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PARASITIC GAPS AND ATB

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1. Parasitic gaps in Dutch: a problem

Dutch has dual gap structures like (1).

- (1) Welke artikelen heeft hij [zonder PRO ec te lezen] t
Which articles has he without to read
opgeborgen?
filed
'Which articles has he filed without reading?'

Modulo the SOV-order and the use of an infinitive in the adjunct, (1) is identical to the canonical parasitic gap construction in English. As soon as we study further instances, however, we discover that there are substantial differences. Dutch has no parasitic gaps in finite adjuncts, for example, nor does it have any cases of the type the man that anyone who knows admires. Discussions of the essential facts can be found in Koster (1984), Bennis and Hoekstra (1985, forthcoming).

The most serious problem for the integration of the Dutch facts into the general theory of parasitic gaps is caused by the grammaticality of examples like (2).

- (2) Hij heeft deze artikelen [zonder PRO ec te lezen] opgeborgen
he has these articles without to read filed

This means that the very contrast that gave rise to the concept of parasitic gap in English and the Scandinavian languages is apparently absent in Dutch. Even if adjuncts were not islands in Dutch, which they are, the nature of the gap in (2) and the way it is bound by its antecedent (deze artikelen) would remain mysterious.

2. Two strategies

2.1. NP-adjunction

A first result was achieved when it was argued by the authors referred to above that (2) is actually a true parasitic gap construction. Notice, in fact that (2) has the structure ...[_{VP} DO-adjunct-V]. Under a strict Aspects-style interpretation, in which the VP is the exclusive domain of strictly subcategorized complements to V, such a structure would be excluded.

Suppose, then, that the adjunct is generated outside the VP as a daughter of the predicate phrase (\overline{VP}) and that the direct object (and other complements to V) can freely be adjoined to the left of \overline{VP} .¹ These assumptions yield (3) as an analysis of (2).

- (3) Hij heeft [_{VP} deze artikelen][\overline{VP} [zonder PRO ec te lezen][_{VP} t opgeborgen]]

On the reasonable additional assumption that deze artikelen in (3) is in an \bar{A} -position, this reduces (2) to a standard case of the parasitic gap construction.

This analysis is not entirely without problems, however. Observe, first, that it is not completely obvious that the adjoined NP is indeed in an \bar{A} -position. In fact, its position is in many ways comparable to that of clitics which, in French for example, do not license parasitic gaps.

- (4)a. * Il les a imprimés t sans corriger ec
he them has printed without correcting
b. * Il y a consenti t sans résister ec
he to-it has agreed without resisting

If these facts are accounted for by assuming that French clitics, though in an \bar{A} -position, nevertheless head A-chains (cf. Chomsky (1982)), the trace in (3) can no longer automatically be taken to license a parasitic gap.

Consider now the fact that the gap in the adjunct in (2) alternates freely with the corresponding pronoun:

- (5) Hij heeft deze artikelen [zonder ze te lezen] opgeborgen
he has these articles without them to read filed

If (5) has the same structure as (3) and if by hypothesis the adjoined NP is in an A-position, we would expect this sentence to exhibit a weak crossover (WCO) violation. But it does not.²

There is, however, also some positive evidence for the NP-adjunction hypothesis. Neijt (1979) argues that emphatic coordinating conjunctions may only conjoin maximal projection categories. E.g.

- (6)a. Hij heeft zowel de grote kinderen als de kleine kinderen
he has both the big children and the small children
uitgenodigd
invited
- b. *Hij heeft de zowel grote kinderen als kleine kinderen
uitgenodigd

However there is one important set of exceptions to this generalization: parts of the VP may also be emphatically conjoined:

- (7) Hij heeft deze artikelen zowel gelezen als opgeborgen
he has these articles both read and filed

Under the assumption that the direct object in (7) has been adjoined to VP, Neijt's generalization can be maintained.³ But there is an important difference between this solution for (7) and solution (3) for the parasitic gap case. This is so because in (7) the dual gap structure, being in a coordinated structure, must have arisen through across-the-board (ATB) application of NP-adjunction as indicated in (8).

- (8) Hij heeft deze artikelen | zowel

t

 gelezen
als

t

 opgeborgen |

This observation leads us to examine a different strategy in accounting for the problem caused for the parasitic gap theory by examples like (2).

