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On deriving certain left branch extraction asymmetries:
A case study in parametric syntax

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1 Introduction

It was noted in Ross (1967) that left branch elements such as determiners, possessors and attributive adjective phrases cannot be extracted from within noun phrases in a language like English. Ross (1967) proposed his Left Branch Condition (LBC) in order to account for the frozen character of these constituents: "No NP which is the leftmost constituent of a larger NP can be reordered out of this NP by a transformational rule." This condition rules out the following left branch extractions, if it is also assumed that constituents like *that* and *how big* should be analyzed as deriving from an underlying NP (see Ross (1967)).

- 1 a.* Whose_i did you see [t_i car]?
- b.* Which_i did you see [t_i car]?
- c.* How big_i did you see [t_i a car]?

So, if you front an NP-internal left branch constituent, the dominating NP must be carried along. In other words, the LBC imposes obligatory pied piping in such structures.

Ross noted, however, that the inaccessibility of left branch constituents contained within noun phrases is not a universal property of natural languages. Certain languages, among which the Slavic languages Russian, Polish and Czech, permit left branch extractions from within noun phrases. This is exemplified in and (2) and (3) for Polish and Czech, respectively.

- 2 a. Wspaniałą_i zapowiadają_t [t_i pogodę]! (P(olish))
Great (they) are forecasting weather

- b. Jak piękną_i ma [t_i córkę]?
How beautiful (he) has daughter
- c. Jakie; pozyczyłes [t_i książki] z biblioteki? (Horn (1978))
Which (you) borrowed books from library
- d. Czyja; dałes [t_i książkę] Marii (Bobrowski (1988))
Whose (you) gave book (to) Mary
- 3 a. Jak pękna; Jan potkał [t_i děvčata]? (C(zech))
How beautiful John meets girls
- b. Jakou; by Jan dal [t_i knížku] Markovi?
Which would John give book to-Marek
- c. Její; čte Petr [t_i knihu]!
Her reads Peter book
- d. Tu; čte Petr [t_i knihu]!
This reads Peter book

Besides subextraction of the left branch constituent, it is possible to front the entire NP.

- 4 a. Wspaniałą pogodę zapowiadają (P)
b. Jak piękną córkę Jan ma?
c. Jakie książki pozyczyłes książki z biblioteki?
d. Czyja książkę dałes Marii?
- 5 a. Jak pękna děvčata Jan potkał? (C)
b. Jakou knížku by Jan dal Markovi?
c. Její knihu čte Petr
d. Tu knihu čte Petr

In the present paper I will examine within a principles and parameters approach what parametric difference underlies this asymmetric left branch extraction behavior between the two types of languages. Following Borer (1984), Chomsky (1989) and others, I will assume that parametric variation is related to the lexical system. The lexicon can differ from language to language in the set of syntactic categories of lexical items, for example. It is generally assumed nowadays that the lexicon has two different types of lexical items: traditional substantive elements (nouns, verbs, adjectives, etc) and functional elements (inflections, complementizers, determiners, etc.) (cf. Abney (1987)). A parametric difference between two languages may involve the functional system, i.e. languages may exhibit variation in the set of functional categories (cf. Fukui (1986)).

My proposal will be that in contrast with a language like English, languages such as Czech and Polish lack the functional category 'determiner'. As a result of that, the syntactic projection of this functional category (i.e. DP) is not present in the nominal phrase structure of these languages. In other words, nominal phrases in

Czech and Polish consist of "bare" NPs. It will be proposed that the asymmetric left branch extraction behavior between the two types of languages is a direct result of this difference in nominal phrasal structure in interaction with general well-formedness conditions (ECP and the Subadjacency Condition) on structures derived by syntactic movement.

2 On deriving left branch effects in English

In this section I will give a brief account within the Barriers system of the impossibility of extracting left branch constituents from a nominal phrase in a language English (cf. also Corver (1990) for a more elaborate discussion). I assume that proper government is antecedent government. The relation of government is defined in (6) (cf. Chomsky (1986b)):

6 A governs B iff A m-commands B and there is no G, G a barrier for B, such that G excludes A

The system makes a distinction between two types of barriers: (i) Barriers created by the absence of L-marking (L-barriers); (ii) Barriers created by the presence of a closer governor (M(inimality)-barrier). L-barriers constrain both movement and government, and as such have a unifying function with respect to the bounding and government theory. M-barriers on the other hand, are only relevant to government relations. I assume the following definition of M-barrier:

7 A is a M-barrier for B if A includes B, D (an X⁰ i-commander of B), and G (a maximal projection not necessarily distinct from A), where: D i(mmediate)-commands B if the first constituent containing D contains A (cf. also Sportiche (1988)).

