Parasitic Gaps and the Across-the-Board Phenomenon

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1 Background

Williams (1990) raises the issue of whether the English parasitic gap (P-gap) phenomenon illustrated in (1) is just a special case of the across-the-board (ATB) phenomenon illustrated in (2).¹

(1) a. Which book₁ did Lulu review t₁ before reading pg₁?
   b. the book₂ which₂ his criticizing pg₂ caused t₂ to become famous

(2) a. Which book₁ did Lulu purchase t₁ at the airport and (Nora) read t₁ on the plane?
   b. the book₂ which₂ t₂ annoyed Lulu and t₂ amused Betty

As Williams notes, a suggested connection between ATB structures and P-gaps dates to Ross 1967:118–120, the first generative work to attest P-gaps. In general, though, the subsequent rich transformational literature on P-gaps has not usually considered them to be linked to the ATB phenomenon; see, for example, Chomsky 1982, 1986, Engdahl 1983, 1984, 1985, Kayne 1984, Kiss 1985, and Browning 1987a,b. However, Williams notes certain exceptions, including Huybregts and Van Riemsdijk 1985 and Haïk 1985 (the latter of which I have not seen). Williams believes that there is a fundamental connection between English P-gaps and the ATB phenomenon, specifying (1990:265), “I want to show that there is an ATB theory which accounts for the basic properties of all parasitic gaps.” A parallel view was expressed by Pesetsky (1982:488), not cited by Williams or by Huybregts and Van Riemsdijk (1985): “This section is devoted to showing that this unification of parasitic gaps and ATB gaps in one theory is correct.” Hence, the proposal of a basic linkage between P-gaps and ATB gaps, which I argue against in what follows, is not peculiar to Williams but represents a recurring view about P-gaps, which merits investigation.²

ATB extractions are, of course, a special case of coordinate structures. For Williams, P-gaps reduce to ATB cases because he claims that, in a sense left vague, and contrary to conventional wisdom, all P-gap structures are coordinate. This idea seems to originate in Huybregts and Van Riemsdijk 1985. Williams recognizes that his account of how P-gap structures can be regarded as coordinate remains extremely informal and

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¹ In following examples, P-gaps are represented with pg, “true” gaps with t.
² This remark, essentially referencing the transformational tradition, is strengthened by the fact that work in the Generalized Phrase Structure Grammar (GPSG) framework has assumed a strong connection between ATB gaps and P-gaps. Both are taken to involve the free instantiation of Slash features. See Sag 1983, Gazdar et al. 1984, 1985, Hukari and Levine 1987, and Sells 1986.
quite undeveloped. The theoretical problems raised seem overwhelming. The position leads, for example, (pp. 278–279) to the radical idea that the property coordinate is graded on a “more or less” scale. Further, as Williams admits (p. 265), every P-gap structure that he regards as coordinate must be assigned a noncoordinate analysis as well. Moreover, he provides no rules or principles to assign the posited unconventional coordinate structures to English sentences. But such theoretical issues are not the direct concern of these remarks, which argue that the basic idea is factually incorrect. This one can do largely without lingering over the question of what it means for such and such a constituent to be coordinate (but see section 3); for the substance of a reduction of P-gaps to ATB gaps yields claims of similarities between uncontroversially coordinate ATB cases like (2) and uncontroversial P-gap examples like (1). Arguments against the basic view can then take the form of a documentation that unequivocal properties of P-gap structures are not found in standard and unquestioned instances of the ATB phenomenon, contrasts that are unexplained in Williams’s terms.

2 Contrasts

2.1 Constituent Limitations

The most obvious problem with Williams’s proposal is that those English constituents that can be ATB gaps are a vast superset of the class that can form P-gaps. The former is coextensive with the class of constituents that can be extracted. Any English category that can correspond to an extraction gap can be an ATB gap. However, as Cinque (1990: 102), Koster (1987: 156), Emonds (1985: 91), Aoun and Clark (1985: 33–34), and Frampton (1990: 56, fn. 17) have observed, English P-gaps correspond only to NPs; but see footnotes 3 and 12. Emonds (1985: 91) supports this claim with data such as (3).

(3) a. *How sick₁ did John look t₁ without actually feeling pg₁?
   b. *How long₂ does John drink t₂ before lecturing pg₂?
   c. This is a topic₃ you should think about t₃ before talking about pg₃.
   d. *This is a topic about which₄ you should think t₄ before talking pg₄.

Other evidence supporting the impossibility of non-NP English P-gaps is given in (4).

(4) a. *Sick₁ though Frank was t₁ without looking pg₁, he didn’t visit a physician.
   b. *How₂ did Deborah cook the pork t₂ after cooking the chicken pg₂?

Of course, (4b) is, irrelevantly, well formed on a reading lacking a P-gap in the adjunct. In contrast to the extracted phrases in (4), the extracted phrases in these examples can function as unexceptional extractees in ATB cases:

(5) a. How sick₁ did John look t₁ and (Betty) say he actually felt t₁?
   b. How long₂ did John want to drink t₂ and Bill actually end up drinking t₂?
   c. This is a topic₃ you should think about t₃ and I should talk about pg₃.
   d. This is a topic about which₄ you should think t₄ and I should talk pg₄.
e. Sick, though Frank was t5 and Greg certainly looked t5, neither visited a physician.

f. How, did Deborah cook the pork t6 and Jane cook the chicken t6?

Even relatively subtle differences in category such as that between what city and where in (6) yield sharp contrasts in P-gap grammaticality.

(6) a. What city1 did Elaine work in t1 without ever living in pg1?
b. *Where2 did Elaine work t2 without ever living pg2?

