

A Constraint on Remnant Movement

Tim Hunter*

August 31, 2011

1 Introduction

The aim of this paper is to begin to assess the empirical fit of a constraint on remnant movement that is derived as a consequence of the system proposed by Hunter (2010), the main focus of which was a unification of adjunct island effects and freezing effects. As well as ruling out all extraction from adjuncts and from moved constituents, the constraint proposed in this previous work has the effect of imposing a relatively strict limitation on remnant movement configurations, because of their similarity to freezing configurations. The compatibility of this limitation with the various ways in which remnant movement has been used in the literature has not yet been explored in detail.

The rest of the paper is organised as follows. In Section 2 I briefly introduce remnant movement and discuss the derived constraint on it, the “Just Outside Constraint” (JOC). In Section 3 I discuss the empirical fit of the JOC with one of the original, and canonical, uses of remnant movement, namely in analyses of German “incomplete category fronting” phenomena; these analyses turn out to be by and large consistent with the constraint, but there are exceptions, which I present in Section 4. I then turn to some less canonical uses of remnant movement: a collection of proposals which, very broadly speaking, use remnant movement to produce certain word orders that traditionally were thought to require syntactic machinery that (arguably) is best avoided in minimalist grounds (eg. head movement, covert movement, underlying head-final word order). The idea in these works is essentially that since remnant movement is just a combination of “good old-fashioned” overt phrasal movement steps, we should prefer a theory that renders this more elaborate machinery redundant by using remnant movement to emulate their effects. In particular, these proposals address covert movement (Section 5), head movement and SVO/SOV/VSO word orders (Section 6), and verb-second word order (Section 7). I summarise and draw some tentative conclusions in Section 8.

The analyses that I will be reviewing form a relatively disparate group: they are unified only by their use of remnant movement, and do not necessarily share all the same framing assumptions. The reader should therefore be aware that certain basic assumptions underlying the analyses being discussed will necessarily change from one section of this paper to the next. For example, some of the works discussed assume that OV is the underlying pre-movement word-order in languages such as Japanese and German, but certain proposals discussed in Section 5 and Section 6 assume universal VO underlying order (following Kayne (1994)); and in Section 3 I review some analyses of

*Thanks to Bob Frank, Raffaella Zanuttini, and two anonymous reviewers for helpful comments and discussions.

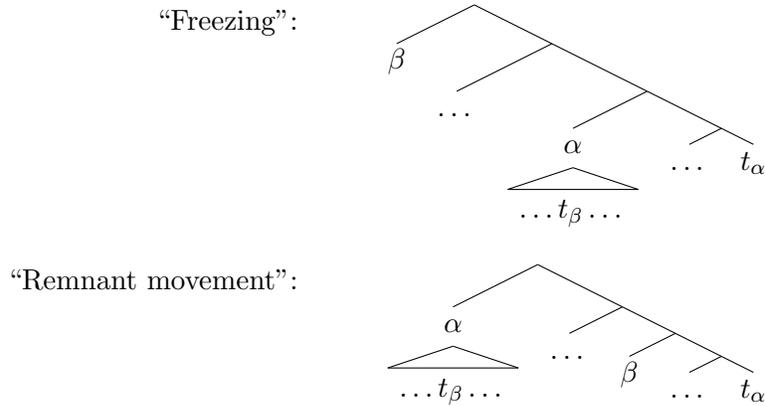


Figure 1: Schematic diagrams of freezing and remnant movement configurations

German data that adopt a relatively traditional approach to verb-second word order, involving head movement to the C position, whereas a distinct analysis of verb-second is discussed in Section 7. This is a consequence of the fact that the topic being investigated is not a particularly obvious natural class of linguistic data (eg. verb-second sentences, SOV sentences), but rather a *tool* from the syntactician’s toolbox which has been applied in a number of varied contexts.

2 Remnant movement and the JOC

There are two distinct configurations that can arise when one constituent moves out of another constituent that also moves: I will call these the *freezing configuration* and the *remnant movement configuration*. What distinguishes a remnant movement configuration from a freezing configuration is the relative height of the two movements’ target positions; see Figure 1. In each case some constituent α moves, and a subconstituent β moves out of α . In freezing configurations, the final position of α is below that of β ; by cyclicity/extension this means that movement of the entire constituent α occurs first. In “remnant movement” configurations, the final position of β is below that of α ; by cyclicity/extension this means that movement of the subconstituent β occurs first (followed by the movement of the remnant α with a trace of β inside it).

The freezing configuration is often taken to be disallowed, following Wexler and Culicover (1981), giving rise to a range of island-like effects (for review see Corver, 2005). For example, subject island effects such as the contrast in (1) can be construed as instances of freezing effects because of the fact that their surface position in specifier of TP is not their base position.¹ The prohibition on extraction from NPs that have undergone “heavy NP shift”, as shown in (2), is another canonical example. (This involves rightward movement of the larger constituent α , rather than leftward movement as illustrated in Figure 1.)

- (1) a. Who $_{\beta}$ did you buy [a picture of t_{β}]?
 b. *Who $_{\beta}$ was [a picture of t_{β}] $_{\alpha}$ bought t_{α} (by you)?
- (2) a. Who $_{\beta}$ did you send [a big heavy picture of t_{β}] to London?
 b. *Who $_{\beta}$ did you send t_{α} to London [a big heavy picture of t_{β}] $_{\alpha}$?

The traditional intuition here is that when the larger constituent α — the subject in (1), or the

heavy NP in (2) — is moved, it becomes “frozen” and so subsequent extraction from it is disallowed.

Remnant movement configurations are the reverse of freezing configurations in the sense that extraction *from within* the larger constituent α happens first, followed by subsequent movement of the “remnant” α , which is intuitively “incomplete”. A relatively straightforward example in English is the fronting of a VP out of which a subject has moved.²

- (3) a. [Arrested t_β by the police] $_\alpha$, [John] $_\beta$ was t_α
b. [Seem t_β to be tall] $_\alpha$, [John] $_\beta$ does t_α

Note that here movement of the extracted subconstituent β (in each case in (3), ‘John’) targets a position *below* that of the larger constituent α out of which it moves, and therefore derivationally precedes it. Hence these are instances of remnant movement, rather than illicit extraction from frozen constituents.

Hunter (2010) imposes a constraint on movement that rules out freezing configurations; and, since remnant movement shares the basic property of involving “movement out of a mover”, the large majority of imaginable remnant movement configurations are ruled out as well. But when the details are carefully considered, a limited degree of remnant movement is predicted to be possible. While I can not provide here the full explanation of *how* this conclusion is reached, it turns out that remnant movement is constrained according to the statement in (4).

- (4) The “Just Outside” Constraint (JOC)
Remnant movement is permitted only if the base position of the remnant is in the same maximal projection as the target position of the extracted subconstituent.³

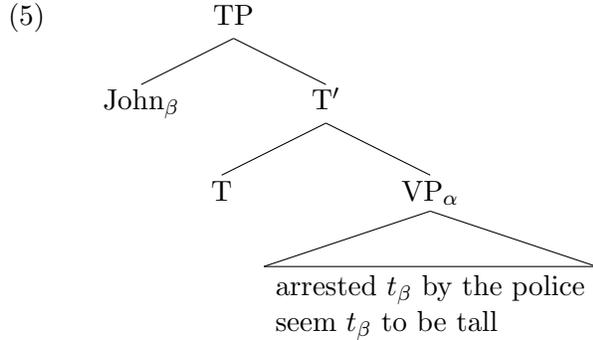
With respect to the diagrams in Figure 1, this means that t_α (the base position of the remnant) and β (the target position of the extracted subconstituent) must be in the same maximal projection. Intuitively, while it is the fact that β moves to a position outside (the still-to-be-moved) α that characterises the remnant movement configuration, the JOC requires that β moves “only just outside” α . The JOC seems to be a rather severe limitation, but it turns out to permit a good portion of the cases where remnant movement is used in the literature — though certainly not all, as will be discussed below.

