

Critical Review of Approaches to Multiple Wh-Movement*

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1 Introduction

The aim of this paper is to provide a concise, but critical, review of approaches to the phenomenon of multiple *wh*-fronting in languages like Polish. In Polish (and many other languages¹) sentences like the ones below are fully

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¹The underlying order of the languages considered here is SVO.

grammatical^{2,3}:

- (1) Kto kogo zabił? (Polish)
Who whom killed?
'Who killed whom?'
- (2) Powiedziałaś, że kto kiedy wychodzi? (Polish)
You said that who when leaves?
'Who did you say leaves when?'
- (3) Kto co kiedy zrobił? (Polish)
Who what when did?
'Who did what and when?''⁴

Multiple *wh*-movement for a long time remained unnoticed by the transformational community. The result of this neglect was general acceptance of the allegedly universal principle stating that there is at most **one** *wh*-movement per simple sentence (*Q*-Morpheme hypothesis of [Bak70]).

The first to notice the problem, still in the pre-GB era, is [Wac74]. She argues that there is a genuine multiple *wh*-movement both in Polish and in Russian, which cannot be accounted for by another kind of movement, namely movement of a pronoun. She also claims that there is some evidence that "Ancient Greek and Latin also performed several question movements although this fact was attributed to their 'free word order.'" Since then other authors dealt with similar phenomena in other, not only Slavic, languages: [Tom81] wrote about Czech and Polish, [Rud81] about Bulgarian and Russian, [Com86] about Romanian, [Rud88] about Serbo-Croatian (as well as about the above). [McD89] attempted to explain multiple *wh*-movement in Romani and some dialects of German.

Taking into consideration the perspicuity of the phenomenon, and the fact that it has been difficult to account for it within successive transformational theories, it is wondrous that so little effort has been put into explaining it. The following sections will present proposals existing within GB and will attempt to evaluate them with respect to Government and Binding Theory (as presented in [Hae91] and [Cho86]). I will also put forward a competing proposal and give arguments showing that it has wider empirical coverage than the hypotheses existing so far.

²Actually, they are the only possibilities.

³I am concerned here only with *wh*-questions with simple *wh*-words. Questions with *wh*-phrases pattern in Polish in a less regular way

⁴English counterparts will not always be perfectly grammatical. They should convey, however, the intended meaning.

2 Early Proposals

In this section I will present the first attempts (dating from early eighties) to explain multiple *wh*-movement within GB. This presentation will be mainly based on two articles: [Tom81] and [LS84]⁵.

First I will present two of five hypotheses considered by Toman, discussing his arguments against them and constructing one more argument, based on ECP (section 2.1). Then I will present the other three proposals and evaluate them informally (section 2.2). Finally, I will refute two of them (the one favoured by Toman, and the one chosen by Lasnik and Saito) and give arguments in favour of the third hypothesis, which I will subsequently adopt (section 2.3). This refutation will be based on Lasnik and Saito's own formulation of ECP.

Both papers were written before the structure of CP (i.e. [_{CP} Spec [_{C'} Comp IP]]) was generally accepted and they assume the following structure for clauses: [_{S'} COMP S]. It is clear that S is translated as IP, S' as CP, and COMP should be understood as CP-Spec. To avoid confusion, complementizer in the sense of S' phrase structure will be denoted as COMP, while in the sense of CP – as Comp.

2.1 Naive Approaches

[Tom81] puts forward five hypotheses concerning the position of the moved *wh*-elements, of which the first two will be discussed in this section. I will illustrate them on the example (3), repeated here for the reader's convenience:

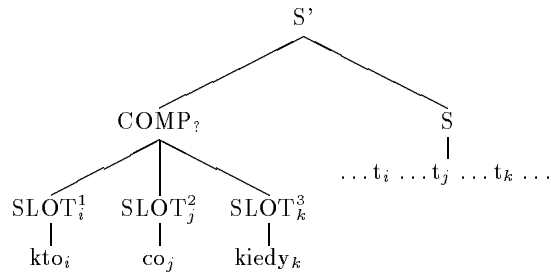
- (3) Kto co kiedy zrobil? (Polish)
 Who what when did?
 ‘Who did what and when?’