A central assumption in my account of the nonextractability of the above-mentioned left branch constituents in a language like English is that determiners are functional heads that head a DP-projection and take the syntactic category NP as their complement (Cf. among others Abney (1987)). Consider now the following configuration:

8 [_{VP} V [_{DP} spec [_{D'} D [_{NP} AP [_{NP} N PP]]]]]

The nonextractability of determiners (e.g. *the*, *which*, etc) can be derived as follows under a DP-hypothesis: Moving the determiner to [Spec,CP] will always yield an ECP-violation, since the fronted determiner cannot escape the barrierhood of the dominating non-L-marked maximal projections (such as VP and IP, the latter by inheritance) via adjunction. Adjoining an X-null category to a X-max category is not allowed given the structure preservingness requirement on adjunction. As a result of this, there will no local antecedent governor for the trace left behind in the determiner position. Furthermore, movement of D⁰ into [Spec,CP] violates the structure preservingness requirement on substitution operations: an X-null category cannot substitute for an Xmax landing site (cf. Chomsky (1986b)).

The impossibility of extracting prenominal attributive APs can be explained as well in terms of the ECP. Following Lasnik and Saito's (1984) theory of proper government, I assume that the trace of a moved adjunct (and also its intermediate traces) receives its proper government $g(\text{amma})$ feature at LF. The proper government of an adjunct- (i.e. nonargument-) trace crucially depends on the availability of a local antecedent at LF. As opposed to Ross (1967), I will assume that a prenominal adjectival adjunct like *how big* in (1c) originates in a post-determiner position adjoined to NP. Extraction of the AP out of the dominating DP yields an ECP-violation, since D' is an M-barrier excluding the nearest potential antecedent, i.e. the VP-adjoined intermediate trace. With Chomsky (1986b), I assume that adjunction to DP, an argument-type category, is not permitted.¹

Let us finally consider the nonextractability of left branch possessors. I will propose the structures in (9) for strings like *John's car* and *whose car* (See also Fukui and Speas (1986)). As opposed to Chomsky (1986a) and following Abney (1987), I assume that 's is a genitive case marking element instead of a case realization.

- 9 a. [_{DP} John [_{D'} 's [_{NP} car]]]
 b. [_{DP} who [_{D'} se [_{NP} car]]]

The ill-formedness of an example like (1a) now follows from the fact that it is not allowed to move non-constituents.

3 Left branch extractions in Czech and Polish

In this section I will consider the question why left branch extractions as in (2) and (3) are permitted in languages such as Polish and Czech. I propose that the accessibility of left branch NP-internal constituents in Czech and Polish is due to the absence of a DP-projection in nominals. In other words, nominals in these languages consist of "bare" NPs. The absence of the DP-projection makes it possible to remove elements from within direct object NPs, for example, without violating the ECP or the Subadjacency Condition.

Initial support for the claim that languages like Czech and Polish lack a DP comes from the fact that they do not have articles corresponding to *the* or *a* in English. Noun Phrases in these languages can freely occur without any articles accompanying them. This is exemplified in (10) and (11):

- 10 Ptak patrzy na kota (P)
 Bird looks at cat
 'The/a bird is looking at the/a cat'

- 11 Marie mluvila s velmi velkým mužem (C)
 Mary spoke with very big man
 'Mary spoke with a/the very big man'

Potential candidates for the functional category D would be the class of demonstrative, possessive and interrogative elements in (12) and (13).

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- 12a. ten sklep ('this shop' NomMascSg) (P)
 b. tamten sklep ('that shop')
 c. czyj sklep ('whose shop')
 d. jaki sklep ('which, what sort of shop')
- 13a. to auto ('this car' NomNeutSg) (C)
 b. tamto auto ('that car')
 c. moje auto ('my car')
 d. jake auto ('what sort of car')

There are some indications however that in Czech and Polish these elements should be categorized as adjectival elements (AP) qualifying the noun rather than as determiners (DP). A first indication of this adjectival status is the fact that they have declension endings similar to regular adjectives, which agree in gender, number and case with the head noun they modify. This is shown for demonstratives, for example, in the following paradigm of masculine animate singular forms in Czech:

- 14 Nominative ten dobrý student (C)
 that good student
- Accusative toho dobrého studenta
 Genitive toho dobrého studenta
 Dative tomu dobrému studentovi (-u)
 Locative tom dobrém studentovi (-u)
 Instrumental tím dobrým studentem

Another fact which suggests the adjectival status of these elements is their occurrence in syntactic environments where adjectives typically occur, e.g. as predicates in copula-constructions.