But no parallel difference is found in ATB structures:

(7) a. What city1 did Elaine work in t1 and Gwen vacation in t1?
b. Where2 did Elaine work t2 and Gwen vacation t2?

Reduction of the P-gap phenomenon to the ATB phenomenon clearly entails that the range of gapped categories in P-gap structures should be essentially what found in uncontroversial ATB ones. I explicate this conclusion further in section 3. But whereas ATB gaps can be of any category, English P-gaps seem to be limited to NPs. The extreme categorial discrepancy between P-gaps and ATB gaps is an initial measure of the incorrectness of reducing the former to the latter.

2.2 Finite Subjects


(8) a. Which patient1 did he convince t1 (that he had agreed) (that) he should visit pg1?
b. *Which patient2 did he convince t2 (that he had agreed) (that) pg2 should visit him?

(9) a. the militant1 who1 he arrested t1 after learning the mayor wanted to interrogate pg1
b. *the militant2 who2 he arrested t2 after learning pg2 was carrying a gun

But ATB gaps can, of course, perfectly well occur in finite subject positions:

(10) a. Which patients1 did he convince you t1 were already doctors and t1 were going to become psychiatrists?

3 Authier (1989b, 1991) gives examples that might seem to be, and that he seems to analyze such that they would be, counterexamples to the restriction of P-gaps to NPs. These involve apparently right-shifted that-clauses. Since Authier analyzes these as CPs, his example (i) would appear to involve a CP P-gap.

(i) We suggest t1 to our employees without actually requiring pg1 of them — [that they wear a tie]1.

But I claim that (i) cannot represent a genuine exception to the NP restriction, since (i) contains no P-gap, a prima facie untenable claim justified in Postal, to appear; see footnote 12.
b. It was those weapons₂ which he testified t₂ were used in the first crime and she testified t₂ were used in the second crime.

c. It was that militant₃ that we thought t₃ was carrying a gun but they believed t₃ was never armed.

Here a reduction of P-gaps to ATB cases would wrongly fail to impose the finite subject condition on P-gaps.

2.3 Passivizability Constraints

A third class of arguments against reducing P-gaps to ATB structures is derivable from Postal 1990, where it is argued that a number of phenomena, including “object raising” and “object deletion” structures, are such that the “raised” or “deleted” NP must in general have a property linked to passivizability. The evidence is that a wide range of passivization restrictions show up as constraints on these structures. It was briefly observed there that P-gap structures are subject to the same constraints. Crucially, in the supporting cases, the unpassivizable NP is capable of being extracted. An example of the phenomenon at issue is seen in (11).

(11) a. Anyone can catch/contract/get/have diphtheria.
    b. Diphtheria can be caught/contracted/*gotten/*had by anyone.
    c. Which disease₁ did Arthur catch/contract/get/have t₁?
    d. Which disease₂ did everyone who caught/contracted/*got/*had pg₂ want Dr. Jones to study t₂?
    e. Which disease₃ did Dr. Jones study t₃ only after admitting that he had caught/contracted/*gotten/*had pg₃?

In subsequent illustrations of passivization restriction/P-gap restriction links, I will, as in (11), give a variety of ill-formed P-gap structures in contrast with a grammatical simple extraction structure, to indicate the systematicity of the effect and to show that the problem with the P-gap cases is not a mere blockage on extraction.

Cases like the starred versions of (11d–e) are relevant to the possibility of reducing P-gaps to ATB gaps because of their contrasts with cases like (12a–b).

(12) a. Which disease₁ did Dr. Jones study t₁ but Dr. Kline deny that he had ever caught/contracted/gotten/had t₁?
    b. the disease₂ which₂ Dr. Kline admitted that he had caught/contracted/gotten/had t₂ and that Dr. Jones had studied t₂

In following discussions of links between passivization restrictions and P-gap restrictions I will, as in (12), provide an ATB extraction designed to be as close in structure to at least one of the P-gap cases as possible. The contrast between the ATB and P-gap structures is then assumed to support the view that passivization restrictions limit the latter but not the former.
A second example of correlations between passivization restrictions and P-gap constraints not reflected in ATB structures is seen in (13).

(13) a. Greg bothered Lucy with his marital problems.
   b. *Lucy was bothered by Greg with his marital problems.
   c. Who₁ did he bother t₁ with his marital problems?
   d. *Who₂ did they convince t₂ that Greg would bother pg₂ with his marital problems?
   e. *It was Graham₃ that everyone who began to bother pg₃ with their marital problems ended up offending t₃.
   f. *It was Lucy₄ who₄ he insulted t₄ after bothering pg₄ with his marital problems.
   g. Who₅ did Tony respect t₅ and (Arnold) constantly bother t₅ with his marital problems?

In general, then, I suggest that an English P-gap but not an English ATB gap needs a property closely akin to passivizability.⁴ Factually, this condition means that passivization constraints have a strong (though imperfect) tendency to appear as P-gap restrictions.⁵

Of course, one might attempt to dismiss the connections between passivization and P-gaps illustrated in (11) and (13) as merely fortuitous. Success for such an interpretation is, I believe, precluded by the scope of the correlation, which is massive. Moreover, in a clear sense, it is systematic. Namely, the constraints blocking passivization divide into various types, including several for which particular principled explanations have been proposed; and each constraint type also manifests itself in the P-gap domain.

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⁴ A hint of a similar idea is touched on by Cinque (1990:122) but apparently rejected on the grounds that "this would be a rather curious and unprecedented state of affairs."

⁵ The linkage to passivizability relevant to P-gaps must be defined in a rather abstract and sophisticated way. Mere absence of passivizability is not necessarily relevant. Consider:

(i) a. Bob spoke Mongolian to Helen.
    b. Helen was spoken (*Mongolian) to by Bob.
    c. Which student₁ did Bob promote t₁ after speaking (Mongolian) to pg₁?

