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A MINIMALIST ANALYSIS OF PARASITIC GAP CONSTRUCTIONS*

1 INTRODUCTION

There are a set of gapping constructions in English and other languages that have attracted much attention among contemporary syntacticians. Ross (1967) was the first to attest the phenomenon, now widely known as 'parasitic gaps.' The name comes from their very nature of being parasitic to another gap. To illustrate the point, consider the following:

(1) *Which article did you review *Barriers* without reading e
(2) a. Which article did you review t without reading e
b. Which article did you review t

(1) is a typical violation of the adjunct island constraint. This shows that *which article* cannot move out of the object position *e* of the adjunct clause. As in (2a), the sentence is dramatically improved when the matrix object position *t* is vacated. Since *wh*-movement from *t* to the sentence-initial position is perfectly legitimate as in (2b), it can be said that *e* in (2a) is *salvaged* or *licensed* by the movement of another element in the sentence. Thus *e* is said to be a *parasitic gap*, depending for its existence on *t*, which is called the *real gap*.

Phenomena concerning parasitic gaps have been one of the hottest issues in generative grammar since the emergence of Principles and Parameters (P&P) Theory (or Government and Binding (GB) Theory) in the early 1980's.[1] However, despite its popularity in the past, almost no one has tried to put the issue on the research agenda within the framework of the Minimalist Program pioneered by Chomsky (1993, 1994, 1995).[2] The primary reason for studying parasitic gaps, as clarified in Chomsky (1982), was that on the one hand they are marginal at best, which validates the

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[1] See, among others, Taraldsen (1981), Chomsky (1982), Engdahl (1983), Kayne (1983), and Longobardi (1985).

[2] As far as I know, the only exceptions are Hornstein (1995) and Brody (1995), to which we will return briefly in section 5.

idea that there should be no language- or construction-specific rule governing parasitic gaps, and on the other hand contrasts between (what are said to be) good and bad examples are systematic, which implies that Universal Grammar (UG) is so constructed as to yield the phenomenon we are faced with.[3] Thus, the fundamental characteristics of parasitic gaps should, if taken seriously, be captured by any theory of natural language syntax.

This paper proposes a possible account of how parasitic gap constructions are derived and receive their interpretations, given the minimal assumptions available in the current framework of Minimalism. Just as the Minimalist Program departs considerably from the P&P framework, the treatment of parasitic gaps in this paper differs from what has been assumed in previous accounts.

The present paper is organized as follows. After summarizing basic facts and generalizations concerning parasitic gaps in section 2, section 3 reviews some of influential analyses within P&P Theory and points out problems with them. Section 4 lays out the theoretical background of the Minimalist Program and the basic assumptions we are going to work on in subsequent sections. In section 5 the Anti-C-Command Condition, one of the most striking characteristics of parasitic gaps, is accounted for with the assumptions set up in section 4. We also turn to the Overt Licensing Condition, for which Minimalism gives a natural account. Section 6 contains some further speculations on reconstruction effects, parasitic gaps licensed by topicalization, failure of parasitic gap licensing by A-movement, island effects, and Longobardi's (1985) Scope Condition. Some concluding remarks are found in section 7.[4]

2 GENERALIZATIONS

2.1 *Basic Facts*

In this section I will summarize characteristics of parasitic gaps attested in the literature. First of all, parasitic gaps can occur in an adjunct clause.[5]

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[3] As I just noted above, 'good' examples with parasitic gaps are somewhat marginal (perhaps diagnosed as '?') to many speakers. In this paper I abstract away from such mild deviance for expository purposes, and concentrate on the contrasts observed among the data.

[4] Notice that English and other European languages prohibit null pronouns from appearing in object positions, so that contrasts such as those between (1) and (2a) serve to identify parasitic gaps. In this regard, languages that allow null pronouns in object positions do not contribute to the research on parasitic gaps unless specific theoretical assumptions are adopted. (See Hoji 1987.) For example, null pronouns freely show up in Japanese as in (i), in contrast to the ungrammatical English counterpart in the gloss.

(i) John-ga	[Mary-ga	*pro* yomu maeni]	*Barriers*-o	rebyuu-sita
-NOM	*-NOM*	*read before*	*-ACC*	*review-did*

'*John reviewed *Barriers* before Mary read pro.'

For this reason the present paper exclusively treats English examples save for a few exceptions. As for parasitic gaps in other European languages, see Kiss (1985) for Hungarian, Bennis and Hoekstra (1984) for Dutch, and Tellier (1991) for French.

[5] I use the notation *t* for denoting traces in general, and *e* for an occurrence of a parasitic gap. For the purpose of making representations as consistent as possible throughout the paper, I will change original notations accordingly where necessary, without announcing each modification.

(3) Which article$_i$ did you review t_i [without reading e_i] (Browning 1987: 70)
(4) This is the kind of food [OP$_i$ you must cook t_i [before you eat e_i]] (Engdahl 1983: 5)

In (3) the parasitic gap is licensed by the *wh*-movement of the matrix object *which article*, and must be interpreted as a variable bound to *which article*. So the LF of (3) must be something like *for which* x, x *an article, you reviewed* x *without reading* x but not like *for which pair* (x, y), x *an article, you reviewed* x *without reading* y, which yields a multiple interrogative interpretation. (4) illustrates the same point: the parasitic gap is licensed by the movement of the relative operator OP$_i$, and is interpreted as a variable bound to OP$_i$. As noted in the introduction, the parasitic gap cannot be the position from which the movement of WH/OP takes place because of the intervening island. I refer to this type of parasitic gap as the 'adjunct-type' parasitic gap.

Another typical position in which parasitic gaps can appear is the subject-internal position.

(5) Which boy$_i$ did [Mary's talking to e_i] bother t_i most (ibid.: 5)
(6) An artist who$_i$ [close friends of e_i] admire t_i (Browning 1987: 70)

In (5) and (6) the parasitic gap e_i is licensed by *wh*-movement of the object and interpreted as a variable bound to the moved *wh*-phrases. I refer to this type of parasitic gap as the 'subject-type' parasitic gap.

A third type of parasitic gap, which I call 'dative-type', is illustrated in (7a).

(7) a. Which girl$_i$ did you send a picture of $\{e_i/t_i\}$ to $\{t_i/e_i\}$
b. Which girl$_i$ did you send a picture of t_i to John
c. Which girl$_i$ did you send a picture of John to t_i
(Engdahl 1983: 5)

As indicated, (7a) is ambiguous in that it is unclear which of the two gaps are parasitic to the other, each being a possible extraction site of *which girl* as shown in (7b,c). In this sense the dative-type parasitic gap is not truly parasitic. However, theory-internal considerations compel us to assume that a parasitic gap is indeed involved in (7a) since, given one *wh*-phrase fronted sentence-initially and two apparent gaps that correspond to it, it is impossible in a theory we are assuming to regard the *wh*-phrase as having been generated in each of the two gaps to be 'mixed up' into a single operator in the course of the derivation. It follows that either of the two gaps serves as the real gap, the trace left by the *wh*-movement, and the other as a gap parasitic to the other.[6]

[6] An immediate question arises as to how across-the-board (ATB) extraction such as (i) can be licensed in the current framework.

(i) Which paper did [John file t] and [Mary read t]

One possible solution to this problem is suggested by Munn (1992), who regards the ATB construction as

Examples taken up so far suggest that a parasitic gap can occur only if movement takes place that satisfies principles of grammar independently of the parasitic gap. The condition is necessary, but far from sufficient. Consider the following examples.

(8) * John filed e_i [before we knew which article$_i$ to read t_i]
(Lasnik and Uriagereka 1988: 75)
(9) * Who$_i$ t_i resigned [before we could fire e_i] (ibid.)
(10) *The report$_i$ was filed t_i [after Bill read e_i] (ibid.: 74)
(11) *There finally arrived [a man from England]$_i$ [after we told e_i not to drop by]
(12) *Who filed which book$_i$ [without my reading e_i]
(Chomsky and Lasnik 1991: 47)
(13) *Mary filed every paper$_i$ [without reading e_i] (Browning 1987: 76)

(8) and (9) suggest that *wh*-movement does not always license parasitic gaps. In (8) the parasitic gap occurs outside the c-command domain of the intended licenser *which article*.[7] In (9) the parasitic gap appears inside the domain of *who*, yet the sentence is ungrammatical. (10) and (11) show that parasitic gaps cannot be licensed by A-movement, assuming the standard analysis of passivization that raises the object to the subject position in overt syntax, and of the *there*-construction that raises (the formal features of) the associate to *there* (or to INFL, depending on the version of the theory). (12) and (13) show that neither LF *wh*-movement nor quantifier raising (QR) can license parasitic gaps.

In the following subsections I will focus on each of the constraints noted above.

2.2 *The Anti-C-Command Condition*

Among the examples presented above, (8) and (9) reflect structural conditions on the occurrence of parasitic gaps. We can state the following two generalizations.

(14) A parasitic gap must be c-commanded by the licenser.
(15) A parasitic gap must not be c-commanded by the real gap.

(14) is called the Scope Condition and discussed in 6.5. (15) is the well-known condition called the Anti-C-Command Condition. Look again at the acceptable examples (3), (5) and (7a), repeated here as (16)-(18).

(16) Which article$_i$ did you review t_i [without reading e_i]
(17) Which boy$_i$ did [Mary's talking to e_i] bother t_i most
(18) Which girl$_i$ did you send a picture of $\{e_i/t_i\}$ to $\{t_i/e_i\}$

Notice that every occurrence of parasitic gaps in (16)-(18) satisfies both (14) and (15). They are c-commanded by the fronted *wh*-phrases and not c-commanded by the real

a subcase of the parasitic gap construction.

[7] I will refer to a moved element that serves as the antecedent of a parasitic gap as the *licenser* of the parasitic gap.

gaps. These contrast with the ungrammatical (9) (repeated as (19)) and (20).

(19) *Who$_i$ t$_i$ resigned [before we could fire e$_i$]
(20) *Who$_i$ do you think [t$_i$ resigned [before we could fire e$_i$]]

The failure of parasitic gap licensing in (19)-(20) should not be thought of as reflecting an intrinsic characteristic of subject traces, because subject traces do license parasitic gaps where the Anti-C-Command Condition holds. Consider (21)-(22).

(21) Which Caesar$_i$ did Brutus imply [t$_i$ was no good] while ostensibly praising e$_i$ (Engdahl 1983: 21)
(22) Which papers$_i$ did John decide to tell his secretary [t$_i$ were unavailable] before reading e$_i$

The Anti-C-Command Condition has not been accepted by everyone. A well-known objection to the Anti-C-Command Condition is Contreras (1984). Contreras claims that the Anti-C-Command Condition relies on the assumption that the adjunct clause that contains the parasitic gap in, say, (16) is not c-commanded by the real gap in the matrix object position. This assumption, he argues, is undermined by the following examples.

(23) a. *John filed them$_i$ without reading Mary's articles$_i$
b. John filed their$_i$ articles without meeting those students$_i$
c. John filed the articles about them$_i$ without meeting those students$_i$
(Contreras 1984: 698)

In (23a) *them* cannot corefer with *Mary's articles*. Contreras argues that this is due to Condition C of the binding theory, with *Mary's articles* bound by *them*. (That the impossibility of the intended reading is not simply due to backward pronominalization is supported by (23b,c), where the pronoun embedded within the object does not c-command out of the object.) This in turn suggests that *them* c-commands into the *without*-clause, in contradiction to the assumption that makes the Anti-C-Command Condition a true generalization.

