 'gapped'. We pair each example with the fully explicitized string in which the effects of gapping have been undone. In (4), gapping is 'minimal': the second corresponds to the first conjunct minus the finite verb. Observe that verb gapping is available regardless of whether the object is its canonical position (4a) or has been fronted (4b). In the second conjuncts in (5) additional material is missing: in (5a-c) gapping seems to have affected the subject and the finite verb. In (5d), gapping deletes the verb and the direct object.

(4) a.   Harry cooked the beans and Henry the potatoes. (López and Winkler 2003: 241)

a'.   Harry cooked the beans and Henry ~~cooked~~ the potatoes.

b.   The beans, Harry cooked, and the potatoes, Henry.

b'.   The beans, Harry cooked, and the potatoes, Henry ~~cooked~~.

(5) a.   At our house, we play poker, and at Betsy's house, bridge (Sag 1976: 265).

a'.   At our house, we play poker, and at Betsy's house, ~~we play~~ bridge.

b.   During dinner, my father talked to his colleagues from Stuttgart and at lunch time to his boss. (Molnár and Winkler 2010: 1405: (34))

b'.   During dinner, my father talked to his colleagues from Stuttgart and at lunch time ~~my father talked~~ to his boss.

c.   Fido they named their dog and ARCHIE their CAT. (Molnár and Winkler 2010: 1405: (35)))

c'.   Fido they named their dog and ARCHIE ~~they named~~ their CAT. (Molnár and Winkler 2010: 1405: (35)))

d.   My brother visited Japan in 1960, and my sister in 1961. (Kuno 1976:306)

d'.   My brother visited Japan in 1960, and my sister ~~visited Japan~~ in 1961.

Gapping is dependent on coordination. Moreover, the 'antecedent' and the gapped clause must be structurally parallel. For instance, (4c), in which the antecedent conjunct displays object fronting while in the second conjunct the object follows the subject, violates the parallelism constraint and is not a licit context for gapping. Similarly, (4d) with the object in its canonical position in the first conjunct and what seems like a reflex of fronting in the second is also unacceptable:

(4)   c.   *[The beans Harry cooked] and [Henry ~~cooked~~ the potatoes].

       d.   *[Harry cooked the beans] and [the potatoes Henry ~~cooked~~].

At first sight, gapping might seem to illustrate non-constituent coordination: in (6a), for instance, the first conjunct would be the bracketed clause and the string *Henry the potatoes* consisting of just the subject and the object would be the second conjunct. There is no direct way in which these two constituents can be seen as one constituent. The same observation applies to the other examples in (6): in (6b), the second conjunct would have to be *the potatoes, Henry,* i.e. a constituent consisting of the direct object followed by the subject, and in (6c), the second conjunct consists of a place adjunct *at Mary's house* followed by a complement *bridge*. As the bracketed strings that make up the second conjuncts in these examples also do not seem to be clauses either, the coordinations involved in gapping would also *prima facie* not really be affecting 'like constituents'.

(6)   a.   [Harry cooked the beans] and [Henry the potatoes].

       b.   [The beans, Harry cooked[, and [the potatoes, Henry].

c. [At our home we play poker] and [at Mary's house bridge].

As already suggested by the primed examples in (4) and (5) above, the problem posed by the coordination of what seem to be non-constituents is eliminated by accounts, starting from Ross (1970), which analyse gapping in terms of clausal coordination with ellipsis in the second conjunct (see López and Winkler 2003 for discussion):

(7) a. [Harry cooked the beans] and [Henry ~~cooked~~ the potatoes].

b. [The beans, Harry cooked[, and [the potatoes, Henry ~~cooked~~].

In the spirit of the ellipsis analysis, we will refer to the constituents that survive ellipsis in gapping as the 'gapping remnants'. The gapping remnants have a contrastive interpretation with respect to the matching constituents in the antecedent conjunct: in (7a), for instance, *Henry* contrasts with *Harry* and *the potatoes* contrasts with *the beans.*

While an analysis in terms of coordinated clauses with ellipsis as in the primed examples in (4) and (5) and the examples in (7) entails that coordination affects like constituents, these derivations are not without problems. First, as already discussed, the ellipsis seems to affect quite different entities: in (4) the ellipsis deletes just the (tensed) verb, in (5a-c) the subject and the verb are deleted, in (5d) the verb and the direct object are deleted. Moreover, in the derivations sketched in (5) and in (7) ellipsis at first sight targets non-constituents.

2.2. A left periphery derivation of gapping: implementations

In this section, we will look at a number of implementations of derivations of gapping which make crucial use of the left periphery.

2.2.1. Left-peripheral movement and ellipsis

The currently accepted account of gapping that overcomes the constituency problem for the ellipsis analysis of gapping posed by data such as (5) is that which decomposes gapping into a two step process: (i) the constituents that are to survive gapping, i.e. what will become the gapping remnants, evacuate TP by moving to the left periphery of the clause, and (ii) subsequently, the TP they have evacuated is deleted. The relevant derivations are schematically represented in (8) and (9): (8) is inspired by Aelbrecht (2007), by Frazier, Potter and Yoshida (2012), and by Sailor and Thoms (2012), with what seems to be a recursive CP and no specialized landing sites for the moved constituents. Representation (9) from Van den Wyngaerd's (2009: 11, (26)) implements the articulated CP structure: in line with the focal and contrastive nature of the gapped constituents the landing sites of the gapped constituents can straightforwardly be identified with Rizzi's FocP and TopP, the latter in this case hosting a contrastive topic. The discussion will mostly focus on the latter representation, because thanks to Van den Wyngaerd's detailed explicitation of the derivation, it allows for a more precise evaluation. However, as far as we can see, most of the points we are making carry over to left periphery analyses in (8).

(8)   a.   At our home we play poker
              and [$_{CP}$ at Mary's house [$_{CP}$ bridge [$_{TP}$ we play ~~bridge at Mary's house~~]]].
       b.   and [$_{CP}$ at Mary's house [$_{CP}$ bridge [$_{TP}$ ~~we play bridge at Mary's house~~]]].