The ungrammaticality of the long version of (ib) clearly does not induce ungrammaticality of the P-gap in the long version of (ic). This can be made consistent with the view that an NP that is a P-gap needs a property similar to passivizability, as follows. As suggested by the short form of (ib), the problem with the long form is not that the indirect object is unpassivizable, but that nothing can be pseudopassivized in the presence of a visible direct object.

In terms of the analysis of pseudopassives in Postal 1986, the informal comment in the previous paragraph can be made more precise as follows. Pseudopassives (like (ib)) involve 2-arc local successors of various arcs, those local successors being required to (a) be associated with copy pronouns that ultimately determine the stranded prepositions, (b) be linked with 1-arc local successors, which determine that there are no "pseudoactives," and (c) erase any 2-arc that they overrun. The bad long version of (ib) fails condition (c). Notably, though, that condition has nothing to with passivizability per se. This suggests why it is coherent to say that the indirect object in the long version of (ib) is in a sense passivizable even though actual pseudopassivization of it yields ungrammaticality. Technically, P-gaps must meet a condition stated in terms of 1-arc local successors, and the ungrammaticality of the long version of (ib) violates no condition on 1-arc local successors. For further discussion of the principles linking passivization and P-gaps, see Postal 1990.
For instance, one major constraint on English passivization involves restrictions that relational approaches have attempted to characterize via the so-called 1-Advance-
ment Exclusiveness Law (1AEX). Among other things, this entails that neither un-
accusative nor inversion structures can form pseudopassives. The range of passive 1AEX
violations is fairly closely matched by parallel violations in P-gap structures, though not
by ATB violations, as illustrated in (14)–(17).

(14) a. That slave spoke/belonged to the colonist.
   b. The colonist was spoken/*belonged to by that slave.
   c. Who1 did that slave speak/belong to t1?
   d. It was King Louis2 who I convinced t2 that this slave might speak/*belong
to pg2.
   e. It was King Louis3 that every slave who spoke/*belonged to pg3 later tried
to seduce t3.
   f. Which king4 did Arthur work for t4 without ever speaking/*belonging to pg4?
   g. Which king5 did Arthur work for t5 and Glen belong to t5?

(15) a. Sally appealed to the judge. OK (i) ‘asked for something’, OK (ii) ‘pleased’
   b. The judge was appealed to by Sally. OK (i), *(ii)
   c. Which women1 do you believe Harry might appeal to t1? OK (i), OK (ii)
   d. Which women2 did they convince t2 that Harry might appeal to pg2? OK
(i), *(ii)
   e. Which women3 did every man who appealed to pg3 end up betraying
t3? OK (i), *(ii)
   f. Which women4 did Harry approach t4 without seeming to appeal to pg4? OK (i), *(ii)
   g. Which women5 did Harry appeal to t5 but Jack not approve of t5? OK (i),
(ii)

(16) a. Trolls slept/died under that bridge.
   b. That bridge was slept/*died under by trolls.
   c. Which bridge1 did he tell you trolls slept/died under t1?
   d. It was that bridge2 that every troll who slept/*died under pg2 had wanted
the government to preserve t2.
   e. the bridge3 he liked t3 before learning (that) trolls had slept/*died under
pg3
   f. the bridge4 which4 trolls played under t4 and elves died under t4

(17) a. Several ghosts appeared to the therapist.
   b. *The therapist was appeared to by several ghosts.
   c. Which therapist1 did he say the ghost appeared to t1?
   d. *Which therapist2 did they convince t2 that a ghost had appeared to pg2?

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6 For 1AEX accounts of passive restrictions of the type at issue, see, for example, Perlmutter and Postal
e. *It was that therapist that every ghost which appeared to pg3 wanted to frighten t3.
f. *the therapist that ghost frightened t4 even without appearing to pg4
g. Which therapists did a ghost frighten t5 on Thursday and an angel appear to t5 on Friday?

A further type of constraint that the relational literature has attempted to reduce to the IAEX involves the impossibility of ‘‘multiple passivization’’ in the same clause. This constraint also has a P-gap analog: as shown in (18)–(19), a P-gap cannot appear in a passive clause.

(18) a. Charlie was given the book by Ted.
   b. Which book was Charlie given t1 by Ted?
   c. *It was that book which everyone who was given pg2 by Ted refused to read t2.
   d. *It was that book I read t3 before being given pg3 by Ted.
   e. It was that book Charlie was given t4 by Ted but only Greg read t4.

(19) a. The book was given (to) Charlie by Ted.
   b. Who was the book given to t1 by Ted?
   c. *whoever they convinced t2 that your book would be given to pg2 by Ted
   d. *the person who every book which was given to pg3 tended to outrage t3
   e. *It was Charlie who they contacted t4 after that book was given to pg4 by Ted.
   f. It was Charlie I wanted to teach Greek to t5 and thus wanted Plato’s dialogues to be given to t5 (by Ted).