- 15a. Píro jest nowe (P) 16a. Péro je nové (C)
 (The) pen is new (The) pen is new
 b. Píro jest moje b. Péro je mé
 (The) pen is my (The) pen is my

The distribution of these elements within the Noun Phrase also shows correspondence with the ordering possibilities of regular adjectives within the Noun Phrase. Although the position of adjectives with respect to the head noun is sometimes subject to certain semantic and stylistic constraints, adjectives can often appear both prenominal and postnominally (Cf. Gorecka (1988) and Siewierska (1987)), as is exemplified in (17):

- 17a. dlouhého kija a'. kija dlouhého (Gorecka (1989)) (P)
 long-GenSg stick-GenSg
 b. dlouhé vlasy b'. vlasy dlouhé (C)
 long-NomSg hair-NomSg

Notice now that this ordering behavior with respect to the head noun is also exhibited by the possessive and demonstrative elements in (12) and (13).

- | | | |
|-------------------------------------------------|--------------------------------------------------|---------------------|
| 18a. twoja sukienka
your dress | a'. sukienka twoja | (P) |
| b. ten student
this student | b'. student ten | (Bobrowski (1988)) |
| c. jej dlugie wlosy
her long hair | c'. dlugie jej wlosy | (Siewierska (1987)) |
| 19a. muj domov
my homeland | a'. domov muj | (C) |
| b. ta dziewczata pekna
these girls beautiful | b'. dziewczata ta pekna
girls these beautiful | |

Although linear order of prenominal adjectival elements is often not entirely neutral in many languages (Cf. Sproat and Shih (1987)), two regular prenominal adjectives can often be permuted. This permutability of adjectival elements also seems to be a property of the elements in (12) and (13) (the examples (20a,a') and (20b,b') are taken from Rozwadowska (1990) and Siewierska (1987), respectively):

- | | | |
|--------------------------------------------------------|--------------------------------|-----|
| 20a. ta twoja czerwona sukienka
this your red dress | a'. ta czerwona twoja sukienka | (P) |
| b. te piekne dziewczyny
these beautiful girls | b'. piekne te dziewczyny | |
| 21a. její dlouhé vlasy
her long hair | a'. dlouhé její vlasy | (C) |
| b. ta pekna dziewczata
these beautiful girls | b'. pekna ta dziewczata | |

Notice finally that it is also possible to have multiple prenominal possessives (example taken from Rozwadowska (1990)). So, as opposed to true determiners, these elements do not exhibit the property of closing off the category projection (cf. Fukui and Speas (1986)).

- 22 To jest moje twoje zdjecie a tam jest twoje zdjecie Romka (P)
This is my your picture and there is your picture Romek's

The above-mentioned properties of the adjectival elements are not found with the (possessive, demonstrative etc.) determiners in a language like English:

- 23a.* This book is my
b.* Book my
c.* This my picture
d.* My your picture
e.* Old my book


These ordering phenomena within the English Noun Phrase directly follows from the DP-analysis. If the determiner (D) is the head of DP, then the left peripheral position of this functional category follows from the parameter setting that English is head first. This head first parameter setting rules out (23b), in which the NP-

complement-NP precedes the determiner. Furthermore, under the assumption that attributive APs are base-adjoined to the NP selected by D^0 , it directly follows that the determiner in English precedes these adjectival elements (whence the ill-formedness of (23e)). Finally, the impossibility of having multiple determiner-like elements within the noun phrase (as in (23c,d)) is a direct consequence of the availability of only one D^0 -position.

Given the considerations above, I will assume that the elements in (12) and (13) should be categorized as adjectives rather than as determiners. Given the absence of true determiners, I propose that there is no determiner projection (DP) in these languages. Nominals in Czech and Polish are "bare" NPs and the adjectival possessives, demonstratives etc. are AP-adjuncts base-adjoined to NP. I will further assume that these adjuncts are unordered with regard to each other and to APs modifying the head noun and that they can be generated both in a left-adjoined position and in a right-adjoined position.² Schematically, the following base-structures are permitted:

- 24a. [NP AP [NP spec [N' N complement]]]
 b. [NP [NP spec [N' N complement]] AP]

On the basis of this nominal phrasal structure, the possibility of extracting left branch constituents in Czech and Polish can be explained straightforwardly in a Barriers system. Suppose the left branch constituent is extracted from within a direct object noun phrase:

- 25 ...[VP t'_i [VP V [NP [AP t_i] [NP N]]]]
- 

The direct object is L-marked by the verb. Therefore it is not a BC, nor an L-barrier. The adjectival element can be moved from within the NP to the left periphery of the clause via intermediate adjunction to VP, without crossing any L-barrier.³ So neither the Subadjacency Condition nor the ECP is violated because of intervening L-barriers. The Subextraction of the AP out of the dominating NP is not blocked by minimality (ECP) either, since the trace occupying the left branch position is accessible to the external VP-adjoined antecedent governor. Under the definition of minimality given above, the direct object NP is not a M-barrier for the trace left behind after removal of AP, since this NP does not contain a head i-commanding the trace. The lower VP-segment is not a M-barrier excluding the antecedent governor (t'_i) either.