The first hypothesis is consistent with Wachowska's analysis:

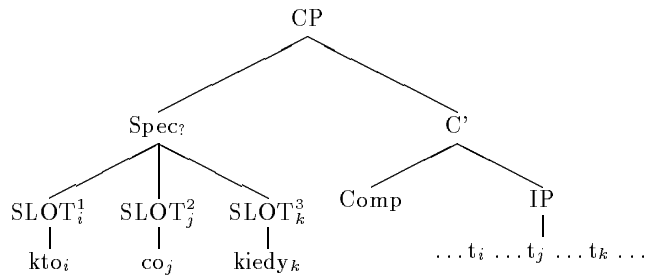
Hypothesis 1 *In Polish, unlike in English, COMP has many +wh-slots, i.e. many wh-elements can move there.*

The example sentence would have the following structure according to this hypothesis:

⁵Two other articles on multiple *wh*-movement (which I will not consider here) dating from the same period are: [Rud81] and [Hor84]. The former simply states that all *wh*-phrases move to COMP (without justifying this statement), while the latter gives a consistent explanation of the phenomena in question, which is, however, well outwith current GB theory: it denies any *wh*-movement stipulating that *wh*-phrases are base-generated in COMPs (in essence, it is closer to HPSG).



or, in terms of \bar{X} -theory:

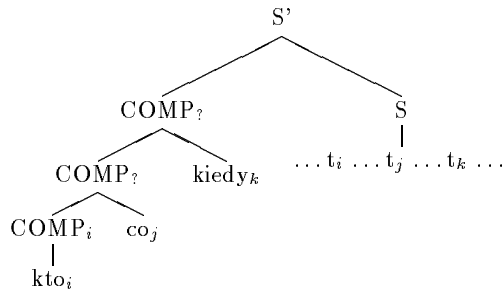


This hypothesis seems to be somewhat suspect because it uses kind of construction (multiple slots) not encountered anywhere else in GB. It is clear that any proposal, as the next one, based on mechanisms already introduced to GB should be preferred.

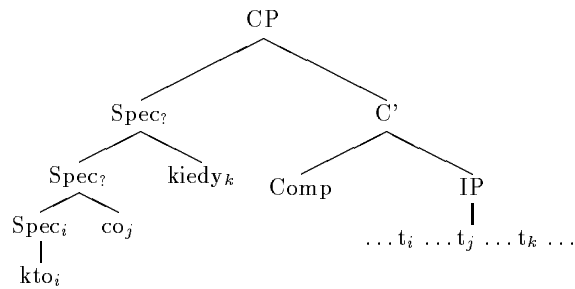
The second proposal, very similar to the first one, differs in that it allows adjunctions to COMP.

Hypothesis 2 *When COMP is occupied by a wh-element, adjunction to this COMP can (and, indeed, must) take place in Polish in case of multiple wh-question. This is forbidden in English.*

This time the structure of the example sentence might be:



that is:



Both hypotheses can be, according to Toman, refuted on the same grounds: they assume that all the frontal *wh*-elements form one constituent (namely, CP-Spec). Toman gives a number of arguments for the fact that it cannot be the case.

First of all, he devises a “constituency test for the clause initial position.” He reasons as follows: The reflexive pronoun *się* can occupy a number of positions in the sentence, it cannot, however, move into the first major constituent. This is exemplified below ([Tom81], pp.295-6):

- (4) a. [_{NP} Ten stary pan] **się** wczoraj ogolił. (Polish)
 That old man *refl* yesterday shaved.
 ‘That old man shaved yesterday.’
 b. [_{NP} Ten stary pan] wczoraj **się** ogolił.
 c. [_{NP} Ten stary pan] wczoraj ogolił **się**.
- (5) a. * [_{NP} Ten stary **się** pan] wczoraj ogolił.
 b. * [_{NP} Ten **się** stary pan] wczoraj ogolił.

Since *się* can move to the position between *wh*-elements, they cannot form a single constituent:

- (6) a. Kto **się** komu podoba? (Polish)
 Who *refl* whom likes?
 ‘Who likes whom?’
 b. Kto komu **się** podoba?