As a first example, consider the VP-fronting examples from before in (3). The relevant positions for the JOC are (i) the target position of the movement of the subconstituent ‘John’, namely specifier of TP, and (ii) the base position of the remnant VP, namely complement of TP. Since these are within the same maximal projection (namely TP), these examples satisfy the JOC and are therefore predicted to be grammatical, as we would hope. The relevant facts are illustrated in (5), which shows the point in the derivation immediately *before* the second of the two relevant movements: the subconstituent ‘John’ has been moved, but the remnant VP has not. Hence we see clearly that the target position of the former and the base position of the latter are in the same maximal projection, as required.

¹Whether subject island effects can be *entirely* reduced to freezing effects is a matter of some debate (Stepanov, 2001, 2007; Jurka, 2010), but is of no relevance to the concerns of this paper.

²If external arguments originate VP-internally, then *any* instance of VP-fronting will involve remnant movement, but for simplicity I use clearer cases of passivisation and raising.

³Note that, on this usage, being *in* a maximal projection is not the same as being *dominated by* a maximal projection: a constituent will, in general, be dominated by many different maximal projections, but it is only “in” one maximal projection, in the relevant sense. To be in a particular maximal projection XP, in the relevant sense, is to be a complement of XP, or a specifier of XP; or, roughly, adjoined to XP, although there are some subtleties here resulting from the novel treatment of adjunction in Hunter (2010) that we can put aside for most of this paper.

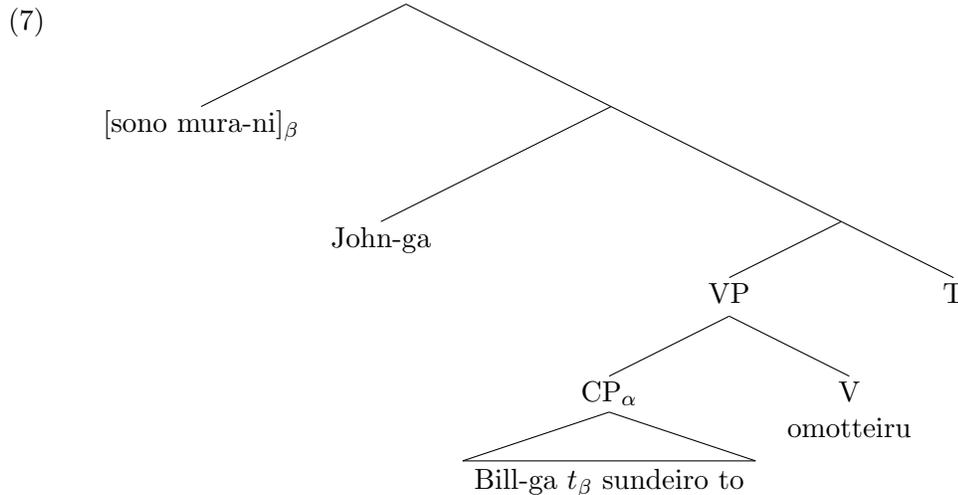


Note that the JOC does not impose any restriction on how deeply embedded inside the larger constituent α the subconstituent β originates; nor does it impose any restriction on how far the larger constituent α moves. All that matters is that the target position of β and the base position of α be sufficiently close (specifically, within the same maximal projection).

If the subconstituent β ('John') had moved to a position outside the TP projection in (5), then remnant movement of α (the VP) would have been disallowed by the JOC. An example of remnant movement in Japanese that exemplifies this sort of illicit configuration is given in (6).

- (6) * [Bill-ga t_β sundeiro to]_α [sono mura-ni]_β John-ga t_α omotteiru
 Bill live that that village in John think
 John thinks that Bill lives in that village (Takano, 2000, p.143)

Again, it is useful to consider the structure immediately *before* movement of the remnant α applies. This will be approximately as given in (7); this is the structure of the acceptable sentence in (8) (Akira Omaki, p.c.) where only movement of β , and not the remnant movement of α , has taken place.⁴



- (8) [sono mura-ni]_β John-ga [Bill-ga t_β sundeiro to]_α omotteiru
 that village in John Bill live that think
 John thinks that Bill lives in that village

⁴For now I assume that head-final order is “base-generated”, not derived by movement.

On the assumption that the subject ‘John-ga’ is in a specifier of T, the constituent β ‘sono mura-ni’ must have moved at least into the projection of T. This violates the requirement that its target position be in the same maximal projection (VP) as the base position of α — ruling out the remnant movement of α in (6).

In the case of these two illustrative examples, the predictions of the JOC appear to be correct: the acceptable (3) is allowed, and the unacceptable (6) is disallowed. The open question that the rest of this paper addresses is to what extent the uses of remnant movement in the literature conform to the JOC. Before turning to this question in detail, however, it is useful to make a few brief comments on the JOC that will bear on the the kinds of ways we might respond to finding analyses in the literature that are inconsistent with it.

First, the significance of maximal projections as the relevant measure of locality stems from an underlying assumption that these are interpretive cycles. Hunter (2010) develops a theory of the syntax-semantics interface based around a restrictive theory of neo-Davidsonian semantic composition⁵ (Parsons, 1990; Schein, 1993; Pietroski, 2005), with particular attention paid to the differing ways in which arguments and adjuncts contribute to event-based logical forms (following intuitions from Hornstein and Nunes (2008)). In this setting, it makes sense to take each maximal projection to be an interpretive cycle, since each maximal projection corresponds to one phrase which other things can be arguments of or be adjoined to — at least, if we are relatively conservative about the number of functional projections we posit, as Hunter (2010) is. But the more a clause is decomposed into a large number of fine-grained functional projections, the less reasonable this assumption of one-to-one correspondence becomes: if we go down this route, then taking an interpretive cycle to be something along the lines of an extended projection (Grimshaw, 2005) would appear to be a more appropriate basis for the underlying conception of semantic composition.

The importance of this for now is that the constraint stated in (4) should be understood as the conjunction of the two statements in (9).

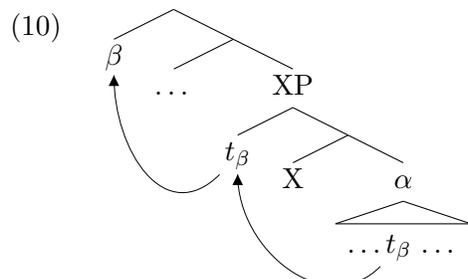
- (9) a. Remnant movement is permitted only if the base position of the remnant is in the same interpretive cycle as the target position of the extracted subconstituent.
- b. Interpretive cycles are (all and only) maximal projections.

The constraint in (9a), for *some* specification of what counts as an interpretive cycle, is an inevitable consequence of the restriction imposed by Hunter (2010) to enforce adjunct island effects and freezing effects. The choice of interpretive cycles stated in (9b) is the one made in Hunter (2010), but other alternatives may be worth considering.⁶ To the extent that the JOC as stated in (4) turns out to make incorrect predictions, the relevant counterexamples constitute evidence that can inform subsequent revisions of (9b). Any adjustment to (9b) will of course require some modifications to the theory of cyclic interpretation proposed in Hunter (2010), but the details of that theory (although unfortunately beyond the scope of this paper) make some conceivable adjustments more plausible (i.e. less likely to require particularly drastic modifications) than others: modifying the system to work with extended projections as the interpretive cycles, for example, is relatively feasible; taking only clauses, for example, as the interpretive cycles is less so. Accordingly, when we find an instance of remnant movement that violates the JOC as stated in (4), it will be of little comfort to note

⁵Most fundamentally, this theory is restrictive in that it predicts only conjunctive meanings for adjectives and adverbs (eg. a ‘red ball’ is something that is both red *and* a ball). It also dovetails with the idea that thematic relations are determined by structural relations (Baker, 1988; Hale and Keyser, 1993), and restricts the way in which the resulting predicates are combined (i.e. they are necessarily conjoined). See Hunter (2010, §1.6) for an overview.

that the violation could be avoided by adjusting (9b) to take clauses as interpretive cycles, for example, but it will be promising to note that it could be avoided by taking extended projections as interpretive cycles.

Second, there is a question left open by the statement of the JOC in (4) and the brief discussion of it in Hunter (2010): what if β moves first to a position within the same maximal projection as the base position of the remnant α , and then moves further to a position outside this maximal projection? The relevant pattern immediately before the movement of the remnant α is illustrated in (10).