2.2 The ATB-hypothesis

In a situation like that described in 1. one can adopt two strategies. One is to maintain that the phenomena in question exist, that the theory is essentially correct, and that it is possible to account for the divergences on more or less independent grounds. The other one is to say that the phenomena are only superficially similar but are fundamentally different, requiring another elaboration of the theory. Koster, Bennis, and Hoekstra (op. cit.) have adopted the first strategy as briefly summarized in 2.1. As we have shown, however, their approach is not without its problems and, more importantly, invites one to reexamine the relationship between parasitic gap structures on the one hand and ATB constructions on the other. As a consequence we will adopt the second strategy and argue that what looks like a

parasitic gap construction in Dutch (i.e. examples like (1) and (2)) is in reality the result of ATB rule application.⁴ In adopting this strategy we find ourselves adopting the original approach of Ross (1967), who pointed out the existence of the English parasitic gap construction in the context of his analysis of ATB phenomena.⁵

The ingredients of our hypothesis are the following:

- A. Dutch adjunct introducers can be analyzed in a given structure either as subordinator or as coordinator. The generalization implicit in the traditional notion 'conjunction' makes that term particularly usable.
- B. To the extent that the parasitic gap construction in Dutch is less than fully acceptable, this is to be attributed not to a weak violation of the bijection principle but, quite prosaically, to the fact that a subordinator is forced into being analysed as a coordinator.
- C. The ATB-theory of Williams (1978) must be extended to permit simultaneous analysis of nonconstituents.
- D. In addition to rightward linearization other forms of linearization must be allowed, including left adjacent linearization as argued for independently in De Vries (1983).

With this in mind, consider the analysis of (1) and (2).

- (9)

Welke artikelen	heeft hij *	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>VP</td><td>t</td></tr> <tr><td>opgeborgen</td><td></td></tr> </table>	VP	t	opgeborgen	
VP	t					
opgeborgen						
	{zonder}	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>VP</td><td>t</td></tr> <tr><td>te lezen</td><td></td></tr> </table>	VP	t	te lezen	
VP	t					
te lezen						
- (10) Hij heeft

[VP deze artikelen *	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>VP</td><td>t</td></tr> <tr><td>opgeborgen</td><td></td></tr> </table>	VP	t	opgeborgen			
VP	t						
opgeborgen							
	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>(zonder)</td><td>VP</td><td>t</td></tr> <tr><td></td><td>te lezen</td><td></td></tr> </table>	(zonder)	VP	t		te lezen	
(zonder)	VP	t					
	te lezen						

The star indicates the position in which the lower line is linearized. As (10) shows, we retain the rule of NP-adjunction, but we will argue below that it is to be regarded as the leftward equivalent of Right Node Raising.

We immediately note that this approach gives us an equally prosaic handle on the fact that finite adjuncts do not allow the dual gap option:

- (11) Welke artikelen heeft hij zonder dat hij *t/ze had
which articles has he without that he t/them had
gelezen opgeborgen
read filed

It seems reasonable to assume that the subordinating complementizer dat which follows the prepositional conjunction zonder forces the analysis as subordination, thereby disallowing an ATB derivation.

Another fact which immediately follows from our analysis is that the parasitic gap must be subject to its antecedent, as noted in Contreras (1984). A typical subjacency violation in the Dutch case is shown in (12).⁶

- (12) *Hij heeft er_i zonder de reactie van anderen t_i op
 he has these without the reaction of others to
 af te wachten negatief t_i op geantwoord
 to-wait-for negatively to answered
 'He has answered it negatively without waiting for the
 reaction of others to it'

On the ATB analysis the extraction of er from the adjunct crosses both an NP-boundary and a clausal boundary.

We will now turn to some additional evidence for the ATB-hypothesis.

3. Arguments

3.1. Complex parallelism constraints

Bennis and Hoekstra (forthcoming) observe that the parasitic gap construction in Dutch is subject to a strict and specific parallelism constraint (but cf. Van der Wilt (1984)). When the gap is in an $\langle \alpha R \rangle$ -position, the parasitic gap must also be in an $\langle \alpha R \rangle$ -position, for example. This is shown in (13)

- (13)a. Ik heb er [zonder [ec over] na te denken] [t in]
 I have there without about to-think to
 toegestemd
 agreed
 'I have agreed to it without thinking about it'
 b. Ik heb het [zonder ec te bestuderen] t geaccepteerd
 I have it without to study accepted
 'I have accepted it without studying it'
 c.*Ik heb er/het [zonder [ec over] na te denken] t
 'I have agreed to it without studying it'
 geaccepteerd (accepted)
 d.*Ik heb er/het [zonder ec te bestuderen (study)][t in]
 'I have accepted it without thinking about it'
 toegestemd

In more general terms, the parallelism constraint can be observationally stated as in (14).⁸

- (14) If t is of type X, then ec must also be of type X, where X =
 [+R]-clitic, [-R]-clitic, reflexive clitic, lexical NP.