I conclude this section with the observation that a language like Italian also has adjectival possessives (Cf. Giorgi and Longobardi (1987)). As opposed to adjectival possessives in languages such as Polish and Czech, these elements cannot be removed out of a nominal phrase:

- 26 * Mio_i ha visto [il t_i libro]
 My he-has seen the book

I propose that this asymmetric extraction behavior between left branch possessives in Czech and Polish on the one hand and Italian on the other is due to the difference in phrasal structure of the nominal phrase. Whereas in these Slavic languages, the

nominal phrase consists of a bare NP, in Italian there is a Determiner Phrase (headed by *il* in (26)) on top of the NP.⁴ Extraction in (26) is excluded, since the trace of the fronted possessive AP is not antecedent governed by the intermediate antecedent-trace adjoined to VP because of the intervening M-barrier D'.

4 More extraction facts

The left branch extractions discussed so far involve direct object-NPs contained within VP. The question arises whether subextraction of left branch elements is also permitted from within NPs having a different syntactic position within phrase structure. In this section, I will discuss left branch extraction possibilities from within NP-complements of nouns and prepositions.⁵ Before turning to a discussion of left branch extractions from within genitive NPs, let us look at the mobility of genitive noun phrases. The following sentences show that genitive noun phrases can be removed from within NPs:

- 27a. *Którego mężczyzny widziałeś [książkę t_i]? (P)*
 Which-GEN man-GEN (you) saw book
 b. *Czyjego profesora Jan czytał [artykuł t_i]? (P)*
 Who-GEN professor-GEN Jan read article
- 28a. *Čího bratra to je [klobouk t_i]? (C)*
 Who-GEN brother-GEN this is hat
 b. *Vojákovi lékař obvázał [ránu t_i]? (C)*
 Soldier-GEN doctor bandaged wound
 'The doctor bandaged the soldier's wound'

Direct removal of the genitive NP out of the containing NP is not allowed. It would violate the ECP, since the dominating NP counts as an M-barrier (it includes the trace, a head *i*-commanding the trace (viz N⁰), and a maximal projection containing the trace, viz. NP itself). I propose, however, that an ECP-violation can be circumvented by moving the genitive phrase through the prenominal [Spec,NP]-position. The intermediate trace in [Spec,NP] antecedent-governs the argument trace occupying the complement position of N. As is illustrated below, it is possible to have the genitive NP in a prenominal position in Polish and Czech:

- 29a. *Jan widział [książkę [tego mężczyzny]] (P)*
 John saw book-ACC that-GEN man-GEN
 b. *Jan widział [[tego mężczyzny] książkę]*
- 30a. *[Knihu [kterého muže]] jsi viděl? (C)*
 Book-ACC which-GEN man-GEN you-have seen
 b. *[[Kterého muže] knihu] jsi viděl?*

Consider now the following ill-formed sentences, in which the AP-modifier is reordered out of the NP-complement of N:

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- 31 * *Którego_i* (ty) widział [książkę [t_i mężczyzny]]? (P)
Which-GEN (you) saw book man-GEN
'Which man's book did you see?'
- 32 * *Kterého_i* jsi viděl [knihu [t_i muže]]? (C)
Which-GEN you-have seen book-ACC man-GEN

In these ill-formed sentences, the left branch adjectival elements *którego* and *kterého*, which are contained within the NP-complement, are fronted. What causes the ungrammaticality of these sentences? These sentences are not ruled out by the Subjacency Condition: Removal of the adjectival interrogative element does not cross any L-barriers. The NP directly dominating this phrase is not an L-barrier since it is L-marked by the noun which takes the genitive NP as its complement. The higher NP is L-marked by the verb. Via adjunction to VP, the left branch constituent can be moved to [Spec,CP] without violating the Subjacency Condition. So, the ill-formedness of these structures is presumably due to ECP. Removal of the interrogative elements to the nearest landing site (i.e. a position adjoined to VP) violates minimality: The direct object-NP forms a M-barrier for the trace contained within the lower complement-NP: it contains: (i) the trace occupying the adjunct-position, (ii) a head i-commanding the trace, namely the nominal head of the larger NP, (iii) a maximal projection including the trace (viz. the direct object NP itself).