If β moved only to its intermediate position, within XP, then remnant movement of α would be permitted, just as it was in (5). And if β moved directly to its final position outside XP, then remnant movement of α would be disallowed, just as it was in (7). The question of whether or not the configuration in (10) is allowed depends on whether it is the *first* landing site⁷ of β that is relevant, or the *final* landing site of β . We can therefore identify two variants of the JOC, a weak version and a strong version, as given in (11) and (12) respectively.

(11) The JOC (weak version)

Remnant movement is permitted only if the base position of the remnant is in the same maximal projection as the first (remnant-external) landing site of the extracted subconstituent.

(12) The JOC (strong version)

Remnant movement is permitted only if the base position of the remnant is in the same maximal projection as the final landing site of the extracted subconstituent.

Put differently, the choice between the weak and strong versions is the choice of whether the intermediate landing site of β in the XP projection “rescues” movement of α in the configuration in (10) or not: (10) is permitted by the weak JOC, but not by the strong JOC. Importantly, the choice between the weak and strong versions is independent of the principles of the rest of the system in Hunter (2010) which derive freezing effects from adjunct island effects: deriving freezing effects in this way will necessarily also impose at least the weak JOC, but the strong version does not follow automatically, and it is not immediately obvious which is the more “natural” choice. These distinct possibilities were not noticed in the earlier work, but below I will present evidence that the strong JOC is probably untenable. In much of what follows, however, I will simply refer to “the JOC” because in many contexts the distinction between the two versions is not relevant.

⁶Adjustments to (9b) will also have some effect on the prohibitions against movement out of adjoined constituents and moved constituents: for example, movement out of an adjunct to a position in the same interpretive cycle as the adjunct will be permitted. (When maximal projections are the interpretive cycles, this is a very strict limitation that covers seemingly all the empirically necessary cases.) I leave this issue aside for the purposes of this paper.

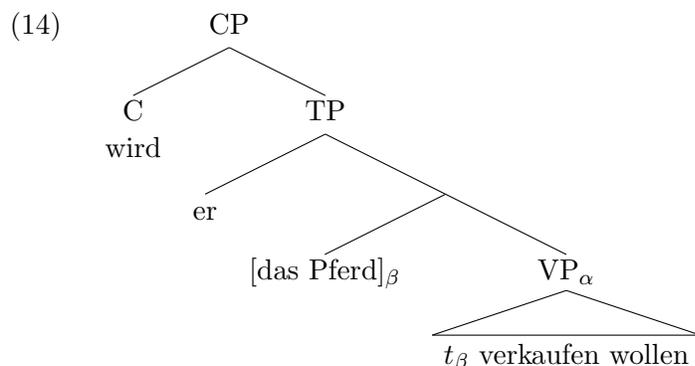
⁷More precisely, the first landing site of β that is not contained in α . Movements of β that are wholly inside α are not relevant.

3 Early motivation: German “incomplete category fronting”

Early motivation for remnant movement came from analyses of “incomplete category fronting” in German where a non-constituent appears to have been fronted (den Besten and Webelhuth, 1990), as in (13).

- (13) [t_β Verkauften wollen] $_\alpha$ wird er [das Pferd] $_\beta$ t_α
 sell want will he the horse
 He will want to sell the horse (De Kuthy and Meurers, 1998)

Here the object has moved out of the head-final VP ‘das Pferd verkaufen wollen’, before the VP is fronted. In order for the JOC to permit this movement, we require that the final position of the object ‘das Pferd’ is not outside the TP. This seems likely to be true, on the assumption that ‘wird’ is in the verb-second C head position. Specifically, the structure immediately before the fronting of the VP will be roughly as in (14).⁸



It is similarly possible to leave behind a constituent more deeply embedded in the VP, such as a complement of the object as in (15).

- (15) [Ein Buch t_β schreiben] $_\alpha$ will niemand [darüber] $_\beta$ t_α
 a book write want no one about that
 No one wants to write a book about that (De Kuthy and Meurers, 1998)

Again, for such movement to not violate the JOC, we require that the moved PP ‘darüber’ not be outside the TP; and again, this seems reasonable since ‘will’ is in the verb-second C head position here.

The complement of an object can also be left behind, as in (15), in cases where only the object itself is fronted, as shown in (16). We can derive this as long as ‘über Syntax’ is not outside the VP, which seems safe to assume.

- (16) [Ein Buch t_β] $_\alpha$ hat Hans sich [über Syntax] $_\beta$ t_α ausgeliehen
 a book has Hans himself about syntax borrowed
 Hans borrowed a book about syntax (De Kuthy and Meurers, 1998)

In other cases, the remnant VP consists of only the verb itself:

⁸If ‘das Pferd’ is adjoined to VP, rather than in a specifier position of T, this also does not cause any problems: the way such “stranded” adjuncts are treated in the system from which the JOC emerges is essentially to consider them a part of the next maximal projection up. See Hunter (2010) for details.

- (17) [t_β Gelesen] $_\alpha$ hat [das Buch] $_\beta$ keiner t_α
 read has the book no one

No one read the book

(Takano, 2000, p.147)

Having fronted a remnant VP, the JOC requires that ‘das Buch’ is not outside the TP, which seems correct. (Takano assumes it is adjoined to TP.)

Note that in (13), (15) and (16), the position in which β surfaces is immediately adjacent to t_α . That these should be close to each other is exactly what the JOC requires. (In (17) they are not immediately adjacent, but are still close enough, as just discussed.) It is also precisely this closeness that gives these examples the initial puzzling appearance of having fronted a “non-constituent” or an “incomplete category”: when β and t_α are separated, as in (17) for example, the fact that β has moved out of α is relatively clear. Intuitively, remnant movement analyses that posit movement of β out of α “just so that” α can be moved without bringing along β will generally satisfy the JOC, because such an analysis will tend to move β only just out of α , as illustrated in (14), for example.

The JOC and Müller’s UD

Müller (1998) proposes Unambiguous Domination (UD) as a constraint on remnant movement: essentially, this says that remnant movement is allowed if and only if the movement of α and the movement of β are different sorts of movement (perhaps they check different features). Many of the contrasts that motivate this constraint also fit reasonably well with the JOC. For example, Müller (2002, p.226) writes that “middle field-external remnant wh-movement is impossible if the antecedent of the unbound trace has also undergone wh-movement, and possible if it has undergone another type of movement, eg. scrambling”, on the basis of the following contrast:

- (18) a. * [Was für ein Buch t_β] $_\alpha$ fragst du dich [über wen] $_\beta$ du t_α lesen sollst ?
 what for a book ask you REFL about whom you read should
 What kind of book do you wonder about whom to read? (Müller, 2002, p.226)
- b. [Was für ein Buch t_β] $_\alpha$ hast du [über die Liebe] $_\beta$ t_α gelesen ?
 what for a book have you about the love read
 What kind of book about love did you read? (Müller, 2002, p.226)

But one could also suppose that the relevant difference here is not the *kind* of movement that β undergoes, but the *length* of this movement: in the bad case β has moved all the way to SpecCP, but in the good case it has moved only to somewhere high in VP, and the latter is close enough to be permitted by the JOC.

Hinterhölzl (2006, p.24) gives an example of remnant movement which is predicted to be grammatical by Müller’s UD constraint, because the two movement steps are of different kinds (wh-movement vs. topicalisation), but which nonetheless is ungrammatical (importantly, worse than the “mild subjacency-like violation” in the latter non-remnant example).

- (19) a. * [daß Fritz t_β liebt] $_\alpha$ weiß ich nicht [wen] $_\beta$ er t_α gesagt hat
 that Fritz loves know I not whom he said has
 I don’t know who he said that Fritz loves (Hinterhölzl, 2006, p.24)
- b. ?? [daß Fritz Peter liebt] $_\alpha$ weiß ich nicht wer t_α gesagt hat
 that Fritz Peter loves know I not who said has
 I don’t know who has said that Fritz loves Peter (Hinterhölzl, 2006, p.24)

The JOC correctly predicts the (extra) ungrammaticality of this remnant movement configuration: the fronted remnant is the complement of the embedded VP, so the target position of ‘wen’ would need to be within this VP, which it is not.