The same reasoning can be applied to another clitic Toman mentions, that is to *by* (subjunctive auxiliary corresponding to English *would*) which has the same distribution as *się*. Such distribution can be explained in GB by the requirement that the moved element has to c-command its trace. If so, then *wh*-elements cannot form a constituent in (7) because *by* would not be able to satisfy this requirement.

- (7) Gdzie **by** kto poszedł? (Polish)
 Where would who go?
 ‘Who would go where?’

Toman confirms this result by giving another argument. In complex Czech sentences *wh*-element can appear in embedded CP-Spec, or, alternatively, it can move to matrix CP-Spec. Multiple *wh*-elements can all appear in the initial position of the embedded sentence, so if they formed a single CP-Spec, they analogously would be able to move to the matrix CP-Spec. This is not the case: in Czech multiple *wh*-phrases have to stay in the embedded clause⁶. Hence, they cannot belong to a single constituent.

There is one argument against these hypotheses that neither [Tom81] nor any other author gives: it involves ECP. Consider the trees illustrating hypotheses 1 and 2. According to ECP, t_i , t_j and t_k have to be properly governed. Arguments, i.e. t_i (corresponding to *kto*, or 'who') and t_j (*co*, or 'what'), have their γ -features assigned at S level. t_i is θ -governed by *zrobil* ('did'), but the subject trace t_j is not — it has to be antecedent-governed to get $+\gamma$. That means that the main CP-Spec has to have index i at S level (assuming COMP indexing as described in [LS84]). This in turn means that at LF CP-Spec will still have index i , and that t_k will not be antecedent-governed and, hence, it will not be properly governed. Thus t_k will get a $-\gamma$ feature, violating ECP.

[Com86] and [Rud88] attempt to defend these hypotheses by either assuming that COMP (i.e. CP-Spec) is not a maximal projection so *wh*-elements can govern their traces from within COMP, or by passing index to COMP along the lines of [LS84] (see [Rud88], p.447). The former option cannot be seriously taken into consideration: Spec is generally assumed to be maximal projection, and Rudin herself admits it elsewhere (thus contradicting herself, see p.481). The latter one, though, can be assumed, but it would imply that *wh*-questions cannot contain more than one *wh*-element corresponding to subject or adjunct. (If they could, then only one of them would antecedent-govern its trace and an ECP violation would take place, see reasoning in the previous paragraph.) This is clearly not consistent with data from Polish (see (3) above), Czech ((8) below) and Russian ((9) below), so I will not consider these two hypotheses in this section anymore. However, see section 3 for development of these ideas.

- (8) Řekněte nám, kdy co kdo komu dal. (Czech)
 Tell us when what who to-whom gave.
 'Tell us who gave what to whom when.'
- (9) Kto čto kogda skazal? (Russian)
 Who what when said?
 'Who said what when?'

It is important to realize the implicit assumptions of this (and next) section: the first is that once assigned, an index of CP-Spec cannot be changed; the second is that CP-Spec can have only one index at a time. If we allow the

⁶Movement even of single *wh*-elements out of embedded clauses is forbidden in Polish (usually) and Russian (always).

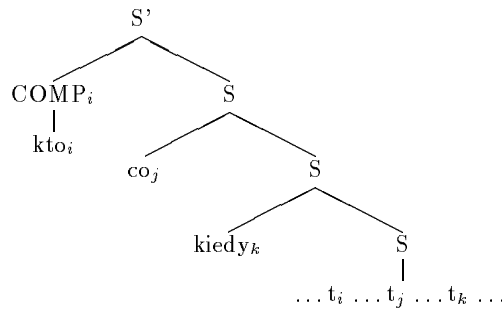
possibility that CP-Spec inherits all the indices of its constituents, ECP will be satisfied⁷.