However, this argument is not without objections. Thus, Chomsky (1986b) rejects this argument by arguing that the contrast in (23) is not so clear. According to Chomsky, (23a) has a status intermediate between that of the grammatical (23b,c) and the ungrammatical (24), a typical violation of Condition C.

(24) *They$_i$ visited us [before we admitted those students$_i$]

The counterargument of Contreras is therefore obscured by the unclear status of his crucial example. Without decisive evidence to the contrary, I will assume throughout that the Anti-C-Command Condition is a valid generalization.

We will return to the Anti-C-Command Condition in section 5.1.

2.3 *A'-Binding*

Let us now turn to examples (10) and (11), repeated here as (25) and (26).

(25) *The report$_i$ was filed t_i [after Bill read e_i]
(26) *There finally arrived [a man from England]$_i$ [after we told e_i not to drop by]

It is clear that A-movement cannot license parasitic gaps, though these examples satisfy both the structural conditions (14) and (15): the (intended) licenser moves overtly in (25) and covertly in (26), from a position not c-commanding the parasitic gap to a position c-commanding it. It is therefore necessary to add another constraint:

(27) The licenser of parasitic gaps must be in an A'-position.

This constraint will be discussed in section 6.1.

2.4 *The Overt Licensing Condition*

Let us return to examples (12) and (13) above, repeated here as (28a) and (29a), which show that neither LF *wh*-movement nor quantifier raising (QR) can license parasitic gaps. The LF representations of these sentences are roughly (28b) and (29b).

(28) a. *Who filed which book$_i$ [without my reading e_i]
b. [[which book]$_i$ who$_j$][t_j filed t_i [without my reading e_i]]
(29) a. *Mary filed every paper$_i$ [without reading e_i]
b. [every paper$_i$ [Mary filed t_i [without reading e_i]]]

In (28b), like the grammatical (16), *which book* c-commands e_i and its trace does not c-command e_i , but unlike (16), this configuration obtains only at LF. Similarly (29b) has the same configuration as (16) in relevant respects, but only at LF. Since the structural difference between (16) on the one hand and (28)-(29) on the other is cancelled at LF (and at D-Structure), the licensing mechanism of parasitic gaps is said to be operative at S-Structure. This conclusion poses a big problem for the Minimalist Program, which does not allow any form of S-Structure conditions. This aspect of parasitic gaps we will call the Overt Licensing Condition (OLC). The issue will be addressed in section 5.2.

2.5 *Summary*

To sum up, the descriptive generalizations to be accounted for in the subsequent sections are:

(I) A parasitic gap must be c-commanded by the licenser.

(II) A parasitic gap must not be c-commanded by the real gap.
(III) The licenser must be in an A'-position.
(IV) (I)-(III) must hold at S-Structure.

3 Previous Approaches

Before exploring our Minimalistic account of these constraints, I will present in this section a brief historical sketch of those proposed analyses among pre-Minimalist frameworks which are relevant to our own analysis, and point out some conceptual problems with them.

3.1 Base Generation Analysis

For the first attempts to explain parasitic gaps (Chomsky 1982, Engdahl 1983, Taraldsen 1981), one of the central questions was whether a parasitic gap is a product of movement (trace) or a base-generated null pronoun. The fact that an island may intervene between a parasitic gap and its licenser seemed to answer the question; because of the island, movement could not have taken place, so a parasitic gap is a base-generated null pronoun which stays there throughout the derivation. In this subsection I will review the approach of Chomsky (1982) as a representative of the 'base-generation' analyses.

One of the most striking characteristics of Chomsky (1982) is that it exploits the idea of 'functional determination of empty categories'. The assumption is that there is only one type of empty category at D-Structure, its referential features [$\pm$a,$\pm$p] determined by the environment in which it occurs at S-Structure and LF. The algorithm of functional determination can be summarized as follows:[8]

(30) a. An empty category is a variable if it is in an A-position and is locally A'-bound [by an operator].
b. An empty category in an A-position that is not a variable is an anaphor.
c. An empty category [in an A-position] that is not a variable is a pronominal if it is free or locally A-bound by an antecedent with an independent θ-role.

(Lasnik and Uriagereka 1988: 67)

The algorithm, coupled with the assumption that English does not have any [-a,+p] empty category (i.e., *pro*), effectively deduces the Anti-C-Command Condition, namely that the parasitic gap must not be c-commanded by the real gap. For instance, suppose we have the following S-Structures in (31) and (32) with indices assigned as indicated.[9]

[8] (30) is cited from Lasnik and Uriagereka (1988) because Chomsky (1982) itself does not contain an itemized description of the algorithm, which is explicitly presented in the former.
[9] Any other assignment of indices in (31) and (32) violates some principle of grammar or the other,

(31) Which report$_i$ did you$_j$ file t_i [without PRO$_j$ reading e_i]
(32) Who$_i$ t_i resigned [before we$_j$ could fire e_i]

In (31) e_i is an empty category which is in an A-position and locally A'-bound by *which report$_i$*. So by (30a) of the algorithm above, it is a variable, and it does not violate any Binding Condition. In (32), unlike (31), e_i is locally A-bound by t_i, which has an independent θ-role. So e_i has to be *pro*, according to (30c) of the algorithm. However, English does not have *pro*, which makes e_i correspond to nothing allowed by (English) grammar. Consequently, e_i is not licensed and the S-Structure is illicit.

This account relies on an implicit assumption that the Binding Conditions apply at S-Structure, not at LF (nor at D-Structure). If Binding Conditions hold at LF, it should be possible for a *wh*-in-situ or quantifier to license a parasitic gap since they raise in the LF component to a position where they can bind the parasitic gap (See 2.4.). This is one of the points where the Minimalist Program differs theoretically from P&P Theory, as the former does not allow S-Structure conditions. Another point is that the Binding-Theoretic status of an item, lexical or empty, cannot be determined contextually in the current framework. In fact, the functional determination of empty categories was rejected as early as in Chomsky (1986a,b).

Though conceptually different and undesirable from the perspective of Minimalism, Chomsky (1982) was a substantial contribution to the study of parasitic gaps in that it made the Anti-C-Command Condition follow from general principles of UG (and English grammar). Notice that all of the conditions (I)-(IV) in section 2.5 are covered. Subsequent work on parasitic gaps within the P&P framework has focused on improving the empirical coverage of Chomsky (1982). We will see in the next two sections how these GB-based alternatives tried to account for the phenomenon.

3.2 *Path Theories*

Chomsky's (1982) impact on the analysis of parasitic gaps soon inspired another approach that utilizes the notion of 'paths' in the tree structure. In this section I take up as a representative Kayne's (1983a,b) *connectedness* approach that is supported and developed by Longobardi (1985).

Kayne's Connectedness Condition (henceforth CC) was proposed as a general representational constraint on S-Structure. Longobardi (1985) extended the CC as defined in (33), with relevant notions defined as in (34)-(35).

(33) *Connectedness Condition* (CC)
Given a set of empty categories $\beta_1 \ldots \beta_n$, each locally bound by a single antecedent α in a tree T, the union of $\{\alpha\}$ and the g-projection sets of every β must form a subtree of T. (Longobardi 1985: 163)

(34) The *g-projection set* of a category β, governed by γ, is constituted by β,

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and is irrelevant to the discussion here.

every g-projection of γ, and every category dominating β and not dominating γ. (ibid.: 164)

(35) a. Y is a *g-projection* of X iff

i. Y is a projection of X (in the sense of X' theory) or of a g-projection of X

or

ii. X is a structural governor[10] and Y immediately dominates W and Z; Z is a g-projection (maximal, from the X' theory point of view) of X; and W and Z are in a canonical government configuration.

b. W and Z are in a canonical government configuration iff

i. in a language with basic VO order, W precedes Z.

ii. in a language with basic OV order, Z precedes W.

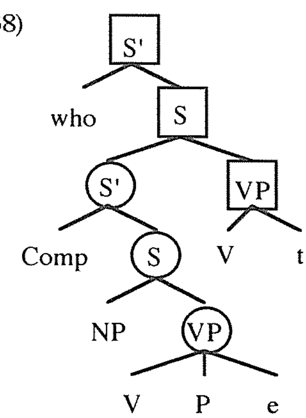
iii. W governs Z. (ibid.: 164, 166)

The CC readily allows simple subject-type and adjunct-type parasitic gaps as in (36) and (37), whose simplified structures are given in (38) and (39), respectively. (G-projection nodes of the parasitic gap (*e*) are circled while those of the true gap (*t*) are squared.)

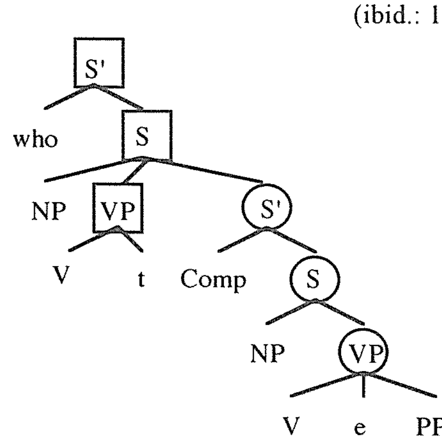
(36) ?a person who$_i$ [[for us to talk to e$_i$] might even flatter t$_i$] (ibid.: 165)

(37) ?a person who$_i$ [I could embarrass t$_i$ [while informing e$_i$ about my work]] (ibid.: 167)

(38)



(39)



In both cases, the g-projection set of the parasitic gap (*e*) runs from the VP immediately dominating it to the ungoverned constituent (i.e., the sentential subject in (38) and the adjunct clause in (39)), and the g-projection set is 'connected' to that of the true gap, forming a subtree as required by the CC.

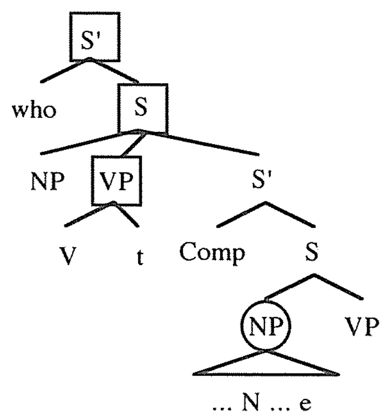
Kayne claims that this approach correctly predicts the ungrammaticality of (40) which Chomsky's (1982) account would incorrectly predict to be grammatical.

[10] Structural governors are N, V, A, P in English.

(40) *a person who$_i$ you admire t$_i$ [because [close friends of e$_i$] became famous]
(Kayne 1983b: 170)

(40) represents a structure where the parasitic gap is embedded within a subject island that in turn is embedded within an adjunct island which does not contain the licenser. Such further embedding does not affect the prediction of Chomsky (1982), since as long as the parasitic gap is locally A'-bound by the licenser, the parasitic gap should be licensed. However, locality of the parasitic gap with respect to the licenser should, as (40) suggests, be taken into consideration. The CC predicts the ungrammaticality of (40) since, as diagram (41) shows, the g-projection set of the parasitic gap is not connected to that of the real gap.