4 Apparent counterexamples: the VP/TP domain

While the JOC fares relatively well for many “incomplete category fronting” examples as discussed above, it is violated by the acceptable sentence in (20).

- (20) [Ein Buch t_β] $_\alpha$ hat [darüber] $_\beta$ keiner t_α gelesen
 a book has about that no one read
 No one read a book about that (Hinterhölzl, 2002, p.130)

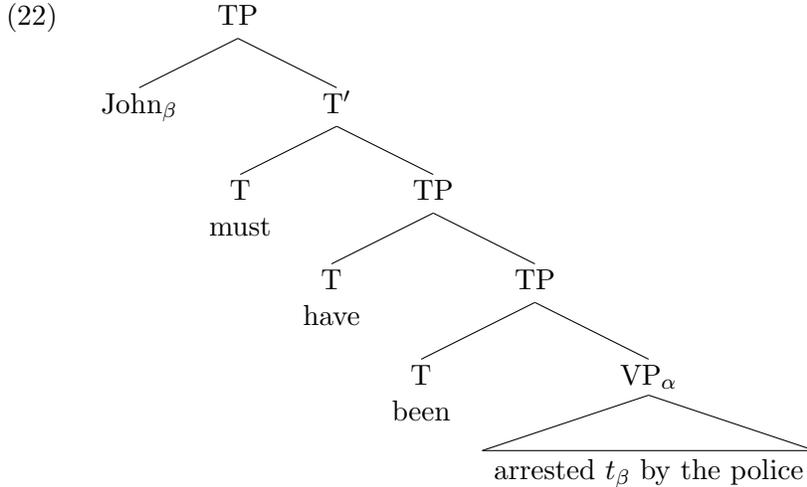
Here the remnant originates in object position, but ‘darüber’ has moved to a position to the left of the subject ‘keiner’. Assuming the subject is in the TP projection, then ‘darüber’ must be at least that high as well, and therefore outside the VP projection in which the remnant object originates. Notice the crucial difference between this example and (17): in (17) the extracted subconstituent β has also moved to the left of the subject and presumably into the TP projection, but the fronted remnant was a VP and therefore originated in the TP projection. In (20) the fronted remnant is not the entire VP but just the object DP, and so the JOC imposes a stricter requirement on how high the extracted subconstituent β can move.

It appears then that in (20) we have licit movement into the TP projection that is, according to the JOC, “too high”. Recall that one degree of freedom that is potentially available is adopting a more nuanced theory of interpretive cycles, which would entail replacing the reference to maximal projections in the JOC with some other chosen domain. One way to accommodate the problematic (20), then, would be to suppose that the combination of a T head with its complement VP does not trigger a fresh interpretive cycle in the way that the combination of a V head with a complement or specifier does. This would be consistent with the idea that it is roughly *extended* projections that are relevant, rather than simply maximal projections; where, following Grimshaw (2005), an extended projection consists of the projection of one lexical head (eg. VP), plus any number of functional projections (eg. TP) stacked immediately on top of it.

Supposing that T heads do not introduce a new domain of the relevant sort would also accommodate a variant of the earlier English VP-fronting examples that appears to be problematic for the JOC. On the assumption that modals and auxiliaries all head their own projections, the JOC as stated will disallow the VP-fronting in (21).⁹

- (21) [Arrested t_β by the police] $_\alpha$, [John] $_\beta$ must have been t_α

The reason for this is that the base position of the fronted VP will be the complement of the lowest auxiliary, ‘be(en)’. The position to which the subject has moved, however, will be outside the projection of ‘be(en)’; it will be in the projection of some higher auxiliary/tense head, as shown in (22). This should not be allowed.



Under standard assumptions about endocentricity and selection, the syntactic structure in (22) lets us account for the ordering of auxiliaries and modals that we observe (‘have’ selects ‘be’, etc.), so the idea that every auxiliary projects a phrase is well-motivated. The most reasonable response therefore seems to be to reject the simple hypothesis of a one-to-one correspondence between maximal projections and interpretive cycles, and suppose that T heads merely extend the interpretive cycle that precedes them; on this assumption the structure in (22) would all be part of the same cycle, and no JOC violation would occur. Although the semantic details are beyond the scope of this paper, note that on at least one simple account of tense in (neo-)Davidsonian semantics, tense heads are plausibly analysed as contributing a simple event predicate (eg. $\lambda e.\mathbf{past}(e)$) that is applied to the same event variable that VP-internal arguments and modifiers apply to.¹⁰ I leave for future work the question of whether this idea grounded in semantics can be integrated meaningfully with Grimshaw’s structurally-oriented notion of extended projection.

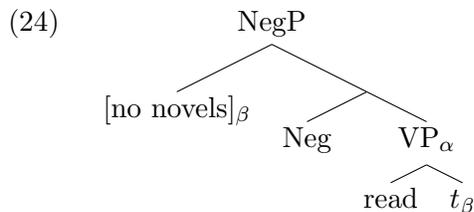
5 Negative preposing (Kayne, 1998)

As part of a larger project to emulate the effects of covert movement using only overt movement, Kayne (1998) introduces a “negative phrase preposing” analysis of sentences like (23). On this analysis, ‘no novels’ is moved leftward out of the VP, followed by remnant movement of the VP. The position to which ‘no novels’ moves is specifier of NegP, and while Kayne is not completely explicit about this, it is consistent with his analysis that NegP is immediately above VP. In this case this instance of remnant movement obeys the derived restriction: the base position of the remnant VP and the target position of the remnant-creating movement are both in the NegP projection.

(23) John [reads t_β] $_\alpha$ [no novels] $_\beta$ t_α

⁹Thanks to Juan Uriagereka for pointing out this example.

¹⁰For the sort of thing I have in mind here, see the account of quantification in Hunter (2010), where semantic composition of a T head and a VP complement is significantly different from that of a verb and its arguments; although no modifications are made there to the interpretive cycle, in the relevant sense.



In order to account for the kind of scope ambiguities that are otherwise often thought to arise from different covert movements, Kayne proposes that the fronted remnant VP sometimes contains more than just the verb itself. This variation does not conflict with the derived constraint on remnant movement. The relevant example is (25); Kayne proposes that the “narrow scope negation” reading is derived as in (25a), with the embedded clause essentially treated analogously to (23), and that the “wide scope negation” reading is derived as in (25b).

- (25) I will force you to marry no one
- a. I will force you to [marry t_β] $_\alpha$ [no one] $_\beta$ t_α
 - b. I will [force you to marry t_β] $_\alpha$ [no one] $_\beta$ t_α

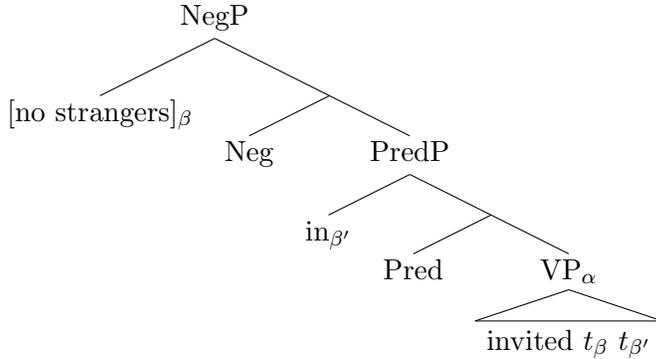
The two derivations differ in how deeply ‘no one’ (β) is embedded inside the VP that is eventually moved (α). This difference is not relevant to the constraint under discussion: all that matters is that the position to which ‘no one’ moves is sufficiently close to the base position of the VP that is eventually moved. In (25a) ‘no one’ moves to the specifier position of a NegP in the embedded clause, and it is the embedded clause VP that is fronted; in (25b) ‘no one’ moves to the specifier position of a NegP in the matrix clause, and it is the matrix VP that is fronted. In each case ‘no one’ moves, in effect, “just far enough” for it to not be included in the fronted VP, however big this VP is, and so in each case the JOC is satisfied.