2.2 Radical Approaches

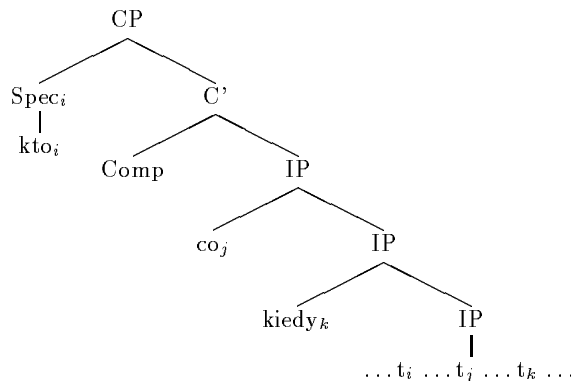
After refuting the above hypotheses, Toman considers more 'radical' approaches to the problem. All three hypotheses he gives have one important feature in common: they allow adjunction to S (IP). It is worth noticing that even though this possibility is directly inconsistent with [Cho86]⁸, it is widely assumed within GB ([Tom81], pp.299-301, [LS84]. p.280, [Rud88], pp.471 and 486, [Hae91], p.355, [Bor91], p.194).

Hypothesis 3 *If COMP is filled (perhaps after wh-movement) then movement of wh-phrases to sentence-initial positions is realized by adjunction to S (form of scrambling).*⁹

The tree corresponding to our example would be:



or in terms of post-*Barriers* \bar{X} -theory:



⁷I will not pursue this idea any further here. See [McD89] for application of absorption to analysis of partial and multiple *wh*-movement in German and Romani.

⁸"*Wh*-phrases may not adjoin to IP", p.32.

⁹This is the hypothesis adopted by [LS84].

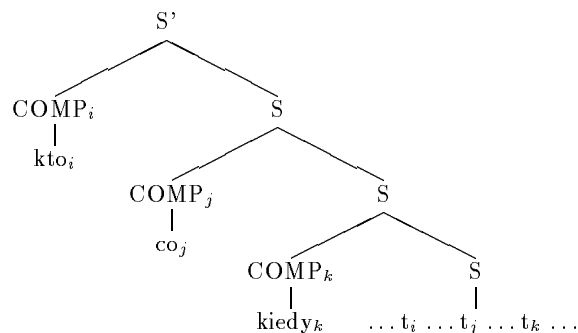
It seems to me that the main disadvantage of this attempt is the fact that there is a difference between movement of the first *wh*-element (substitution) and movements of other *wh*-words (adjunction). This does not conform to my intuitions that all the sentence-initial *wh*-phrases have the same status¹⁰, and in fact — as examples¹¹ (10) – (12) show — can have arbitrary order.

- (10) a. Kto co robił? (Polish)
 Who what did?
 ‘Who did what?’
 b. Co kto robił?
- (11) a. Ko koga vidi? (Serbo-Croatian)
 Who whom sees?
 ‘Who sees whom?’
 b. Koga ko vidi?
- (12) a. Kdo kdy koho pozval, nevím. (Czech)
 Who when whom invited, I don’t know.
 ‘Who invited whom when, I don’t know.’
 b. Kdy kdo koho pozval, nevím.
 c. Koho kdy kdo pozval, nevím.

The next hypothesis (the one favoured by Toman) differs from the previous one by the assumption of “proliferation of COMPs” which, he suggests, is not scrambling. The advantage over the previous proposition is, according to Toman, that *wh*-movement of all *wh*-elements is accounted for in a similar fashion: they all move to COMPs, i.e. all the movements are substitutions.

Hypothesis 4 *Wh-movement is always realized as a substitution to COMP. If there are more wh-elements then COMP ‘proliferates.’*

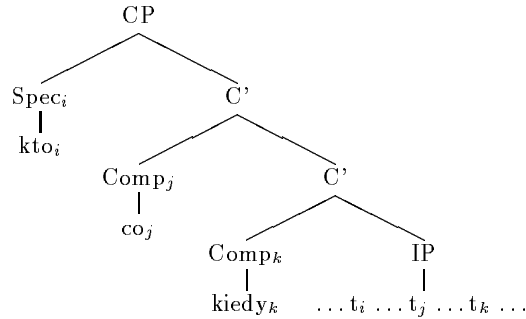
The tree below exemplifies this idea:



¹⁰These intuitions will be discussed in section 3.2.

