PP-Extraposition and Precedence*

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1. Introduction

It is a truism that bound variable pronouns must appear in the scope of their binder. Similarly, negative polarity items (NPIs) are standardly assumed to appear in the scope of their trigger. Much work in the Government and Binding (GB) tradition assumes that in addition these dependencies are subject to a surface c-command condition (modulo reconstruction; for bound variable pronouns, see Reinhart 1983, Heim and Kratzer 1998, Büring 2004, a.o.; for NPIs, see Klima 1964, Ladusaw 1979, and Progovac 1988, 1994, a.o.).

Pesetsky (1995) identifies a class of English data in which the constituency required for movement, ellipsis and modification does not match the constituency required for binding and NPI licensing under c-command. Pesetsky's solution is to hold on to the c-command restriction but to assume a dual-representation approach, with a traditional ascending structure relevant for movement, ellipsis and modification, and a radically descending structure relevant for dependencies. In principle, there are two other types of solution, namely to stick to descending structures and commit to alternative accounts of restrictions on movement, ellipsis and modification (see Phillips 1996, 2003 for relevant discussion), or to stick to ascending structures and weaken the c-command requirement on binding and NPI licensing. This second approach fits well with the recent resurgence of precede-and-command as an alternative way

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of restricting certain dependencies. Barker (2012), for example, argues that surface c-command is too restrictive a notion to account for the full range of variable binding data in English (see also Jackendoff 1990, Ernst 1994, Williams 1997 and Bruening 2014; for experimental evidence, see Moulton and Han 2018; for discussion of linear order effects in coordination, see Bruening and Al Khalaf 2016, and Nevins and Weisser 2018).

In this article we present and evaluate a set of data from Dutch whose empirical profile is related to, but somewhat different from Pesetsky's, in that one of the phenomena motivating the ascending structure is a dependency. This means that the data are not readily amenable to a dual-representation approach. We argue that the best account combines ascending structures with the command-and-precede condition on binding and NPI licensing. The standard view that these phenomena require c-command can only be maintained at considerable cost.

As a point of departure, section 2 establishes that linear order corresponds to reverse c-command in the Dutch postverbal domain. In section 3 we show that an account of the distribution of *pas* (a particle akin to temporal *only*) must rely on this reverse c-command property. Section 4 shows that in the postverbal domain NPIs and bound variable pronouns must nonetheless follow their licenser. In section 5 we strengthen our case by showing that this pattern persists in the presence of *pas* and discuss the implications of this fact.

2. Mirror Image Effects

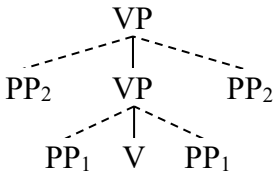
A first argument for ascending structure in the Dutch postverbal domain comes from the fact that the neutral order of postverbal PPs is the mirror image of that of preverbal PPs, as illustrated in (1) for a selected PP and a PP modifier (Koster 1974, Barbiers 1995). If PPs can be linearized either to the left or the right of the verbal spine, and if in neutral orders PP-modifiers c-command PP-complements, then these data follow without stipulation (see (2); we

use the indices shown in (2) to mark the higher and lower PPs and present the verb in boldface):

(1) a. Jan heeft <??aan zijn vader>$_1$ [tijdens de pauze]$_2$ <aan zijn vader>$_1$ **gedacht**.
John has of his father during the break of his father thought
'John thought of his father during the break.'

b. Jan heeft **gedacht** <aan zijn vader>$_1$ [tijdens de pause]$_2$ <??aan zijn vader>$_1$.
John has thought of his father during the break of his father

(2)



To the best of our knowledge, Weerman (1989) was the first to suggest an account of PP-extraposition that relies on variation in linearization.

The marked orders in (1) are ungrammatical on a neutral reading, but fine in the presence of an information-structural license. We assume that they are derived by A'-movement of the PP-complement across the PP-modifier, with the moved PP construed as contrastive (and rendered with appropriate prosody). The proposed A'-movements interact with VP-topicalization. In sentences with neutral order, the combination of the verb and the lower PP can be fronted, stranding the higher PP, as expected given (2). However, stranding is not possible if the higher PP has undergone A'-scrambling (Barbiers 1995:113ff, Ackema and Neeleman 2002:223). Thus, (3b,d) are ungrammatical, even if PP-movement is licensed. This follows if VP-preposing is mediated by an operator (*dat*) which can be left implicit (Chomsky 1977, Koster 1978a,b, Weerman 1989, Zwart 1993). All we need to say is that this operator cannot contain an A'-trace (on a par with *so* in *do so* ellipsis; Haddican 2007).