Assuming this to be correct, any VP-internal constituents that surface to the right of the negative DP must also be moved out of the VP before this remnant movement occurs. Thus (26) requires movement of a “double remnant”: both ‘no strangers’ and ‘in’ are moved out of the VP before it moves.

- (26) John [invited t_β $t_{\beta'}$] $_\alpha$ [no strangers] $_\beta$ [in] $_{\beta'}$ t_α

This sort of situation puts more stress on the JOC: both ‘no strangers’ and ‘in’ must move to positions not outside the projection above VP, whatever that is. Kayne assumes that in such cases there is a PredP in between NegP and VP, and that ‘in’ raises to the specifier of PredP and ‘no strangers’ raises to the specifier of NegP as in (23). The latter movement, however, now violates the JOC, since the specifier of NegP is no longer in the same maximal projection as the base position of the VP, as shown in (27).

(27)

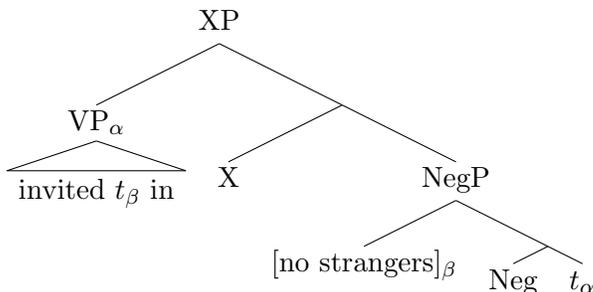


Like those discussed in Section 4, this violation would plausibly be avoided if we take the relevant domains to be extended projections (since NegP and PredP here are presumably both functional projections). But let us ask also whether this apparent counterexample could be reanalysed in a way that is consistent with even the stronger, unmodified JOC based on simple maximal projections. There are at least two options that are worth considering.

First, one could attempt to reanalyse the data in a manner that maintains the basic pattern of movements illustrated in (26) but departs from Kayne’s assumptions about the exact landing sites. This will necessarily involve ‘no strangers’ and ‘in’ moving to specifiers of or adjuncts to a single maximal projection, namely the one immediately above VP, whatever that is. Of course this is incompatible with the larger program of Kayne’s research, where each maximal projection can contain at most one left-attached phrase (a specifier, or equivalently for him, an adjunct) (Kayne, 1994). Very generally, this assumption forces Kayne to postulate a relatively large number of functional heads, since he requires a separate functional head to host each leftward movement; and this sort of result is not a good fit for the JOC as it stands, because it requires a certain closeness that is measured in terms of maximal projections. So while there is certainly a tension between the JOC and the Kaynian framework, one can easily imagine an analysis which is analogous to that in (27) in the basic pattern of movements but which departs from the assumption that requires distinct functional heads for each landing site. In Section 7 we will see examples of “double remnant” movement where this is not assumed, which makes it possible for the JOC to be satisfied.

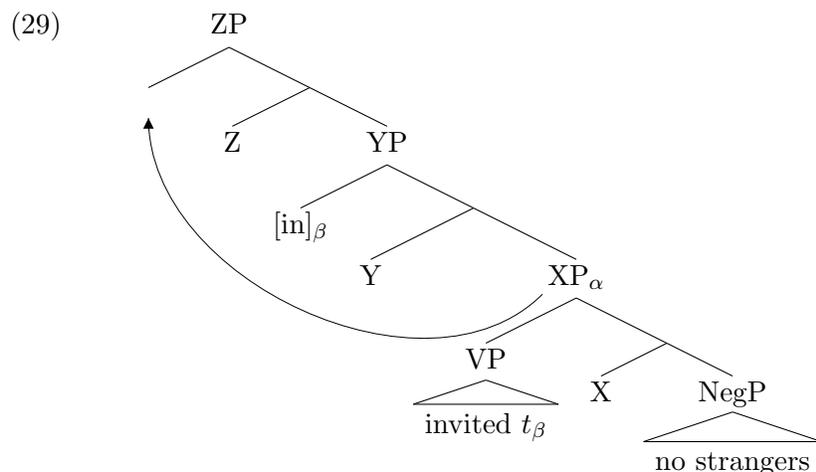
Second, one could maintain Kayne’s assumption of one specifier/adjunct per projection and derive the appropriate word order via a more complex pattern of movement operations than (27).¹¹ In effect the idea is to first apply “normal” negative phrase preposing, analogous to that illustrated in (24), leaving ‘invited’ and ‘in’ together for now. The result is shown in (28).

(28)



This is what Kayne suggests for a straightforward example such as (23), and is consistent with the JOC. In order to derive the word order of (26), we must now somehow separate the particle ‘in’ and leave it in a sentence-final position. This can be achieved by extracting ‘in’ and then fronting

the entire XP constituent in (28), as shown in (29).



This second remnant movement (the remnant being XP, out of which ‘in’ has moved) also satisfies the JOC, since both the relevant sites are inside the YP projection. So the JOC can be made consistent with the assumption that there can be only one specifier/adjunct per projection in such double remnant cases if we accept a more elaborate sequence of movements than Kayne’s original suggestion in (27).

Besides these complications raised by movement of “double remnants”, Kayne’s proposal also provides reason to believe that the strong version of the JOC is in fact too strong, and that only the weak one can be maintained. The analysis of (23) uses remnant movement for a relatively “neutral” sentence, in contrast to the marked sentences involving VP-fronting and scrambling seen earlier. It therefore makes available the possibility of further moving the extracted subconstituent β . While Kayne is not explicit about the position of subjects, it seems reasonable to assume that the derivation of (30) will begin by building the same structure as (24), with the underlying object ‘no novels’ subsequently moved to the surface subject position.

(30) No novels were read (by John)

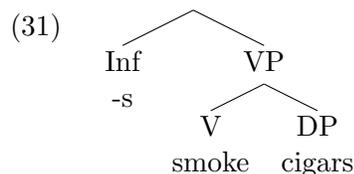
We therefore have an instance of the pattern shown in (10): the *first* position outside the VP to which ‘no novels’ moves is inside the next maximal projection (i.e. NegP), but the *final* position to which it moves is further away. But since ‘read’ surfaces in its normal position in the acceptable (30), the leftward movement of the remnant VP is still allowed; this would not be permitted by the strong JOC. While certainly dependent on a number of other assumptions, this is exactly the kind of evidence that is required to argue for abandoning the strong version of the JOC and maintaining only the weak version.

6 SVO, SOV and VSO word order

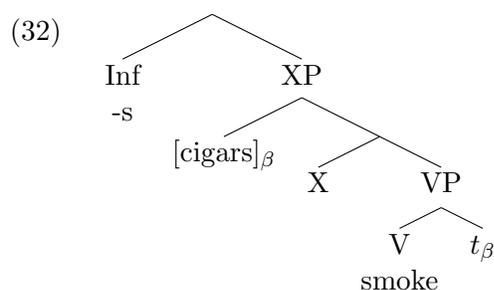
Another motivation for a similar configuration involving remnant VP movement is explored by Koopman and Szabolcsi (2000) and Jayaseelan (2010). The central idea is to give an account of how verbs combine with their inflections that (i) does not involve head movement and (ii) is consistent with the assumption from Kayne (1994) and others that heads uniformly precede their

¹¹Thanks to Bob Frank for pointing out this possibility.

complements. Given the structure in (31), how can the final string ‘smokes cigars’ be derived if not (as often assumed) via head movement?



Koopman and Szabolcsi (2000) and Jayaseelan (2010) both adopt the idea that the verb ‘smoke’ ends up in a position immediately to the left of the inflection ‘-s’ via *phrasal movement* of the VP to (say) the specifier position of Inf. But this requires that the verb ‘smoke’ be the rightmost pronounced element in the VP. This is not the case in (31), and so before the Inf head is merged, the VP-internal material that is to the right of the verb is “evacuated” to a position just above VP.



From this point, movement of the remnant VP produces the desired English word order. This is permitted by the JOC since the base position of the remnant VP is in the same maximal projection as the target position of ‘cigars’; the leftward movement of the object is (at least structurally) analogous to Kayne’s “negative phrase preposing”, with XP corresponding to NegP.