(41)



Longobardi's extension of the Connectedness approach is interesting because it can deal with grammatical Italian sentences that seem to violate the requirement that a parasitic gap must be in the c-command domain of the licenser at S-Structure. A typical example is presented in (42).

(42) ?[Senza conoscere e$_i$ prima bene], non so proprio quale altra ragazza$_i$ Gianni sarebbe disposto a sposare t$_i$
'Without knowing e$_i$ well beforehand, I really don't know which other girl$_i$ Gianni would be ready to marry t$_i$.' (Longobardi 1985: 178)

Italian freely allows extraction out of *wh*-islands, and in (42) the bracketed adverbial constituent containing the parasitic gap can (and in this case must[11]) be construed as having moved out of the embedded *wh*-island. (42) is expected to be grammatical under the CC. The structure of (42) is represented in (43).[12]

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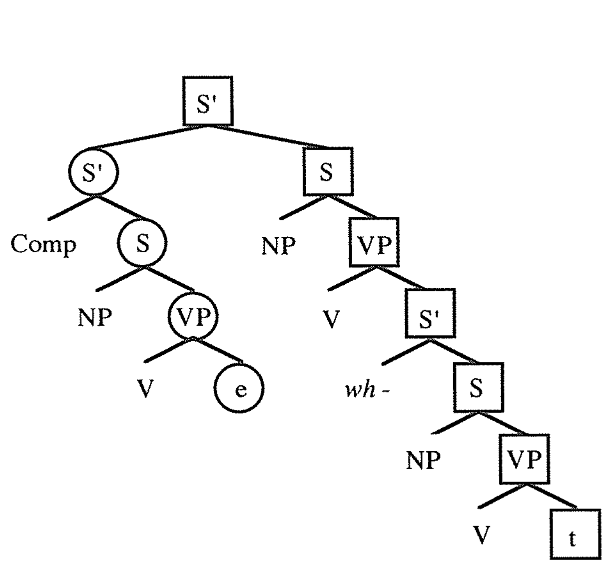
[11] The subject PRO of the infinitival *conoscere* 'knowing' must be controlled by the embedded subject *Gianni*, not by the matrix subject *pro* 'I'. This is not the case when the topicalized adverbial clause does not contain a parasitic gap. We will turn to this example in 6.5. See Longobardi (1985) for details.

[12] The most deeply embedded infinitival complement of *disposto* 'ready' is suppressed here for expository purposes.

(43)



Given the definition of g-projection in (35), the g-projection set of *t* in (43) extends all the way up to the matrix S' beyond the *wh*-phrase of which *t* is the trace, and the matrix S' immediately dominates the maximal g-projection of *e*, namely the topicalized S'. Hence the g-projection sets of *t* and *e* constitute a subtree of (43) in conformity with the CC.

Though Longobardi's discussion is not without objections,[13] the Connectedness approach has attained substantial descriptive power. The point to be addressed here from the Minimalist point of view is that the CC is strictly a representational constraint with no conceptual necessity imposed from the 'outside' of the grammar (bare output conditions), one of the most important guidelines of the Minimalist Program.[14] In particular the notions like *g-projection set* or *path* made use of by many researchers[15] seem to have no theoretical status in the current framework, since they deal with fundamentally non-local relations in the sense of the Minimalistic requirement that all (structural) relations recognized by the computational system of UG be strictly local (e.g., Spec-head or head-complement relation). Another aspect of the CC (or of any other GB-based theories as well) that diverges from the assumptions of the Minimalist Program is that S-Structure is the crucial level of representation and that it is only by postulating this level that parasitic gap constructions are well accounted for.

For these reasons, we cannot adopt any version of path theories in seeking a Minimalist account of parasitic gaps. In the next section Chomsky's new proposal is

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[13] For instance, Browning (1991) claims that the CC wrongly predicts that (i) is grammatical since the g-projection set of the real gap connects to that of the parasitic gap, just as it does in (43).

(i) [Dopo che ha lasciato e_i], non potevo ricordarmi chi_i t_i ti ha detto che Maria ha rapinato la banca
'After she left e_i, I couldn't remember who_i t_i told you that Maria had robbed a bank.'

(Browning 1991: 102)

[14] See Chomsky (1993: Sec.1) for a general view of the Minimalist Program.

[15] In addition to Kayne's CC, one could mention Pesetsky's (1982) Path Containment Condition, Manzini's (1994) index-based Locality principle, and Nakajima's (1985) theory of Binding Paths.

briefly reviewed, from which we start anew in section 4.

3.3 *Null Operator Analysis*

Chomsky (1986a,b) dispenses with functional determination of empty categories entirely. The identity of empty categories created by movement (i.e., traces) is determined by the nature of movement; roughly speaking, if something is moved to an A'-position the trace left behind is a variable.

A variable is considered to have features [-a,-p], belonging to a class of expressions subject to Condition C of the Binding Theory defined as in (44).

(44) An r-expression must be A-free (in the domain of its operator).
(Chomsky 1986a: 86)

The parenthesized part of (44) applies only when the r-expression is a variable. The part is needed to save so-called null operator constructions like the ones in (45). (*OP* stands for a null operator.)

(45) a. $John_i$ is easy [OP_i for us to please t_i]
b. $John_i$ is tall enough [OP_i for you to see t_i] (Browning 1994: 619)

In both examples t_i is A-bound by *John*$_i$, in the sense that it is c-commanded by and coindexed with *John*$_i$ in an A-position, which is outside the domain of OP. When something coindexed with t_i intervenes between OP and t_i, unacceptability results, giving rise to a strong crossover configuration.

(46) a. *$John_i$ is too suspicious [OP_i to convince him_i that we admire t_i]
b. *$John_i$ would be difficult [OP_i to convince him_i that Mary admires t_i]
(ibid.)

Thus, (44) correctly distinguishes (45) and (46), assuming that the null operator analysis is on the right track.

Chomsky's (1986b) new proposal for parasitic gaps is that a parasitic gap is not a base-generated empty category staying still throughout the derivation, but a trace left behind by the movement of a null operator. As illustrated in (47), OP is generated in the position of the parasitic gap and then moves up to the specifier of CP before S-Structure.

(47) $What_i$ did you file t_i [$_{PP}$ before [$_{CP}$ OP_i [you read e_i]]]
(Chomsky 1986b: 64)

In this analysis the referential dependency of the parasitic chain (OP,...,e) on the licenser's chain (what,...,t) must be guaranteed by the algorithm of Chain Composition (48) which operates at S-Structure.

(48) If $C = (\alpha_1,\ldots,\alpha_n)$ is the chain of the real gap, and $C' = (\beta_1,\ldots,\beta_m)$ is the chain of the parasitic gap, then the "composed chain" $(C,C') = (\alpha_1,\ldots,\alpha_n,\beta_1,\ldots,\beta_m)$ is the chain associated with the parasitic gap construction and yields its interpretation.

(ibid.: 63)

In the following subsections (3.3.1-3.3.3) I will list the merits of adopting the null operator hypothesis and problems with Chomsky's version.

3.3.1 Island Effects The primary reason for adopting the null operator hypothesis comes from the evidence observed in Kayne (1983a) which led to the proposal of the Connectedness Condition (see 3.2). Now reconsider (40), repeated here as (49).

(49) *a person who$_i$ you admire t$_i$ [because [close friends of e$_i$] became famous]

The generalization is that a parasitic gap cannot be licensed if more than one island dominates the parasitic gap but not the licenser. The fact also falls into the account of the operator movement analysis. In Chomsky's (1986b) terms, the null operator generated in the position of e_i must move to the Spec of CP before S-Structure in order to be composed into a larger chain by Chain Composition (48). This movement across the subject (as illustrated in (50)) violates Subjacency, resulting in ungrammaticality.

(50) ...[because [$_{CP}$ OP [close friends of t] became famous]]

*Subjacency

Chomsky further argues that the locality of parasitic gaps parallels quite closely that of the usual *wh*-movement. Consider further examples below:

(51) a. *Which candidate$_i$ did Mary interview t$_i$ [before deciding [which job to give to e$_i$]]
b. *Which candidate$_i$ did Mary interview t$_i$ [before hearing about [the plan to send e$_i$ to Washington]]
c. *Which candidate$_i$ did Mary hire t$_i$ [because you wrote a good report [after interviewing e$_i$]]

(Browning 1994: 622)

(51) shows that parasitic gaps are sensitive not only to the subject island but also to the *wh*-island, the complex NP constraint, and the adjunct island.

These facts strongly suggest that operator movement is involved in this construction. Further evidence regarding strong crossover (SCO) effect and *that*-trace effect supports the hypothesis that something akin to *wh*-movement takes place from the position of the parasitic gap.

(52) a. Which student$_i$ did you avoid t_i [instead of just telling him$_{j/*i}$ that we disliked e_i]
b. *Which professor$_i$ did you consult t_i [because you believe [that e_i is intelligent]]
(cf Which professor$_i$ did you consult t_i [because you believe [e_i to be intelligent]]) (ibid.: 621)

3.3.2 Reconstruction Effects There is an asymmetry between parasitic gaps and real gaps with respect to reconstruction effects, suggesting that the null operator hypothesis is on the right track.

(53) a. [Which books about himself$_j$]$_i$ did John$_j$ file t_i [before Mary$_k$ read e_i]
b. *[Which books about herself$_k$]$_i$ did John$_j$ file t_i [before Mary$_k$ read e_i] (Chomsky 1986a: 60)

(54) a. [Which pictures of himself$_j$]$_i$ did John$_j$ paint t_i [before Peter$_k$ bought e_i]
b. *[Which pictures of himself$_k$]$_i$ did John$_j$ paint t_i [before Peter$_k$ bought e_i] (Munn 1992: 9)

(53) and (54) suggests that the licenser *wh*-phrase cannot reconstruct into the parasitic gap position. Under a natural assumption that A'-moved constituents can be reconstructed only into the positions which their traces occupy, it follows that the parasitic gap cannot be the position from which the licenser has moved. Nothing can be reconstructed into the parasitic gap position, as it is the trace of a null operator.

3.3.3 Problems Although the null operator analysis of Chomsky (1986b) seems promising, there are several difficulties regarding the conceptual (and empirical) validity of the mechanism.

First of all, the Chain Composition algorithm seems particularly construction-specific, serving only to legitimize the parasitic chain. To put it more specifically, it refers to 'the chain of the parasitic gap' within the conditional clause (see the definition (48)), which means that the operation readily 'sees' what counts as a parasitic chain. But it is totally unclear how it can detect that a particular chain is parasitic, for null operator chains exist in other constructions as well.

Another problem with Chain Composition is that certain conditions need to be met for the algorithm to apply. Chomsky offers as such a condition Subjacency, which requires that the head of the parasitic chain be subjacent to a member of the licensing chain. He claims that this should follow from the general condition that for a chain ($\alpha_1,\ldots,\alpha_n$), α_i ($1<i\leq n$) be subjacent to α_{i-1}. This easily explains why in (49) (repeated here as (55) with some modifications), for instance, OP must move out of the subject in order for Chain Composition to apply, since if OP stays within the subject, it cannot be subjacent to t_i because of the intervening barriers.

(55) *a person who$_i$ you admire t_i [because [close friends of OP] became famous]

As in (56a), standard parasitic gap operators appear 1-subjacent to t_i , satisfying the condition on the application of Chain Composition. In contrast (56b), an Anti-C-Command Condition violation, fails to satisfy the Subjacency condition because of the intervening barriers (PP and VP).