(9) a. At our home we play poker

and [TopP at Mary's house [FocP bridge [TP we play ~~bridge at Mary's house~~]]].

b. and [TopP at Mary's house [FocP bridge [TP ~~we play bridge at Mary's house~~]]].

The assumption that gapping involves movement of the remnants out of a constituent which itself is subsequently deleted has been widely accepted (cf. Pesetsky 1982, Jayaseelan 1990, Lasnik 1995, Richards (2001: 134-6), Johnson 2014 etc.). Richards (2001) provides an overview of some of the arguments in favour of this type of analysis. One well established argument for a movement + ellipsis analysis comes from an observation originally due to Neijt (1979) that the relation between the two gapping remnants is subject to locality conditions: (10a,b) are from Richards (2001: his (80) and (81)): while the string *tried to cook dinner* in (10a) can be gapped, the string *wondered what to cook* in (10b) cannot. The latter string contains a *wh*-island. On the movement+ ellipsis analysis, (10b) would involve extraction of *tomorrow* from within the *wh*-island. (10c) is a sketch of the derivation that would be required:

(10) a. John tried to cook dinner today, and Peter ~~tried to cook dinner~~ yesterday.

b. *John wondered what to cook today and Peter ~~wondered what to cook~~ tomorrow.

c. and Peter tomorrow [~~Peter~~ wondered [what to cook ~~tomorrow~~]].

and Peter tomorrow [~~Peter wondered [what to cook tomorrow~~]].

Along similar lines, Pesetsky (1982: 645) notes the subject/object asymmetry in (11) (from Richards: 2001: 136, his (85) and (86)), which again is a well known property of *wh-*

movement. To derive (11b), the subject *salmon* would have to be first extracted across the complementizer *that:*

(11) a.   This doctor thinks that I should buy tunafish, and that doctor ~~thinks that I should buy~~ salmon.

      b.   *This doctor thinks that tunafish will harm me, and that doctor ~~thinks that~~ salmon ~~will harm me~~.

      c.   and that doctor salmon [~~that doctor~~ thinks [that ~~salmon~~ will harm me~~]~~].

           and that doctor salmon [~~that doctor thinks [that salmon will harm me]~~].

Observe that the unacceptability of (10b) and of (11b) implies that in such cases apparently there is no 'repair by ellipsis' according to which the deletion of a potential intervener rescues the derivation: deleting the offending structure containing the island does not salvage the sentence (for repair by ellipsis see Chomsky 1972 and Bošković 2011 among many others). A full discussion of repair by ellipsis would lead us too far and we forego discussion here.

For examples such as (12a), Van den Wyngaerd (2009:33-4) provides the derivation summarized in (12b-e):

(12) a.   I tried to read *Aspects*, and John ~~tried to read~~ *LGB*. (his (88a))

      b.   [$_{FocP}$ Foc° [$_{IP}$ John [$_{VP}$ tried to read *LGB*]]]

      c.   *Attraction to Top°*: …[$_{TopP}$ John$_i$ [$_{FocP}$ Foc° [$_{IP}$ t$_i$ [$_{VP}$ tried to read *LGB*]]]]

      d.   *Attraction to Foc°*: ... [$_{TopP}$ John$_i$ [$_{FocP}$ *LGB*$_j$ Foc° [$_{IP}$ t$_i$ [VP tried to read t$_j$]]][3]

      e.   *Gapping*: … [$_{TopP}$ John$_i$ [$_{FocP}$ *LGB*$_j$ Foc° ~~[$_{IP}$ t$_i$ [$_{VP}$ tried to read t$_j$]]~~]
           (=VdW 2009: 34, his (89))

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[3] It is not clear to us why Vanden Wyngaerd orders the movements in this way.

2.2.2. The nature of the left-peripheral movement

2.2.2.1. The articulated CP

Given that the movement of the object to SpecFocP in (12d) is driven by information structure (from now on abbreviated as IS) requirements, it would at first sight appear to be an instantiation of regular A'-movement illustrated already in (1b,c etc). However, its status in Vanden Wyngaerd's (2009) analysis is not clear. On the one hand, in note 29 on page 33 he comments on some Dutch and German examples as follows:

> movement into Spec,Foc° differs from *wh*-movement in not being able to use Spec,CP as an escape hatch. This property puts movement to Spec,Foc° in class with the A-like movement sometimes called Object Shift or Scrambling (see Vanden Wyngaerd 1989 for discussion).

A number of questions arise in relation to this point. In Vanden Wyngaerd's derivation of the English example in (9a), repeated here as (13a) for the reader's convenience, the focus fronting of the object *bridge* would have to cross the subject DP. If this focus fronting instantiates A-movement, then we note that the movement crosses the subject, by assumption also an A-position, and that it should give rise to an intervention effect.

(13)   a.   At our home we play poker

and [TopP at Mary's house [FocP bridge [TP we play ~~bridge at Mary's house~~]]].

b.   and [TopP at Mary's house [FocP bridge [TP ~~we play bridge at Mary's house~~]]].

However, since the intervening subject is subsequently deleted as a result of gapping this might be accounted for if (13) the intervention effect is removed thanks to repair by ellipsis along the lines of Chomsky (1972) and much later work, cf. a.o. Bošković (2011), in which the deletion of a potential intervener rescues the derivation. As mentioned, though, not all extraction violations are repaired by ellipsis (cf. (10b) and (11b)).

However, in the discussion of English data in an earlier section of his paper, Vanden Wyngaerd seems to provide arguments to the effect that there is "a parallel between raising-to-Foc and *wh*-movement, rather than with NP-movement" (Vanden Wyngaerd 2009: 28: note 24). His argumentation is based on the asymmetries in the examples in (14): a direct object/indirect asymmetry in (14a,b) and a DP/PP asymmetry in (14b,c). Subject and direct object remnants are unproblematic (14a); indirect object remnants realized as DPs are degraded (14b) while PP indirect object remnants are fine (14c):

(14)   a.   Grandpa gave her a new bicycle, and grandma a watch.

        b.   ?Grandpa gave Sally a birthday present, and grandma Susan.

        c.   Grandma gave a birthday present to Sally and grandma to Susan.