(33) [smoke t_β] $_\alpha$ -s [cigars] $_\beta$ t_α

Part of the attraction of this account is that this derivation of head-initial English word order differs from the derivation of head-final word order only in the size of the constituent that undergoes the second movement step: instead of moving the remnant VP, a head-final language like Japanese moves the XP constituent that hosts the object in its new position.

(34) [[cigars] $_\beta$ smoke t_β] $_\alpha$ -s t_α

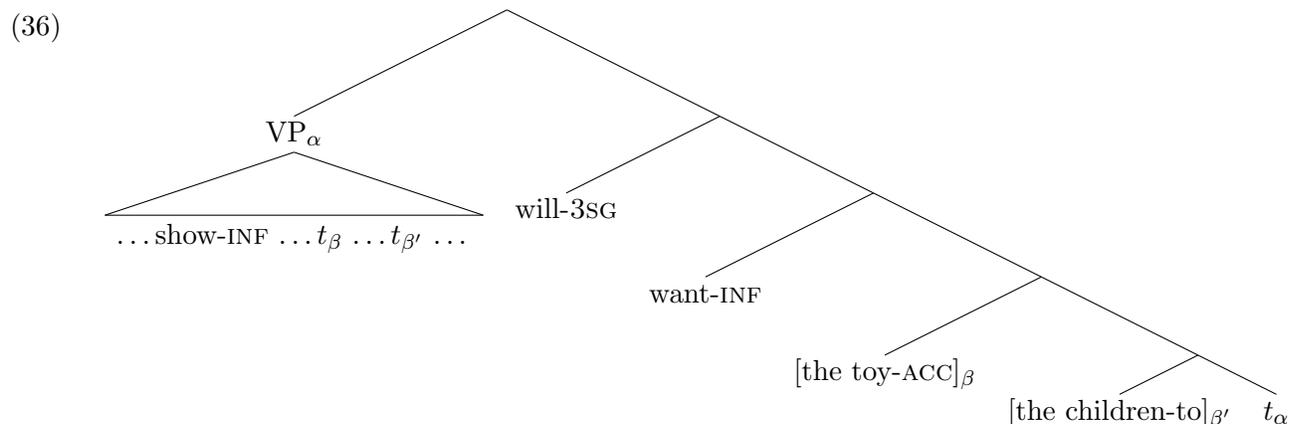
Note that this is not an instance of remnant movement at all: the object does not move out of the constituent α that is subsequently fronted. The advantage of the account is that the need to move the object out of the position to the immediate right of the verb is constant across the two language types, given the phrasal-movement analysis of how the verb picks up its inflection. Moving the object somewhere to the left of the verb is necessary to derive the correct word order in the case of head-final languages, but if inflection were picked up via head movement there would be no independent explanation for this movement, or why it occurs in some languages (eg. Japanese) and not others (eg. English).

Koopman and Szabolcsi (2000) analyse certain Hungarian constructions that appear to involve a mixture of head-initial and head-final orders via, in effect, a mixture of the two configurations in (33) and (34). The relevant difference from one clause to the next is therefore whether the VP pied-pipes additional structure or not when it moves to pick up inflection, rather than a difference

between the presence of leftward movement over the verb in head-final cases and its absence in head-initial cases. Koopman and Szabolcsi also derive non-trivial restrictions on how head-initial and head-final configurations can and cannot be mixed in a single sentence.

As in the case of Kayne’s negative preposing, this approach to word order will put extra strain on the JOC when there are two distinct parts of VP that need to be moved leftwards across the verb, if we follow Kayne (1994) in assuming that each projection can host at most one left-attached constituent. For the Hungarian sentence in (35), Koopman and Szabolcsi (2000) give the abstract structure in (36), where both the direct object and indirect object have been moved leftwards out of the VP, analogous to the movements of ‘no strangers’ and ‘in’ in (27).

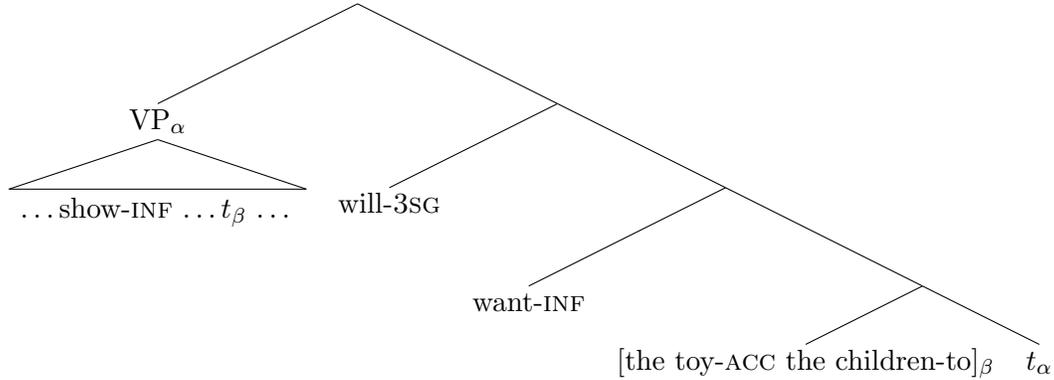
- (35) Mutogatni fogja akarni a játékot a gyerekeknek
 show-INF will-3SG want-INF the toy-ACC the children-to
 (He/She) will want to show the toy to the children (Koopman and Szabolcsi, 2000, p.23)



Since both the direct object and the indirect object have been extracted from the fronted remnant VP, the JOC requires that they both have moved to positions inside the maximal projection immediately above the base position of VP, which is not possible under the Kaynian assumptions that Koopman and Szabolcsi adopt. Again, we could work around this “double remnant” problem by moving the VP in two distinct steps, just as (28) and (29) provide a way around the problematic pattern in (27). But in this case there is also an independently motivated revision of (36) that has been suggested, which avoids the problem altogether.

Jayaseelan (2010, p.303) notes that Koopman and Szabolcsi must stipulate that extraction of these VP-internal elements must happen in an order that respects their linear order inside the VP — the rightmost element must be extracted first, to the lowest position, and the leftmost element last, to the highest position — such that their VP-internal linear order is preserved. This stipulation would be eliminated if it were assumed that everything to the right of the verb were a single constituent (say, the complement of the verb). Then the order of the elements in (36) would be straightforwardly maintained, and furthermore we would no longer be forming a “double remnant”, because only a single constituent is extracted from VP. The general structure of the suggestion is illustrated in (37).

(37)

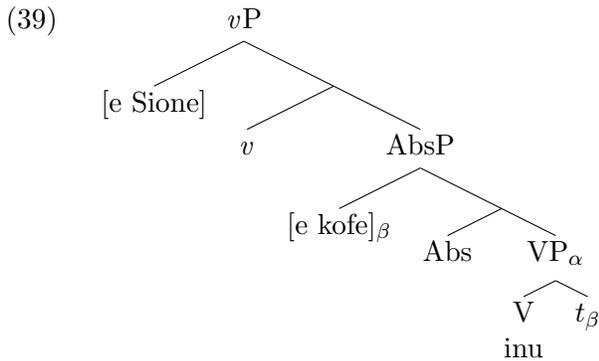


Here the JOC requires only that the single constituent ‘the toy-ACC the children-to’ has moved to a position within the same maximal projection as t_α , which does not conflict with Kaynian assumptions about phrase structure.

Finally, I note briefly that in addition to these reanalyses of the difference between SVO and SOV word orders in terms of remnant movement, there have also been recent proposals to derive VSO word order from underlying SVO structures via remnant movement (Massam, 2000; Lee, 2000; Rackowski and Travis, 2000). The idea, as in the previous analyses discussed in this section, is to remove overt material (in particular, the object) from the VP and then front it.

A simple illustrative example is given in (38). Massam (2000) derives this VSO sentence from an underlying SVO structure by first raising the object ‘e kofe’ out of the VP and then fronting the VP to a position higher than the subject.¹² Specifically, the object moves to a specifier of AbsP for absolutive case, as shown in (39).

