ON PARASITIC GAPS IN POLISH[1]

ANNA BONDARUK

Catholic University, Lublin

0. *Introduction*

The purpose of this paper is to check whether any of the existing approaches to parasitic gaps can account for the distribution and function of parasitic gaps in Polish. The analysis whose validity for Polish data will be examined first is Chomsky's (1986) chain composition approach. This by now standard analysis will be confronted with the most representative of other existing proposals, namely Browning's (1991), Bordelois' (1986) and Cinque's (1990). These alternative ways of dealing with parasitic gaps are, as we shall see, either an elaboration of Chomsky's analysis, like Browning's complex chain account, or offer completely different solutions from those put forward by Chomsky, in the case of the two remaining analyses. Each of them will be discussed in the subsequent parts of the paper and a special focus will be laid on their applicability to Polish data. The factor which underlies this presentation is the search for the best model of analysing Polish parasitic gaps.

1. *Chomsky's chain composition approach*

Chomsky (1986) advocates the opinion that parasitic gaps are not base-generated, but are derived due to movement of an empty operator. The major argument for this claim comes from the fact that parasitic gaps, in the way analogous to wh-traces, cannot appear in islands. This is illustrated by example (1), in which the parasitic gap occurs inside a complex NP and example (2), where the parasitic gap appears within a wh-island (both examples come from Chomsky (1986:55)):

(1)   *this is the man John interviewed t before reading
      [$_{NP}$the book you gave to e]
(2)   *this is the man John interviewed t before asking you
      [$_{CP}$which job to give to e]

On the basis of examples like (1) and (2) above Chomsky concludes that parasitic gap constructions must be movement derived. Thus, a parasitic gap and its operator constitute a chain. The chain is, according to Chomsky, combined with the chain of the real gap in order to form a composed chain. Thus, parasitic gap constructions involve an application of chain composition formulated by Chomsky along the following lines:

(1)   "If $\Sigma = (\alpha_1, ..., \alpha_n)$ is the chain of the real gap and $\Sigma' = (\beta_1, ..., \beta_m)$ is the chain of the parasitic gap, then the "composed chain" $(\Sigma, \Sigma') = (\alpha_1, ..., \alpha_n, \beta_1, ..., \beta_m)$ is the chain associated with the parasitic gap construction and yields its interpretation." (Chomsky 1986:56)

The condition under which chain composition operates is, as Chomsky specifies, 0-subjacency which holds between the empty operator and the real gap. In other words, there must be less than one barrier separating the empty operator from the licensing trace. The operation of chain composition under 0-subjacency is justified by examples like the following:

(3)   Which book did you read t without buying e?

Example (3) can be represented as follows:

(4)   Which book$_i$ did you read t$_i$ [$_{PP}$O$_i$[$_{PP}$without [$_{IP}$e$_i$'[$_{IP}$buying e$_i$]]]]

In (4) there are two chains, namely (which book$_i$, t$_i$) and (0$_i$, e$_i$',e$_i$). Their composition is possible, since there is no barrier separating the empty operator, i.e., 0$_i$ form the real gap, i.e., t$_i$, because the barrierhood of the PP is voided due to the process of adjunction. However, 0-subjacency alone does not suffice to eliminate unacceptable structure like (5) below:

(5)   *How did you fix the car t after repairing a bicycle e?

What this example shows is that adjunct parasitic gaps are unacceptable. Its ungrammaticality, however, cannot be attributed to 0-subjacency, since its representation is analogous to example (3), which is fully acceptable. This observation makes Chomsky conclude that cases like this do not violate 0-subjacency, but exemplify ECP violations.

Chomsky's approach seems to be adequate also for Polish data. First of all, in Polish, similarly to English, parasitic gaps are illegitimate in islands, as shown by examples (7) and (8), where the former illustrates the parasitic gap used inside the complex NP, whereas the latter exhibits the parasitic gap used within a wh-island.

(6)   *Kogo polubiłeś t po tym jak rozmawiałeś z [$_{NP}$mężczyzną, który znał e]?
       Who did you like after you were talking to the man who knew (him)?

(7)   *Mężczyzna, t którego nie było w domu, [$_{CP}$kiedy potrzebowałem e].
       The man who wasn't at home when I needed (him).

Since parasitic gaps behave like ordinary wh-traces with respect to islands they should be treated as traces of movement. What is moved is an empty operator which forms a chain with the parasitic gap. Thus, so far, the Polish data conform to the predictions of Chomsky's analysis. What needs to be tested is the relevance of 0-subjacency for chain composition in Polish. Let us consider the following example:

(8)   Jaki owoc musiałeś obrać t zanim ugotowałeś e?
       Which fruit did you have to peel before you cooked?