(3) a. [Aan zijn vader]$_1$ **denken** (dat) heeft Jan alleen [tijdens de pauze]$_2$ **gedaan**.
of his father think (that) has John only during the break done.
'Think of his father John only did during the break.'

b. *[Tijdens de pauze]$_2$ **denken** (dat) heeft Jan alleen [aan zijn vader]$_1$ **gedaan**.
during the break think (that) has John only of his father done.

c. **Denken** [aan zijn vader]$_1$ (dat) heeft Jan alleen **gedaan** [tijdens de pauze]$_2$.
think of his father (that) has John only done during the break

d. ***Denken** [tijdens de pauze]$_2$ (dat) heeft Jan alleen **gedaan** [aan zijn vader]$_1$.
think during the break (that) has John only done of his father

In what follows, we will largely abstract away from the possibility of A'-scrambling, but we will indicate in footnotes where neutral and non-neutral orders behave differently.

The pattern just illustrated is not limited to selected and non-selected PPs. In the preverbal domain, locative PPs that function as external modifiers in the sense of Maienborn (2001, 2003) precede locative PPs that function as internal modifiers, whereas in the postverbal domain they follow such modifiers. Maienborn argues that external modifiers are attached higher than internal modifiers, so that the data follow the scheme in (2) (with PP_1 the internal modifier *op een fiets* 'on a bike' and PP_2 the external modifier *in Amsterdam*).

(4) a. De dieven zijn <??op een fiets>$_1$ [in Amsterdam]$_2$ <op een fiets>$_1$ **gevlucht**.
the thieves are on a bike in Amsterdam on a bike fled
'The thieves fled on a bike in Amsterdam.'

b. De dieven zijn **gevlucht** <op een fiets>$_1$ [in Amsterdam]$_2$ <??op een fiets>$_1$.
the thieves are fled on a bike in Amsterdam on a bike

Scope relations, too, can be used to argue for ascending postverbal structure (Barbiers

1995:104ff, Ackema and Neeleman 2002:224ff). In case two modifiers precede the verb, the first takes scope over the second, whereas the inverse pattern obtains postverbally. Thus, in (5a), the content of the plan is to leave on Friday when the temporal PP follows *volgens plan* 'as planned', but not when it precedes it. By contrast, in (5b), the content of the plan is to leave on Friday when the temporal PP precedes, but not when it follows.[1]

(5) a. We gingen <op vrijdag> volgens plan <op vrijdag> op vakantie t_V.
we went on Friday as.per plan on Friday on holiday
'As planned, we went on holiday on Friday.'

b. We gingen op vakantie t_V <op vrijdag> volgens plan <op vrijdag>.
we went on holiday on Friday as.per plan on Friday

It is further predicted that scope is variable when one adverbial appears to the left and the other to the right of the verb's trace. While this is correct, we cannot discuss the data here.

3. Pas

The claim that postverbal PPs are hosted in an ascending structure is confirmed by the distribution of the temporal focus particle *pas* (temporal *only*). This particle can interact with a temporal modifier, yielding a reading on which the time mentioned by the modifier comes late in a sequence of alternative times. Thus, in (6), Kim was expected to be able to laugh again sooner than after ten minutes.

[1] The scope judgments in (5) assume neutral prosody. If the PP furthest away from the verb's trace carries a high pitch, scope is variable (in our judgment). This is because a high pitch licenses a contrastive focus reading and therefore A'-scrambling, which can be either leftward or rightward. A'-scrambling is optional, but when it takes place it reconstructs for scope. Hence, on this intonation, the structures can be base-generated – yielding surface scope – or derived by A'-scrambling – yielding inverse scope.

(6) Kim kon pas <na tien minuten> weer **lachen** <na tien minuten>.
Kim could PAS after ten minutes again laugh after ten minutes
'Kim was only able to laugh again after ten minutes.'