For reasons of space we will not illustrate all these cases here. Observe, now, that (14) might conceivably be subsumed under some extension of the parallelism constraint on multiple variable binding proposed in Safir (1984). On the other hand, however, this complete parallelism is exactly what we would expect under the ATB hypothesis. R-pronouns occur under very specific contextual constraints, hence under ATB-extraction the contexts in both conjuncts must be identical.

Much more strikingly, however, there is a further parallelism constraint which defies any analysis along the lines of the Safir proposal but follows straightforwardly from the ATB hypothesis. The structure of the argument is as follows. Whenever we have a dual gap structure, this must by hypothesis be the result of ATB extraction. ATB is only possible if the conjunction is analysed as a coordinating conjunction in the structure in question. But now any further extraction of an independent element from one of the two conjuncts in such a structure will violate the Coordinate Structure Constraint (as subsumed under the ATB theory). Since the adjunct is an island even when analysed as a subordinating construction, the relevant cases are those where an asymmetric extraction takes place from the non-adjunct part of the clause. Schematically:

- (15)

The pertinent cases can indeed be constructed and show the effect expected on the ATB hypothesis. For reasons of space we limit the discussion to a few of the many theoretically possible cases. Consider first (16).

- (16) Hij heeft er [zonder echt [ec naar] te verlangen]
 he has there without really for to long
 Jan [t om] gevraagd
 Jan for asked
 'He has asked Jan for it without really longing for it'

(16) is a regular case of a dual gap structure arising from ATB r-movement. By replacing Jan by a wh-phrase and applying asymmetric wh-extraction, we get the pattern of (15).

- (17) *Wie_i heeft hij er_j [zonder echt [ec_j naar] te verlangen]
 Who has he there without really for to long
 e_i [t_j om] gevraagd?
 for asked?
 'Who has he asked for it without really longing for it?'

As expected, the variant in which the ec in the adjunct has an internal r-pronoun of its own to bind it is grammatical because no ATB movement applies and hence no coordinate structure analysis is imposed.

- (18) Wie_i heeft hij er_j [zonder er_k echt [ec_k naar] te
 verlangen]e_i [t_j om] gevraagd?

Similarly, when the second movement itself is not asymmetric but also across-the-board, the result is grammatical too.

- (19) Wie_i heeft hij er_j [zonder ec_i [ec_j op] attent te maken] e_i
 Who has he there without of aware to make
 [t_j om] gevraagd?
 for asked
 'Who has he asked for it without making him aware of it?'

The same constellation of facts is illustrated (in a more succinct fashion) in (20) and (21)

- (20) Wie heeft Jan er [zonder { er 'm(him) } [ec van]
 Who has Jan there without { *er 'm } of
 { *er er }
 { er er }
 te beschuldigen e [t voor] laten opdraaien
 to accuse for made responsible
 'Who has John made responsible for it without accusing him of it'

- (21) Ik heb Jan dat boek [zonder { 't(it) 'm(him) } te laten
 I have Jan that book without { * er 'm } to let
 { (*)'t er }
 { er er }
 doorbladeren] e t weg laten zetten
 leaf-through away let put
 'I have let Jan put away that book without letting him leaf it through'

The third case of (21) is particularly instructive. The Dutch causative construction has two variants, one with exceptional case marking in the position of the complement subject and one with an unspecified arbitrary agent:⁹

- (22)a. Ik heb Jan dat boek laten doorbladeren
 'I have let John leaf through that book'
 b. Ik heb dat boek laten doorbladeren
 'I have let someone leaf through that book'

The third case of (21) is ungrammatical on the reading corresponding to (22a) but grammatical on the reading corresponding to (22b). This is so because on the latter reading the gap is either pro_{arb} or else there is no gap at all (cf. note 9). Hence on that reading there is no ATB movement, and extraction from the matrix clause is allowed. This fact provides further strong evidence for the relevant notion of parallelism which derives without further stipulation from the ATB theory.

3.2. Backward anaphora

The constraint against backward pronominalization in coordinate conjoined structures, while not very well understood, provides us with another diagnostic criterion to test whether dual gap structures are indeed instances of coordination. Consider (23).