(56) a. What$_i$ did you file t$_i$ [$_{PP}$ before [$_{CP}$ OP$_i$ [you read e$_i$]]]
b. *Who$_i$ [$_{IP}$ t$_i$ [$_{VP}$ spoke to you [$_{PP}$ before [$_{CP}$ OP$_i$ [you met e$_i$]]]]]
(Chomsky 1986b: 64)

However, as Chomsky notes (Chomsky 1986b: 64-65), this analysis does not always yield correct predictions, and he suggests that the condition should be strengthened so that the two chains meet 0-subjacency, not 1-subjacency, which we will not pursue any further here.[16] What is important in connection with our purposes, putting empirical adequacy aside, is that the Chain Composition needs a condition which is specific to the algorithm. It is unclear why 0-subjacency is required for a particular link of a composed chain, which is a subcase of general chains whose links need to satisfy only 1-subjacency.

If the subjacency condition on Chain Composition should be abandoned, there is no way to exclude Anti-C-Command Condition violations such as (56b), since Binding Condition C is irrelevant here, given definition (44) (repeated here as (57)).

(57) An r-expression must be A-free (in the domain of its operator).

In (56b), as well as in (56a), the trace of OP is A-free in the domain of OP. So we cannot appeal to Condition C in order to exclude Anti-C-Command Condition violations.

A third problem with the Chain Composition analysis, in the eyes of the Minimalist framework, is that it is assumed to be operative at S-Structure, a problem common to any GB-based approach. Even if some form of Chain Composition is necessary, it is so probably for the purpose of interpretation, and therefore there is no conceptual reason for it to apply as early as S-Structure: it should be sufficient for it to apply at LF. The assumption is motivated only for the empirical reason that LF movement cannot license parasitic gaps.

Lastly, the analysis assumes that in (56), for example, the null operator must move from the position of the parasitic gap to the CP Spec of the adjunct clause in order to satisfy the condition on Chain Composition application. To put it differently, the movement takes place fully arbitrarily, the output being 'ruled out' when illicit, and 'ruled in' when licit. This is a quite natural state of affairs under the assumptions of GB Theory, but it is not in the Minimalist Theory, in which things cannot move unless some requirement of the target of movement is met. The operator movement in (56) appears to have no motivation because the CP into whose specifier OP moves does not require any element to appear in its Spec. Such a movement with no driving force is never allowed in the framework we are going to base our argument

[16] Even if 0-subjacency condition is adopted, the contrast in (56) cannot be explained away if we further assume the VP-internal subject hypothesis, which is now widely accepted.

on. We therefore have to seek an entirely different way of licensing the parasitic operator while maintaining the core of the null operator analysis.

4 FRAMEWORK

4.1 *A New Theory of Movement*

In this subsection I will present a brief summary of what is essential and relevant for the purpose of our analysis within the Minimalist Program. I will pay special attention to (i) the feature movement hypothesis, which is crucially adopted in the analysis that follows, and (ii) the 'Last Resort' condition, which restricts the range of permissible movement in a derivation.

The most striking characteristic of a Minimalist Theory is that it is so restrictive that it allows a movement operation only insofar as the operation satisfies some morphological requirement of the elements involved (i.e., the moved element or the target of the movement). Here 'morphological requirement' is expressed as abstract features of lexical items, such as Case and ϕ-features of verbs and nouns, D (or EPP) features of T, and *wh*-features of C. Features are divided into formal features, which are accessible to C_{HL} (the computational system of human language), and others that are relevant only to phonetic or semantic interpretation. Formal features are further divided into two subclasses with regard to their interpretability at the LF interface. −Interpretable formal features must be checked off by entering into a checking relation[17] with other elements with the same feature, thus preventing the derivation from crashing at LF. On the other hand +Interpretable features do not have to be checked at all.

An innovation of Chomsky (1995) is that it is not a category but only a feature that the movement operation has access to, where apparent movement of categories (or pied-piping generally) is considered to be the consequence of the economy condition (58).

(58) F carries along just enough material for convergence.
(Chomsky 1995: 262)

As a result of this, covert movement of a formal feature F carries along the set of formal features of the category containing F (henceforth FF[F]), and overt movement carries along (at least) the category containing F (for PF convergence). Note again that the feature movement hypothesis has a crucial bearing on our analysis of parasitic gap constructions.

Assuming this much, the 'Last Resort' condition is formally expressed as follows.

(59) *Last Resort*

[17] Suppose FF[F] is a set of formal features in the checking domain of K (i.e., the specifier or head-adjoined position of K), F' any feature included in FF[F], and *f* any sublabel of K. Then, feature F' of FF[F] is in a *checking configuration* with *f*; and F' is in a *checking relation* with *f* if, furthermore, F' and *f* match. (Chomsky 1995: 310) For the definition of sublabel, see note 19.

> Move F raises F to target K only if F enters into a checking relation with a sublabel of K.[18,19] (ibid.: 280)

It is important, furthermore, that the target of movement should always be -Interpretable (ibid.: 4.4.5).

4.2 *Obligatory Coreference Between DPs*

Parasitic gap constructions are basically constructions in which two variables are apparently bound to a single operator. As noted in section 3.3, we will adopt the null operator analysis in which each variable is bound to a distinct operator. Given two separate operator-variable chains, one for the real gap and the other for the parasitic gap, a problem arises as to how to ensure the interpretation where the two chains are coreferential.

Recall that we never want Chomsky's (1986b) Chain Composition algorithm to be operative, given Minimalist assumptions (see 2.3.3). Recently, Hornstein (1995) has proposed to reinterpret Chain Composition as an operation applied to LF representation on his specific assumptions within a Minimalist approach, but that would leave open most of the problems about Chain Composition addressed in the last section. Thus it seems implausible to assume that the interpretive strategies of LF include some specific device for interpreting parasitic gap constructions. We have to seek another way to ensure the dependency of the parasitic chain with only device(s) available for C_{HL}.

What we want to do, then, is to put two operators, the parasitic operator and the licenser (which are both DPs) in a checking relation, since the only device that relates an element to another in the Minimalist Theory is feature checking.

The core structural relation in which feature checking is done is that of a head and its specifier and of a head and another head which is adjoined to it. The former 'Spec-head' relation is represented as (A) and the latter 'head-head' relation as (B) in (60).

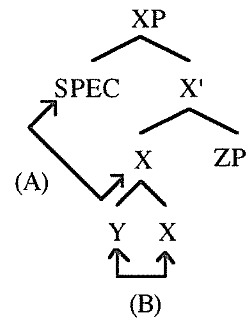
---

18 Chomsky uses the term *Move F* for expository purposes. In the present paper, I will adopt the appropriate term *Attract F* for the movement operation, as Chomsky does later in his book.

The 'Last Resort' condition is part of the definition of Attract-F, along with other parts corresponding to such conditions as the 'Minimal Link Condition (MLC)'.

19 A sublabel of K is a feature of $H(K)^{0max}$ (i.e., a feature of the zero-level projection of the head H(K) of K). (Chomsky 1995: 41)

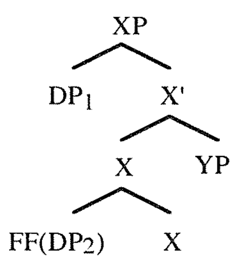
(60)



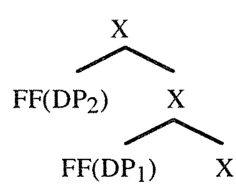
SPEC hosts a maximal projection and Y must be either an X^0 category or a set of formal features. Any feature of SPEC is in checking configuration with any feature of X and Y (sublabel of X^{0max}; see note 19). SPEC and Y can be introduced into these positions by either Merge or Move (= Attract-F).

Given (60), there are two ways in which two DPs enter into a checking configuration. One way is to put a DP, a maximal projection, into SPEC and the formal features of the other DP (FF(DP)) into the position of Y by covert adjunction to X, as in (61a). The other way is to adjoin the formal feature of one DP covertly to X and adjoin the formal features of the other DP covertly to X^{0max}, creating the structure (61b).

(61)a.



b.



In both structures the formal features of DP_1 and DP_2 are in a checking configuration. I will propose that referential dependencies of anaphoric elements on their antecedents are established by the configuration (61a), and not by (61b).[20]

Yi (1994) has proposed that English anaphors such as *himself* (in, say, *John hates himself*) are LF-affixes which have to incorporate into V at LF.[21] The V-anaphor complex then raises successively to Agr_S for reasons of usual Case and ϕ-feature checking. In Agr_SP the anaphor is in a position within $Agr_S{}^{0max}$, and is in a checking configuration with the subject in the Agr_SP Spec, the antecedent of the anaphor. This is basically the same configuration as (61a). To translate this situation into an Agr-less phrase structure adopted in Chomsky (1995) with some simplification, the intended structure will be as in (62).

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[20] The unavailability of (61b) as a configuration for DP-DP checking will be discussed in 5.2.

[21] For discussions of LF anaphor raising and long-distance reflexives, see Chomsky (1986a), Heim, Lasnik and May (1991), Katada (1991), Progovac (1993), and Cole and Sung (1994).

(62)

```
              TP
           /      \
  antecedent       T'
                 /    \
                T      vP
              /   \
  FF(anaphor)      T
```

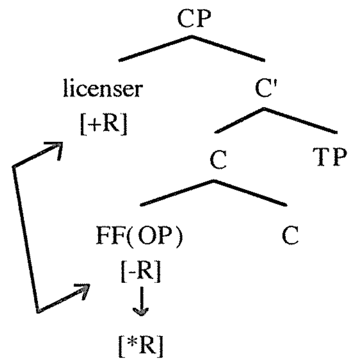
Yi further makes a natural assumption that an anaphor has a 'defective referential feature' which indicates that the anaphor is referentially dependent. This feature, call it [-R], is -Interpretable at LF and must be eliminated by LF by entering into a checking relation with the antecedent as in (62). The defective referential feature [-R], contained in FF(*himself*), can thus be checked off against the non-defective referential feature which Yi assumes the antecedent has. We will call the non-defective referential feature [+R], indicating that the antecedent is referentially independent.

We will adopt the general picture of referential dependency advocated by Yi: There are two DPs in a structure, one with [+R] (the antecedent) and the other [-R] (the anaphoric element). The antecedent is in the Spec of some functional category X before Spell-Out. In covert syntax, FF(anaphoric element) containing [-R] is attracted and adjoined to X by some feature of X. At this point FF(*anaphor*) and the antecedent are in a checking configuration. [-R] is then checked against [+R] of the antecedent as a free rider and by this checking, we assume, [-R] is changed into a +Interpretable [*R]. The created [*R] gives an instruction to the component that interprets the LF representation to the effect that the anaphoric element should be coreferential with the antecedent.[22]

Now we extend the idea to parasitic gap constructions. We assume that a null operator OP which is involved in the constructions (henceforth *parasitic operator*) also has [-R], which has to be checked against [+R] of the licenser. The checking turns the [-R] into [*R] that gives an instruction to interpret OP as coreferential with the licenser. Parallel to (62), the licenser-operator checking is done in the following configuration.

[22] Each feature present at LF is thought of as an 'instruction' to the C-I (conceptual-intentional) system.