Crucially the interaction between *pas* and the temporal modifier obeys a very strict locality condition. Barbiers (1995:65) demonstrates that *pas* must immediately c-command the temporal modifier. We therefore adopt the descriptive generalization in (7).[2]

(7) *Pas* can interact with a temporal XP iff it c-commands XP and there is no YP such that *pas* asymmetrically c-commands YP and YP asymmetrically c-commands XP.

Some data illustrating the effects of this restriction are given in (8). In essence, when the temporal expression appears preverbally, *pas* must immediately precede it. This is not only true when the intervener is a PP but holds generally. Crucially, *pas* need not always be adjacent to the temporal expression. When the latter is postverbal, as in (9), intervention is unproblematic.

(8) a. Kim kon [volgens mij]$_2$ pas [na tien minuten]$_1$ weer **lachen**.
Kim could according me PAS after ten minutes again laugh
'According to me, Kim was only able to laugh again after ten minutes'
b. *Kim kon pas [volgens mij]$_2$ [na tien minuten]$_1$ weer **lachen**.
Kim could PAS according me after ten minutes again laugh

[2] The restriction in (7) is not a quirk of Dutch. Neeleman and Payne (2019) show that it also holds of temporal *only* in English. An account of why (7) holds can be found in Neeleman and Van de Koot 2020. The basic proposal is (i) that the temporal modifier is the focus constituent, (ii) that the interpretation of temporal *only* relies on an ordering of focus alternatives and (iii) that percolation of focus alternatives destroys any such ordering. Hence, temporal *only* must be strictly local to the temporal modifier.

(9) a. Kim kon pas [zonder blozen]$_1$ **praten** [na tien jaar therapie]$_2$.

Kim could PAS without blushing talk after ten year therapy

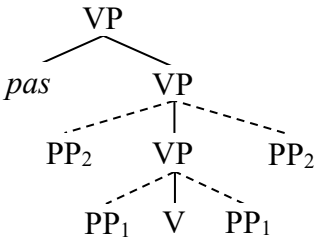
'Kim was able to talk without blushing only after ten years of therapy.'

b. Kim kon pas **praten** [zonder blozen]$_1$ [na tien jaar therapie]$_2$.

Kim could PAS talk without blushing after ten year therapy

This pattern follows on the symmetric account, because *pas* can immediately c-command a postverbal PP if that PP is attached higher than other material in the c-command domain of the particle. Thus, in (10) *pas* can interact with PP_2, whether or not the verb and PP_1 intervene.

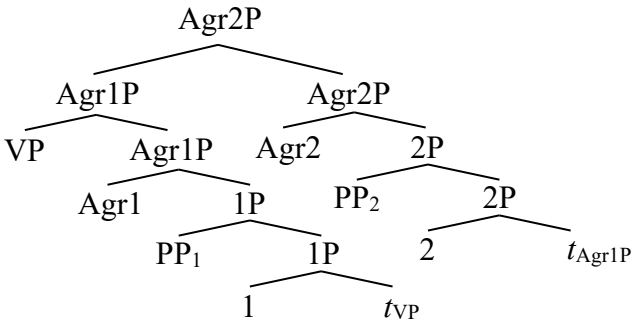
(10)



An account in which the postverbal domain has a descending structure cannot account for the data, because in a string *pas*-V-PP_1-PP_2, PP_2 would be separated from *pas* by PP_1.

So far we have assumed that the postverbal ascending structure is base-generated. An alternative account of mirror image effects is provided by roll-up movement of the type proposed in Koopman and Szabolcsi (2000) and Cinque (2005, 2010). On such an analysis, each PP is hosted in the specifier of a dedicated functional projection. Each of these functional projections is dominated by an associated agreement projection whose specifier provides a landing site for movement. Suppose the base order is PP_2-PP_1-V. Then, the mirrored order is generated if VP moves to the first available specifier above PP_1, after which the constituent containing VP and PP_1 moves across PP_2, as in (11).