Next, let us consider the possibility of extracting a left branch constituent from within an NP that is a complement of P^o. Notice first of all that P-stranding is not possible in Polish and Czech (cf. also Borsley (1983)).

- 33a.* *Jaki stol_i* Jan wskoczył [na t_i]? (Horn (1983)) (P)
What table John jumped onto
- b.* *Jaký stůl_i* Jan skočil [na t_i]? (C)
What table John jumped onto

Following Van Riemsdijk (1978), I will assume that non-P-stranding languages such as Polish and Czech lack a specifier position which can function as an escape hatch for complement extractions. As a consequence, the right branch complement of the preposition is moved in one swoop to the next potential landing site, namely a position adjoined to VP. Under the assumption that argument traces, just like non-arguments, have to be antecedent governed, these sentences are ruled out, since the intermediate antecedent-trace adjoined to VP does not govern the argument trace because of minimality. PP is a M-barrier, since it contains a trace, a zero-level category i-commanding the trace, viz. P^o, and a maximal projection containing the trace, namely PP itself.

Left branch removal is not possible either from within NP-complements of prepositions ((34a) from Giejgo (1981)).

- 34a.* *Jakim_i* on mieszka [na [t_i pięttrze]]? (P)
What he lives on floor
'On what floor does he live?'
- b.* *Dużym on mieszkał* [w [t_i domu]] w czasie swojej młodości
Large he lived in house during his youth

- 35a.* Jaký_i Jan skočil [na [t_i stůl]]? (C)
Which John jumped onto table
- b.* Jakém_i Jan bydlel [v [t_i paláci]]?
Which John lived in palace

The NP containing the left branch trace is L-marked by P, and therefore is not an L-barrier. The PP is not an L-barrier either, because it is L-marked by the verb. Removal of the left branch element to the nearest landing site (i.e. adjunction to VP) does not cross any L-barriers. From the VP-adjoined position, the left branch constituent can move into [Spec,CP] without crossing any other L-barriers. So, the ungrammaticality of these sentences is not due to the Subjacency Condition. Extraction of the adjectival left branch modifiers from within the NPs that are sisters of P⁰ yields a minimality violation (i.e. an ECP-violation). The nearest antecedent for the NP-internal trace, is the intermediate trace adjoined to VP. This intermediate trace cannot properly govern the NP-internal trace, because PP is an intervening M-barrier. PP contains a head i-commanding the trace (viz. P), the trace itself and an X_{max} containing the trace (viz. NP).⁶

Consider next the following sentences ((36a) taken from Jaworska (1984)):⁷

- 36a. Z którym Maria rozmawiała mężczyzną? (P)
With which Mary talked man
'Which man did Mary talk to?'
- b. W dużym on mieszkał domu w czasie swojej młodości
'He lived in a large house during his youth'
- 37a. Na jaký Jan skočil stůl? (C)
Onto which John jumped table
'Onto what table John jumped?'
- b. V jak krásném Jan bydlel paláci?
In how beautiful John lived palace

The striking property of this construction is that a left branch element is fronted together with a preposition. It looks as if a nonconstituent has been removed. As pointed out by Borsley and Jaworska (1988), it does not seem very plausible that these strings are derived by first extraposing part of the NP (e.g. N) and subsequently preposing the entire PP, since unlike standard cases of extraposition the "extraposed" nominal element is not necessarily placed in sentence-final position (example taken from Borsley and Jaworska (1988)):⁸

- 38 Z którym Jan spotkał sie studentemprzed wykładem (P)
With which Jan meet REFL student before lecture
'Which student did you meet before the lecture?'

Another argument against this extraposition analysis is based on the following examples from Polish:

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- 39a. *Daleko za którą bramą stał Jan?* (P)
 Far behind which gate stood John
 b. *Za którą stał Jan bramą?*
 Behind which stood John gate
 c.* *Daleko za którą stał Jan bramą?*
 Far behind which stood John gate

In (39a), a PP which contains a left branch modifier (*daleko*) has been fronted. The b-sentence shows that a preposition and an adjectival interrogative element can be preposed together to the left periphery of the clause. Example (39c) shows that such a fronting operation yields an ill-formed sentence, when the modifier of the fronted PP is moved along with the preposition and the interrogative element. It is not clear what would block the derivation of (39c), if one adopts an analysis which first extraposes the nominal element *bramą* and subsequently preposes the entire PP. If such an analysis can derive (39b), it can also wrongly generate the ill-formed the ill-formed string in (39c).