(63)



The assumption that the parasitic operator has [-R] is not unnatural since parasitic gaps and anaphors are similar in that they are dependent on the existence of another phrase and must be interpreted as coreferential with the independent element. The [-R] checking of OP has another justification: it has been said that because OP is semantically null, its trace must be *strongly bound* (in the sense of Chomsky 1986a) or *R-bound* (in the sense of Safir 1986). [-R] can be understood to indicate that OP must satisfy the strong binding requirement by entering into a checking relation with the licenser.

Here we have to ask what motivates the movement of FF(OP) into the C-adjoined position. It cannot be attracted directly by [+R] of the licenser; an interpretable feature cannot be an 'attractor' (see 4.1), and it must be the target (C, in this case) that attracts FF(OP). So the target C should have the relevant feature. What is it? We assume that it is the [+op] feature, which indicates that the head requires some operator-like element within its checking domain. This is not an unnatural assumption to make, since the licenser of parasitic gaps are invariably operator-like elements such as interrogative *wh*-phrases, relative operators, and topicalized phrases.[23] We assume [+op] in C to be -Interpretable, as it triggers movement. When [Spec,CP] is filled in by an appropriate phrase in overt syntax, [+op] in C may delete and erase where possible.[24] When there is a parasitic operator to be licensed as in (63), the deleted [+op] in C does not erase, remaining accessible to further computation, and attracts FF(OP) to its checking domain; otherwise the derivation crashes because the -Interpretable [-R] remains unchecked.

Notice that this mode of parasitic gap licensing overcomes one of the conceptual problems of the analysis of Chomsky (1986b), namely that the motivation of OP movement is obscure. On the assumption adopted above, OP (or FF(OP)) moves because it is attracted by [+op] of C, a perfectly legitimate operation within the current Minimalist Theory. Moreover, the licensing of parasitic gaps is unified with that of anaphors, and nothing special needs to be stipulated for the former.

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[23] For licensing of parasitic gaps by topicalization, see 6.2.

[24] A deleted feature becomes invisible at the interface, but remain accessible for C_{HL}. When a feature is erased, it becomes invisible at the interface, and also inaccessible for C_{HL}. For the details of the mechanism of deletion and erasure, see Chomsky (1995: Ch.4,Sec.4.5.2.).

4.3 Subject/Adjunct Island

As we have seen in the previous sections, typical parasitic gaps occur within subject or adjunct islands. Within the Minimalist Theory, only a few have tried to recapture strong island constraints.[25] Here we intend not to propose a detailed analysis of strong islands, but just to formulate an LF condition that would yield subject or adjunct island effects, which I hope is itself a by-product of interpretive strategies at LF.

The generalization widely accepted in the literature is that overt movement obeys strong island constraints, while covert movement is exempt from them. Another generalization is that strong islands occur in non-θ-positions at S-Structure (see Nakajima 1995).

Taking these two generalizations into account, we formulate the condition at issue as follows:

(64) A category α in a non-θ-position is uninterpretable at LF if α contains the tail of a categorial chain CH_{CAT} but not the head of CH_{CAT}.[26]

Assuming that subjects (in English) and adjuncts are in non-θ-positions, (64) entails that categorial movement out of these constituents is impossible because it renders them uninterpretable at LF, causing the derivation to crash. In turn, categorial movement is induced only by an overt application of Attract-F, so only overt movement obeys subject or adjunct islands. Covert movement, on the other hand, is not constrained by (64), since it does not create any categorial chain.

Assuming this much, a schematic picture of a convergent derivation in which a parasitic gap is licensed is represented in (65).

(65) $[_{CP}\ \textit{licenser}\ [_{C}\ \mathrm{FF(OP)}\ \mathrm{C}][_{TP} \ldots t_{licenser} \ldots [_{island} \ldots \mathrm{OP} \ldots] \ldots]]$

The licenser overtly moves to the matrix CP Spec independently of the licensing of the parasitic gap, attracted by a strong [+wh] in C when it is a *wh*-phrase. If a parasitic empty operator OP is introduced within an island, as is the case with typical parasitic gaps, it cannot move to C in overt syntax because (64) would be violated and because the [+op] feature in C, which triggers the movement, is not strong. After Spell-Out, FF(OP) can raise out of the island and adjoin to C, attracted by [+op] in C. At this point a checking relation is established between the [+R] of the licenser and the [-R] in FF(OP), and [-R] is successfully checked, yielding an appropriate interpretation.

[25] Takahashi (1994) accounts for strong island effects based on minimality of movement. Nakajima (1995) proposes to treat strong island violations as subcases of the MLC violation. Fukui and Saito (1996) relate the phenomenon to the head parameter and properties of phrase structure.

[26] An application of Attract-F creates at least two chains CH_F, CH_{FF}, and in addition CH_{CAT} when the application is in overt syntax. See Chomsky (1995: 265).

5 AN ANALYSIS

This section presents an analysis of the Anti-C-Command Condition and the Overt Licensing Condition on parasitic gaps under the theoretical assumptions adopted in section 4.

5.1 *The Anti-C-Command Condition*

Most of the previous work on parasitic gaps (Chomsky 1982, 1986b, Engdahl 1983, 1985, Kayne 1983a, Longobardi 1985, Cinque 1990, Frampton 1990, Browning 1987) has tried to deduce it from general principles of UG. In this section I will give an account of the condition that assimilates it with strong crossover effects, which in turn we take to be attributed to a Minimalist version of Binding Condition C. Though the idea of resorting to Condition C is not new, the analysis crucially depends on the mode of parasitic gap licensing adopted in the last section, which is permitted only under the assumptions available within the current Minimalist Theory.

5.1.1 Strong Crossover and Parasitic Gaps First of all, let us reconsider (46), repeated here as (66).

(66) a. *John$_i$ is too suspicious [OP$_i$ to convince him$_i$ that we admire t$_i$]
 b. *John$_i$ would be difficult [OP$_i$ to convince him$_i$ that Mary admires t$_i$]

(66) is an instance of a strong crossover (SCO) configuration, whose schematic structure is represented in (67), with typical examples in (68).

(67) ... WH$_i$ ... XP$_i$ ... t$_i$ ...
 (where WH$_i$ c-commands XP$_i$, and XP$_i$ c-commands t$_i$.)
(68) a. *Who$_i$ does he$_i$ like t$_i$
 b. *Who$_i$ do you think he$_i$ likes t$_i$

There seem to be two possible approaches to exclude the SCO configuration. One is to impose a derivational constraint that prohibits elements to move across another element which is of the same type as the target of movement. The Minimal Link Condition (MLC), which is understood to be a part of the definition of Attract-F, is the only candidate for a constraint of this sort. The MLC, however, works only if the moved WH_i and the intervening XP_i in (67) have the same *feature*, not the same *index*.[27] Thus *wh*-island effect (69) and superraising (70) are explained straightforwardly by the MLC, but SCO effects do not fall into the same account.

[27] More importantly, referential indices do not have any role in the Minimalist Theory.

(69) *Who do you know when he met t
[+wh] [+wh]

(70) *John is believed that it was told t that Mary loves Bill
[D] [D]

In (69), [+wh] of *who* cannot be attracted by [+wh] of the matrix C because there is an element with [+wh], namely *when*, intervening between the two. In (70), the strong D-feature of the matrix T attracts the closest element with [D], and it is *it*, not *John*, that is closest to the target. Unlike these cases, SCO sentences such as (68) do not violate the MLC. The matrix C attracts the closest element with [+wh], and it is *who* in both examples in (68). The derivational approach to SCO, therefore, should be abandoned.

The remaining possibility is to exclude it by some representational constraint. Here I explore an approach by some version of Binding Condition C.

Recall that Binding Condition C as revised in Chomsky (1986a) is formulated as in (44), repeated as (71).

(71) An r-expression must be A-free (in the domain of its operator).

What were called Binding Conditions in P&P Theory are thought of as interpretive rules in the Minimalist Program: DPs do not have referential indices, and their reference is determined by the interpretive rules applied to LF representations. The equivalent of Condition C is formulated as (72) in Chomsky (1993).

(72) If α is an r-expression, interpret it as disjoint from every c-commanding phrase. (Chomsky 1993: 43)

We modify (72) as in (73) so that it has the same effect as (71). I will call it the (Interpretive) Rule C.

(73) *Interpretive Rule C*
If α is an r-expression, interpret it as disjoint from every c-commanding phrase in an A-position (within the domain of its operator).

As is the case with (71), the parenthesized part of (73) should be understood to apply when α is a trace of A'-movement. We will continue to assume, with Chomsky (1986a), Lasnik and Stowell (1991) and Chomsky and Lasnik (1993), that A'-movement traces are r-expressions, subject to (the equivalent of) Condition C.

With the Interpretive Rule C, we can straightforwardly exclude SCO configurations. Let us look again at (68b), repeated here as (74).

(74) *Who$_i$ do you think he$_i$ likes t$_i$

The trace of *who* (t_i) is an r-expression and is interpreted as disjoint from every c-commanding phrase in an A-position within the domain of *who* by the Rule C. The embedded subject *he* is one such phrase and is therefore interpreted as disjoint from t_i.

Now let us recall that null operator traces in (66) show SCO effects, rejecting the reading in which they are coreferential with c-commanding phrases within the domain of the operator. It will be naturally expected, then, that parasitic gaps show SCO effect as well, being null operator traces. The prediction is borne out, as (75) illustrates.

(75) a. *Who$_i$ did you rescue t$_i$ before he$_i$ killed e$_i$

b. [$_{CP}$ Who [$_C$ FF(OP) did] [$_{TP}$ you rescue t$_{who}$ [$_{CP}$ before he killed OP]]]

In (75) FF(OP) is moved covertly, as assumed in section 4, leaving its trace t$_{FF(OP)}$ within OP. Assuming further that the trace of FF(OP) acts as a variable just as categorial traces do, (75b) is interpreted so that OP is disjoint from *he*, excluding the intended reading in (75a).

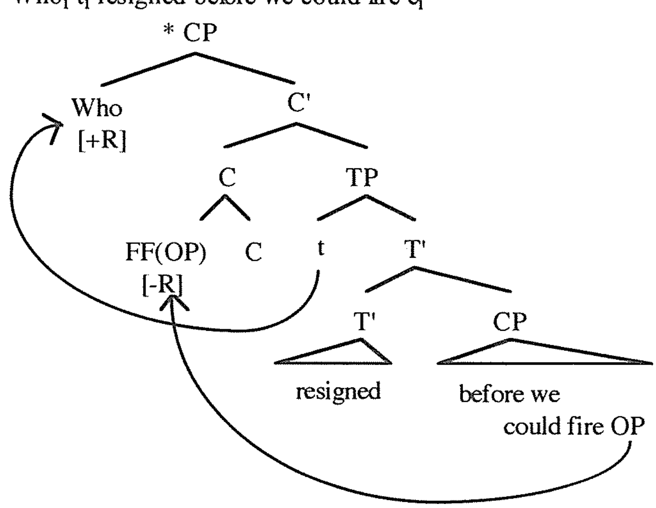
The evidence considered above at least shows that parasitic gaps are subject to whatever mechanism excludes SCO configurations, which we take to be the equivalent of Binding Condition C of P&P Theory.