A second passivization constraint that spreads to P-gaps involves unmarked infinitives; it is illustrated in (20) and (21).7

(20) a. Abigail felt the rocks move.
   b. *The rocks were felt move by Abigail.
   c. Which rocks did Abigail feel t1 move?
   d. *It was those rocks which everyone who felt pg2 move tried to fasten down t2.
   e. *Which rocks did the gorilla sit on t3 after feeling pg3 move?
   f. the rock which Ted sat on t4 but only Joyce felt t4 move

(21) a. Mary let Tommy have pizza.
   b. *Tommy was let have pizza by Mary.
   c. Which kid did they let t1 have pizza?
   d. *the kid your letting pg2 have pizza ended up causing t2 to miss school

7 Apparently only some speakers have this passive restriction, which I find quite sharp. Those speakers I have found who accept (20b) and (21b) also, as is then expected, accept (20d) and (21d).
e. *It was Jeremy3 that they promised t3 (that) you would let pg3 have pizza.
f. *Which kid4 did they take t4 home after letting pg4 have pizza?
g. the kid5 who5 Gerald let t5 have pizza but (Nancy) would not take t5 to the circus

A third type of passivization restriction is represented by what has been called Visser’s Generalization. This constraint, illustrated in (22)–(24), claims roughly that no English clause manifesting subject control permits passivization of any kind of object.8

(22) a. Gregor swore to that goddess to find the perpetrator.
   b. *That goddess was sworn to by Gregor to find the perpetrator.
   c. Which goddess1 did you swear to t1 twice to find the perpetrator?
   d. *Which goddess2 did you convince t2 that you had never sworn to pg2 to find the perpetrator?
   e. *the goddess3 that everyone who swore to pg3 to find the perpetrator later turned their back on t3
   f. *Which goddess4 did they betray t4 after swearing to pg4 twice to find the perpetrator?
   g. Who5 did Jean visit t5 and (Morris) swear to t5 to find the murderer?

(23) a. Max failed her as a husband. (Bresnan 1982:354)
   b. *She was failed by Max as a husband.
   c. Who1 did Max fail t1 as a husband?
   d. *Who2 did Max convince t2 that he would never fail pg2 as a husband?
   e. *the nurse3 who3 Max’s failing pg3 as a husband did not surprise t3
   f. *Who4 did Max divorce t4 after failing pg4 as a husband?
   g. the nurse5 who5 Max divorced t5 and Mike failed t5 as a friend

(24) a. Herbert proposed to Evelyne to perjure himself.
   b. *Evelyne was proposed to by Herbert to perjure himself.
   c. Who1 did Herbert propose to t1 to perjure himself?
   d. *Who2 did Herbert convince t2 that he had never proposed to pg2 to perjure himself?
   e. *the witness3 that your proposing to pg3 to perjure yourself failed to shock t3
   f. *Who4 did Herbert yell at t4 after proposing to pg4 to perjure himself?
   g. Who5 did Herbert visit t5 but only Sandra propose to t5 to perjure himself?

8 Various explanations of Visser’s Generalization have been proposed. Part of one is given in (i).
   (i) “... Passivization shifts the semantically unrestricted function (subj) to the semantically restricted function (oblA) or to φ, and these cannot be functional controllers.” (Bresnan 1982:354)
This account has no visible application to the fact, illustrated in (22)–(24), that parallel constraints appear in P-gap structures, which could not contain the functional shifts Bresnan appeals to for the passive cases. This suggests the inadequacy of the account even for the latter.
A fourth constraint on English passivization renders it impossible when the corresponding active clause subject is an *expletive*. This also manifests itself in restrictions on P-gaps, but not on corresponding ATB gaps, as shown in (25)–(26).

(25) a. It amused Sonia to tickle alligators.
   b. *Sonia was amused by it to tickle alligators.
   c. the people₁ who₁ it amused t₁ to tickle alligators
   d. *the people₂ who₂ Bob convinced t₂ that it would amuse pg₂ to tickle alligators
   e. *It was Ida₃ that Bob contacted t₃ immediately after concluding that it would amuse pg₃ to tickle alligators.
   f. the kind of people₄ who₄ Bob might warn t₄ but it would nonetheless still amuse t₄ to tickle alligators

(26) a. It would shock Sonia if you screamed.
   b. *Sonia would be shocked by it if you screamed.
   c. the people₁ who₁ it would shock t₁ the most if you screamed
   d. *the people₂ who₂ Bob convinced t₂ that it would shock pg₂ if you screamed
   e. *It was Ida₃ that Bob contacted t₃ after fearing it would shock pg₃ if you screamed.
   f. the kind of people₄ who₄ Bob might forewarn t₄ but it would nonetheless still shock t₄ if you screamed

A fifth constraint is that objects of the preposition *from* tend not to pseudopassivize, even with intransitive active verbs; this restriction is also manifest in P-gap structures, as in (27).

(27) a. Frank stole from ministers.
   b. *Ministers should not be stolen from.
   c. What minister₁ did he steal from t₁?
   d. *What minister₂ did he convince t₂ that they were stealing from pg₂?
   e. *That is the minister₃ who₃ their stealing from pg₃ impoverished t₃.
   f. *the minister₄ who₄ he consulted t₄ despite stealing from pg₄
   g. the minister₅ who₅ Graham consulted t₅ and Melvin stole from t₅

Parallel data can be found with verbs such as *borrow, buy, copy, order*.

Finally, as with (11) and (13), many passivization blockages have not been reduced to any proposed principle and may just have to be stated ad hoc for particular lexical items. That such cases also yield P-gap but not ATB violations is further documented in (28).

(28) a. Allan owes that idea to Nancy.
   b. *That idea is owed to Nancy by Allan.
   c. Which idea₁ does he owe t₁ to Nancy?
d. *It is that idea2 that anyone who owes pg2 to Nancy must acknowledge t2.
e. *That is the idea3 that he used t3 without admitting to having owed pg3 to Nancy.
f. Which idea4 did Mike envy t4 and Sally owe t4 to Gwen?

Overall, then, a third general failure of the ATB theory is that it wrongly predicts that P-gaps should be as unaffected by passivization restrictions as uncontroversial (coordinate) ATB cases are.