(11)



Neeleman (2017) argues that an antisymmetric account cannot explain why *pas* can interact with postverbal PPs. A standard roll-up derivation places the VP closer to *pas* than a postverbal temporal expression (see (12)). Hence, the roll-up analysis can either account for data like (6) and (9) by relaxing the condition in (7), or maintain it and account for the preverbal adjacency facts. It cannot do both. Since variation in linearization can explain both the word order data and the distribution of *pas*, we assume that the Dutch postverbal domain has a base-generated ascending structure.[3] However, the argument we present for a linear constraint on variable binding and NPI licensing does not hinge on this assumption: on a standard roll-up analysis of

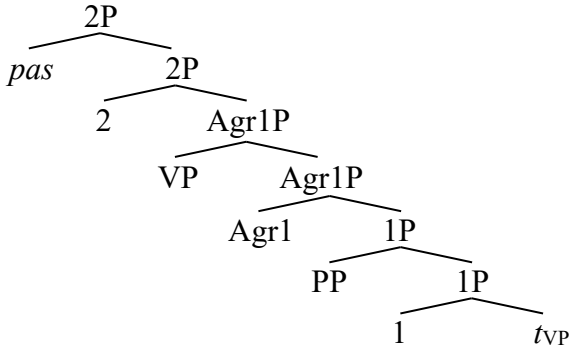
[3] A conceivable fix suggested by an anonymous reviewer would be to combine roll-up movement with movement of the temporal PP. Suppose *pas* is merged immediately above the temporal PP, in line with (7). A grammatical representation of the string *pas*-VP-PP can then be generated by first moving the PP to a position above *pas* and subsequently fronting the constituent containing *pas* through roll-up movement:

(i) [Agr3P [2P pas [2P 2 [1P 1 VP]]] [Agr3P Agr3P [3P PP [3P 3 *t*2P]]]]

This, in essence, is an antisymmetric version of an analysis in which the PP is extraposed (by movement) from a position in which it can interact with *pas*. Neeleman (2017) gives two arguments against this analysis. First, if the PP moves, one might expect dissociation between the position in which it interacts with *pas* and the position in which it takes scope. However, such dissociation is never possible. Second, it can be shown that in some structures *pas* must directly interact with the extraposed PP, which is impossible on the analysis in (i) where *pas* must be merged lower than the branch of the tree that contains the extraposed PP.

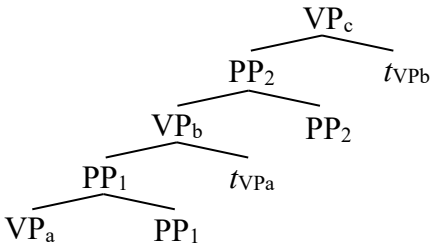
the V-PP_1-PP_2 order, the rightmost PP asymmetrically c-commands and takes scope over the leftmost one (Schweikert 2005), exactly like in the base-generated structure in (10).

(12)



Barbiers 1995 develops an ingenious alternative roll-up analysis of Dutch PP extraposition, which predates the literature mentioned above. It assumes that the landing sites of roll-up movement are PP-internal, as in (13) (derived from the base structure [$_{VPc}$ PP_2 [$_{VPb}$ PP_1 VP_a]]).

(13)



Although we do not have the space to demonstrate this here, Barbiers' analysis can straightforwardly account for the fact that *pas* may interact with a postverbal PP.[4]

We make no attempt to argue against Barbiers' analysis because it accepts the two conclusions we advocate, namely (i) that the standard c-command condition on grammatical

[4] A second relevant observation regarding the distribution of *pas* is that it cannot merge with a postverbal PP (at least in the absence of contrastive focus). Barbiers develops an argument against the symmetric account based on this observation. However, Neeleman (2017) shows that a symmetric account can also capture the data.

dependencies is too strong and (ii) that such dependencies are subject to a linear constraint. Barbiers assumes that dependencies are conditioned by c-command only, but crucially he defines c-command in a such a way that the c-commander can be more deeply embedded than usually assumed and must precede the c-commandee (see Barbiers 1995:21-24).

4. Postverbal Dependencies

On the hypothesis that NPIs are licensed by a c-commanding trigger, the findings of the previous sections lead to the prediction that NPI licensing should display mirroring effects: preverbally, the trigger should precede the NPI, while postverbally it should follow it.[5] However, what we find is that an NPI contained in a PP can be licensed by a trigger contained in a PP, if and only if the latter precedes the former. This is true whether the PPs in question precede the verb (as in (14a) and (15a)), follow the verb (as in the b-examples), or straddle the verb (as in the c- and d-examples). It is also true irrespective of whether the NPI is contained in a PP argument, as in (14), or in a PP adjunct, as in (15). (The NPI in (14) is *welke man dan ook* 'any man whatsoever' and the NPI in (15) is *welk feestje dan ook* 'any party whatsoever'.)