- (23) Ik heb er [zonder Piet/*hem_i [ec van] te beschuldigen]
 I have there without Piet/him of to accuse
 Jan_i [t voor] bestraft
 Jan for punished
 'I have punished Jan for it without accusing Piet/him of it'

(23) is a simple case of ATB r-movement, therefore the analysis as coordination is forced and as a consequence backward pronominalization is excluded. Note that when the parasitic gap is replaced by a full NP, there is no ATB, analysis as subordination is possible and backward pronominalization is perfectly acceptable as shown in (24).

- (24) Ik heb er [zonder hem_i van andere misdaden te
 I have there without him of other crimes to
 beschuldigen] Jan_i [t voor] bestraft
 accuse Jan for punished

These facts provide further interesting evidence for the ATB hypothesis.

3.3. NP-adjunction as Left Node Raising

A more circumstantial type of evidence emerges when we examine the rule of NP-adjunction somewhat more closely. It turns out, in fact, that the adjoined NP has the property of being left peripheral with respect to each conjunct. In other words, whenever the adjoined NP must have originated in a non-left-peripheral position in either one or both of the conjuncts for independent reasons, the result is ungrammatical. This is the mirror image property of Right Node Raising (or right peripheral deletion in the left hand conjunct).¹⁰ It seems reasonable, therefore, to call the NP-adjunction rule in question Left Node Raising (or left peripheral deletion in the right hand conjunct). If we are correct in concluding that we have here a significant symmetry in properties, it follows that parasitic gap structures involving NP-adjunction must be instances of coordinate conjoined structures. RNR is limited to conjoined structures, and so, we may infer, is LNR.

The essential facts are given in (25)-(28).

- (25)a. *Ik zal dat boek [zonder Piet ec te laten doorbladeren]
 I will that book without Piet to let leaf-through
 Jan t weg laten zetten
 Jan away let put
 'I will let Jan put away that book without letting Piet
 leaf it through'
- b. *Ik zal dat boek Piet laten doorbladeren
 b'. Ik zal Piet dat boek laten doorbladeren
 I will Piet that book let leaf-through
- c. *Ik zal dat boek Jan weg laten zetten
 c'. Ik zal Jan dat boek weg laten zetten
 I will Jan that book away let put
- (26)a. *Ik zal dat boek [zonder Piet ec te laten doorbladeren]
 t weg laten zetten
 'I will have that book put away without letting Piet leaf
 it through'
- b./b' = (25b/b')
- c. Ik zal dat boek weg laten zetten
 'I will have that book put away'
- (27)a. *Ik zal dat boek [zonder ec door te laten bladeren]
 Jan t weg laten zetten
 'I will let Jan put away that book without having it leafed
 through'
- b. Ik zal dat boek door laten bladeren
 'I will have that book leafed through'
- c./c'. = (25c/c')
- (28)a. Ik zal dat boek [zonder ec door te laten bladeren]
 t weg laten zetten
 'I will have that book put away without having it leafed
 through'
- b. = (27b)
 c. = (26c)

Only when both the b-example (the simplex clause corresponding to the adjunct) and the c-example (the simplex clause corresponding to the matrix) are grammatical is the a-example grammatical. (28) is the only sentence in which this is the case, and this is precisely the example in which both gaps are left peripheral in their respective substrings. And that, in turn, is the mirror image property of that found in RNR. We conclude that NP-adjunction is really LNR, and hence that parasitic gap structures have certain properties of coordinate conjoined structures.

4. Generalizing the result

4.1 Insubordination

The conclusion we have reached, viz. that certain conjunctions which are generally taken to be subordinating conjunctions behave in specific ways like coordinating conjunctions, is by no means a revolutionary one. Facts of a similar nature are well-known from traditional grammar.¹¹ Let us name such phenomena 'insubordination'.

Consider a case of ATB-r-movement with emphatic coordinating conjunctions.

- (29) Hij is er_i noch gek t_i op noch vies t_i van
 he is there neither crazy about nor disgusted with
 'He is neither crazy about it nor disgusted with it'

A case like (29) has a close parallel in (30) with the subordinator ofschoon ('though').

- (30) Hij is er_i ofschoon niet gek t_i op toch niet vies t_i van
 he is there though not crazy about still not disgusted with

That ofschoon is otherwise subordinating is shown by the fact that it always imposes subordinate word order (i.e. no verb second), as opposed to noch-noch which displays main clause or embedded word order depending on whether the coordination itself is embedded or not. This is illustrated in (31) and (32).