2.4 Pronominalization Constraints

An important observation about English P-gaps in effect made by Cinque (1990:122–123) is that they tend to be blocked in positions where definite pronouns are illegitimate. So various pronominalization blockages show up as restrictions on P-gaps. Two clear restrictions of this type not cited by Cinque involve existential there constructions and those expressing change of color, as in (29)–(30).

(29) a. There are spiders/*them in the soup.
   b. What kind of spiders1 are there t1 in the soup?
   c. *It was such spiders2 that everyone who said there were pg2 in the soup refused to eat t2.
   d. *What kind of spiders3 did he praise t3 before learning there were pg3 in the soup?

(30) a. Blake painted his house green/*it.
   b. What color1 did Blake paint his house t1?
   c. *It was that color2 that everyone who painted their house pg2 wanted to paint their car t2.
   d. *What color3 did they criticize t3 after painting their house pg3?

Like (4b), (30c–d) are, irrelevantly, well formed on readings not involving P-gaps.

The fact that the restrictions in (29a) and (30a) also block P-gaps further undermines an ATB view of the latter, since such restrictions do not show up in uncontroversial ATB cases:

(31) The kind of spiders1 that he found t1 in the chicken soup yesterday and there will be t1 in the bean soup today are hairy ones.
(32) The color1 that they chose t1 yesterday and (Mike) will paint their barn t1 tomorrow is red.

A claim that P-gaps are controlled by pronominalization constraints must, like the linkage with passivization restrictions discussed in footnote 6, be formulated rather abstractly and with considerable care. Logically, there could exist pronoun constraints referring specifically to surface occurrence. Since P-gaps, although arguably representing pronouns, do not represent surface pronouns, such constraints would not be expected to control P-gap distribution. However, this possibility raises the issue of
whether a claimed linkage between pronominalization constraints and P-gaps can be formulated in a way that is not vacuous and yet not false.

No doubt the claim that every pronominalization constraint shows up as a constraint on P-gaps is false. But I believe that a contentful claim of a linkage between a proper subclass of such constraints and P-gaps nonetheless does hold. The elements of this subclass, which include the restrictions limiting there and color constructions, are stated in ways not specifically linked to surface occurrence. Such constraints systematically constrain P-gaps and a variety of other constructions involving nonsurface pronouns; see section 3.

To see the distinction between surface and nonsurface constraints on pronouns, consider (33a–b).

(33) a. *Frank attends/goes to Yale1 but Sandra does not attend/go to it1.
    b. Which school1 does Sandra attend/go to t1?

These examples show that the NP following attend/go to can be extracted but cannot be a definite pronoun. However, the object of attend can be a P-gap:

(34) a. Which college1 did she apply to t1 without really wanting to attend pg1?
    b. It was Yale2 that your having attended pg2 made me want to apply to t2.

One can nonetheless claim that the pronominalization constraints in (29a) and (30a) do respectively block (29c–d) and (30c–d), whereas the one in (33a) nonetheless allows (34a–b).

This can be accomplished by taking the constraint in (33a) to be limited to surface pronouns in object position, whereas those mentioned earlier ban, more generally, all pronouns with the relevant functions, whether these appear in the canonical surface positions or not. On the assumption that nonrestrictive relative pronouns are definite pronouns, this then predicts, for example, that whereas the pronominal restrictions linked to existential there and to color forms manifest themselves as constraints on nonrestrictive pronouns, the one linked to attend does not. This is correct:

(35) a. *She left the magazines1, which1 there are t1 on the table.
    b. *I hate pink2, which2 they painted his house t2.
    c. Herman contributes to Yale3, which3 he never attended t3.

Although (33a) shows that both attend and go to ban surface object pronouns, the two contrast in P-gap possibilities; compare (34) and (36).

(36) a. *Which college1 did she apply to t1 without really wanting to go to pg1?
    b. *It was Yale2 that your going to pg2 made me want to apply to t2.

However, this contrast can apparently be attributed to passivization restrictions, given the following distinction:

(37) Yale was attended/*gone to by numerous foreigners that year.
By distinguishing types of pronominal constraint one can, therefore, maintain a coherent account of links between certain pronominal restrictions and P-gap distribution. And the documentation that even those pronominalization constraints relevant to P-gaps fail to limit uncontroversial ATB gaps thus argues against views of P-gaps embodying a reduction of the former to the latter.

2.5 Predicate Nominals

Further facts relevant to a distinction between ATB gaps and P-gaps involve predicate nominals (PNs). PNs can perfectly well be ATB gaps, but never P-gaps:

(38) a. Jerome is a doctor.
   b. What, they said Jerome was t1 was a doctor.
   c. People who want to be doctors are often unable to become doctors.
   d. *What people who want to be pg2 are often unable to become t2 is doctors.
   e. *What he became t3 without wanting to become pg3 was a traitor.
   f. What Ted was t4 and Greg intended to become t4 was a doctor.

(39) a. They turned Elizabeth into a zombie.
   b. What kind of zombie1 did they turn Elizabeth into t1?
   c. *What kind of zombie2 did they convince t2 that Elizabeth had turned into pg2?
   d. *It was that kind of zombie3 that everyone who turned into pg3 had prayed not to become t3.
   e. *What4 Jane turned into t4 after praying not to become pg4 was a zombie.
   f. What5 they turned Elizabeth into t5 last week and we expect Jane to become t5 tomorrow is a zombie.

Thus, there is a restriction on PN P-gaps that is absent from corresponding ATB gaps.

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9 A distinction between conditions sensitive only to surface pronouns and those sensitive to nonsurface pronouns as well, appealed to in the text to account for why certain pronominal restrictions do not show up as P-gap restrictions, is relevant to other domains. As is well known, a similar distinction is motivated in connection with weak crossover effects. Such effects appear in (ia) and (iia), which contain surface pronouns, but not in the parallel (ib) and (iib), where there are, arguably, invisible pronouns.