Example (8) has the representation in (9), i.e.,:

(9)   Jaki owoc$_i$ musiałeś obrać t$_i$ [$_{PP}$0$_i$[$_{PP}$zanim [$_{IP}$e$_i$'[$_{IP}$ugotowałeś e$_i$]]]]?

In this case no barrier intervenes between the operator and the trace of the real gap satisfying 0-subjacency, and therefore the sentence is grammatical.

When we increase the distance between the empty operator and the real gap by putting the parasitic gap in the most deeply embedded adjunct, the resulting structure will produce ungrammaticality, as illustrated by example (10):

(10)   *Co wyrzuciłeś t, żeby się nie skaleczyć zaraz jak tylko stłukłeś e?
       What did you throw away in order not to hurt yourself as soon as you broke?

The ungrammaticality of (10) results from the violation of 0-subjacency as the operator of the parasitic gap is separated from the real gap by one barrier, as indicated by its representation below:

(11)   *Co$_i$ wyrzuciłeś t$_i$ [$_{CP}$żeby się nie skaleczyć[$_{PP}$0$_i$[$_{PP}$zaraz jak
                                  barrier
       tylko[$_{IP}$e$_i$'[$_{IP}$stłukłeś e$_i$]]]]]?

The insertion of any additional adjuncts, which results in the presence of additional barriers, makes sentences like (11) decrease in acceptability. What Chomsky's approach allows us to do is to evaluate levels of deviance, because one-barrier violations are more acceptable than two-barrier violations and so on. Consequently, the deviance of example (12), where two barriers intervene, is much more severe than that of example (11), i.e.,:

(12)   *Jaką książkę dałeś mu t, żeby przeczytał, po tym jak odłożyłeś e zanim przeanalizowałeś e?
       Which book did you give him to read after you put away before analysing (it)?

Example (12) has the following representation:

(13)   *Jaką książkę$_i$ dałeś mu t$_i$ [$_{CP}$żeby pro przeczytał [$_{PP}$po tym jak [$_{IP}$pro
                                              barrier   barrier
       odłożyłeś e [$_{PP}$0$_i$[$_{PP}$zanim[$_{IP}$e$_i$'[$_{IP}$pro przeanalizowałeś e$_i$]]]]]]]]?

In this case there are two barriers separating 0_i from t_i, namely CP and PP, which causes a stronger unacceptability than in example (11), which is a one-barrier violation.

All the Polish examples presented so far become unacceptable if there is no case identity between the real gap and the parasitic gap (cf. Bondaruk 1995). This is confirmed by the ungrammaticality of example (14):

(14)   *Co zgubiłeś t nie znajdując e?
       What did you lose without finding?

In (14) the real gap is assigned the accusative case, whereas the parasitic gap is marked for the genitive case. The case conflict brings about an ungrammaticality despite the lack of any barriers between the empty operator and the real gap. Thus, example (14) comes as a confirmation of the claim that in Polish 0-subjacency alone is not enough to guarantee the well-formedness of the composed chain. Another condition whose validity must be recognised in Polish is the case identity between the real gap and the parasitic gap.

The chain composition analysis constrained both by 0-subjacency and case identity accounts for the majority of cases of parasitic gaps in Polish. What, however, still needs to be explained is the impossibility of adjunct parasitic gaps. This apparently creates a problem for Chomsky's analysis, since, despite the fact that 0-subjacency is satisfied, adjunct parasitic gaps are not possible, as illustrated by example (15).

(15)   *Jak głośno Janek śpiewał t zanim zagrał e?
       How loudly did John sing before he played?

This example can be represented in the following way:

(16)   *Jak głośno Janek śpiewał t_i $[_{PP}O_i[_{PP}$zanim$[_{IP}e_i'$[pro zagrał $e_i]]]]$?