- (31)a. Hij komt ofschoon hij niet wil
 he comes though he not wants
 b. *Hij komt ofschoon hij wil niet
 b'. *Hij komt ofschoon wil hij niet
- (32)a. Hij is noch thuis, noch is hij op kantoor
 he is neither at-home nor is he at the office
 b. *Hij is noch thuis, noch hij op kantoor is
 c. Ik denk noch dat hij thuis is noch dat hij
 I think neither that he at-home is nor that he
 op kantoor is
 at the office is

Such cases of insubordination are, of course, by no means limited to Dutch. Cases very close to (30) are found in English, for example.

- (33) John is while sternly opposed to, nevertheless mighty
 interested in, censorship

Another area in which insubordination is at work is the syntax of comparatives. While than-clauses behave like subordinate clauses in many ways, they nevertheless exhibit a number of properties

typical of coordination such as gapping.¹² We will not pursue any of these phenomena any further here, but we do wish to suggest that insubordination is a rich domain of inquiry, whose importance goes well beyond the problem of parasitic gaps, and that we have barely scratched its surface.

4.2. On the non-existence of parasitic gaps in Dutch.

Assuming our reanalysis of putative cases of parasitic gap constructions like (1) to be essentially correct, two positions are consistent with the results obtained so far: (i) the grammar of Dutch assigns two different derivations to structures like (1), viz. an ATB-analysis as well as a truly parasitic gap analysis in the sense of Chomsky (1982), or (ii) the grammar of Dutch disallows parasitic structures altogether as a consequence of parameter setting. The latter alternative is clearly preferable since it is the stronger one.

Before turning to an actual implementation of that position we will discuss a serious problem with the former position first. To that end, consider (34) and (35).

(34) * [Welk boek heb [je t teruggebracht [voordat je kon ec lezen]]]

(35) [Which book did [you return t [before you could read ec]]]

Why doesn't Dutch have any parasitic gap structures like (34)? One way to approach this question is to exploit Kayne's (1983) connectedness theory, substituting a condition of uniform branching ('global harmony' as in Koster (1984)) or of unidirectional government (as in Bennis and Hoekstra (forthcoming)) for Kayne's notion of 'canonical government configuration'. On this view, canonical government is locally determined within each X-projection: (for Dutch) leftward for verbs but rightward for prepositions. In (34), since both the variable and the parasitic gap are on left branches but the complement of *voordat* is on a right branch, we have a case of 'mixed branching' contradicting the requirement of uniform branching (or unidirectional government). In contrast, (35) shows uniform government: the variables and their g-projections are all on right branches and are uniformly governed from the left.

This approach is problematic. First, there is no explanatory account, on the connectedness-proposal, for regular cases of *wh*-extraction from 'extraposed' tensed complement clauses as in (36).

(36) [Welk boek [denk je [dat Jan t gelezen heeft]]]
'Which book do you think that Jan has read'

In order to avoid contradicting uniformity conditions on government, Koster (1984) and Bennis and Hoekstra (forthcoming) must resort to auxiliary hypotheses complicating their account in an undue manner. Koster (1984) gives (34) and (36) differential

treatments, while Bennis and Hoekstra (forthcoming) postulates 'exceptional' government to the right just in case the COMP of complement sentences contains a trace of *wh*-movement. Clearly any account that does away with either disjunction or exceptional government will be preferable. However, these analyses are internally inconsistent. Consider (37).

(37) ?Dit is een boek [waar ik ec₁ van denk [dat Jan ec₂
This is a book which I of think that Jan
naar verlangt
to longs
'This is a book about which I think that Jan longs for it'

This sentence is near perfect and exemplifies a licit parasitic gap structure in Dutch. Interestingly, Bennis and Hoekstra discuss this very construction. On their analysis ec₁ is a parasitic gap, while ec₂ is the real gap in conformity with uniform branching. If correct their analysis predicts a grammatical outcome if an appropriate pronoun substitutes for the parasitic gap but an ungrammatical result if the real gap is replaced by a pronoun. Both predictions are wrong, falsifying their account (as well as Koster's).

(38) a. *Dit is een boek waar ik er van denk dat Jan ec naar
 verlangt
 b. Dit is een boek waar ik t van denk dat Jan er naar
 verlangt

It is clear from (38b) that the real gap is the empty category governed by *van*.¹³

We are left, then, with an updated reformulation of the question we raised earlier: why do parasitic gaps in Dutch have the distribution of real gaps, while in English parasitic gaps and real gaps do not have a completely identical distribution?