[5] PPs containing a negative quantifier sometimes resist extraposition. Barbiers 2011 observes that PPs containing *niets* 'nothing' cannot be extraposed (see (i)). We speculate that this is to do with the interaction between the semantics of the PP and information-structural restrictions on extraposition, since a comparable effect obtains with the indefinite quantifier *iets* 'something'. Space does not permit us to explore this issue here. Notice, however, that partitive negative quantifiers extrapose quite freely, as demonstrated in (ii). We therefore rely on these quantifiers in constructing the argument in the main text.

(i) Jan heeft <om niets> gehuild <om niets>.
*John has about something trivial/nothing cried about something trivial/*nothing.*

(ii) Jan heeft <om geen van die opmerkingen> gehuild <om geen van die opmerkingen>
John has about none of these remarks cried about none of these remarks

(14) ‘Mary is very shy. I have seen her at lots of parties, but …’

a. ze heeft [op geen van die feestjes]$_2$ [met welke man dan ook]$_1$ **gedanst**.
she has at none of those parties with which man then also danced
‘at none of those parties did she dance with any man whatsoever.’

b. *ze heeft **gedanst** [met welke man dan ook]$_1$ [op geen van die feestjes]$_2$.
she has danced with which man than also at none of those parties

c. ze heeft [op geen van die feestjes]$_2$ **gedanst** [met welke man dan ook]$_1$.
he has at none of those parties danced with which man than also

d. *ze heeft [met welke man dan ook]$_1$ **gedanst** [op geen van die feestjes]$_2$.
she has with which man than also danced at none of these parties

(15) ‘Mary is very shy. I have seen her talk with lots of men, but …’

a. *ze heeft [op welk feestje dan ook]$_2$ [met geen van die mannen]$_1$ **gedanst**.
she has at which party than also with none of those men danced

b. ze heeft **gedanst** [met geen van die mannen]$_1$ [op welk feestje dan ook]$_2$.
she has danced with none of those men at which party than also
‘she danced with none of those men at any party whatsoever.’

c. *ze heeft [op welk feestje dan ook]$_2$ **gedanst** [met geen van die mannen]$_1$.
she has at which party than also danced with none of those men

d. ze heeft [met geen van die mannen]$_1$ **gedanst** [op welk feestje dan ook]$_2$.
she has with none of those men danced at which party than also

In the ungrammatical example in (14b), the NPI is in the c-command domain of the PP containing the trigger. The same is presumably true for (14d). This means that c-command cannot be the only condition on NPI licensing; there seems to be an additional linear effect.

If we want to reconcile the grammaticality of (15b,d) with the structures we have argued for, then we must allow the negative component of a negative quantifier to take wider scope than its surface c-command domain. This is in fact uncontroversial. Iatridou and Sichel (2011) show convincingly that neutral modals (those that may scope above or below sentential negation) invariably scope under a negative QP (NQP) in subject position but are scopally ambiguous with respect to an NQP in object position. These facts can be straightforwardly accounted for if it is assumed that modals are always interpreted in their base position. Since an object NQP is contained in the c-command domain of the modal verb, it can scope under the modal. If it is furthermore assumed that the NQP may undergo quantifier raising, then the reverse scope follows. Subject NQPs already outscope the modal at surface structure, so that inverse scope is not available (assuming that reconstruction of negative elements is impossible). The overall pattern is complex, but it should be clear that it cannot be accounted for without QR of negative expressions, exactly the operation needed to reconcile the Dutch data in (15b,d) with the requirement that NPIs appear in the scope of their trigger.[6]

If NQPs can indeed extend their scope, then scope cannot be the factor that determines the ungrammaticality of (15a). Rather, what distinguishes the grammatical and ungrammatical examples in the preverbal domain is the order of trigger and NPI. Shan and Barker 2006, Barker and Shan 2008, and Barker 2009, 2012 attribute the precedence constraints on variable binding

[6] Iatridou and Sichel (2011) limit their discussion to negative DPs. However, their observations extend to negative DPs contained in a PP. For example, in the most natural interpretation of (i) negation takes scope over the modal:

(i) Kim mag van haar ouders <met geen enkele jongen> praten <met geen enkele jongen>.
Kim may from her parents with no single boy talk with no single boy
'Kim does not have permission from her parents to talk with any boy.'