As the representation indicates there is no barrier between the empty operator and the trace of the real gap. Despite this the sentence is unacceptable with the following interpretation:

(17)   what is the loudness such that John sang with this loudness before he played with the same loudness

The lack of adjunct parasitic gaps in English is explained by Chomsky in terms of ECP violations. In order to check whether example (15) represents an ECP violation we must assume that parasitic gaps must be properly governed. Traces are properly governed if they are lexically-governed or antecedent-governed. In example (15) lexical government of parasitic gaps will not hold, since AdvPs do not receive Case or theta-role from corresponding verbs. What we have to test is whether these gaps can be antecedent-governed. In this case antecedent-government fails, as well, because 0_i is not a lexical head and that is why it cannot antecedent-govern the parasitic gap. Even if we assume after Lasnik and Saito (1992)

that *zanim*, 'before' in (16) should rather be treated as a COMP than a PP the same result follows. In accordance with Lasnik and Saito's proposal example (15) should be represented as (18):

(18) $[_{CP}0_i[_{C'}$zanim$[_{IP}$pro zagrał $e_i]]]$

In (18) the parasitic gap is not antecedent-governed, either, because *zanim* in COMP is a lexical head and hence it is a potential governor for e_i. Thus, the COMP *zanim* by minimality blocks antecedent-government of e_i by the operator with which it is co-indexed. However, *zanim* is not co-indexed with the gap and consequently, it does not antecedent-govern it, either. Since neither the COMP nor the operator can antecedent-govern the parasitic gap in (18), the gap is not properly governed in violation of the ECP. Thus, it has been shown that the lack of adjunct parasitic gaps can be explained within Chomsky's chain composition analysis in terms of ECP violations.

Still another problem which must be solved in relation to Chomsky's analysis is whether the anti c-command condition on parasitic gaps can be subsumed under 0-subjacency. The relevant Polish data include examples such as (19):

(19)   *Czego t nie było żeby używał e do krojenia chleba? (Bondaruk 1995)
       What was lacking to be used to cut bread?

Example (19) has the following representation:

(20)   *Czego$_i$ $[_{IP}t_i$ $[_{VP}$nie było $[_{CP}0_i[_{C'}$żeby $[_{IP}$używał e_i do krojenia chleba]]]]]$?
                              barrier   barrier

In (20) two barriers, namely VP and CP intervene between the empty operator and the real gap. That is why the structure is unacceptable. Thus, it has been shown that anti c-command condition can be done away with if we adopt the suggestion that chain composition in Polish operates under 0-subjacency as well as under case identity (both gaps in (20) are assigned the same genitive case).

The problem that Chomsky's analysis creates is the treatment of purpose clauses which in Polish also exhibit parasitic gap constructions. What Chomsky's approach predicts is that sentences like (21) below should have marginal status, being one-barrier violations, whereas in fact they are perfectly grammatical.

(21)   Co on napisał t, żeby opublikować e?
       What did he write in order to publish?

Example (21) should be represented as (22), i.e.,:

(22)   Co$_i$ on napisał t_i $[_{CP}0_i[_{C'}$żeby$[_{IP}e_i'[_{IP}$PRO opublikować $e_i]]]]$?
                                                        barrier

Since one barrier separates the operator from the real gap 0-subjacency is violated.

Consequently, this sentence, contrary to the grammaticality judgement expressed, is predicted to be unacceptable. We cannot even claim that the empty operator is adjoined to the CP in (22), which would void the barrierhood of CP. Such a move, however, has to be banned since, otherwise, subjacency violations in relative clauses will be left unaccounted for. Thus, it has been shown that 0-subjacency condition on chain composition does not provide an explanation for the grammatical status of parasitic gaps appearing in purpose clauses in Polish.

Furthermore, Chomsky's approach appears to be problematic when confronted with the data like (23) below:

(23) Mężczyzna, którego każdy, kto spotka e podziwia t odwiedziwszy choć raz e.

The man whom everyone who meets admires having visited even once.
In example (23) there are two parasitic gaps and each of them is associated with a different chain, as its representation in (24) indicates:

(24) Mężczyzna, którego$_i$ [$_{NP}$każdy[$_{CP}$kto[$_{IP}$O$_i^1$[$_{IP}$spotka e $_i^1$]$_{IP}$]$_{CP}$]$_{NP}$]
        barrier
      podziwia t$_i$ [$_{IP}$O$_i^2$[$_{IP}$choć razPRO odwiedziwszy e$_i^2$]].

The three chains in (24) which should undergo chain composition are (którego$_i$, t$_i$), (O$_i^1$, e$_i^1$) and (O$_i^2$, e$_i^2$). Since the first operator, i.e., O$_i^1$ is not 0-subjacent to t$_i$ as the NP functions as a barrier, the chain composition is not possible. Consequently, the sentence is falsely predicted to be ungrammatical.

Summing up what has been said so far, it must be noted that the chain composition analysis put forward by Chomsky turns out to be adequate for Polish parasitic gaps with the exception of those that appear in purpose clauses headed by *żeby*, which appear to be problematic for this approach. What is more, the 0-subjacency condition on chain composition in Polish must be enriched by the case identity requirement and both of them must be satisfied simultaneously for chain composition to operate. The application of these two conditions makes it possible to eliminate the anti c-command condition on parasitic gaps.