(i) a. *Who1 did her1 losing the race fail to bother t1?
   b. Who2 did pg2 losing the race fail to bother t2?

(ii) a. *Who1 did their praising her1 fail to impress t1?
   b. Who2 did their praising pg2 fail to impress t2?

10 In certain cases, both passivizability and pronominal restrictions project to the same P-gap contexts, and the P-gap violations are then extremely clear:

(i) a. Saudis rarely speak (in) Hebrew.
   b. Hebrew should not be spoken (*in) by Saudis.
   c. Ahmed speaks (in) Hebrew although he doesn’t like to speak (*in) it1.
   d. It was Hebrew that he spoke (in) t2.
   e. That is the language3 which1 her speaking (*in) pg3 on television made t3 famous.
   f. the language4 which4 he criticized t4 while speaking (*in) pg4
   g. the languages which5 Graham understood t5 and Melvin spoke (in) t5
This PN restriction might be a function of the passivization constraint, since English PNs are systematically unpassivizable:

(40) a. Martin turned into that kind of outfielder.
   b. *That kind of outfielder was turned into by Martin.
   c. They made that kind of outfielder out of Martin.
   d. *That kind of outfielder was made out of Martin.

Alternatively, the restriction on PN P-gaps in (38) and (39) might be claimed to derive from a pronominalization constraint, since PNs cannot in general be definite pronouns:

(41) a. *Martin turned into him/it/them.
   b. *They made him/it/ them out of Martin.

Examples like (41b) are irrelevantly well formed on readings where the postverbal NPs are not PNs. But a linkage between the PN P-gap restrictions and pronominalization constraints is doubtful. In the limited cases where PNs can be definite pronouns, P-gaps still seem entirely impossible:

(42) a. It was me that they arrested.
   b. Who was it that they arrested?
   c. *It was me who Claire praised before knowing it was that they arrested.
   d. The person to be fired was her.
   e. Who was the person to be fired?
   f. *It was Sally who they promised that the person to be fired would not be.

Therefore, if the PN constraint on P-gaps is not independent, it must apparently be reduced to the passivization condition.

Although I cannot directly show that such a reduction is incorrect, this is not of great import, because PNs independently relate to P-gaps in ways which cannot be reduced to the passivization constraint on PNs and which yet conflict with a reduction of the P-gap phenomenon to ATB structures. For the following seems true:

(43) The “licensing” gap for a P-gap cannot be a PN.\(^\text{11}\)

Principle (43) is supported by data like these:

(44) a. Tom turned into some kind of zombie after studying that kind of zombie.
   b. *the kind of zombie which Tom turned into after studying which PNs independent

\(^{11}\) Parallel claims hold for the two pronominalization restrictions of section 2.4, which also limit possible “licensing” gaps:

(i) a. the kind of chocolate which everyone who liked said (*there) was on the table
   b. What color did he criticize/*paint his house after discussing with Abigail?
(45) a. Everyone who studied that kind of zombie later turned into a different kind of zombie.
   b. *It was that kind of zombie 1 that everyone who studied pg 1 later turned into t 1 .

There is no general requirement that P-gap "licensing" gaps be passivizable parallel to that documented for P-gaps themselves; for example, compare (13d) and (18d) with (46a) and (46b), respectively.

(46) a. the woman 1 who 1 Frank bothered [t 1 ] with his marital problems after meeting pg 1 only once
   b. the book 2 which 2 the students who were supposed to read pg 2 thought they would be given [t 2 ] (by Ted)

Although the passivization constraints represented by (13b) and by the impossibility of "double passivization" respectively block contexts like those bracketed in (46) as loci for P-gaps, they do not block them as "licensing" gap loci. Therefore, (43) cannot reflect any general passivization condition on "licensing" gaps and in turn it is not possible to reduce (44b) or (45b) to any known condition independent of PN s. But these examples nonetheless contrast with corresponding ATB cases:

(47) a. What kind of zombie did Tom turn into t 1 and Michael subsequently study pg 1 ?
   b. It was that kind of zombie 2 that Glen studied but (Martha) still never turned into t 2 .

These facts indicate that PN s relate to P-gaps in ways that contrast with the way they relate to ATB gaps, and in ways that cannot be reduced to the fact that PN s fail to passivize. Hence, it seems that bad P-gaps linked to PN s provide an independent argument against the view that P-gaps can be reduced to ATB gaps.

2.6 Infinitival Complement Restrictions

In those infinitival structures claimed in Postal 1974 to be raising-to-object structures, the postverbal NP is freely extractable:

(48) a. The CIA believed/considered/proved Fred to be loyal.
   b. Which candidate 1 did the CIA believe/consider/prove t 1 to be loyal?

But for some reason, at least in certain cases, such contexts do not permit very good P-gaps, for many speakers:

(49) *Which candidate 1 did the CIA hire t 1 without believing/considering/proving pg 1 to be loyal?
(50) *This is the student 1 everyone expected t 1 to be intelligent because John believed pg 1 to be intelligent. (Chomsky 1982:54)
But no such restriction limits ATB gaps with these verbs:

(51) a. Which candidate\textsubscript{1} did the CIA believe/consider/prove t\textsubscript{1} to be loyal but Melvin believe/consider/prove t\textsubscript{1} to be disloyal?
b. This is the student\textsubscript{2} everyone expected t\textsubscript{2} to be intelligent and John recently showed t\textsubscript{2} to be intelligent.