Another analysis that might be proposed for deriving the sentences in (36) and (37) would be to say that the left branch element is adjoined to the preposition heading the PP and that this complex preposition is fronted. Under the structure preservingness requirement on adjunction operations, it is not permitted to adjoin the maximal projection AP to P^o. So, the adjectival head must move via head to head movement to the preposition. Notice that this violates the ECP, since it crosses the adjunct-AP, which is an L-barrier because it is not L-marked. Notice further that such an analysis is not very likely, since prepositions in Polish and Czech can never be fronted from within PP ((40a) is taken from Bobrowski (1988)).

- 40a. * *Do_i Janek idzie [t_i domu]* (P)
 To Johnny went home
 b. * *Na_i Jan skocil [t_i stul]* (C)
 Onto John jumped table

These sentences cannot be derived, since removal of the P will yield an ECP-violation. The preposition cannot be adjoined to VP because of the structure preservingness requirement on adjunction operations. Direct movement to the left periphery of the clause yields an ECP-violation, since VP and IP (the latter by inheritance) are intervening barriers. Notice furthermore that P^o cannot be moved into [Spec,CP] since this landing position only permits maximal projections.

I will assume that the derivation of the sentences in (36) and (37) involves (syntactic) cliticization of the preposition onto the head of the string adjacent maximal projection (XP) to its right.⁹ Booij and Rubach (1987) provide phonological evidence from the rule of final devoicing in Polish that shows that prepositions act as proclitics (Cf. also Dyta (1988) and Gorecka (1989)).¹⁰ Note that P can only cliticize onto a right host, and not onto a left host. In other words, it is a pro-clitic and not an enclitic. So, it cannot move along with a left adjacent WH-phrase:

- 41a. *Jan włożył palec [głęboko do buzi]* (P)
 John stuck finger deep in mouth
 b. *[Jak głęboko do buzi] włożył Jan palec?*
 How deep in mouth stuck John finger

- c. *Jak głęboko włożył Jan palec [t_i do buzi]?*
 d.* *Jak głęboko do włożył Jan palec buzi?*
- 42a. Jan schoval zlato [hluboko pod zem] (C)
 John hid gold deep under ground
- b. [Jak hluboko pod zem] Jan schoval zlato?
 How deep under ground John hid gold
- c. *Jak hluboko_i Jan schoval zlato [t_i pod zem]?*
 d.* *Jak hluboko pod Jan schoval zlato zem?*

The b-sentences illustrate fronting of the entire PP. In the c-sentences, a left branch adjectival modifier has been removed from PP. Notice that this extraction does not violate the ECP via minimality: PP is not a M-barrier for the trace occupying the adjunct-position within the PP, since it does not contain a head i-commanding the trace. The ill-formed d-sentences show that the preposition cannot move along with a preceding left branch maximal category. So, P can only attach to an element that follows it. It cannot move along with an element that precedes it.

I assume that the right-adjacent host onto which the preposition is cliticized is a zero-level category in order to fulfill the structure preservingness requirement on adjunction operations. So, before the left branch constituent is fronted, the preposition is left-adjoined to it, yielding a PP headed by a P⁰ which is not lexically filled. Schematically:



I will assume that the cliticized preposition does not leave behind a trace. The preposition (P⁰) is not an argument: it does not bear any theta-role. Therefore, presence of a trace of the downgraded preposition in LF, the level where nonargument traces are licensed, is not forced by the Projection Principle, which requires that elements bearing a theta-role are present at all levels of syntactic representation. Since the prepositional clitic does not leave behind a trace, movement to a non-c-commanding position is unproblematic with respect to the ECP.

After the prepositional clitic has been cliticized onto the left branch constituent, the sequence P+AP is fronted. Following Chomsky (1986b), I will assume that a minimal governor must be a category with features to serve as a barrier to government. Since the (prepositional) head is no longer lexically filled after cliticization, the dominating projection of the head does not constitute a M-barrier for the nonargument trace of the fronted sequence P+AP. The fronted P+AP combination is fronted to the left periphery of the clause via intermediate adjunction to VP without the violating the ECP at LF.

Consider next the following examples noted in the literature:

- 44a. *O dziewczynie mówiliśmy tej* (Siewierska (1984)) (P)
 About girl we-spoke this
 'We spoke about this girl'
- b. *W sukni Maria przysła czerwonej* (Borsley & Jaworska (1988))
 In dress Maria came red
 'Maria came in a red dress'

In these sentences, the preposition is fronted together with a nominal element, leaving behind the attributive AP. In the previous section, I argued that attributive APs could be base-generated either in prenominal or postnominal position (see (24)). The discontinuous patterns in (44) can be derived from a base-structure in which the adjectival constituent is base-adjoined to the right of the NP (as in structure (24b)). If this structure is input to the cliticization process, the preposition will be adjoined to the nominal head of the lower NP-segment. Schematically:

45 [VP [PP P [NP [NP N] AP]]]

After cliticization of the P onto the right-adjacent nominal element, the P is empty. Fronting of the lower NP-segment (including the cliticized preposition) is permitted, since the PP has lost its M-barrier status.