2. Browning's complex chain analysis

Browning (1991) notes that Chomsky's approach to parasitic gaps creates certain problems. First of all, he observes that in examples like (25) below the null operator can adjoin to PP in the way indicated by Chomsky, but at the same time nothing prevents it from adjoining to VP, which results in the representation given in (25a), i.e.,:

(25) *Which paper t disappeared before you could read e?
(25a) Which paper$_i$ [$_{IP}$t$_i$ [$_{VP}$ O$_i$[$_{VP}$disappeared [$_{PP}$e$_i$'[$_{PP}$ before [$_{IP}$you
        could read e$_i$]]]]]]?

Since the null operator in (25a) is 0-subjacent to the subject gap, i.e., t$_i$, the sentence is incorrectly predicted to be grammatical. Thus, the 0-subjacency require-

ment fails to account for why c-commanding traces do not sanction parasitic gaps. Another weakness of Chomsky's analysis, according to Browning, is the way in which the lack of adjunct parasitic gaps is explained. Browning argues, contrary to Chomsky, that the ECP does not rule out the possibility of adjunct parasitic gaps.

Browning tries to overcome the difficulties that Chomsky's analysis gives rise to by putting forward the idea that parasitic gap constructions do not involve chain composition, but that they result from the formation of a complex chain. What Browning regards as a complex chain is a chain with a single head and multiple tails. Like any other S-structure A'-chain, a complex chain must meet the subjacency condition. Browning states this condition in the following way:

(26) If (α_i, α_{i+1}) is a link of a chain, then α_{i+1} is 1-subjacent to α_i.

What this condition specifies is that there must be no more than one barrier between each link of a complex chain.

If we apply Browning's analysis to Polish data we shall see that it yields appropriate results for the occurrences of parasitic gaps exemplified by (27), i.e.,:

(27) Jaką książkę przestudiował t zanim zrecenzował e?
      Which book did he study before reviewing?

According to Browning, (27) should be represented as follows:

(27a) Jaką książkę$_i$ przestudiował t$_i$ [$_{PP}$O$_i$ zanim zrecenzował e$_i$]?

The complex chain in this case consists of (jaką książkę$_i$, t$_i$, O$_i$, e$_i$), where the wh-element is the head, whereas all other members of the chain serve as tails. The subjacency condition is satisfied by every link of this chain, since there are no barriers between *jaką książkę*$_i$ and t$_i$ or between O$_i$ and e$_i$, whereas a single barrier separates O$_i$ form t$_i$. Consequently, the sentence is fully grammatical.

What is more, Browning's analysis seems to be superior to Chomsky's approach in that it correctly predicts that parasitic gaps appearing in purpose clauses in Polish are perfectly acceptable. This case is illustrated by example (28):

(28) Jaką książkę odłożyła t, żeby schować e?
      Which book did she put away in order to hide?

This example has the following representation:

(28a) Jaką książkę$_i$ pro odłożyła t$_i$ [$_{CP}$O$_i$[$_{C'}$żeby[$_{IP}$PRO schować e$_i$]]]?

This time the fact that one barrier intervenes between the empty operator and the real gap does not create a problem for the analysis, as O$_i$ is 1-subjacent to t$_i$, in accordance with the subjacency condition formulated by Browning. Thus, in contradistinction to Chomsky's analysis, the grammaticality of parasitic gaps present in purpose clauses in Polish naturally follows from Browning's complex chain approach.

Browning's complex chain analysis makes it also possible to account for the lack of adjunct parasitic gaps. Let us analyse example (29) to see how complex chain analysis works for adjunct parasitic gaps in Polish, i.e.:

(29)   *Jak zreperowałeś samochód t zanim naprawiłeś rower e?
        How did you fix the car before repairing the bicycle?

This example can be represented as follows:

(29a)   *Jak$_i$ [$_{VP}$t$_i$'[$_{VP}$zreperowałeś samochód t$_j$ [$_{PP}$O$_i$[$_{PP}$zanim
        [$_{IP}$ [$_{VP}$e$_i$'[$_{VP}$pro naprawiłeś rower e$_i$]]]]]]]?