If gapping involves A'-extraction, the direct object/indirect asymmetry in (14a,b) and the DP/PP asymmetry in (14b,c) follow. Specifically, the degradation of (14b) with the indirect object DP *Sally* as a remnant would be expected: it is known that in the double object pattern in (British) English, DP indirect objects are not easily A'-moved (14d) while both direct objects (14e) and PP indirect objects (14f) pose no particular problems:

(14)   d.   ?Whom did grandma give a watch?

        e.   What did grandma give (to) Sally?

f.   To whom did grandma give a watch?

It is therefore not clear how Vanden Wyngaerd can argue later in his discussion that gapping displays properties related to A-movement and to what extent he assumes this a general property of the movement of the gapping remnant to FocP. The status of the movement to TopP is also not entirely clear from Vanden Wyngaerd's discussion. For Richards (2001: 135-137), who does not adopt a left periphery analysis, both movements of the gapping remnants are more like A-movement. We refer to his work for discussion. While (14b) with the indirect object as the focus remnant is degraded, (15) with the indirect object DP as the topical remnant is fine. If in (15), following Vanden Wyngaerd, *on Tuesday* is in FocP and thus the indirect object *Mary* is moved to TopP, then under an A'-movement analysis of the latter the fact that there is no degradation at all is puzzling. One might conclude that this is evidence that the movement to the left-peripheral TopP is an instantiation of A-movement. Of course, such movement would cross the subject, a potential intervener, but the subsequent ellipsis of TP would rescue the derivation (Chomsky 1972, Bošković 2011).

(15)   Harry gave Susan a watch on Monday and Mary on Tuesday.

It would remain puzzling, though, that while overt IS driven movement to the articulated left periphery is standardly assumed to be an instantiation of A'-movement, movement of the gapping remnant to TopP would have to be an instantiation of A-movement.

2.2.2.2. Multiple specifiers in the left periphery

Aelbrecht (2007)'s left-peripheral analysis does not deploy the cartographic left periphery. Differently from Vanden Wyngaerd, she assumes that all gapped constituents are moved to the specifier positions of a single left-peripheral C- head, with the observed order preservation effect ascribed to the fact that the movement targets multiple specifiers - rather than specifiers of different heads - resulting in 'tucking in' (Richards 2001). The movements required create crossing dependencies, which is also typical of middle field A-movement (Haegeman 1993a,b; 1994). The following extract is taken from Aelbrecht (2007):

Movement and ellipsis analysis: gapping remnants are all attracted to multiple specifier positions of the same head (Richards 2001): crossing paths → same word order as before movement.

[CONTRAST]-feature on C probes down and attracts 1st contrasted phrase it encounters; then the 2nd one is tucked in below the 1st one and so on.

This hypothesis correctly derives (14a): the [CONTRAST]-feature in the C probe will first attract the subject *Grandma*, which is closest to the probe, and then the object *a watch*, which will tuck into the lower position. However, it is not immediately clear how tucking in also derives (4b) repeated here as (16a). If gapping is consistently derived by left-peripheral movement followed by TP-ellipsis, both the gapping remnants, *the potatoes* and *Henry*, have to be external to TP and hence have to be specifiers of C[CONTRAST]. In Aelbrecht's approach, the [CONTRAST]-feature should first attract the (closer) subject *Henry* and then the object *the potatoes,* leading to the opposite order to that in (16a). For completeness'sake we

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add that the predicted order, reproduced in (16b), is indeed also grammatical, of course, and follows from the tucking-in account.

(16)   a.   The beans Harry cooked and the potatoes Henry.

        b.   and [$_{CP}$ Henry [$_{CP}$ the potatoes [$_C$] [$_{TP}$ ~~Henry~~ cooked ~~the potatoes~~]]]

The next section will show that the distribution of gapping phenomena in embedded domains brings to light additional problems. To summarize our argumentation: we will show that gapping is available in a number of domains which are not standardly taken to be compatible with left-peripheral A'-movement. As already anticipated in some of the discussion above, in order to maintain a rigid left-peripheral analysis of gapping one would have to assume that in the problematic cases at least, and perhaps in general, the movement of the gapping remnants instantiates A-movement (the position taken in Richards 2001). Such an analysis analysis effectively sets apart the left-peripheral IS-driven (A) movements that derive gapping from established left-peripheral IS-driven (A') movements. .

3. The distribution of gapping

3.1. Introduction

The focus of most of the current literature is on the relation of the gapping remnants with their 'source' clause, but less attention is being paid to the 'external' distribution of the gapping remnants (but see some remarks in Sailor and Thoms (2013: section 5). Vanden Wyngaerd (2009) does pay some attention to the issue and says:

The approach just sketched might also give us a handle on the otherwise unexplained property of gapping, which is that it applies only in coordinations, not subordinations, [as observed by Hankamer (1979), LH/TL]. The reason for this restriction would be the absence of the functional superstructure devoted to topic and focus in the left periphery of subordinate clauses. It would also explain why gapping cannot reach into an embedded clause, as in the following example:

[17]   a.   *Max plays blues, and Mick claims that Suzy ~~plays~~ funk.

If the remnants must be in the left periphery of the clause, and if gapping deletes IP, there is no way to derive this sentence. (Vanden Wyngaerd 2009: 12, his: (27))

It is not clear what is intended here. Obviously, some embedded clauses do have a left periphery, but nevertheless gapping is not always available, regardless of whether the conjunction is realized or not:

(17)   b.   *Max plays blues and Mick says (that) Susy funk.

In fact, the claim that gapping is allegedly excluded from embedded clauses is empirically incorrect: an embedded clause coordinated with another embedded clause under one conjunction is compatible with gapping: the first conjunct is then the antecedent for the gapping in the second one. This is shown in (17c). For discussion see also Johnson (2014). Following Vanden Wyngaerd's analysis, we would assign the second conjunct in (17c) the partial representation in (17d). Crucially, the second conjunct does not include the projection

hosting the conjunction, so that the coordinated constituents are structurally parallel and both are embedded under one C head.