A second, more promising, approach to the problem of the apparent non-existence of parasitic gaps in Dutch is to adopt a movement analysis of parasitic gaps as proposed in Contreras (1984) and further developed by Chomsky in 1983 class lectures. On this approach, parasitic gap constructions no longer violate the Bijection Principle of Koopman and Sportiche (1982), but if they do the result is ungrammatical (cf. * which articles did John file t disgusted with ec). As a consequence, Kayne's connectedness proposal loses much of its independent motivation since the various subject-nonsubject asymmetries that gave rise to it are now subsumed under the bounding theory. Suppose that we adopt Chomsky's condition on chain-composition (39).

- (39) Chain-composition at S-structure.
Chains $(\alpha_1, \dots, \alpha_n)$ and $(\beta_1, \dots, \beta_m)$ compound iff, the head of the β -chain is subjacent to the foot of the α -chain.

Condition (39) correctly rules out parasitic gaps in island contexts but allows cases like (40).

- (40) $[\bar{S}_1$ Which articles [S_1 did John [VP [VP file t] [PP without [\bar{S}_2 O [S_2 PRO reading ec]]]]]]

In (40) O, the head of the 'parasitic' chain, is subjacent to t, the foot of the 'licensing' chain. No principle of grammar is violated. Note that on a movement theory of parasitic gaps, there is the possibility of a unifying account of the bounded properties of all empty categories at s-structure. To illustrate, in (40) the parasitic gap, ec, is subjacent to its locally \bar{A} -binding empty operator, which in turn is subjacent to the licensing variable that is locally bound by the subjacent operator in the matrix COMP. In order to derive the contrast between (34) and (35) let us finally assume the following reformulation of the subjacency condition, a simplified version of Chomsky's (1983, class lectures), which does not affect the present argument.

- (41) a. α is subjacent to β iff there is at most a single category γ such that
(i) γ is a bounding category for α , and
(ii) γ contains α but not β
- b. Let α be a maximal projection containing β . Then α is a bounding category for β iff
(i) α is not lexically governed, or
(ii) α immediately dominates γ , γ
a bounding category for β .

This reformulation of subjacency, incorporating the notions of maximal projection and lexical government, has the virtue of no longer stipulating specific categories as bounding nodes, assimilates the account of parasitic gaps to instances of move- α , and relativizes the concept of bounding. Maximal projections are bounding categories for elements they contain relative to configurations of government.

We can now rephrase the question of the non-existence of parasitic gaps in adjunct phrases of Dutch as follows: Why is chain-composition excluded in Dutch sentences involving adjunct phrases but not in their English equivalents? Apparently, the head of the parasitic chain is not subjacent to the foot of the licensing chain in Dutch. Why? Consider (42).

- (42) $[\bar{S}_1$ [S_1 NP [VP_1 [VP_2 V α]] [PP without/zonder [\bar{S}_2 O [S_2 ...ec...]]]]]]

In English without lexically governs \bar{S}_2 , which therefore is not a bounding category for the empty operator O. However, PP is a bounding category by (41b) since it is a maximal projection which is lexically ungoverned. As a consequence, VP_1 is a bounding category too, by the recursive step of (41b1). We predict, therefore, that (i) adjuncts are extraction-islands (since movement to the COMP of \bar{S}_1 crosses at least the bounding categories VP_1 and PP), and (ii) α in (42) is accessible (qua subjacency) to O. Independent principles of grammar rule out a movement from the operator position into α , but leave chain-composition unaffected. Chomsky's chain-composition thus explains the not quite identical distribution of real and parasitic gaps.

What about Dutch? If zonder does not lexically govern \bar{S}_2 , then \bar{S}_2 as well as PP (and VP_2) are bounding nodes, explaining why parasitic gaps are ruled out in the core cases of parasitic gap structures, viz. adjunct phrases. In fact, it makes perfect sense to reduce the differences between Dutch and English parasitic gap structures to an independently motivated difference in government properties, illustrated by (43) and (44).

- (43) It is illegal [for [*(John) to bet]]

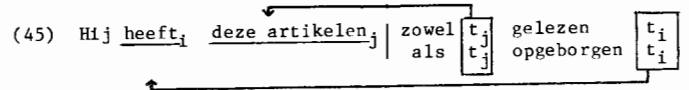
- (44) Het is onwettig [om [(*Jan) te wedden]]