The complex chain in this case consists of the elements such as (jak$_i$, t$_i$', t$_i$, O$_i$, e$_i$', e$_i$). At the S-structure this chain meets the requirements of the subjacency condition and the complex chain is well-formed. At LF, however, chains must meet an even stricter condition, namely the Complete Representation Requirement (hence, CPR) and ECP. CPR specifies that intermediate empty categories in adjunct chains must be present throughout the derivation. This entails that every nonpronominal intermediate empty category must be $+\gamma$ marked. But being $+\gamma$ marked alone is not sufficient for an empty category to remain in a structure at LF, that is, the presence of the empty category must be required by some independent aspect of grammar. Pronominal empty categories which are required at LF by some aspect of the grammar are not subject to the ECP, but Browning argues that they are not licensed at LF unless they are identified, i.e. have phi-features at LF. The empty operator in (29a), which according to Browning is an A'-bound pro, does not meet the licensing requirement for pronouns at LF and therefore it must delete. This produces a CPR violation, because this operator is an intermediate empty category in parasitic gap constructions. Consequently, a CPR violation is responsible for the lack of adjunct parasitic gaps.

However, Browning's approach fails to explain why sentences in which parasitic gaps occur in adjunct clauses embedded in other adjunct clauses are ungrammatical. This is illustrated by example (30):

(30)   *Jaką książkę kupiłeś t, żeby przeczytać zaraz jak tylko wydano e?
        Which book did you buy in order to read as soon as they published?

Example (30) has the following representation:

(30a)   *Jaką książkę$_i$ kupiłeś t$_i$ [$_{CP}$żeby przeczytać [$_{PP}$O$_i$ [$_{PP}$zaraz jak tylko
        [$_{IP}$e$_i$' [$_{IP}$wydano e$_i$]]]]]?

The complex chain formed in (30a) satisfies the subjacency condition, since each link of this chain is 1-subjacent to another one. Thus, contrary to the grammaticality judgement expressed, the sentence (30) is predicted to be grammatical.

Another difficulty that Browning's analysis faces is that it wrongly predicts that parasitic gaps used in wh-islands are acceptable. Example (31) serves as an illustration of this point.

(31)   *Jaki wazon wyrzuciliście t kiedy rozbiliście e?
        Which vase did you throw away when you broke (it)?

This example is represented as follows:

(31a)   *Jaki wazon$_i$ pro wyrzuciliście t$_i$ [$_{CP}$kiedy [$_{IP}$O$_i$[$_{IP}$pro rozbiliście e$_i$]]]?

Example (31) is analogous to (30a) in that each member of the complex chain is 1-subjacent to its immediate follower. Despite this the sentence is illegitimate.

Furthermore, Browning's analysis does not allow us to eliminate the anti c-command condition on parasitic gaps, since no subjacency violation results in those cases in which a subject trace licenses the parasitic gap, as exemplified by (32), i.e.:

(32)   *Jakich materiałów t zabrakło, żeby użyć e do pisania artykułu?
        Which materials were lacking to be used to write a paper?

Browning postulates the presence of two alternative representations of example such as (30), namely:

(32a)   *Jakich materiałów$_i$ t$_i$ [$_{VP}$zabrakło[$_{CP}$O$_i$[$_{C'}$żeby[$_{IP}$PRO użyć e$_i$ do
                                                barrier   barrier
        pisania artykułu]]]]?
(32b)   *Jakich materiałów$_i$ t$_i$ [$_{VP}$O$_i$ [$_{VP}$zabrakło[$_{CP}$e$_i$'[$_{C'}$żeby[$_{IP}$PRO użyć e$_i$
        do pisania artykułu]]]]]?

The first representation, which is identical to the one offered by Chomsky, is unproblematic, since two barriers separate the empty operator O$_i$ from t$_i$ violating the 1-subjacency requirement and consequently yielding the structure ungrammatical. The second representation, however, produces incorrect results, since it predicts that the sentence (32) is grammatical. Therefore, what we have to do is either to reject the second possible representation or to run the risk of predicting that examples like (32) are grammatical. Thus, Browning's approach does not seem to be more advantageous for handling the anti c-command condition on parasitic gaps than Chomsky's analysis.

The application of Browning's analysis to Polish data has shown that this approach accounts for a limited range of parasitic gap constructions in Polish. It does not preclude a great number of unacceptable parasitic gaps, such as those that appear in most deeply embedded adjuncts as well as in wh-islands. Besides, the anti c-command requirement cannot be subsumed under Browning's complex chain analysis. What we may conclude on the basis of this presentation is that the weaknesses of Browning's proposal are much more numerous and serious than those of Chomsky's analysis.