Extraction of the sequence *P+AP* is not allowed from the following syntactic configuration (example taken from Horn (1978)):

46 * *O jakim Jan podarł [artykuł - - polityku]]?* (P)
 About which John tore-up article politician
 'About which politician did John tear up an article?'

In this example, the interrogative left branch constituent is extracted together with the cliticized preposition. The sentence is ruled out because of minimality. After cliticization of the P to the left branch modifier of the lower NP, the PP complement is no longer a M-barrier. Notice that neither NP nor PP are L-barriers. Despite the fact that PP loses its M-barrierhood status, the sentence is still out, because the higher NP headed by *artykuł* constitutes a M-barrier. It contains the trace, a head *i*-commanding the trace (the noun *artykuł*), and a maximal projection containing the trace (viz., PP and NP).

Notice finally that the ill-formedness of (39c), in which the sequence modifier-P-AP (*daleko za którą*) is fronted, is due to the fact that a non-constituent has been proposed.¹¹

To conclude this section, I would like to point out that the above-mentioned phenomenon that a projection of a X^0 loses its M-barrierhood status after cliticization of X^0 to a right-adjacent element has also been proposed by Shlonsky (1988) in his analysis of subject extractions from COMP-trace environments in Hebrew. Wh-extraction of a subject-NP across the declarative complementizer *še* is permitted (even in structures which do not allow a null pronominal subject, e.g. with present tense).

47 *Mi amar-ta še-halax*
 who said-2sm that-left
 'who did you say (that) left?'

Shlonsky argues that *še* is cliticized to the right-adjacent overt X^0 in syntax. When the C^0 is vacated, C' no longer constitutes a M-barrier and therefore subject extraction does not yield an ECP-violation.

5 Conclusion

In this paper I have tried to show that the differences in left branch extraction behavior from noun phrases in languages such as Czech and Polish on the one hand and English on the other hand are the result of a different nominal phrasal structure. English nominals consist of a DP headed by D^0 , which takes the category NP as its complement. Nominals in Czech and Polish, however, lack the DP-projection and simply consist of bare NPs. It was shown that potential candidates for the category "Determiner" (e.g. possessive and demonstrative elements) should preferably be analyzed as adjectival constituents (APs) adjoined to NP. This difference in phrasal structure in combination with the principles of the government and bounding theories accounts for the asymmetric left branch extraction behavior exhibited by the languages discussed in this paper.

Notes

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1 The question arises how a string like *how big a picture*, in which the AP appears in a predeterminer position, is derived? If a local syntactic movement operation is involved from a post-determiner (NP-internal) to a pre-determiner (NP-external) position, then we would expect this structure to be out because of the ECP (D' being a M-barrier). I assume, however, that the AP is moved to a pre-determiner position at PF, a level where the ECP does not apply. One potential argument against a movement analysis yielding the structure *how big_i a t_i picture* comes from the following extraction fact:

- (i) Who_i did you get [so big a picture of t_i that you didn't know what to do with it]?

If it is assumed that *who* is extracted from within the picture-noun phrase via [Spec,DP] in order to circumvent a sujacency violation, then one would expect this sentence to be out, since it would cross two L-barriers, namely NP and DP (the latter by inheritance). The [Spec,DP] cannot be used as an escape hatch, since that position is already filled by the fronted AP. The well-formedness of the example suggests that at S-structure, AP does not occupy the [Spec,DP]-position.

See also Woisetschlaeger (1981), who argues that this AP-shift operation, which permutes the AP to the left around the indefinite (stressless) article *a*, is a response to the rhythmic difficulties engendered by the three stacked stresses in *a how big picture*.

- 2 With Gorecka (1989) I will assume that the alternate word orders within Polish (and Czech) noun phrases is not the result of a scrambling rule which adjoins categories to NP. A theory-internal argument against NP-internal scrambling is the fact that adjunction to argument-type categories is excluded (cf. Chomsky (1986b)). The following ill-formed strings furthermore show that NP-internal word order

variation through scrambling (i.e. adjunction though movement) is not permitted in a language like Polish:

- (i) a. [wiersz [mojego kolegi]] (Gorecka (1989))
 poem-NOM my-GEN friend-GEN ('My friend's poem')
 b.* [mojego wiersz [-- kolegi]]

3 As shown by the examples in (i), an attributive AP can be "scrambled" out of an NP-complement of a verb and occupy a position to the left of the verb. In the previous note it was pointed out that a similar discontinuous pattern is not allowed when the NP-complement is selected by a Noun.