(17)   c.   He said that at his house they play poker and at Betsy's house bridge.

       d.   [$_{TopP}$ at Betsy's house$_i$ [$_{FocP}$ bridge$_j$ [$_{IP}$ ~~they play~~ t$_j$ t$_i$]]]

If gapping is a left-peripheral phenomenon (be it seen in terms of an articulated TopP and FocP as in Vanden Wyngaerd or in terms of Aelbrecht's contrastive C), the prediction is that gapping will only be possible in second conjuncts with a left-peripheral space. In addition, the parallelism constraint on gapping implies that for the second conjunct to have the left-peripheral space needed to host the gapping remnants, the first conjunct must also have one. If, for some reason (see Haegeman 2012 for various accounts), a left-peripheral space is not available in the first conjunct, then by parallelism the second conjunct will also lack the relevant space and according to the left-peripheral analysis, gapping should be unavailable. In what follows we show that this prediction is incorrect. A number of clausal domains are incompatible with left-peripheral fronting, while gapping remains available. In section 3.2. we consider non-finite clauses which are usually considered to lack a left-peripheral space altogether. In sections 3.3.-3.4 we consider a set of finite clauses which, though not lacking a left periphery entirely, have been argued to disallow a range of left-peripheral fronting operations that encode information structure. If gapping is derived by these operations, then again the incorrect prediction is that the relevant finite clauses are incompatible with gapping. In section 3.5., we turn to an additional problem of implementation for the generalized left-peripheral analysis of gapping.

3.2. Non-finite domains

It is usually assumed that non-finite clauses have a reduced left periphery: this will account
for the observation that both in English *for to* clauses and ECM clauses argument fronting is
unacceptable. On the generalized left periphery accounts of gapping as in Vanden Wyngaerd
(2009) or Aelbrecht (2007), such domains should not be compatible with gapping:

(18)   a.   *The idea is for the first year scholarship the local council to fund.

       b.   *They expect the first year scholarship the local council to fund.

Yet, gapping remains available in a second non-finite conjunct, as shown in (19a) and (19b).
On the left-peripheral analysis of grapping, the remnants in (19a) and (19b) would have to be
moved to left-peripheral positions that are otherwise unavailable:

(19)   a.   The idea was for universities to be financed by state funding and primary
              schools through private investment.

       b.   They intend universities to be financed by state funding and primary schools
              through private investment.

       c.   [$_{CP}$ schools$_i$ [$_{CP}$ through private investment$_j$ [~~t$_i$ to be financed t$_j$~~]]]

       d.   [$_{TopP}$ schools$_i$ [$_{FocP}$ through private investment$_j$ [~~t$_i$ to be financed t$_j$~~]]]

One way out for the generalized left periphery accounts of gapping could be to assume that
gapping is derived by a *sui generis* type of IS-driven movement. This would, however, still
entail that contrary to what is assumed, *for to* infinitival clauses and ECM clauses must have a
left-peripheral space. By the same reasoning, one would have to assume that absolute *-ing*

clauses as in (20) have a left-peripheral structure to host the gapping remnants *Mary* and *the apartment*: [4]

(20) a. John having sold the house and Mary the apartment, they had nowhere to go.

 b. $[_{CP}$ Mary$_i$ $[_{CP}$ the apartment$_j$ [~~t$_i$ having sold t$_j$~~]]]

 c. $[_{TopP}$ Mary$_i$ $[_{Foc\ P}$ the apartment$_j$ [~~t$_i$ having sold t$_j$~~]]]

 (21a) illustrates an adjectival small clause complement to *with*. On a generalised left-peripheral analysis of gapping one has to assume that such small clauses also have a left-peripheral space to host IS driven gapping movement.

(21) a. With Jill intent on resigning and Pat ___ on following her example, we look like losing our two best designers (Huddleston and Pullum 2002: 1339, their (11))

 b. with $[_{CP}$ Pat$_i$ $[_{C\ P}$ on following her example$_j$ [$_{se}$~~t$_i$ intent on t$_j$~~]]]

 c. with $[_{TopP}$ Pat$_i$ $[_{Foc\ P}$ on following her example$_j$ [$_{se}$~~t$_i$ intent on t$_j$~~]]]

3.3. Finite clauses

3.3.1. Adverbial clauses

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[4] Culicover and Levine (2001: 297, note 14, their (i)) provide the following example of argument fronting with an absolute *ing* clause:

(i) That solution Robin having already explored t and rejected t, she decided to see if she could mate in six moves with just the rook and the two pawns. (Culicover and Levine 2001: 297,note 14, (i))

Such clauses can also be coordinated with a gapping pattern: observe that in this case the remnant object can precede the remnant subject, in parallelism with the first conjunct:

(ii) This hypothesis Robin having rejected and that one Justin, they had no idea what to do next.

Central adverbial clauses (Haegeman 2012 for the term) are not compatible with argument fronting to the left periphery (22a). However, the same environment is fully compatible with gapping (22b). The generalized left-peripheral analyses of would entail that, though a temporal clause resists argument fronting, the movements required by gapping must be licit in the second conjunct, leading to either the derivation in (22c) or (22d) for the gapped conjuncts. Put differently, a movement which would be unavailable in the antecedent conjunct clause would be required in the second conjunct.

(22) a.   *After the beans Harry had cooked we could start to eat.

      b.   After Harry had cooked the beans and Henry the potatoes, we could start to eat.

      c.   and [$_{CP}$ Henry [$_{CP}$ the potatoes [$_{TP}$ ~~Henry had cooked the potatoes~~]]].

      d.   and [$_{TopP}$ Henry [$_{FocP}$ the potatoes [$_{TP}$ ~~Henry had cooked the potatoes~~]]].