3. Bordelois' Analysis

Bordelois' (1986) treatment of parasitic gaps completely departs from both Chomsky's (1986) and Browning's (1991) approaches. Her analysis is similar to Chomsky's (1982) approach in that it assumes that parasitic gaps are base-gener-

ated, not movement derived. What makes Bordelois' analysis different is the claim that parasitic gaps are a special type of anaphoric variables. By recognising the existence of anaphoric variables Bordelois blurs the usual distinction between variables and anaphors in BT. What makes Bordelois put forward the suggestion that parasitic gaps are anaphoric in nature is, first of all, the context in which they appear in Spanish and secondly, their similarity to climbing clitics in this language. Thus, the fact that parasitic gaps appear in tenseless and subjectless clauses is the first way in which they resemble climbing clitics. What is more, clitic traces are analysed by Bordelois as related to an A'-position while being affected by an anaphoric local relationship. Since parasitic gaps occur in the same contexts as climbing clitics and since parasitic gaps must also be linked to some A'-position, Bordelois suggests that the two should be treated on a par. Furthermore, Bordelois argues that, being anaphoric variables, parasitic gaps are subject to Principle A of BT, whereas they are not affected by subjacency. Thus, parasitic gaps are anaphors from the point of view of the environment in which they appear, whereas they are variables when viewed from the point of basic dependence, that is the fact that they are A'-bound at S-structure.

Moreover, Bordelois argues that parasitic gap constructions involve an extension of the scope of the Governing Category (henceforth, GC) so that it incorporates a tenseless, subjectless clause. Under the assumption that the GC refers only to the lexical head of a chain co-indexed under control and not to its PRO foot, lexical NPs in tensed sentences, arbitrary PROs and lexical NPs in infinitival complements will be accessible subjects. Therefore, they will impose Opacity, whereas controlled PRO, which is an anaphor, will not.

The first observation that strikes us when we apply Bordelois analysis to Polish data is that Polish, unlike Spanish, allows parasitic gaps in tensed as well as in tenseless clauses. This creates a problem for Bordelois' approach, since sentences like (33) below should not be acceptable parasitic gap structures, i.e.,:

(33)   Czyje dziecko położyła spać t po tym jak [$_{IP}$pro nakarmiła e]?
        Whose child did she put to bed after having fed?

If the parasitic gap in (33) is an anaphoric variable it must obey Principle A of BT, that is, it must be bound in its GC. Under the extended GC hypothesis advocated by Bordelois pro is an accessible subject, the governor of the parasitic gap is the verb *nakarmiła*, 'fed'; therefore, the GC in which the anaphoric variable must be bound is the IP containing the parasitic gap, its governor *nakarmiła* and the accessible subject pro. The parasitic gap is not bound in this GC and for this reason the sentence should be ungrammatical. As the grammaticality judgement expressed in (33) indicates, this prediction is not borne out: the example is fully legitimate. Thus, it has been shown that Bordelois' analysis is inadequate for Polish parasitic gaps which appear in tensed sentences.

On the other hand, Polish parasitic gaps which occur in tenseless contexts seem to confirm the validity of Bordelois' observations. Let us analyse example (34) to see if it is really the case, i.e.:

(34)   To jest książka, którą [obejrzał t [$_{IP}$PRO nie zabierając e].[2]
        extended GC
        This is the book that he looked through without taking.

In this case PRO is not an accessible SUBJECT, therefore the lower IP does not serve as a GC. The GC is extended so that it covers also the VP of the higher clause. In the extended GC the parasitic gap is bound by the t and therefore it behaves like an anaphoric variable.

What is more, Bordelois' analysis wrongly predicts that subject traces can license parasitic gaps in tenseless clauses, as exemplified by (35):

(35)   *Czego t brakowało żeby [$_{IP}$PRO użył e do krojenia chleba]?
        What was lacking to be used to cut bread?

In this case the controlled PRO is not an accessible subject and that is why the GC is extended to the VP of the matrix clause. Within the extended GC the parasitic gap is bound by the trace t. Since the parasitic gap is anaphoric in nature and it is bound in accordance with the Principle A, the sentence should be grammatical. However, in fact it is unacceptable, contrary to the results of Bordelois' analysis.

An additional objection that can be raised against Bordelois' proposal is of a more general kind. If parasitic gaps are anaphoric in nature, then their local antecedent obviously bears an independent theta-role. Then, the parasitic gap receives one theta role from its local binder and another one from its governor. This implies that the anaphoric chain formed by the parasitic gap and its binder has a double theta-role in violation of the Theta Criterion. The argument which Bordelois invokes in order to overcome this objection is that parasitic gaps are not unique in this respect, as there is another case of anaphoric chain with a double theta-role, namely anaphoric PRO.