– modulo reconstruction – to a requirement to evaluate a quantifier (in a specific technical sense) before any pronoun that it binds. This proposal, including its treatment of reconstruction in terms of delayed evaluation, can be straightforwardly extended to NPI licensing.

Given the logic of the discussion about NPIs, and assuming that bound variables behave analogously, we would expect that the data in (14) and (15) can be replicated with bound variable pronouns. This is indeed the case, as shown in (16) and (17).[7]

(16)a. Jan zal [met ieder meisje]$_2$ [over haar vader]$_1$ **praten**.
John will with every girl about her father talk
'John will talk with every girl about her father.'

b. *Jan zal **praten** [over haar vader]$_1$ [met ieder meisje]$_2$.
John will talk about her father with every girl

c. Jan zal [met ieder meisje]$_2$ **praten** [over haar vader]$_1$.
John will with every girl talk about her father

[7] The data in (16) are not as crisp as those in the previous section. The judgments given presuppose neutral intonation. However, (16b,d) improve considerably if the *with*-PP is focused and carries a high pitch. This can be understood if A'-scrambling is licensed by information structure, so that (16b) can be derived from (16c) and (16d) from (16a), by rightward scrambling of the *with*-PP. Similar improvements are not found in (17), possibly due to a restriction barring A'-scrambling when dependents appear in a marked hierarchical configuration. The two examples would have to be derived from (i). However, (i) is a marked configuration.

(i) Jan zal over ieder meisje met haar vader praten.
John will about every girl with her father talk

These information-structural effects are absent in the NPI data discussed above. This is because reconstruction for NPI-licensing is not possible under A'-scrambling, but is necessary to improve the ungrammatical examples.

d. *Jan zal [over haar vader]$_1$ **praten** [met ieder meisje]$_2$.

John will about her father talk with every girl

(17)a. *Jan zal [met haar vader]$_2$ [over ieder meisje]$_1$ **praten**.

John will with her father about every girl talk

b. Jan zal **praten** [over ieder meisje]$_1$ [met haar vader]$_2$.

John will talk about every girl with her father

'John will talk about every girl with her father.'

c. *Jan zal [met haar vader]$_2$ **praten** [over ieder meisje]$_1$.

John will with her father talk about every girl

d. Jan zal [over ieder meisje]$_1$ **praten** [met haar vader]$_2$.

John will about every girl talk with her father

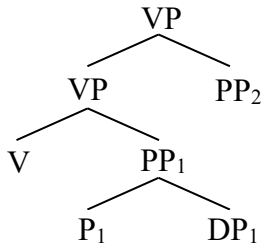
There can be little doubt that universals can extend their scope, so that we may assume that the pronoun can be bound by the universal in all the examples above. What distinguishes the grammatical and ungrammatical examples is the order of the binder and the pronoun.

Note that the conclusions drawn here also hold under the standard antisymmetric account of mirror-image effects. Recall from section 3 that PP_1 does not c-command PP_2 in a string V-PP_1-PP_2 if that string is generated through roll-up movement (see (11)).

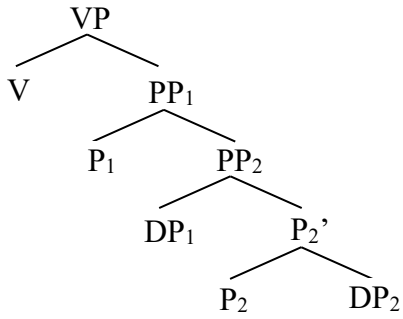
5. The Infeasibility of a Dual-Representation Account

We now explore whether the Dutch data (mirror image effects, the distribution of *pas*, and left-right effects in binding and NPI licensing) are amenable to a treatment along the lines of Pesetsky 1995. A dual-representation account of (17b) would involve the layered and cascade structures in (18), with (18b) responsible for variable binding under strict c-command.

(18) a.



b.



Note that DP_1 is the complement of P_1 in the layered structure but the specifier of PP_2 in the cascade structure. This explains why the structure introduced by P_1 does not affect c-command.