To salvage the generalised left-peripheral analyses of gapping in (22b) one might again say that the relevant movements required to extract *Henry* and *the potatoes* from TP are both A-movements. As discussed already, though this is of course a possible move, it makes the movement that derives gapping *sui generis*; this type of A-movement to the left periphery would be only available in ellipsis contexts (cf. Richards 2001).[5] As before, the implication then is that IS-driven movements to the left periphery are not unified: overt IS-driven left-

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[5] Richard accounts for the special status of the movement as follows:

> The answer to the second question is that the features on this head which are responsible for attracting the remnants are weak in English, and thus cannot ordinarily be active in the overt syntax. VP ellipsis, however, makes these weak features capable of driving overt movement, as predicted by the theory developed here. The chains headed by the remnants have only a single copy outside the ellipsis site, and are therefore legitimate PF objects, since they give PF unambiguous instructions to which part of the chain to pronounce. Richards (2001: 137)

It is un clear how Aelbrecht's analysis would fare here since presumably she would assume that the contrast feature is also responsible for the overt movement of contrastive topics and foci to the left periphery in English.
        On van den Wyngaerd's account one would have to ensure that the features on Foc and Top may be strong (with overt movement) or weak.

peripheral is standardly considered A'-movement and has a restricted distribution; in the case of gapping IS-driven left-peripheral movement is – at least in some cases – to be analysed as A-movement. The implications of this proposal, in particular in terms of the articulation of the left periphery and the syntacticization of IS, would need closer scrutiny. On economy grounds, though, it would be preferable that all IS related movements to the left periphery could be treated uniformly.

However, a generalized left-peripheral A-movement account for gapping is also empirically problematic. As mentioned, on the basis of the direct object/indirect object asymmetry in (14a,b) and the PP/ DP asymmetry in (14b,c), Vanden Wyngaerd (2009: 28: note 24) concludes that, in English (14a), repeated here as (23a), the left-peripheral movement of the object *a watch* that derives the gapping configuration must be A'-movement. The pattern in (23a) is compatible with adverbial clauses. This means that the derivation of the gapped pattern in (23b) would have to be derived by A'-movement of *a watch* to the left periphery, a movement that is otherwise unavailable in adverbial clauses (23c).[6]

(23) a. Grandma gave her a new bicycle, and Grandpa ~~gave her~~ a watch. (his (74a))

   b. When Grandma gave her a new bicycle, and Grandpa a watch, …

   c. *When a watch Grandpa gave her…

Consider (24), in which the first conjunct displays argument fronting, standardly assumed to be A'-movement. In the second conjunct, the fronted constituent *the potatoes* is parallel to that fronted in the first conjunct.

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[6] This analysis also entails that the left periphery of adverbial clauses cannot be fully truncated as is often assumed to account for the ungrammaticality of (23c).

(24)   a   The beans, Harry cooked and the potatoes, Henry.

We have seen that the fronting required to derive the first conjunct in (24a) is incompatible with temporal clauses. Given the parallelism constraint, gapping of the type illustrated in (24a) also becomes unavailable in temporal adverbial clauses. This can be ascribed to the fact that the antecedent conjunct in the gapping pattern, is itself ungrammatical.

(24)   b.   *When the beans, Harry cooked

       c.   *When the beans, Harry cooked and the potatoes, Henry, …

For completeness' sake, we also add that when the left-peripheral movement in the first conjunct is independently possible, then gapping is available in the second conjunct. This is shown in English (25) and in French (26). In English, sentence initial adjuncts – unlike fronted arguments – are compatible with adverbial clauses, and in such cases a continuation with gapping is unproblematic:[7]

(25)   a.   If in January you finish the first chapter, you'll have some time left for the
            revisions.

       b.   If in January you write the first chapter and in February the second, you'll have
            some time left for the revisions

       c.   When in Flanders they issued the French version and in Wallonia the English
            one, there was a lot of protest from politicians.

---

[7] Native speakers disagree about (25c-d): Some accept them, some do not. We do not have anything to say here about this variation.

d.　　When in Paris people were buying the French version and in London the English

　　　　　　one we knew that it had been worth issuing both versions simultaneously.

French CLLD, unlike English argument fronting, is compatible with adverbial clauses (26a)

and a gapping continuation is unproblematic in the same context (26b):

(26)　　a.　　Si à ton frère　　　　　tu lui donnes　le ipad　　　　il sera tout content.[8]

　　　　　　　If to your brother　　　you him give　the ipad ,　　　he will-be all happy

　　　　b.　　Si à ton frère tu lui donnes le ipad et à ta soeur le portable ils seront contents

　　　　　　　les deux.

　　　　　　　If to your brother you him give the ipad and to your sister the laptop , they will-

　　　　　　　both be happy

3.3.2. Complement clauses of factive verbs

In English, complement clauses of factive verbs are incompatible with left-peripheral

argument fronting. Again there are various accounts in the literature. In cartographic terms it

has been claimed that such clauses lack the relevant left-peripheral space altogether (see

Haegeman and Ürögdi 2010 for arguments against this) or, alternatively, that while *in se* they

would allow for the space, the relevant movements are inhibited by the movement of the

factive operator to the left periphery. Basse (2008) assumes that the left periphery of factive

clauses lacks edge features. Regardless of which account one adopts, it remains true that

conjoined factive complements are again fully compatible with gapping:

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[8] We have chosen an instance with a CLLD PP to avoid the alternative Hanging topic analysis (see Cinque 1990 for extensive discussion).

(27) a.   She resents that Grandma gave him a new bicycle and Grandpa a watch.

The problem is like that sketched for adverbial clauses. Derivations deploying the left periphery as in (27b,c) imply that while in the regular case IS-driven argument fronting to the left periphery is incompatible with this clause type, the parallel gapping movement is possible:

(27) b.   and [$_{CP}$ Grandpa [$_{CP}$ a watch [$_{TP}$ ~~Grandpa gave him a watch~~]]].
      c.   and [$_{TopP}$ Grandpa [$_{FocP}$ a watch [$_{TP}$ ~~Grandpa gave him a watch~~]]].

So once again, an operation that would be impossible in the antecedent conjunct clause would become possible in the second conjunct. One might again say that the movements of the gapping remnants in (27b,c) are A-movements. As before, this again entails that the left periphery of complement clauses of factive predicates must be available for A-movement and that the relevant left-peripheral A-movements have a similar role with respect to IS as what are usually analysed as left-peripheral A'-movements.

    Note also that assuming the generalized left-peripheral movement analysis for gapping also entails that Basse's hypothesis that the left periphery of complements of factive verbs is incompatible with an edge feature must be abandoned, at least if edge features trigger the left-peripheral movements involved in gapping.

    As before, though, not all types of gapping are licit in this environment. Again, in (27d) the first conjunct with illicit A'-fronting is ruled out.