Moreover, the facts are clearer when the embedded main verb is not \textit{be}; see Authier 1989a:122, fn. 5:

(52) a. *Which spy\textsubscript{1} did everyone who believed pg\textsubscript{1} to look dumb tend to underestimate t\textsubscript{1}?
b. *It was Ernest\textsubscript{2} that they promised t\textsubscript{2} that you would show pg\textsubscript{2} to speak Greek.

Again the corresponding ATB cases do not seem problematic:

(53) a. Which spy\textsubscript{1} did Mohammed believe t\textsubscript{1} to look dumb and Jamal prove t\textsubscript{1} to be dumb?
b. It was Ernest\textsubscript{2} that the doctors showed t\textsubscript{2} to speak Greek and the nurses proved t\textsubscript{2} to speak Turkish.

Once more, then, reducing P-gaps to ATB gaps can only leave a range of blocked cases unexplained.

3 Conclusion

Reducing the P-gap phenomenon to the ATB phenomenon, whatever its a priori appeal, clashes with the fact that, as documented in section 2, the conditions “licensing” English P-gaps are, in numerous ways, significantly more restrictive along various dimensions than those governing gaps whose ATB status is not in question. This situation leaves two logically possible options with respect to the assumption that P-gaps are ATB gaps.

(a) One can reject that view, a step immediately consistent with the fact that P-gaps embody a range of restrictions not characteristic of uncontroversial ATB gaps. Or, (b), as an \textit{LI} referee suggests, “one can imagine theories under which P-gaps are a special case of ATB gaps: a subset of ATB gaps that are subject to certain additional constraints that other ATB gaps are not subject to.” As this referee notes, under alternative (b), section 2 of this article would merely be a catalogue of extra constraints that \textit{some} ATB gaps are subject to.

Though alternative (b) cannot be objected to in isolation, two interlocking reasons prevent it from providing a viable account of the differences between P-gaps and uncontroversial ATB gaps considered in section 2. Alternative (b) amounts to something like the following claim:

(54) A certain class, K, of ATB gaps are subject to special restrictions, namely, those documented for P-gaps in section 2.
However, among supposed ATB gaps, all and only the members of K can be considered ATB gaps only via appeal to a notion of coordinate that no one has made precise sense of. Under this conception, for example, two subparts like those in (55) have to be considered coordinate.

(55) It was Sally1 who1 [your attack on t1] [shocked t1 the most].

Without a (so far undeveloped) formal account of coordination and the rules/principles that optionally assign the supposed coordinate structures required to support such analyses, an ATB view of P-gaps can have little content, and hence neither can alternative (b).

But the status of the ATB view of P-gaps is worse. For, as only touched on in passing earlier, those constraints documented in section 2 for P-gaps but not manifested by uncontroversial ATB cases are, nonetheless, not uniquely limited to P-gaps. These constraints show up in a variety of other “gap” constructions distinct from P-gaps but even more distinct from ATB gaps. These include

(56) a. the “object raising” construction
   b. the “complement object deletion” construction (see Lasnik and Fiengo 1974)
   c. the purposive construction (see Bach 1982)
   d. the “instruction set (recipe) context deletion” construction
   e. the infinitival relative construction

Full documentation of the similarities between all these constructions and P-gaps is beyond the scope of these remarks. Some parallelisms have already been cited by Cinque (1990); see also Browning 1987a and Jones 1987. I limit myself here to quite partial evidence.

First, the gaps in the constructions in (56) seem to be limited to NP positions just as P-gaps are. Second, although independent restrictions probably prevent any test for (56c–e), the finite subject condition holds for those of (56a–b) just as it does for P-gaps:

(57) a. ?Jane1 is difficult for them to convince people I am going to marry t1.
   b. *I2 am difficult for them to convince people t2 am going to marry Jane.
   c. ?Jane3 is too unpleasant for them to convince people I am going to marry t3.
   d. *I4 am too unpleasant for them to convince people t4 am going to marry Jane.

Third, the pronominalization constraint characteristic of color forms cited in section 2.4 can be observed to hold for (56a–e) as much as for P-gaps:

(58) a. i. This house1 will be hard to paint t1 that color.
   ii. *That color2 will be hard to paint this house t2.
   b. i. This house3 is too lovely to paint t3 that color.
   ii. *That color4 is too dark to paint this house t4.
c.  
   i.  I chose that house\(_5\) to paint \(t_5\) green.
   ii. *I chose green\(_6\) to paint that house \(t_6\).

d.  
   i.  ?Number a prepared wing section\(_7\) after quickly painting \(t_7\) green.
   ii. *Number a dark color\(_8\) after quickly painting a prepared wing section \(t_8\).

e.  
   i.  There remain two houses\(_9\) to paint \(t_9\) green.
   ii. *There remain two colors\(_{10}\) to paint his house\(_{10}\).

Finally, relevant passivation constraints hold for all those cases of (56) where I have been able to construct a test. Thus, compare (20b) and the following examples:

(59) a. *The rocks\(_1\) are difficult to feel \(t_1\) shake.
   b. *The rocks\(_2\) are too heavy to feel \(t_2\) shake.
   c. *He touched the rocks\(_3\) to feel \(t_3\) shake.
   d. *Grab a rock\(_4\) after feeling \(t_4\) shake.
   e.  I need a rock\(_5\) to touch \(t_5/\#\) feel \(t_5\) shake.