(38) Ne [inu t_β]_α e Sione [e kofe]_β t_α
 PAST drank ERG Sione ABS coffee
 Sione drank the coffee



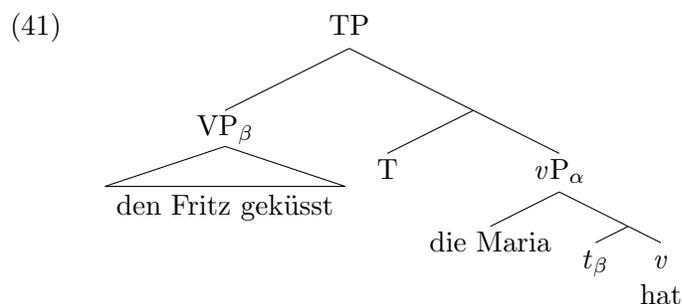
This is an instance of a now-familiar pattern: the movement of the object goes “just far enough” to permit phrasal movement that appears to only move the verb itself, and is therefore consistent with the JOC. The proposal has much in common with that of Koopman and Szabolcsi (2000), in that it reanalyses what at first glance appears to be movement of only a verb as movement of a remnant VP, eliminating the need for head movement.

¹²Massam calls the position to which the VP moves the specifier of Infl, such that this movement is parallel to the movement of subjects to specifier of Infl, but these details are not important for our purposes.

7 Verb-second as remnant *vP*-fronting

Müller (2004) presents a novel analysis of verb-second (V2) word order involving remnant movement. Under the conventional account of V2 phenomena, the phrase that appears pre-verbally is fronted (or “topicalised”) to a specifier of CP, and the finite verb undergoes head movement to C. Müller, following ideas from Nilsen (2002), proposes that instead of arising via a combination of two distinct movement operations, V2 constructions are produced by fronting a *vP* that has been emptied of everything except the finite verb and one phrase in a specifier position. Thus a simple subject-initial V2 sentence is derived as shown in (40), where β is the VP that is moved to (Müller assumes) a specifier position of TP, and α is the remnant *vP* that is moved to specifier of CP. The structure derived before the movement of the remnant *vP* is shown in (41).

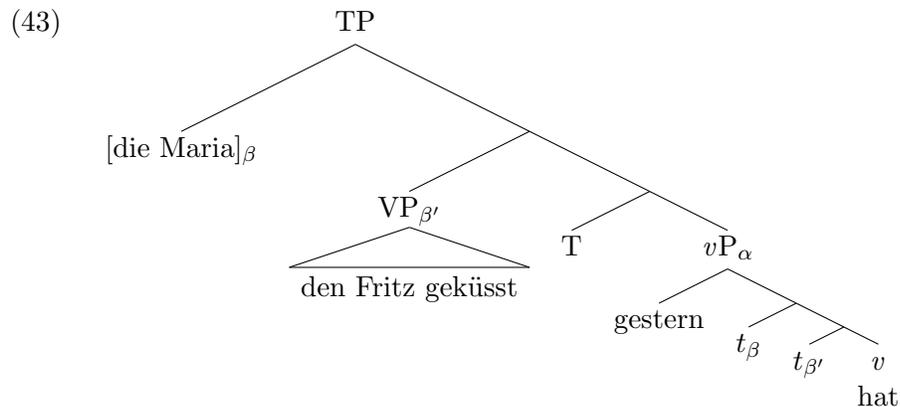
- (40) [CP [Die Maria t_β hat] $_\alpha$ [TP [den Fritz geküsst] $_\beta$ t_α]]
 the Maria has the Fritz kissed
 Maria kissed Fritz



In this simple case, the remnant movement clearly satisfies the JOC because the target position of the VP ‘den Fritz geküsst’ and the base position of *vP* ‘Die Maria hat’ are both in the TP projection.

When the pre-verbal element is something other than the subject, what differs is which part(s) of the *vP* are “evacuated” before it is fronted. In order to derive an adverb-initial sentence, the subject and the VP (containing the non-finite verb and the object) are both moved into specifier positions of TP before the *vP* is fronted, leaving only the adverb and verb in *vP*, as shown in (42); here α is the *vP* as above, and the two evacuated constituents β and β' are the subject and the VP respectively.¹³ Again, the structure derived before the fronting of *vP* is shown in (43).

- (42) [CP [Gestern t_β $t_{\beta'}$ hat] $_\alpha$ [TP [die Maria] $_\beta$ [den Fritz geküsst] $_{\beta'}$ t_α]]
 yesterday has the Maria the Fritz kissed
 Maria kissed Fritz yesterday



This is once again a case where two distinct constituents vacate the remnant, and so both of them must move to positions inside the same maximal projection. As discussed above, this causes problems for the JOC under the assumption of Kayne (1998) and Koopman and Szabolcsi (2000) that each projection can host at most one left-attached phrase. Müller does not adopt this assumption, however, and so it is possible for him to give an analysis that is consistent with the JOC; and indeed he does, suggesting that both ‘die Maria’ and ‘den Fritz geküsst’ move into the TP domain.

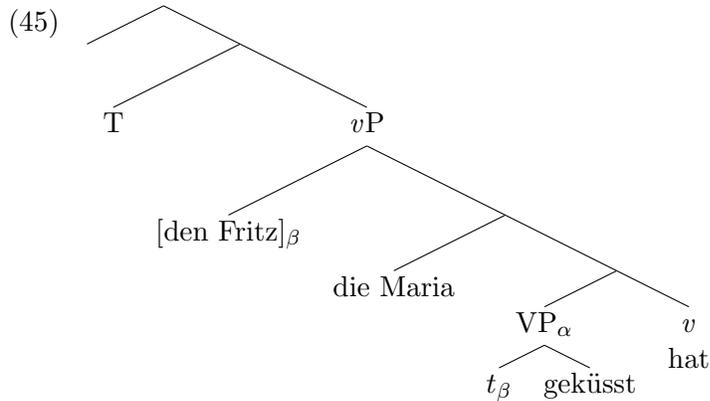
The case of an object-initial sentence is essentially analogous — the subject and the verb (and anything else, eg. adverbs) are evacuated from the *vP*, and then the *vP* is fronted — but involves an extra movement operation in order to get the object to the left edge of the *vP*. This can be straightforwardly analysed as an instance of scrambling, but there is an interesting consequence: with the object scrambling out of its VP-internal position, the movement of the VP into the TP domain (analogous to that of ‘den Fritz geküsst’ above) is now *another* instance of remnant movement, as well as the fronting of the *vP* that we have seen in the previous two examples. It turns out, however, that these two intertwined remnant movement configurations both satisfy the JOC.

I will present the analysis of the sentence in (44) in two steps.

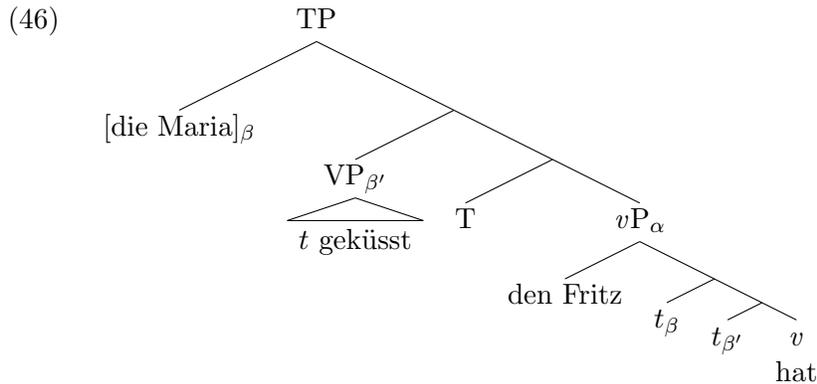
(44) Den Fritz hat die Maria geküsst

First consider the movement of the VP into the TP domain. Unlike in the previous examples, this is an instance of remnant movement because the object has moved out of it. The movement of the object is shown in (45). The next operation to apply to this structure will be the remnant movement of the VP (labelled α) into the TP domain. This is consistent with the JOC because the extracted constituent ‘den Fritz’ has only gone into the *vP* projection, which is where the remnant VP originates.

¹³Müller assumes that adverbs are merged as specifiers of *vP*. If we instead assumed that some *vP*-internal movement were necessary to place the adverb at the left edge, there would be no difference for present purposes.