(27) d.   *She resented that the beans, Harry cooked and the potatoes, Henry, …

Once again, as soon as an overt left-peripheral movement is independently allowed in the antecedent conjunct clause, then it becomes available in the second conjunct too: (27e) illustrates adjunct fronting in English and (27f) illustrates CLLD in French.

(27) e. It is worrying that in his first year he published three papers and in the second only one.

f. Je suis contente   qu' à ton frère   tu lui aies   donné   l' ipad.
I am   happy-FEM   that to your brother   you him have-SUBJ given the ipad
et à ta soeur   le portable.
and to your sister   the portable.

3.3.3. Other finite domains with a 'deficient' left periphery

A number of other finite domains are incompatible with left-peripheral A'-movement in English (see Haegeman 2012) while remaining fully compatible with gapping. We simply list and illustrate some of these here: subject clauses are illustrated in (28), complements to N in (29), clauses lacking an overt complementizer in (30), embedded *wh* interrogatives and embedded *yes-no* questions (31). As can be seen all remain compatible with gapping. The problems raised above and the various solutions suggested are identical.

(28) That Bill invited Mary and Peter Simon surprised everyone.

(29) a. In the assumption that John will talk to Mary and Bill to Susan, we may be confident this plan can go ahead.

b. Your assumption that Bill will invite Mary and Susan George is surprising.

(30) John believes Mary has bought the food and Bill the drinks.

(31) a. I wonder what Mary gave to Tom and Bill to Susan.

b. I wonder if Mary sent the message to Tom and Jane to Bill.

3.4. Gapping with wh-*remnants*

(32a) is another interesting example of what looks like gapping: the first gapping remnant *which records* is a *wh*-phrase and the second *to John* is a PP. Additional examples of the same type are provided in López and Winkler (2003: 240:). Following the left periphery analysis in VandenWyngaerd (2009) the *wh* constituent *which records* would be occupying the specifier of the left-peripheral TopP and the PP *to John* would be in the focus position:

(32) a Bill asked which books we gave to Mary and which records to John.

(example from López & Winkler 2003: 240, their (29))

b. [$_{TopP}$ which records$_i$ [$_{Foc P}$ to John$_j$ [~~t$_i$ we gave t$_j$~~]]]

In (32b) *wh*-fronting would target the topic projection, which is normally associated with givenness. This may not be problematic as such because the question format ('which') is indeed 'given' in the antecedent, but it does raise the question as to a uniform treatment of clause typing. Moreover, if the movement of the leftmost constituent is taken to be A-movement this would be at least slightly unexpected when the relevant constituent is a *wh*-phrase.

A further problem arises for multiple sluicing (Richards 2001: 137-8) in (33).

28

Under a left-peripheral analysis with clausal coordination the gapping remnants *which bones* and *to which dogs* move to the left periphery and the vacated IP is deleted. Thus (33) would instantiate multiple *wh*-movement to the left periphery, a pattern freely available in other languages such as Hungarian and Bulgarian (Rudin 1988, Bošković 2002). Again, the left-peripheral movement of the second *wh*-phrase would be one that is only manifested in English when associated with TP ellipsis.

(33)   Bill asked which books we gave to which students and which bones to which

        dogs.(López & Winkler 2003: 240, their (29))

3.5. Intermediate conclusions

If gapping is derived by generalized left-peripheral movement, this movement systematically has to have properties setting it apart from the familiar IS-driven movements that it would appear to be 'modelled on', since the movements required to derive gapping are available in contexts in which the regular left-peripheral IS-driven fronting operations are not. As discussed, one possibility would be that the movements undergone by the gapping remnants would be identified as A-movement. However, the hypothesis raises problems. First, the movements required are then not uniform since, as pointed out by Vanden Wyngaerd (2009), certain patterns specifically require A'-movement underlying the derivation. Second, the hypothesis that the IS-driven movement required to derive gapping is A-movement implies that some IS related operations are part of the A-system while others are part of the A'-system, without there being provided a principled account for the contrast.

In addition, what would be IS-driven A-movement to the left periphery would have to systematically apply in domains claimed to have a defective or reduced left periphery and in which 'regular' A'-movement has so far not been manifested. Such domains would thus have to be argued to have a LP, contrary to what is often assumed, and one that can only be targeted by A-movement. Again, no account has been provided for why this should be.[9]

The consequences of the analyses described above can be overcome but it must be clear that they require a number of additional specifications, which means that the original attractiveness of the movement analysis of gapping is reduced. In section 4 we will briefly discuss an alternative proposal which exploits the low left periphery.

4. The alternative

In this section, we will discuss some alternative analyses which avoid some of the problems raised for the left-peripheral analysis. These analyses all make crucial use of a TP internal domain to derive gapping and thus avoid the space problem that arises for the left-peripheral analysis. We will not be able to discuss these in full, but we will highlight their main features.

In an overview of gapping, Johnson (2014) suggests treating gapping as a combination of coordination and VP ellipsis. We briefly present his analysis first and then we offer a cartographic reworking.
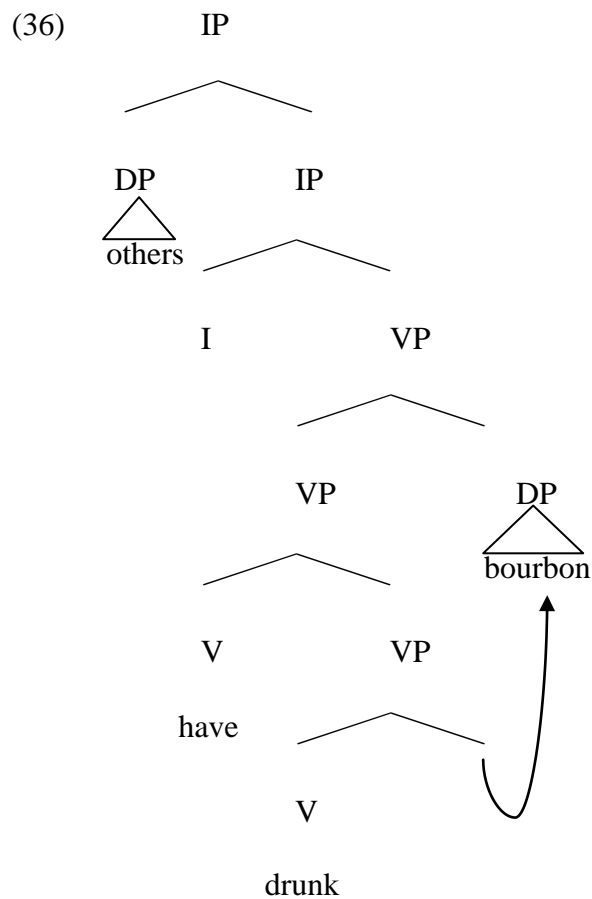
4.1. *Gapping: extraction and VP ellipsis*