Thus, the constraints that characterize P-gaps but fail to characterize uncontentious ATB gaps also characterize a variety of other constructions radically distinct from coordinate structures. Although the plausibility of analyzing P-gap structures as coordinate is minimal, it nonetheless seems significantly greater than that of analyzing the structure types in (56) as such. Note that in general there seems to be no way to analyze the latter as even involving multiple gaps. Consequently, capturing the restriction similarity between P-gaps and these constructions requires a theory that provides significantly similar structures to P-gaps and such noncoordinate constructions as those in (58). Such an explanatory account will hardly be feasible internal to any view that tries to reduce P-gaps to ATB gaps. Combining this fact with the recognition that any such reduction appeals to a so far essentially undeveloped view of coordination makes the overall conclusion evident. P-gaps are not ATB gaps but rather represent a sharply distinct phenomenon (manifesting properties common to the constructions of (56) but not to ATB structures).\(^{12}\) Those properties of P-gaps that Williams has tried to explain in terms of features of ATB gaps thus require a distinct account.\(^{13}\)

\(^{12}\) Although I believe this claim to be correct, there is an important limitation on the justification that has been presented for it here. All the evidence supporting P-gap/ATB gap contrasts involved P-gaps whose "licensing" gap exists because of an extraction to the left. This is consistent with recent tradition, in which all but all discussion of English P-gaps is limited to such cases. Nonetheless, Engdahl (1983) cites apparent English P-gaps induced by extractions to the right, for example, by complex NP shift:

   (i)  John offended \(t_1\) by not recognizing \(pg_i\) — [his favorite uncle from Cleveland],. (Engdahl 1983:12, crediting Tom Wasow)

The widely accepted idea that (i) involves a P-gap in the same sense as, say, (1a–b) never seems to have been challenged; see, for example, Chomsky 1982:47, Bennis and Hoekstra 1985:80, Browning 1987a:171, and Williams 1990.

Although Williams accepts that (i) involves a P-gap, he nonetheless differs sharply from past work in denying that such P-gaps are "licensed" by complex NP shift. Rather, he takes them to be "licensed" by right node raising, operating, as always for him, in ATB fashion. I believe that Williams's account of gaps like that in the adjunct in (i) is closer to the truth than his account of those in (1), although still incorrect.
Finally, although I have so far appealed to the properties of P-gaps documented in section 2 only as grounds for rejecting ATB views of P-gaps in general and Williams’s ATB view in particular, the implications of projecting passivizability, pronominal, and other properties into P-gap constraints is far broader. A number of well-established approaches to P-gaps that do not seek to reduce these to ATB gaps nonetheless face much the same kind of problems as ATB conceptions. These include, for instance, Chomsky’s (1986) “chain composition” approach to P-gaps and the Slash category analysis of P-gaps proposed in the GPSG and related work cited in footnote 2. Neither of these offers any basis for their restriction to NPs, an objection already made to the “chain composition” view by Cinque (1990). Moreover, since both frameworks take P-gaps to be ordinary extraction gaps, neither provides any basis for the fact that P-gap distribution is in part controlled by passivizability, pronominalization, predicate nominal, and other constraints that hold for extraction gaps in general no more than they do for ATB gaps.

Thus, the material that tends to undermine an ATB conception of P-gaps threatens the still more general idea that P-gaps are simply standard extraction gaps. The evidence presented here contributes, I believe, to supporting a significantly different view in which, although P-gaps involve an extraction, the extracted element is a pronoun. Thus, I only partly agree with Cinque (1990), for whom P-gaps represent invisible pronouns that are not extracted. For my part, I take a defining feature of a P-gap structure to appear, I defend the position that (i) does, as Williams claims, involve right node raising but I differ from his view in denying that (i) involves a coordinate structure and in rejecting the claim that the second gap is a P-gap. In the same way, I argue that (i) in footnote 3 is a right node raising structure not containing a genuine P-gap.

13 A particularly striking set of P-gap data that Williams tries to explain via his ATB theory is based on multiple extractions from embedded questions; see his (53)–(57). Given the problems with the ATB account, it is important to find a distinct explanation for these data.

14 Cinque’s nonrecognition of an extraction internal to the parasitic domain raises numerous difficulties, since (as he recognizes) that domain manifests a variety of properties characteristic of extractions. These include the properties in (i), illustrated respectively in (ii)–(v).

(i) Like an ordinary extraction gap, a P-gap
   a. cannot be separated from the edge of its domain by an island boundary;
   b. cannot correspond to an indirect object (see Cinque 1990:108–109);
   c. is associated with strong crossover effects;
   d. is subject to “path crossing” constraints (see Pesetsky 1982).

(ii) a. *Who1 did you contact the girl that loved t1?
    b. *Who2 did they hire t2 after contacting the girl that loved pg2?

(iii) a. *Who1 did they give t1 the prize?
    b. *Who2 did they praise2 after giving pg2 the prize?

(iv) a. *Who1 did they convince him1 that the institute would support t1?
    b. *Who2 did they interview t2 after convincing him2 that the institute would support pg2?

(v) a. 1. *Who1 was that2 easy to talk to t1 about2?
    2. Who1 was that4 easy to talk about t4 to3?
    b. 1. *Who1s did you convince t3 that that6 would be easy to talk to pg5 about t6?
    2. Who1s did you convince t7 that that8 would be easy to talk about t8 to7?

In a nonextraction view, correlations like those in (ii)–(v) must be treated as coincidental. This step is already in part taken by Cinque (1990), for example on page 150, where he proposes an account of the strong crossover facts that appeals to different principles in P-gap and non-P-gap structures.
be the combination of the extraction of a pronoun $P$ with a mechanism determining the invisibility of $P$ based on $P$’s relation to an antecedent. The latter is the extracted element determining the existence of the “licensing” gap. In these terms, then, contrary to the ATB, “chain composition,” and extant Slash category views, the P-gap phenomenon is a control phenomenon. This renders its many parallels to the other control structures in (56) unsurprising.

References


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