Dutch has no exceptional case-marking under conditions of government by a preposition. Dutch prepositions only govern elements in their subcategorization frames unlike English, where prepositions govern more freely. In this respect Dutch is more like French (see Kayne (1981) for important discussion). As convincingly shown by Kayne, liberal languages like English and the Scandinavian languages allow preposition stranding and license exceptional case-government, differing in these respects from Romance languages and Dutch. Moreover, prepositional heads of adjuncts freely take sentential complements in Dutch (zonder dat, zonder te, cf. (11), (18)), but not in English, where prepositions can only be followed by gerund complements (*without that/to) or introduce tensed prepositional sentences (after, before). It is interesting to observe that both Bennis & Hoekstra and Koster need an additional auxiliary hypothesis, unnecessary on our approach, in order to make their account coherent: zonder is a prepositional head of a PP-projection if its object is a tensed clause but a prepositional complementizer if the adjunct clause is tenseless, thereby avoiding a contradiction of unidirectional government or global harmony. Given subjacency (41) none of these complications are needed. We propose, then, that the differences between Dutch and English with respect to parasitic gaps reduce to a single difference in the governing properties of prepositions. Note that our account allows for the possibility of parasitic gaps in periphrastic relatives like (37).¹⁴

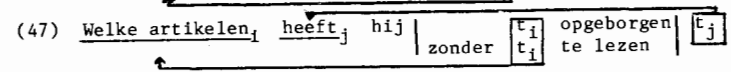
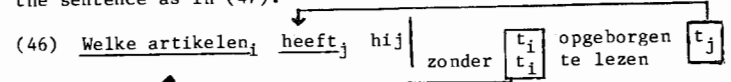
5. A stab at the theory

5.1. Strings vs. constituents

In discussing the first cases of ATB movement in (8) and (9) above, we have suppressed the important problem of verb second (V2). In (8), represented here as (45), V2 applies in an ATB fashion:



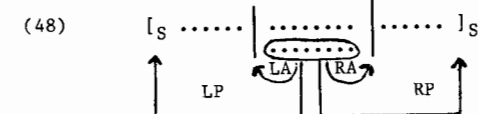
The (auxiliary) finite verb originates in the final position of the VP and is moved into second position. But this derivation is not available for example (9), because there the finite verb is only part of the matrix conjunct, not of the adjunct. This means that either V2 has to apply in a non-ATB fashion as in (46) or the finite verb has to be outside the simultaneously analysed chunk of the sentence as in (47).



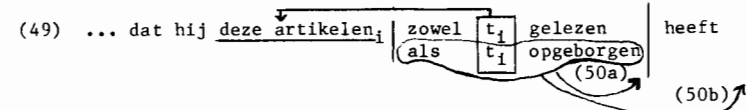
(46) violates the very core of the ATB theory. But (47) also has a troublesome consequence. In (46) the vertical lines delimitating the simultaneously analysed part of the sentence can be taken to coincide with the left and right VP brackets. But in (47) the part between vertical lines corresponds to no syntactic constituent at all. This latter consequence may have to be accepted and incorporated into the theory of coordination.¹⁵

5.2. Linearization

As noted above, it appears that in order for our approach to adjuncts to work left adjacent linearization has to be assumed. Observe, though, that this assumption depends on whether the adjunct is always on the bottom line in the simultaneously analysed strings as in the notation we have been using. For ease of exposition we will continue to assume left adjacent linearization. It appears, then, that there are four 'landing sites' for linearization, left and right adjacent and left and right peripheral. Schematically:



RA and RP can be illustrated with the embedded variant of (45).



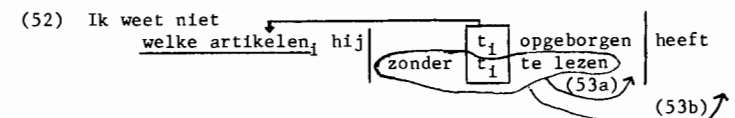
- (50) a. ...dat hij deze artikelen zowel gelezen als opgeborgen heeft
 b. ...dat hij deze artikelen zowel gelezen heeft als opgeborgen

LA is what we have been using for adjunct cases as in (9) and (10). LP is attested in a few marginal cases precisely in the area of insubordination. Consider (51).¹⁶

- (51) [Behalve Jan de krant] geloof ik niet dat er iemand
 except Jan the newspaper believe I not that there someone
 iets gekocht heeft
 something bought has
 'Except for John the newspaper, I don't believe anybody has bought anything'

The fronted part consists of a prepositional adjunct introducer followed by what is apparently a clause to which gapping has applied.