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[9] Observe that under Haegeman's (2012) intervention account of the distribution of main clause phenomena assuming that gapping involves A movement indeed allows us to predict that gapping remains available in domains incompatible with A'-fronting. Haegeman derives the unavailability of main clause phenomena in a subset of embedded clauses from A'-intervention effects. Such effects would indeed not be triggered by A movement of the gapping remnants.

Johnson (2014) proposes the following analysis of gapping.

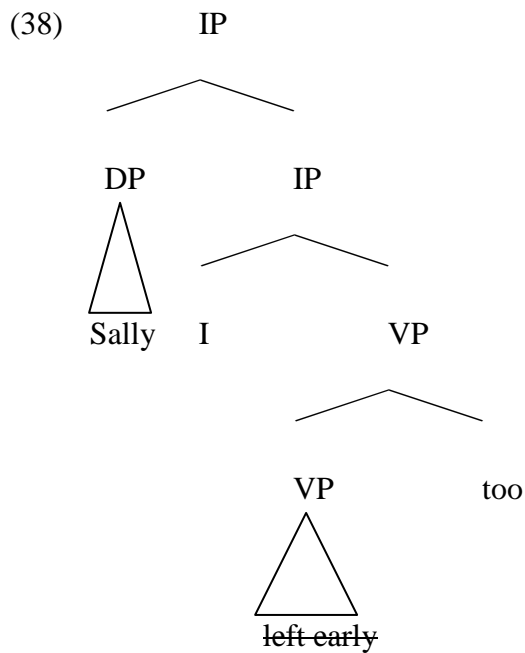(34)   Gapping elides an XP from which the remnants have scrambled.

(35) is derived as in (36): VP is elided after the object DP *bourbon* has been extracted and

adjoined to the VP.

(35)   Some have drunk whiskey and others ~~have drunk~~ bourbon.

(36)   IP

         DP   IP

         /\
        others
                     I   VP

                          VP   DP
                                         /\
                                        bourbon

                      V   VP

                     have

                            V

                         drunk

Gapping may also elide a VP without any scrambling taking place, yielding sentences like

(37), with the representation in (38).

(37)   Mary left early, and Sally ~~left early~~ too.

(38)

```
                    IP
             _____
            /           \
          DP             IP
          /\          _____
         /  \        /            \
        /____\      I             VP
        Sally                 _____
                             /          \
                           VP            too
                           /\
                          /  \
                         /____\
                        left early
```

Johnson's analysis fares better with regard to the problems discussed in sections 1-3: In a right adjunction analysis like that in (38), the space and locality problems identified will not arise since adjunction is usually considered to be relatively freely available. There remain certain issues, though. We will only highlight some here (see also Johnson 2014 for some discussion).

First consider (39).

(39)   [IP Jill ate rice yesterday] and [IP ~~Jill ate~~ porridge today].

(39) can be derived if, following a tradition started by Harley (1995) and Kratzer (1996), we adopt an articulated VP structure according to which the subject is merged first in a specifier position of vP, the verb moves from V to v, the object is extracted and adjoined to vP and it is vP (rather than VP) that is elided:

(40)   [$_{vP}$ [$_{vP}$ [$_{vP}$ Jill ate [$_{VP}$ ~~ate porridge~~]] porridge] today]

However, it is crucial for this hypothesis that in gapping examples such as (39), the subject actually remain in its merge position, i.e. that it does not move to the canonical subject position. Put differently, if (39) involves coordination of TPs, then in the second TP, the subject has not exited VP. Depending on the motivation for the movement of the subject in non-gapped clauses this may be a problem.

Johnson's analysis would also have to be extended to instances of gapping involving *wh*-items, as in (32) and in the multiple sluicing example in (33), repeated here in (41). On the analysis outlined here one would have to be assumed that the *wh*-constituents are scrambled, i.e. right adjoined to vP, a position not normally associated with the checking of a *wh*-feature.

(41)   Bill asked which books we gave to which students and which bones to which dogs.
        (López & Winkler 2003: 240, their (29))

It is also not immediately obvious that a vP ellipsis approach can naturally capture examples in which gapping affects the auxiliary as well as the lexical verb, as in (42), because the relevant ellipsis would not affect the auxiliary, by assumption VP-external (see also Vanden Wyngaerd (2009)).

(42)   a.   During dinner, my father had talked to his colleagues from Stuttgart and at
              lunch time to his boss. (based on Molnár and Winkler 2010: 1405: (34))
        a'.   During dinner, my father had talked to his colleagues from Stuttgart and at
              lunch time ~~my father talked~~ to his boss.

b.   Fido they had named their dog and ARCHIE their CAT. (Molnár and Winkler

2010: 1405: (35)))

b'.   Fido they had named their dog and ARCHIE ~~they had named~~ their CAT. (Molnár

and Winkler 2010: 1405: (35)))

Alternatively, to capture such examples one might envisage that the relevant patterns in (42)

are not in fact derived by clausal coordination but that the coordination is here restricted to a

lower level, with the auxiliary as it were 'shared' by both conjuncts.

4.2.   A cartographic reworking: exploring the low left periphery

4.2.1. A vP periphery

In this section we will consider cartographic variants of Johnson's analysis in which the

gapping remnants are not vP adjoined, but are moved to designated positions in a low left

periphery. In particular, in a series of papers Belletti (2001, 2004, 2008, 2009), has argued

convincingly in favour of postulating a clause-internal left periphery composed of focus and

topic projects situated right above the vP/VP. For similar proposals see also Jayaseelan

(2001, 2011) and Butler (2003). Belletti also argues for a strict parallelism between the

clause-internal periphery and clause-external periphery (Rizzi 1997). (43) is the general

template for the clause-internal periphery, based on Belletti (2004).