It has been shown that although Bordelois' analysis works very well for Spanish, it does not provide a unified account of Polish parasitic gaps. In fact, it is applicable only to one subgroup of parasitic gaps, namely to those that appear in tenseless sentences. At the same time it predicts that parasitic gaps should be unacceptable in tensed contexts, which is not confirmed by Polish data.

4. *Cinque's approach*

Cinque (1990) points out certain weaknesses of Chomsky's chain composition analysis. He notes that 0-subjacency does not explain the ungrammaticality of example (36) in which an NP is extracted from two adjuncts.

(36)   *The book that he left Russia without being arrested after distributing t.

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[2] This example is fully legitimate despite the case conflict between the accusative case of the real gap and the genitive case assigned to the parasitic gap. Examples like this are very infrequent, if not exceptional, in Polish.

Assuming that (36) has the representation as follows:

(36a) *The book $[_{CP}0_i$ that$[_{IP}$we left Russia $[_{PP}t_i[_{PP}$without $[_{CP}t_i[_{IP}$being
arrested$[_{PP}t_i[_{PP}$ after$[_{CP}t_i$ $[_{IP}[_{VP}t_i$ $[_{VP}$distributing $t_i]]]]]]]]]]]]$

no barrier is crossed by any step of the derivation and the ungrammaticality of this structure is unaccounted for in terms of 0-subjacency.

Alternatively, Cinque puts forward a completely different approach based on data from Italian. He argues that parasitic gaps are base-generated pronominal variables which come to be A'-bound by a base-generated operator at S-structure. Thus, parasitic gap constructions involve, according to Cinque, an empty resumptive pronoun strategy. What is more, Cinque suggests that overt wh-movement is uniformly excluded from parasitic gaps. The arguments he presents in favour of this proposal consist in a number of differences between parasitic gaps and regular wh-gaps. First of all, parasitic gaps of a category other than NP are quite generally impossible[3], whereas the same is not true about wh-traces. Cinque deals with this problem by stating that, wh-movement being unavailable, only NP and no other category has access to the empty resumptive pronominal strategy. However, not all NPs that can be affected by wh-movement in ordinary wh-structures can appear in parasitic gap constructions. It seems to be the case, as Cinque points out, that only referential NPs can occur in these structures, since only referential NPs can be resumed by an empty (or overt) pronominal.

If we adopt Cinque's approach to Polish data we will see that the majority of cases of parasitic gaps will have a representation analogous to (37) below, i.e.:

(37)   Kogo$_i$ spotkałeś t_i $[_{IP}0_i[_{IP}$PRO nie szukając pro$_i]]$?
        Who did you meet without looking for?

In example (37) pro$_i$ is a parasitic gap, that is, it is a base-generated empty resumptive pronoun which is A'-bound at S-structure by the base-generated operator 0_i. The parasitic gap in (37) is of category NP, since only NPs can be resumed by pronominals. What, however, needs to be added is the requirement valid for Polish, namely that pro$_i$ and t_i bear identical cases. Yet, the case identity condition does not account for the ungrammaticality of example (38), i.e.:

(38)   *Czego$_i$ t_i nie było $[_{CP}0_i$ żeby móc użyć pro$_i]$?
        What wasn't there so that we would be able to use (it)?

In this case both pro$_i$ and t_i are marked for the genitive case. What is more, pro$_i$ is bound by the empty operator, i.e., 0_i and therefore the sentence should be legitimate. However, pro$_i$ is also bound by the wh-trace which occupies the subject position of the highest clause. Thus, in this case, similarly to Browning's analysis, we have to additionally stipulate that a c-commanding trace rules out parasitic gaps.

A serious problem that Cinque's proposal creates is how to account for the unacceptability of parasitic gaps in islands. What follows from Cinque's approach is that, since parasitic gaps are base-generated pros at both D-structure and S-structure, their occurrence should be unaffected by the theory of bounding, which pertains only to movement. In other words, parasitic gaps should be immune to island effects, in the way similar to resumptive pronouns. However, this prediction is not borne out, since parasitic gaps, as has already been noted, cannot appear within islands. What Cinque suggests in order to get rid of this apparent contradiction is that sensitivity to islands is not a property of wh-movement, but can be interpreted as a property of chains, whether these are created by movement, as in standard wh-structures or base generation, as in parasitic gap constructions. The latter type of chain is also involved in Clitic Left Dislocation, which is characteristic of Italian and which, as argued by Cinque, is similar to parasitic gap structures in that both are sensitive to islands although they do not arise due to movement. Furthermore, Cinque notes the existence of two kinds of chains, namely government chains and binding chains and he goes on to argue that the two kinds of chain are mutually exclusive, that is, the nonreferential phrases enter only government chains, whereas referential elements enter only binding chains. Parasitic gaps, being the latter, can participate in binding chains only.