We see two problems for an account along these lines. The first is conceptual. We can create a Pesetsky paradox using *pas* and variable binding. The facts in (19) show that *pas* can interact with a postverbal PP containing a bound variable pronoun (the postverbal instance of PP_2 in (10)) while the PP containing the binder (PP_1 in (10)) intervenes. In such structures the immediate c-command requirement on interaction with *pas* forces the PPs to occur in a left-branching structure. On the other hand, the standard c-command requirement on variable binding would force PP_1 to be higher in the structure than PP_2.[8]

(19) a. Ik heb pas [[**gepraat** [over elke student]$_1$] [na zijn schriftelijk akkoord]$_2$].
I have pas spoken about each student after his written consent
'Each student is such that only after their written consent I spoke with them.'

b. Ik heb pas [[[over elke student]$_1$ **gepraat**] [na zijn schriftelijk akkoord]$_2$].
I have pas about each student spoken after his written consent

[8] The Dutch data discussed so far could be captured by a theory according to which (i) binding and NPI licensing are subject to standard c-command and (ii) the lower portion of the Dutch extended verbal projection is systematically ambiguous between a descending and an ascending structure, while there are no derivations that combine ascending and descending analyses. However, the existence of data like (19) rule out such a theory.

A dual-representation analysis of (19a) works but requires that interaction with *pas* is sensitive to layered structures (on (19b), see below). This is unexpected, since interaction with *pas* is a dependency and should therefore be sensitive to cascade structures. (The division of labour proposed by Pesetsky (1995:248, ex.609) assigns XP-movement, XP-ellipsis and modification to layered structures, and everything else to cascade structures.) This situation presents a serious complication for any attempt to conceptualize the division of labour between layered and cascade structures (see Lechner 2003 for related discussion). By contrast, nothing in the data in (19) complicates the precede-and-command analysis.

The second problem is empirical. The proposed account for the invisibility of prepositional structure for variable binding cannot be extended to the full range of Dutch data. If two PPs straddle the verb, the extreme cascading assumed for PP sequences is unavailable. Nonetheless the complement in the preverbal PP can bind a variable in the postverbal PP (see (16c), (17d), and (19b)). Such data present an obstacle for Pesetsky's account of structural paradoxes, as well as for the derivational implementation of that account in Phillips 1996, 2003.

This problem is compounded by the further observation that a reflexive cannot be bound by the complement of a preposition. As shown in (20a,b), coreference between a third-person, masculine DP contained in a PP and a dependent expression contained in a second PP is not possible if the dependent expression is *zich* or *zichzelf* (which are arguably plain anaphors). Instead, *hemzelf* must be used. This element has the behaviour of an exempt anaphor (see Koster 1985, Reuland 2011:291). Thus, *hemzelf* cannot appear in contexts of local binding, but can appear in typically logophoric context like (20c). In addition, *hemzelf* – as opposed to the weak masculine pronoun *'m*, and like other exempt anaphors (Charnavel and Sportiche 2016) – must have an animate antecedent (even if *hem* in *hemzelf* is reduced to *'m*).

(20) a. Ik heb [met Jan]$_2$ [over hemzelf/*zichzelf]$_1$ **gepraat**.

I have with John about him-self/SE-self talked

'I have spoken with John about himself.'

b. Ik heb **gepraat** [over Jan]$_1$ [met hemzelf/*zichzelf]$_2$

I have spoken about John with him-self/SE-self

Literally: 'I have spoken about John with himself.'

c. Piet zei dat de regen foto's van hemzelf/*zichzelf beschadigd had.

Peter said that the rain pictures of him-self/SE-self damaged had

'Peter said that the rain had damaged pictures of himself.'

These facts indicate that the structure introduced by prepositions counts for anaphoric binding. This is not only problematic for Pesetsky's and Phillip's accounts, which allow the two PPs in (20a,b) to be part of a cascade structure, but also for alternative analyses that involve a partial retreat from cascade structures to more standard descending structures, accompanied by the hypothesis that PPs are invisible for c-command relations (see, in particular, Lechner 2003, where extraposition is used to derive an ascending structure from a standard descending one).

In sum, we have shown that PP extraposition in Dutch provides an argument for a view of NPI licensing and variable binding that combines a linear condition with a structural condition looser than surface c-command. The data patterns we have discussed add to existing literature that makes this point for binding in English. They show that the alternative view that binding and NPI licensing are subject to standard c-command requires new analyses not only of constituency tests and modification, but also of mirror image effects and the distribution of *pas*. It seems to us that an undertaking of this type is unlikely to succeed.

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