(43)   [$_{IP}$ I [$_{TopP}$ Top [$_{FocP}$ Foc [$_{TopP}$ Top [$_{vP}$ v [$_{VP}$ V]]]]]]

One first implementation of this idea is in fact found in Vanden Wyngaerd (2009) and it is based on Kayne (1998). According to the latter, gapping is derived by a leftward IS driven movement of the gapping remnants which target (or may target) what seems to correspond to Belletti's low periphery in (43). (44) and (45) are from Vanden Wyngaerd (2009: 4-5, his (6)-(7)). In (44), the direct object *pears*, the contrastively focused remnant, moves to a focus position in the low periphery, and the VP itself moves to a higher TP internal projection, WP, possibly to be equated to the low TopP, where it is deleted (see also Kayne 2000: 239 on P stranding). A similar analysis derives (45), in which the time adjunct *in 1961* is the lower focus.

(44)   Mary likes apples and Sally pears.

    a. $[_{FocP}$ Foc° $[_{VP}$ likes pears $]]$

    b.   *Attraction to Foc°*: ... $[_{FocP}$ pears$_i$ Foc° $[_{VP}$ likes t$_i$ $]]$

    c.   *Raising of Foc° to W*: ... $[_{WP}$ Foc°$_j$+W $[_{FocP}$ pears$_i$ t$_j$ $[_{VP}$ likes t$_i$ $]]]$

    d.   *VP-preposing*: ... $[_{WP}$ $[_{VP}$ likes t$_i$ $]_k$ Foc°$_j$+W $[_{FocP}$ pears$_i$ t$_j$ t$_k$ $]]$

(45)   My brother visited Japan in 1960, and my sister ~~visited Japan~~ in 1961.

    a.   ... $[_{FocP}$ Foc° $[_{VP}$ in 1961 visited Japan $]]$

    b.   *Attraction to Foc°*: ... $[_{FocP}$ in 1961$_i$ Foc° $[_{VP}$ t$_i$ visited Japan$]]$

    c.   *Raising of Foc° to W*: ... $[_{WP}$ Foc°$_j$+W $[_{FocP}$ in 1961$_i$ t$_j$ $[_{VP}$ t$_i$ visited Japan$]]]$

    d.   *VP-preposing: …* $[_{WP}$ $[_{VP}$ t$_i$ visited Japan$]_k$ Foc°$_j$+W $[_{FocP}$ in 1961$_i$ t$_j$

                                                 t$_k$$]]$

On the basis of scope facts and the distribution of NPIs, López and Winkler (2003) also argue in favour of an approach according to which the moved remnants target a low vP peripheral position. See also Coppock (2001), Johnson (2009, 2014) and Toosarvardani (in press) for discussion. Though the precise implementations of vP related movements differ, it is clear that movements targeting Belletti's lower periphery will not give any rise to 'space' problems identified with respect to 'deficient' CP domains since the vP periphery is intact in the domains with a deficient LP. For instance, object shift or scrambling in the middlefield of the Germanic languages might also be associated with movement to this type of low periphery and scrambling is not affected by the 'size' of the left periphery and remains available in infinitival clauses.

Johnson's (2014) analysis can be recast in terms of Belletti's low periphery As we have seen, for Johnson remnants are scrambled, i.e. right-adjoined to the VP. Reformulating his approach, it can be proposed that the remnants target SpecTopP and SpecFocP in the low periphery and vP/VP ellipsis can apply as before. (46) shows the relevant part of the structure of (35).

(46) $[_{\text{TopPP}}$ $[_{\text{DP}}$ others$]_i$ $[_{\text{FocP}}$ $[_{\text{DP}}$ bourbon$]_j$ $[_{vP}$ t_i ~~have drunk~~ tj$]]]$

Recall the problem that arises for gapping patterns involving *wh*-remnants such as those illustrated in (32) and (33) above. Fox (1999), Nissenbaum (2000), Legate (2003) and den Dikken (2007) also provide evidence drawn from reconstruction that *wh*-movement must proceed by the *v*P phase edge, this could be taken to coincide with the low periphery and thus the *wh*-remnants could arguably halt in their lower landing site.

Observe that if the CP periphery and the vP periphery are indeed strongly parallel then indeed it might well be argued that both domains are available to provide landing sites for the

derivation of gapping and that remnants may be stranded either in a low periphery or in a high periphery. Interestingly, exploring a movement analysis for VP ellipsis, Funakoshi (2012) has argued along similar lines that VP ellipsis involves movement to *either* the low or the high periphery. If VP ellipsis constitutes one component of the derivation of gapping then it would only be natural that gapping can also use either periphery. We have to leave this for future work, but see Sailor and Thoms (2013) for additional arguments that both the low left periphery and the high periphery are relevant.

5. Conclusion

One of the merits of the cartographic perspective is that it offers a way of formalizing the relation between information structural properties and the syntax. In the first cartographic work the focus was on the decomposition of the CP area as an articulated left periphery hosting positions for focus and for topic constituents. Given that gapping involves focus it was only natural to explore an analysis in which the remnants of gapping are stranded in the (articulated) CP area. However, on the basis of a closer examination of two left-peripheral analyses of gapping in English we have shown that care must be taken in the implementation of the mapping between IS and syntax. In particular, we demonstrate that if gapping is analysed purely in terms of movement of the gapping remnants to the CP layer, the wide availability of the pattern in a range of clauses not normally compatible with left-peripheral fronting, including non-finite domains, goes unexplained. Though we do not provide a full alternative analysis in the paper, we suggest that deploying the low periphery as developed in

crucial work by Belletti (2001, 2004, 2008, 2009) might allow for a way to overcome these problems.

The material examined here also has revealed that there is as yet no consensus in the literature as to the nature of the movements implicated in deriving gapping, and in particular it is not clear whether the fronting of the gapped constituents lines up with A-movement or with A'-movement. This is an area which, we think, merits further research.

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