What is more, Cinque argues that although there seem to be different bounding conditions holding of wh-traces and pro these conditions are in fact the same. They appear to be distinct, since parasitic gaps involve an additional option, namely pied piping, which operates at LF and is governed by the Conectedness Condition (hence, CC) formulated by Kayne (1984) along the following lines:

(39)   a.   The COMP of a relative clause can be filled by a complementiser or a wh-phrase (and nothing else)
        b.   If B is a wh-trace and Z is a g-projection[4] of B, then Z is a wh-trace.

In other words, Cinque assumes that a pro unmoved at S-structure must move at LF, either by itself or within a larger phrase, under pied piping satisfying the CC.

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[3] When applied to Polish this statement must be slightly qualified. This is due to the fact that the sentences like (i) below with an AdjP parasitic gap seem to be legitimate in Polish, i.e.:

(i)   Jak zły$_i$ się wydawał t_i choć wcale nie był e_i?
       How angry did he seem to be though he wasn't angry at all?

The same does not apply to other types of phrases as illustrated by (ii) and (iii) which exemplify AdvP and PP parasitic gaps, respectively:

(ii)   *Jak$_i$ trzeba postępować t_i, żeby być traktowanym e_i?
        How should one behave in order to be treated in the same way?

(iii)   *Na$_i$ co liczyć t_i chociaż nie zasługiwał e_i?
        What did he count on though he did not deserve?

Thus, AdjPs appear to be like NPs in that they can be used in parasitic gap constructions. This creates some problem for Cinque's analysis.

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[4] The g-projection is understood in the sense of Bennis (1986:20)

XP is a g-projection of the structural governor W of Z iff the head of XP c-governs Z or a g-projection of W.

X c-governs Y iff X precedes Y in a VO language and follows Y in a OV language.

Let us analyse example (40) to see if these observations carry over in the same way to Polish data, i.e.,:

(40)   *Co$_i$ wyrzuciłeś t$_i$ [$_{CP}$O$_i$ żeby nie przeszkadzało [$_{PP}$zaraz jak tylko zużyłeś pro$_i$]]?
       What did you throw away so that it would not disturb you as soon as you used it up?

In this case the parasitic gap appears in the most deeply embedded adjunct clause. Pro unmoved at S-structure must move at LF; however, it does not move by itself, but movement affects a phrase larger than pro under pied piping. The highest g-projection of pro in (40) is the PP (due to (39b). The movement of PP at LF gives an ill-formed structure, since the CP is a barrier for binding and government. Thus, it has been shown that Cinque's proposal allows us to arrive at correct results for parasitic gaps used in deeply embedded adjunct clauses. This approach also correctly predicts that a violation of an island, two adjunct clauses in this case, results in ungrammaticality. Thus, the apparent problems that Cinque's analysis creates at first glance can be successfully overcome if we adopt the pied piping option for parasitic gaps along the lines suggested by Cinque.

It has been shown that Cinque's analysis works well for Polish data. What must be added, however, are the case identity requirement as well as the anti c-command condition.

5. Conclusion

The present paper aimed at finding the best way of handling the distribution and function of parasitic gap constructions in Polish. Four existing analyses have been tested as to their ability to account for Polish data. The test has shown that Cinque's analysis provides the best account of Polish parasitic gaps. Although this approach must be provided with the two additional conditions, namely case identity and anti c-command, it works very well for the overall body of Polish parasitic gap structures. The main advantage of Cinque's approach lies in the fact that it naturally accounts for the lack of parasitic gaps belonging to other categories than NP. However, it leaves one problem unresolved, namely why AdjP parasitic gaps are legitimate in contradistinction to AdvP and PP parasitic gaps. The three remaining approaches do not seem to offer any solution to this problem, either. The fact that parasitic gaps obey island constraints does not undermine the validity of Cinque's proposal, since sensitivity to islands is no longer viewed as a prerogative of wh-movement, but is perceived to be a general property of chains. Cinque's approach is superior to Chomsky's account, which wrongly predicts that parasitic gaps in purpose clauses in Polish are illicit. The two remaining analyses, namely Browning's and Bordelois' proposals provide an explanation for a narrow range of data or generate ungrammatical structures. Therefore, their applicability is too limited to consider them appropriate for analysing Polish parasitic gaps.

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