It is clear, then, that the theory of linearization will by no means be a trivial one. A particularly interesting restriction concerns the adjunct cases as compared with cases like (49/50). Consider (52) and (53).¹⁷



- (53) a. *Ik weet niet welke artikelen hij opgeborgen zonder te lezen heeft
 b. Ik weet niet welke artikelen hij opgeborgen heeft zonder te lezen

Why should RA linearization be excluded here and permitted in (49/50)? Descriptively speaking, the generalization may very well be the difference in status of the finite verb in the two cases. In (49) the finite verb 'completes' (in the terminology of De Vries (1983)) both lines that precede it. In (52), on the other hand, heeft completes only the top line. The difference might be pictorially represented as in (54).



The establishing of a formal link between (54) and the linearization possibilities given in (48) is one of the many intriguing problems awaiting solution when the theory of coordination and insubordination is further elaborated along these lines. For the time being, however, we hope to have established at least the fact that parasitic gaps in Dutch must be analysed in terms of ATB movement and that these gaps are therefore parasitic in a non-standard sense only.

FOOTNOTES

1. Such a leftward adjunction rule has earlier been proposed by Kerstens (1975) and De Haan (1979).
2. It is not impossible to avoid this problem. One could say, e.g., that adjuncts are freely generated inside or outside the VP, and that in (5) it is inside the VP, thereby weakening the Aspects-position on the VP. Or one could distinguish between operator-like A-positions such as COMP and non-operator-like A-positions such as the [NP, VP] in (3) and assume that WCO-effects arise from the former only.
3. Note that this presupposes that the predicate phrase is not a projection of V.
4. For the sake of convenience, we will continue to refer to the gap in the adjunct as 'parasitic gap'.
5. The suggestion to regard (some) parasitic gaps as "a special kind of ATB" was made independently in Torris (1983) and Whitney (1984). For an earlier suggestion that some types of adverbial clause are coordinate-like with respect to analogical extensions of ATB type rules, see the interesting work of Grosu (1980).
6. The pattern in (12) arises through ATB movement of an r-clitic. See section 3.1. for more discussion.
7. For extensive discussion of the [+R]-distinction and extraction from PP, see Van Riemsdijk (1978).
8. For reasons unclear to us some speakers regard dual gap structures involving the reflexive clitic zich as less grammatical.
9. We leave open the question as to whether the second reading corresponds to a structure with a pro_{arb} in the subject position or one which is essentially passive with an implicit agent phrase. On the latter assumption, the gloss for (22b) should be 'I have had the book leafed through'.
10. The interesting idea that many instances of parasitic gaps in English might be derived by means of RNR was suggested by Joan Bresnan, as reported in footnote 11 of Engdahl (1983).
11. See, for example, Jespersen (1940) and Paardekooper (s.d.).
12. Cf. Torris (1983) for a recent discussion.

13. It might be argued that (38a) is not entirely convincing as an argument against uniform branching since it is also a WCO violation. Note, however, that normally WCO effects are suppressed in relative clause constructions. No mitigating effect is observed here.
There is some further evidence confirming the conclusion reached in the text. Consider (i).

(i) ?Dit is een boek [waar ik ec₁ van denk [dat [iedereen [die er naar verlangt]] ec₂ om zal vragen]]
'This is a book about which I think that everyone who longs for it will ask for it'

Crucially, (i) is near perfect like (37), but still involves 'WCO'. On the unidirectional government/global harmony approach there is no basis for explaining the difference between (i) and (38a), just another 'WCO' effect on their analysis. Note that the difference is not due to a difference in cross-over, viz. strong in (38a) and weak in (i), since (37) would now be incorrectly ruled out as a SCO violation. In other words, the only way in which the unidirectional or global harmony analyses of (37) could be maintained is to make crucial use of WCO to explain (38a). This, as we have shown in this footnote, is not a viable way out.

14. Other candidates for licit parasitic gap structures in the sense of Chomsky (1982) are examples of the following type.

(i) ?Dat zijn incomplete systemen waar ieder
those are incomplete systems that every
onderzoek naar ernstig door belemmerd wordt
investigation into seriously by impeded is

15. Observe that in view of examples like (49) and (52) below it appears that the rule of verb raising sometimes applies in an ATB fashion (as in (49)) but sometimes doesn't (as in (52)). We believe it is possible to flesh out a way to derive ATB-effects from binding that is consistent with the simultaneous analysis of coordinating and insubordinating constructions like (8) and (9). Space prevents elaboration here.
16. Cf. Klein (1985).
17. Some speakers of Dutch find RP linearization as in (53b) somewhat less acceptable than LA linearization. Note that (53b) poses an additional problem for Bennis and Hoekstra as well as for Koster: the adjunct clause is in a non-canonical government configuration and, hence, (53b) should be on a par with ungrammatical (34).

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