5.1.2 The Anti-C-Command Condition Now we are ready to give an account to the Anti-C-Command Condition. Let us continue to assume that the trace of FF(OP), being a variable, is interpreted by the Rule C. The Anti-C-Command Condition is attributed to the interaction of the Rule C and the requirement to check off the [-R] feature in FF(OP).

Consider the derivation of (76a), an Anti-C-Command Condition violation. (The structure is represented in (76b).[28])

(76) a. *Who$_i$ t$_i$ resigned before we could fire e$_i$

b.



[28] For the purpose of exhibition adjunct clauses are placed in the T'-adjoined position. In the current Bare Phrase Structure Theory, there is no possibility for them to be adjoined to TP (or *v*P/VP). They may as well be adjoined to *v*' or V', as long as they are not c-commanded by the Case checking position of the object.

I assume, with Lasnik and Saito (1992) that the category of *before*-clause is CP.

In this particular derivation, the numeration includes, among other things, a parasitic operator OP which has [-R], a C that has [+op], and a *wh*-phrase *who* which has [+R]. OP is generated inside the *before*-clause, which is adjoined to T'. *Who* is generated as the subject of the matrix VP and attracted by the strong [D] feature of T, raising to [Spec,TP], where the Case and ϕ-features are checked.[29] *Who* subsequently raises to [Spec,CP], attracted by the strong [+wh] feature of C. These steps take place in overt syntax. In covert syntax FF(OP) is attracted by [+op] of C and adjoins to C. This feature movement out of the adjunct island is legitimate because it does not violate the island condition (64). The -Interpretable [+op] of C erases. At this point [-R] in FF(OP) is in a checking relation with [+R] of *who*. As we assumed in section 4, this relation turns [-R] into [*R] which instructs the interpretive system to interpret OP as coreferential with *who*. This much is done in the computational system and the derivation converges, with the LF representation (76b). (Otherwise the derivation would crash because of remaining -Interpretable features.)

The reference of DPs present at LF is determined according to the interpretive rules suggested in Chomsky (1993: 43). Especially the trace of FF(OP), we assumed, is interpreted by the Rule C. In (76b) the trace of FF(OP) (indicated simply as OP) is interpreted as disjoint from every c-commanding phrase in an A-position within the domain of FF(OP). Therefore it is interpreted as disjoint from the trace of *who* in [Spec,TP], which is in an A-position.

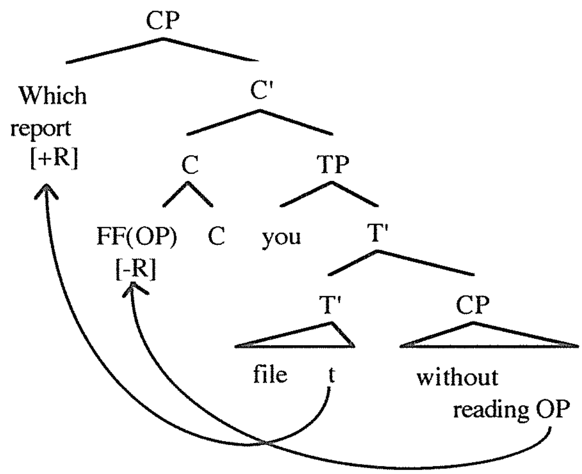
The two processes depicted in the last two paragraphs conspire to make a contradictory situation where a DP is *both* coreferential with *and* disjoint from another DP: by the [-R] checking, OP and *who* is interpreted as coreferential; by the rule (73) the two are interpreted as disjoint. Given the quite natural assumption that a DP cannot be both coreferential with and disjoint from another, the representation (76b) does not yield any meaningful interpretation. In other words, the derivation converges, but only as gibberish. The unacceptability of (76a), hence the Anti-C-Command Condition, is thus accounted for.

The derivation of an acceptable example that does not violate the Anti-C-Command Condition, on the other hand, not only converges but also yields a coherent interpretation. Consider (77).

[29] The VP-internal trace of *who* is suppressed in (76b), for it is irrelevant to the discussion.

(77) a. Which report$_i$ did you file t_i without reading e_i

b.



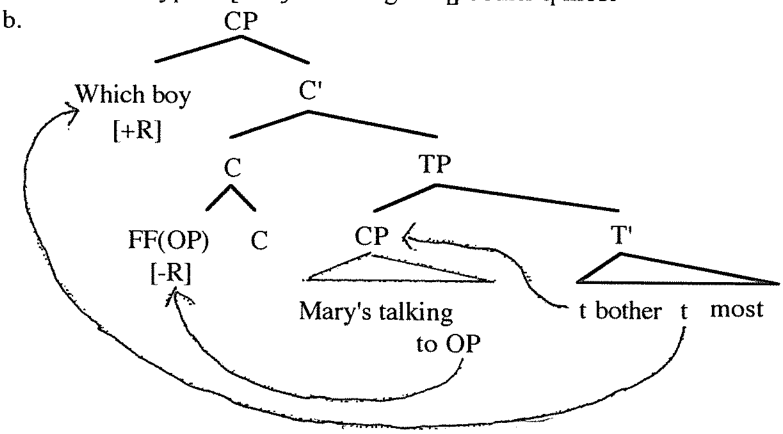
In (77b), too, the licenser (*which report*, in this case) moves to [Spec,CP] before Spell-Out. In covert syntax FF(OP) is attracted by [+op] of C and adjoins to C. The [-R] feature in FF(OP) gets checked as a free rider, as usual. As a result of this checking OP and *which report* are later interpreted as coreferential. Since -Interpretable features have all been checked off, the derivation converges. Then the trace of FF(OP) is interpreted (by the Rule C) as disjoint from every c-commanding phrase in an A-position within the domain of FF(OP). This interpretation is consistent with the one that is induced by the [-R] checking, since the trace of *which report* does not c-command the trace of FF(OP).[30]

All other acceptable examples introduced in section 2 can be accounted for in the same fashion. Subject-type parasitic gaps, for example, are licensed as follows.

[30] We assume, with Chomsky (1995), that the object of a transitive verb has its Case and ϕ-features checked by covertly adjoining its formal features FF(OB) to T to which verbal complex has adjoined. FF(OB) does not c-command into the T'-adjoined adjunct clause from the T^0-adjoined position (see (87) for the definition of c-command adopted in this paper), so the Case and ϕ-feature checking position of the object *wh*-phrase does not affect our argument.

(78) a. Which boy$_i$ did [Mary's talking to e$_i$] bother t$_i$ most

b.

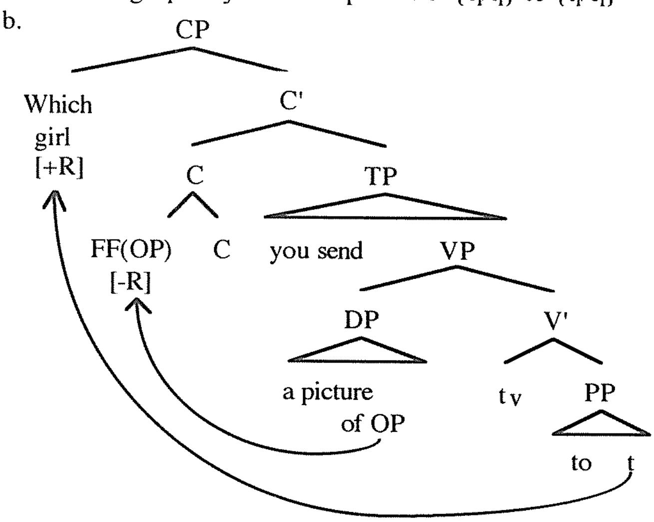


In (78) FF(OP) successfully moves out of the subject island and adjoins to the matrix C in covert syntax, and has its [-R] feature checked. Since the real gap does not c-command the parasitic gap, no conflict arises with regard to the reference of OP and *which boy*.

Dative-type parasitic gaps are licensed in the same way.

(79) a. Which girl$_i$ did you send a picture of {e$_i$/t$_i$} to {t$_i$/e$_i$}

b.



As noted in section 2, (79a) is ambiguous in that either of the two gaps can be parasitic to the other. ((79b) represents a structure where the former gap is parasitic to the latter.) Our theory predicts that in either case a legitimate derivation and representation can be attained. As long as neither gap c-commands the other and overt movement from either position is allowed, the parasitic gap is licensed in the usual way.

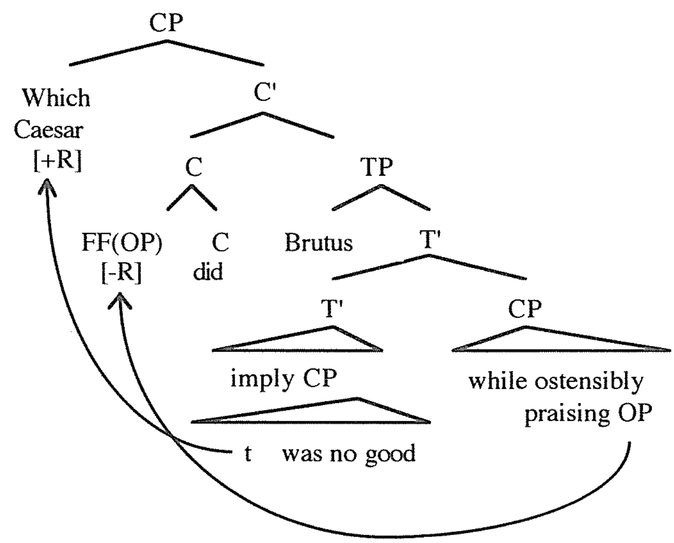
Other contrasts such as those in (21)-(22), repeated as (80a,b), are accommodated in our account.

(80) a. Which Caesar$_i$ did Brutus imply [t$_i$ was no good] while ostensibly praising e$_i$

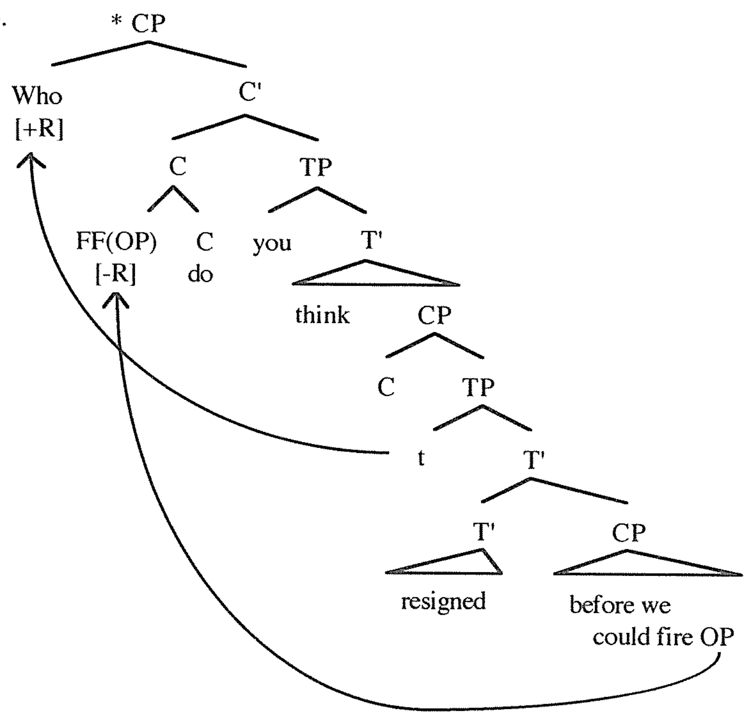
b. *Who$_i$ do you think [t$_i$ resigned before we could fire e$_i$]

In (80a) the adjunct clause is associated with the matrix clause while in (80b) it is construed with the embedded clause. Therefore the parasitic gap is not c-commanded by the real gap in the former but it is in the latter. Look at the structures of (80a,b) presented in (81a,b), respectively.