Having constructed a vP constituent ‘den Fritz hat’ via this remnant VP movement and then movement of the subject ‘die Maria’ into the TP projection, (46) shows the structure derived immediately before the movement of vP (this shows an equivalent point in the derivation to those shown in (41) and (43) earlier). Note that the labels α and β have been reassigned here to maintain the convention that the evacuated subconstituent is β and the remnant constituent is α .



The vP (labelled α) that is fronted to specifier of CP is a “double remnant”, as in the case of (42). Here the two evacuated subconstituents are the subject ‘die Maria’ and the “emptied” VP ‘geküsst’, but as in (42) these are both moved into the TP domain and therefore close enough to the base position of the vP to satisfy the JOC.

This derivation therefore invokes a kind of “nested” remnant movement: the VP is the moved remnant (hence labelled α) in the configuration discussed in (45), and is the extracted subconstituent (hence labelled β) in the configuration discussed in (46). The fact that the JOC permits this “nested” remnant movement configuration is significant, since Kobele (2010) has shown that unboundedly nested remnant movement, in this sense, is a necessary condition for minimalist grammars (as formalised by Stabler (1997)) to be able to generate non-context free languages. Hence a restriction that ruled out such unboundedly nested remnant movement would rule out the possibility of analysing phenomena such as the cross-serial subordinate clause construction in Swiss German (Shieber, 1985) which are provably beyond the bounds of context-free grammars.

8 Conclusion

I have presented an investigation of the implications of a constraint on remnant movement that emerges from an independently-motivated proposal concerning the basic operations of grammar. If the account of adjunct islands and freezing effects in Hunter (2010) is correct, then the JOC (in either its weak or its strong form) must also hold, but the empirical plausibility of this constraint had not previously been assessed in any depth. While the cases considered here are far from exhaustive, the findings thus far appear to be by and large positive.

A large number of the analyses considered here were found to straightforwardly satisfy the constraint, and those that did not fell into one of two groups. First there were examples of movement into TP domains that the JOC would predict should only be able to move into lower (say, VP) domains. A reasonable hypothesis seems to be that this is due to the fact that the semantic relationship between T heads and their complements is relevantly different from one of “argument taking”, which is the concept underlying the domains referred to by the JOC (assumed for now to be maximal projections). As I have noted, this seems suggestive of a connection to Grimshaw’s (2005) extended projections, although the details remain to be worked out; this provides a clear direction for future research. The second kind of analysis that conflicted with the JOC were those of “double remnant” movement in the context of Kayne’s assumption that each projection can host at most one left-attached phrase. I tentatively take these to be less consequential counterexamples: given that the underlying nature of the relevant domains is semantic as just discussed, the conflict appears to be an artefact of the differing uses of the theoretical notion “maximal projection”; and furthermore, the conflict can be circumvented by hypothesising a more complex sequence of movement steps, as discussed in Section 5.

References

- Alexiadou, A., Anagnostopoulou, E., Barbiers, S., and Gärtner, H.-M., editors (2002). *Dimensions of Movement: From features to remnants*. John Benjamins, Amsterdam/Philadelphia.
- Baker, M. (1988). *Incorporation: A Theory of Grammatical Function Changing*. University of Chicago Press, Chicago.
- Carnie, A. and Guilfoyle, E., editors (2000). *The Syntax of Verb Initial Languages*. Oxford University Press, New York and Oxford.
- Corver, N. (2005). Freezing effects. In Everaert, M. and van Riemsdijk, H., editors, *The Blackwell Companion to Syntax*, pages 383–406. Wiley-Blackwell, Malden, MA.
- De Kuthy, K. and Meurers, W. D. (1998). Incomplete category fronting in German without remnant movement. In Schröder, B., Lenders, W., Hess, W., and Portele, T., editors, *Computers, Linguistics, and Phonetics between Language and Speech*, pages 57–68. Peter Lang, Frankfurt a.M.
- den Besten, H. and Webelhuth, G. (1990). Stranding. In Grewendorf, G. and Sternefeld, W., editors, *Scrambling and Barriers*. John Benjamins, Amsterdam/Philadelphia.
- Grimshaw, J. (2005). *Words and Structure*. CSLI Publications, Stanford, CA.

- Hale, K. and Keyser, S. J. (1993). On argument structure and the lexical expression of syntactic relations. In Hale, K. and Keyser, S. J., editors, *The View from Building 20*, pages 53–109. MIT Press, Cambridge, MA.
- Hinterhölzl, R. (2002). Remnant movement and partial deletion. In Alexiadou et al. (2002), pages 127–149.
- Hinterhölzl, R. (2006). *Scrambling, Remnant Movement, and Restructuring in West Germanic*. Oxford University Press, New York.
- Hornstein, N. and Nunes, J. (2008). Adjunction, labeling, and bare phrase structure. *Biolinguistics*, 2(1):57–86.
- Hunter, T. (2010). *Relating Movement and Adjunction in Syntax and Semantics*. PhD thesis, University of Maryland.
- Jayaseelan, K. A. (2010). Stacking, stranding and pied-piping: A proposal about word order. *Syntax*, 13(4):298–330.
- Jurka, J. (2010). *The Importance of Being a Complement: CED Effects Revisited*. PhD thesis, University of Maryland.
- Kayne, R. (1994). *The antisymmetry of syntax*. MIT Press, Cambridge, MA.
- Kayne, R. (1998). Overt vs. covert movement. *Syntax*, 1(2):128–191.
- Kobele, G. M. (2010). Without remnant movement, MGs are context-free. In Ebert, C., Jäger, G., and Michaelis, J., editors, *Proceedings of Mathematics of Language 10/11*, volume 6149 of *LNCS*, pages 160–173, Berlin Heidelberg. Springer.
- Koopman, H. and Szabolcsi, A. (2000). *Verbal Complexes*. MIT Press, Cambridge, MA.
- Lee, F. (2000). VP Remnant Movement and VSO in Quiavini Zapotec. In Carnie and Guilfoyle (2000), pages 143–162.
- Massam, D. (2000). VSO and VOS: Aspects of Niuean word order. In Carnie and Guilfoyle (2000), pages 97–117.
- Müller, G. (1998). *Incomplete Category Fronting: A Derivational Approach to Remnant Movement in German*. Kluwer, Dordrecht.
- Müller, G. (2002). Two types of remnant movement. In Alexiadou et al. (2002), pages 209–241.
- Müller, G. (2004). Verb-second as vp-first. *Journal of Comparative Germanic Linguistics*, (7):179–234.
- Nilsen, Ø. (2002). V2 and Holmberg’s Generalization. In Zwart, J.-W. and Abraham, W., editors, *Studies in Comparative Germanic Syntax*, pages 151–173. John Benjamins, Amsterdam/Philadelphia.
- Parsons, T. (1990). *Events in the semantics of English*. MIT Press, Cambridge, MA.

- Pietroski, P. M. (2005). *Events and Semantic Architecture*. Oxford University Press, Oxford.
- Rackowski, A. and Travis, L. (2000). V-Initial Languages: X or XP Movement and Adverbial Placement. In Carnie and Guilfoyle (2000), pages 117–141.
- Schein, B. (1993). *Plurals and Events*. MIT Press, Cambridge, MA.
- Shieber, S. M. (1985). Evidence against the context-freeness of natural language. *Linguistics and Philosophy*, 8:333–343.
- Stabler, E. P. (1997). Derivational minimalism. In Retoré, C., editor, *Logical Aspects of Computational Linguistics*, volume 1328 of *LNCS*, pages 68–95, Berlin Heidelberg. Springer.
- Stepanov, A. (2001). *Cyclic Domains in Syntactic Theory*. PhD thesis, University of Connecticut.
- Stepanov, A. (2007). The End of the CED? Minimalism and extraction domains. *Syntax*, 10(1):80–126.
- Takano, Y. (2000). Illicit remnant movement: An argument for feature-driven movement. *Linguistic Inquiry*, 31(1):141–156.
- Wexler, K. and Culicover, P. (1981). *Formal Principles of Language Acquisition*. MIT Press, Cambridge, MA.