- (i) a. Jan starszego_i pobił [t_i pana] (P)
 John old-Acc hit man-Acc
 b. Jan tego_i pobił [t_i pana]
 John this-Acc hit man-Acc

Since the nonargument-type category VP is a potential adjunction site (cf. Chomsky (1986b)), this structure could be derived via clause-internal movement (i.e. adjunction). This would imply that phenomena of word order freedom in Polish might result from different mechanisms: (i) free generation of hierarchically organized but linearly unordered phrases (cf. Gorecka (1989) for such a proposal for noun phrases) and (ii) clause-internal adjunction to VP. I will not further pursue this issue here.

4 The determiner-status of the definite article *il* and the adjectival status of the possessive element *suo* is shown among others by the following facts taken from Giorgi and Longobardi (1987):

- (i) a.* *il* *ciascun* *libro* (the each book)
 b.* *Libro* *il* (book the)
 c.* *buon* *il* *libro* (good the book)
- (ii) a. *il* *mio* *libro* (the my book)
 b. *il* *libro* *mio* (the book my)
 c. *il* *piu* *bel* *suo* *libro* (the most beautiful his book)

Like the English determiner *the*, *il* has a very fixed position within the noun phrase. The distribution of *suo* on the other hand is similar to that of adjectives.

5 Lack of space prevents me from discussing subject-object asymmetries in left branch extraction in Polish and Czech. See Zabrocki (1987) for a discussion of such asymmetries in Polish.

6 Adjunction to PP is not permitted given the argument-type status of this category. The ill-formedness of (ib) also shows that adjunction to PP is not allowed:

- (i) a. [do *mojej* *buźi*] (P)
 into my mouth
 b.* [*mojej* do [-- *buźi*]]

7 As expected, "scrambling" of the AP-modifier from within the NP-complement of the preposition is not permitted. As shown by example (ii), clause-internal movement of the sequence P+AP is allowed (example (ii) taken from Iwaskiewicz (1979)):

(i) * Jan *dużym* mieszkał [w [- domu]] (P)
Jan large lived in house

(ii) Grzech nieufności *na twoim* ciąży sumieniu
Sin-NOM distrust-GEN on your weighs conscience
'The sin of distrust weighs on your conscience'

8 An anonymous reviewer of Borsley and Jaworska's (1988) article has pointed out that this objection is perhaps relatively weak, since it could be argued that after extraposition of the nominal element out of the PP, scrambling could apply, yielding the linear order in (38).

9 See Giejgo (1981) and Borsley and Jaworska (1988) among others for a restructuring analysis of these sentences.

10 Dyla (1988) regards Polish prepositions as clitic-like elements and claims that prepositional phrases in Polish are not full-fledged PPs but rather NPs with proclitic prepositions. This view is refuted in Borsley and Jaworska (1989). They show convincingly that "although prepositions can be clitics attached to the first word of what looks like their complement, they can also be ordinary heads of phrases (p. 254)."

11 Consider also the ill-formedness of the following sentence, which is related to the paradigm in (39):

(i) * *Za którą* stał Jan *daleko* bramą?
Behind which stood Jan far gate
'Far behind which gate did John stand?'

One would expect removal of *za którą* to be possible, since if the preposition can cliticize onto the attributive AP in syntax, then the empty prepositional head should no longer create a M-barrier for antecedent government. The ill-formedness of this sentence could be explained as follows. One might hypothesize, however, that given the general impossibility of modifying clitics, prepositions in Polish and Czech only syntactically behave like a clitic when there is no modifier present in their projection. According to such an analysis the preposition in the sequence *daleko za którą bramą* does not cliticize onto the AP (*którą*) in syntax and fills the P⁰-slot in syntax. In that case, removal of the sequence *P-AP* as in (i) yields an ill-formed sentence, since a non-constituent has undergone movement.

An alternative account for the ungrammaticality of (i), suggested to me by Riny Huybregts, is in terms of relativized minimality. It could be argued that the preposition still cliticizes onto the adjacent AP in syntax. In that case, removal of the sequence *P+AP* (*za którą*) out of the PP crosses the adjectival element modifying the preposition (i.e. *daleko*). It could be argued that this adjectival modifier of the PP is a nearer potential binder of the NP-internal AP-trace left behind after removal of *za którą*, and that it blocks antecedent government of the NP-internal trace by the fronted combination *P+AP za którą*.

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