(81) a.



b.



In (81) the *wh*-phrases are attracted to the matrix CP Spec.[31] FF(OP) is covertly attracted to the matrix C and [-R] checking is done. In (81a) the trace of *which Caesar* does not c-command the trace of FF(OP), whereas in (81b) the trace of *who* does c-command it, giving rise to the same interpretive conflict as in (76).

It is important to note that our account of the Anti-C-Command Condition does not rely on any construction-specific device like Chain Composition. It is rather a by-product of a general interpretive strategy and the natural assumption that a parasitic operator, being semantically null, has [-R] feature.

5.2 *The Overt Licensing Condition*

When generative grammar was shifing from the P&P approach to the Minimalist Program, it was a large issue whether (and to what extent) D-Structure and S-Structure conditions in GB Theory can be restated as LF conditions, given the absence of D-Structure and S-Structure as significant levels of representation. The Overt Licensing Condition (OLC) on parasitic gaps, as demonstrated in section 2.4, is a case in point.[32] Let us repeat the relevant examples.

[31] Whether long distance *wh*-movement is successive-cyclic (via the intermediate CP Spec) or not is an open question in the Minimalist Program. I will not address this issue here since it is irrelevant, and simply assume that the movement is not successive-cyclic, and that [-R] checking is done in the domain of the matrix C.

[32] Chomsky and Lasnik (1991) regards parasitic gap licensing as one of the reasons that motivate the

(82) a. *Who filed which book$_i$ [without my reading e$_i$]
b. *Mary filed every paper$_i$ [without reading e$_i$]

If *which book* and *every paper* covertly raise to a position c-commanding the parasitic gap, and if parasitic gaps must be licensed at LF, why are the parasitic gaps in (82) not licensed?

5.2.1 Non-LF-Movement Analysis Hornstein (1995) has tried to show, within an early Minimalist framework (Chomsky 1993, 1994), that phenomena that have been thought of as involving LF A'-movement, such as scopal interactions of quantifiers and *wh*-phrases, distribution of *wh*-in-situ, and antecedent-contained deletion, are in fact largely reducible to A-movement properties independently induced by the requirement of Case/ϕ-feature checking. Hornstein holds that if these phenomena are readily explained without postulating LF A'-movement, then there is no reason to maintain that such operations exist. For example, Quantifier Raising (QR), which can hardly be thought of as morphology-driven, should thus be eliminated from UG entirely.

Along these lines he offers a brief account of why parasitic gaps appear to be licensed only at S-structure: because LF movement of quantifiers and *wh*-in-situ does not exist, there is no way for quantifiers and *wh*-phrases to be proper licensers of parasitic gaps unless they sit, *before Spell-Out*, in a position appropriate for the licensing (in our terms, the specifier of CP). It follows that the licensing condition of parasitic gaps, however understood, can (and must) be restated as an LF condition.[33]

Hornstein's approach is one way to encode the OLC on parasitic gaps within the Minimalist Program: nothing moves to A'-positions in covert syntax, so S-Structure relations between parasitic gaps and their licensers remain intact at LF. In our framework, this amounts to saying that the formal features of *wh*-phrases or quantified phrases do not raise at all in covert syntax. If this is the case, then there is no way for [-R] checking to be successful, since the [+R] feature of the licenser does not raise to the checking domain of C.

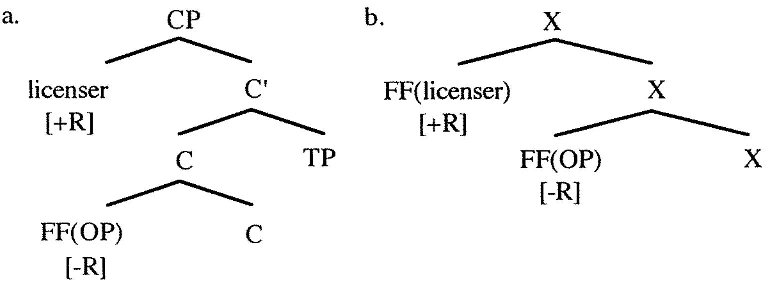
5.2.2 LF Movement Analysis There is another possibility to state the OLC in our terms. We could still continue to assume that LF *wh*-movement and QR exist,[34] and resort to the difference of overt movement and covert movement; that is, category-movement and feature-movement. In section 4 I noted that [-R] checking must be done under the Spec-head relation (83a), not under the head-head relation (83b). (In (83b) FF(OP) and FF(licenser) are interchangeable, depending on which adjoins to C first.)

postulation of S-Structure.

[33] Hornstein's analysis is incompatible with ours in that he still postulates the Chain Composition algorithm coupled with the assumption that the null operator moves inside the adjunct/subject island in which a parasitic gap occurs. These assumptions, however, do not have conceptually enough grounds as pointed out in 3.3.3.

[34] We do not try to decide whether or not *wh*-in-situ moves at LF. What we are going to do is to try to show that the OLC can be derived in either case. For discussion, see Cole and Hermon (1994), Aoun and Li (1993), Tsai (1994), and Chomsky (1995: Ch.4, Sec.4.5.4).

(83)



(83a) is a configuration where the licenser is overtly attracted by C and occupies [Spec,CP]. (83b) is a configuration where FF(licenser) is covertly attracted by C and occupies a C-adjoined position. If (83b) cannot be the right configuration for [-R] checking, then the OLC on parasitic gaps follows.

There is an independent argument suggesting that a structure like (83b) is not the right configuration for [-R] checking. In discussing the ungrammaticality of the following example,

(84) *There seem to each other [t to have been many linguists given good job offers] (Chomsky 1995: 275)

Chomsky (1995: 275-76) assumes that the matrix T has either of the following structures, depending on how covert operations are ordered (*An* is the anaphor).

(85) a. $[_T$ An $[_T$ FF(*linguists*) $[_T$ T V]]]
b. $[_T$ FF(*linguists*) $[_T$ An $[_T$ T V]]]

Chomsky argues that 'neither of these structures qualifies as a legitimate binding-theoretic configuration, with An taking FF(*linguists*) as its antecedent (ibid.),' so that (84) is ungrammatical. But Chomsky does not explicate why this is the case.

If anaphor-antecedent relations are expressed as [-R] checking in the Minimalist Theory, as we assume, then we wish to state the following generalization.

(86) [-R] can be checked only if the element with [+R] asymmetrically c-commands the element with [-R].

In both of the structures in (85) *An* and FF(*linguists*) c-command each other, given the definition of c-command below:

(87) X c-commands Y iff X excludes Y and every category that dominates X dominates Y.[35]

[35] X excludes Y iff no segment of X dominates Y. We restrict domination to inclusion, so that in an adjunction structure $[_X$ Y X], X does not dominate Y.

Both (85a) and (85b) violate (86). Similarly, in (83b) FF(OP) and FF(licenser) c-command each other, in violation of (86).

The question is how the condition (86) is deduced. It is undesirable to say that (86) is a condition specific to [-R] checking; all feature checking must be done under uniform configurations, and (83b) is normally a perfect configuration for feature checking. The answer might lie in the fact that an element with [+R] is never anaphoric. Being referentially independent, [+R] elements cannot be 'bound' by the [-R] element of which it should be the antecedent. If this line of reasoning is correct, (86) can be restated as a structural condition on elements with [+R], not as a condition on [-R] checking per se.

(88) An element with [+R] must be disjoint from every c-commanding phrase within the same minimal domain.

(88) straightforwardly excludes (83b) and (85), thereby deriving the OLC without recourse to any S-Structure conditions. We do not pursue the possibility that (88) is derived from the interpretive rules (72)-(73) adopted in section 5.1.1 or some other output conditions on LF.[36]

Though the answer is speculative and unsatisfactory, the similarity between (83b) and (85) is striking, and such an approach as (88) might be appealing in order to capture the similarity.

Before going on to the next section, a comment on QR is in order. The ungrammaticality of (82b), which shows that QR cannot license a parasitic gap, is explained in a similar way. If the computational system does not allow for QR, then the failure of parasitic gap licensing follows straightforwardly, just like in the analysis that excludes LF *wh*-movement from the grammar. According to our hypothesis, a parasitic gap requires its licenser to move to the checking domain of some functional head. If the licenser does not move at all, there is no way of licensing the parasitic gap. If C_{HL} does allow for QR, on the other hand, the same logic as we have suggested in this section applies again. Under feature movement hypothesis QR must also be expressed as feature movement. If the formal features of the quantified phrase in (82b) adjoin to the matrix C, this yields the ill-formed configuration (83b). If, on the other hand, they adjoin to some other position than C, then they cannot enter into a checking relation with FF(OP). Thus there is no way for QR, if any, to license a parasitic gap.

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[36] Obviously the Interpretive Rule C alone does not exclude (83b); though FF(OP) c-commands FF(licenser), FF(OP) is in the C-adjoined position, which we take to be an A'-position. This suggests that the condition (88) is needed independently of the Interpretive Rule C.

The reference to A-position in the definition of the Interpretive Rule C (the italicized part of (i)) is necessary in our analysis since the rule would otherwise exclude the standard parasitic gap licensing configuration (ii). (I owe this discussion to Koji Fujita (personal communication).)

(i) If α is an r-expression, interpret it as disjoint from every c-commanding phrase *in an A-position* (within the domain of its operator).

(ii) [*licenser* [FF(OP) C][... $t_{licenser}$ ...[... OP ...]]]

In (ii) FF(OP) c-commands the trace of the licenser ($t_{licenser}$) from an A'-position. Thus $t_{licenser}$, which is also interpreted by the Rule C, would be interpreted as disjoint from FF(OP) if the Rule C did not refer to A-position.

6 FURTHER SPECULATIONS

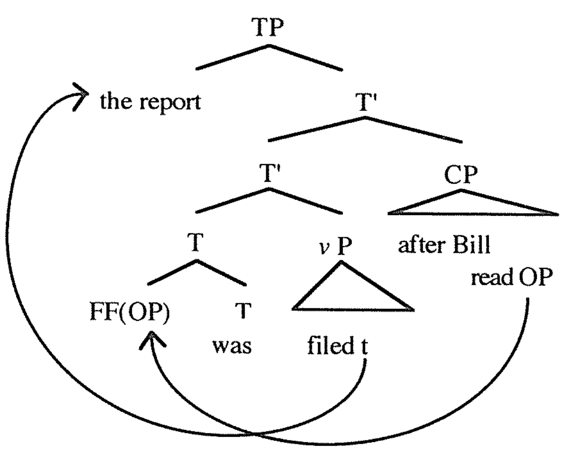
6.1 A-Movement

As noted in section 2.3, parasitic gaps cannot be licensed by A-movement. To illustrate, let us reconsider the relevant examples.

(89) *The report$_i$ was filed t_i [after Bill read e_i]
(90) *There finally arrived [a man from England]$_i$ [after we told e_i not to drop by]

(89) shows that passivization cannot license a parasitic gap though the intended licenser c-commands the parasitic gap and the trace t_i does not c-command the parasitic gap. If (89) has a structure like (91), then [-R] can be checked and the parasitic gap is licensed.

(91)



Simply, (91) is impossible. First, what motivates the movement of FF(OP) is the [+op] feature of a functional head that requires operator-like elements in its checking domain. T does not have such a feature to attract FF(OP), so FF(OP) cannot have moved to the T-adjoined position. Secondly, if the *after*-clause is adjoined to T', the FF(OP) movement violates the c-commanding condition on Attract-F: an element cannot move to a position that does not c-command its trace. The T-adjoined FF(OP) cannot c-command its trace in the T'-adjoined adjunct clause given the definition of c-command in (87).

The example (90) shows that covert adjunction of FF(associate) to T does not license a parasitic gap. This is impossible because, in addition to the reasons given above, the OLC is violated.

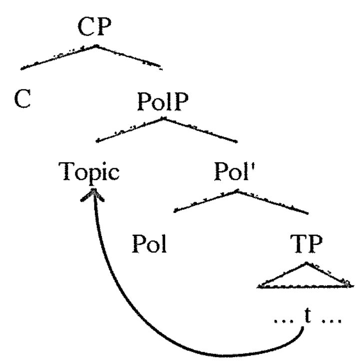
6.2 *Topicalization*

Parasitic gaps can be licensed not only by *wh*-phrases but also by topicalized phrases.

(92) This article$_i$, John filed t_i without reading e_i

I adopt the analysis offered first by Culicover (1991) and subsequently developed by Müller and Sternefeld (1993), Watanabe (1993) and Koizumi (1995) that topicalization is a movement into the specifier of a functional category which occurs between CP and IP (= TP, in our terms).[37] Let us call the functional category Pol, borrowing the original terminology of Culicover. A schematic structure of topicalization is represented in (93).

(93)

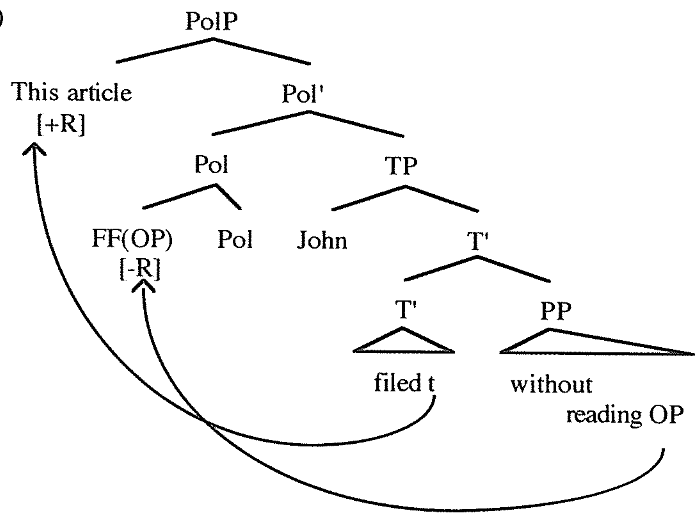


I will assume with Koizumi (1995) that the movement of the topic phrase is driven by [Top] feature of Pol. Pol, which is like C in that it hosts an A'-specifier,[38] also has [+op] feature. Then, if there is a parasitic operator in the c-commanding domain of Pol, FF(OP) can be attracted to Pol, as in (94).

[37] Alternatively, Lasnik and Saito (1992), among others, claim that topicalization is adjunction to IP. This analysis is untenable in the Minimalist Program. On the one hand, XP-adjoined position is not in the checking domain of X (or of any other head). On the other hand, movement is prohibited unless some feature of the target is checked. Adjunction to IP therefore lacks motivation and is banned.

[38] Watanabe (1993) assumes what we call PolP to be a second CP, following the idea of VP-recursion by Larson (1988, 1990).

(94)



In this configuration the [-R] in FF(OP) is checked against the [+R] of the topic, ensuring the appropriate interpretation.

6.3 *Reconstruction Effects*

The present analysis of parasitic gaps maintains the essence of the original null operator analysis in Chomsky (1986b). For example Reconstruction effects in (95) can be accounted for in the Minimalist Theory.

(95) [Which pictures of himself$_{j/*k}$]$_i$ did John$_j$ paint t_i [before Peter$_k$ bought e_i]

Following the copy theory of movement in Chomsky (1993), (95) has roughly the structure (96a).

(96) a. [Which pictures of himself] [$_C$ FF(OP) did] John paint [which pictures of himself]$_{<copy>}$ [before Peter bought OP$_{<copy>}$]
b. For which *x* (John painted *x* picture of himself before Peter bought *x*)

After quasi-QR and complementary deletion, the restriction part of the *wh*-phrase (*pictures of himself*) remains in the original object position, as indicated in (96b). In this position *himself* is c-commanded by *John*, and can take it as its antecedent. On the other hand, nothing 'reconstructs' into the original position of OP, so that *Peter* cannot be the antecedent of *himself*.

6.4 *Island Effects*

As a remaining problem with our analysis of parasitic gaps, we have to point out that it is not clear how the island effects of parasitic gaps are accommodated. Note that we have assumed that the movement of OP is covert, so that FF(OP) can move out of an adjunct or subject island up to the matrix C, as in (97).

(97) [$_{CP}$ *licenser* [$_{C}$ FF(OP) C][$_{TP}$ ... t$_{licenser}$ ...[$_{island}$ ... OP ...]...]]

In section 4.3 I suggested that the movement out of an island does not violate the putative constraint (64), reproduced here as (98).

(98) A category α in a non-θ-position is uninterpretable at LF if α contains the tail of a categorial chain CH_{CAT} but not the head of CH_{CAT}.

Then why can FF(OP) not move all the way up to C out of more than one island as in (99), in conformity with (98)?

(99) *Who$_i$ [$_{C}$ FF(OP) do] you admire t$_i$ [because [close friends of OP] became famous]

I do not have a principled answer, and just suggest that feature movement might be somehow constrained in a similar way in which category movement is constrained as in (98). Perhaps a condition like (100) is in work at LF, which I hope to follow from deeper principles of grammar or from output conditions on LF.

(100) A category α in a non-θ-position is uninterpretable at LF if α dominates another category β in a non-θ-position that contains the tail of a featural chain CH_{FF} and α does not contain the head of CH_{FF}.

I will leave the problem open here. Apart from conceptual validity of (100), we would have to see if there is empirical evidence supporting (100) by investigating, say, whether covert movement of *wh*-in-situ or QR, if any, is sensitive to island.

6.5 Scope Condition

Let us reconsider an Italian example from Longobardi (1985) discussed in section 3. Longobardi argues that the Connectedness Condition (CC) correctly predicts that (42), reproduced here as (101), is grammatical.

(101) ? [Senza conoscere e$_i$ prima bene], non so proprio quale altra ragazza$_i$ Gianni sarebbe disposto a sposare t$_i$
'Without knowing e$_i$ well beforehand, I really don't know which other girl$_i$ Gianni would be ready to marry t$_i$.'

In (101) the topicalized adjunct phrase containing the parasitic gap must be construed with the embedded clause, as noted in note 11. This fact cannot be captured by the CC itself Longobardi therefore assumes the following Scope Condition.

(102) *Scope Condition*

Let α be an operator phrase (a quantified expression) and β a variable whose range is determined by α in a tree T. Then β is in the scope of α.

(Longobardi 1985: 181)

Assuming that the topicalized phrase reconstructs into its trace position, the preposed adjunct must originate from within the embedded clause in order that the parasitic gap e_i be in the scope of the licenser *quale altra ragazza*$_i$ to satisfy the Scope Condition.

Our approach to parasitic gaps does not need to stipulate such a condition in order to explain (101). Assuming, with Longobardi, that the topicalized adjunct 'reconstructs' into its trace (trace is the copy of moved phrase; see 6.3 for the way reconstruction effects are induced), OP in the reconstructed phrase must be in the domain of the licenser in order to have [-R] checked. If the adjunct clause is reconstructed into the matrix clause, there is no way for FF(OP) to move to the embedded C for [-R] checking, as in (103).

(103) [... [$_{CP}$ *licenser* [C FF(OP)][...]][$_{adjunct}$ ... OP ...]]

In (103) OP is outside the domain of the licenser, with the adjunct associated with the matrix clause. In this configuration the movement of FF(OP) violates the c-command requirement of Attract-F and [-R] fails to be checked. Hence the Scope Condition of Longobardi automatically follows in our account. In addition, the example (101) can be explained without recourse to the CC, by appealing to reconstruction as a by-product of the copy theory of movement.

7 CONCLUDING REMARKS

We have explored the possibility of accounting for the core characteristics of parasitic gaps within the framework of the Minimalist Program recently revised and extended in Chomsky (1995).

I have abstracted away from many intricacies of parasitic gaps that have been attested in the literature. For example, Postal (1993, 1994) points out that there is a second type of parasitic gap which he calls 'pseudo-parasitic gaps', in addition to the 'genuine' parasitic gaps dealt with in this paper. Pseudo-parasitic gaps are licensed by rightward movement such as heavy NP shift (see the examples in (104)), and they are different in nature from genuine ones.

(104) a. John offended t_i by not recognizing e_i [his favorite uncle from Cleveland]$_i$ (Postal 1994: 63)

b. It can seem to one policeman t_i without seeming to another e_i [that a suspect is guilty]$_i$ (ibid.: 87)

We did not deal with pseudo-parasitic gaps because it is unclear how the theory based on the principle of Economy gives a natural account for rightward movement, which is basically optional.[39] Another aspect of parasitic gaps which is not dealt with is the fact that even grammatical examples of parasitic gaps show mild deviance, as noted in section 1, and the fact that parasitic gaps which occur in infinitival clauses are slightly more acceptable than those occurring in finite clauses. The Minimalist Program does not have anything to say about such mild deviance. We will leave these problems open for future research.

I crucially adopted the assumption that the movement operation Attract-F only accesses features, not categories, so that a covert application of Attract-F results in 'feature movement' which ignores strong islands to which overt movement is sensitive. It has been shown that this assumption, coupled with another assumption regarding the feature specification ([-R]) of an empty operator and an interpretive rule which is needed independently of parasitic gap constructions, effectively yields the Anti-C-Command Condition, which most of the works on parasitic gaps based on the P&P Theory have aimed to deduce. It should be stressed that our analysis does not rely on a construction-specific device such as Chain Composition.

It was also shown that another aspect of parasitic gaps that has crucial bearing on the empirical adequacy of the Minimalist Program, namely the Overt Licensing Condition, follows from the different nature of overt versus covert movement; feature (hence covert) movement of the licenser cannot license the parasitic gap because the resultant structure does not qualify as a legitimate configuration for [-R] checking. This treatment enables the theory to dispense with any form of S-Structure licensing condition on parasitic gaps, thereby removing a big obstacle that prevented one from rejecting S-Structure as a significant level of representation. If the analysis we developed is on the right track, it is, I believe, a step toward an explanatorily more adequate theory while maintaining the power of description.

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[39] See Fukui (1993) for a discussion on economy and optionality. Fukui argues that in a language L, movement to the direction consistent with the value of the head parameter in L is costless, and hence optional. In English, rightward movement like heavy NP shift conforms to the parameter setting (head-initial) and is therefore optional.

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