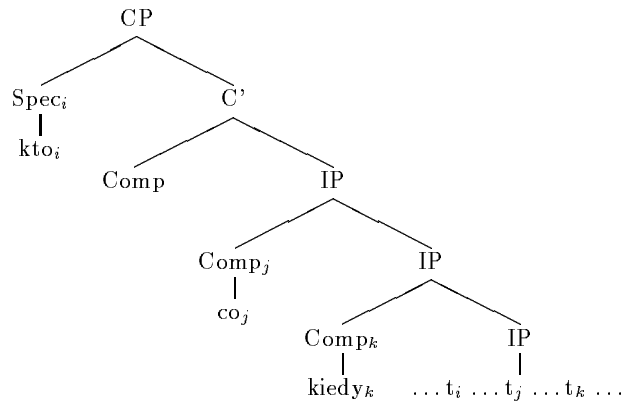
¹¹They are taken from [Rud88], p.473-5.

This time it is not so clear how to translate this tree into current version of \overline{X} -theory. [Rud88] proposes the following tree¹²:



Of course, such tree cannot be taken seriously into account. First of all, CP here has many heads, a phenomenon not encountered anywhere else in GB. Secondly, according to this hypothesis *wh*-phrases (i.e. maximal projections) would move to heads — kind of movement explicitly forbidden by the theory (see [Cho86], p.4, condition (4b)). Thirdly, Rudin excludes such structure on the basis of *Doubly Filled Comp Filter*, understood as condition barring CP-Spec and Comp of the same clause from being both filled (condition holding in both Polish and English, but not in Middle English).

Another translation of Toman's idea could be:



Such movement would be, again, forbidden by the theory as movement of maximal projection to the head.

¹²This proposition is, however, based on a wrong account of Toman's original suggestion. For [Tom81] only the top node is S', the other ones are S (p.300):

- (i) [_{S'} COMP [_S COMP ... [_S COMP S] ...]].

[Rud88], on the other hand, ascribes to him the following structure (p.484):

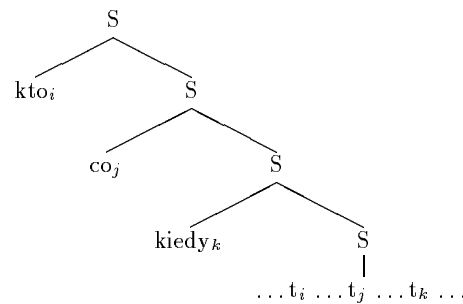
- (ii) [_{S'} COMP [_{S'} COMP ... [_{S'} COMP S] ...]].

Whatever the structure corresponding to this hypothesis, its main, and quite serious, disadvantage seems to be introducing a completely new mechanism of 'proliferation'. It is not clear under what conditions proliferation would be possible. As it stands, this proposal does not seem to be an advantage over the previous one: movement of additional *wh*-phrases differs from movement of the first one. In the latter, no additional positions are created, *wh*-element moves straight into COMP, while in the former such positions have to be created (however, the movement itself is a substitution, rather than adjunction). Alternatively, it could be argued that additional COMPs simply are there all the time, but again, it is unclear why additional COMPs should be allowed and, say, additional INFLs not. Either treatment requires new mechanisms.

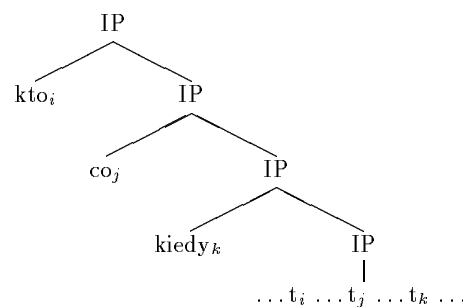
The last hypothesis suggested by [Tom81] is strikingly simple:

Hypothesis 5 *In languages like Polish any wh-movement is just an adjunction to S.*

In this case the tree corresponding to our example would be:



This translates trivially into \overline{X} -theory as:



It seems to be an improvement over all the previous hypotheses in the sense that it treats fronting of all the *wh*-elements in exactly the same way. See next section (2.3) for important arguments in favour of choosing this hypothesis rather than the previous ones. If this proposal proves to be viable then perhaps languages could be classified according to how they realize S-structure level *wh*-movement (see table below¹³): whether it is ultimately movement into CP-

¹³See also section 3 for analysis of Romanian and Bulgarian.

Spec, or adjunction to IP. Only more research on functional categories can justify (and explain) or refute this hypothesis.

	substitution	adjunction
Polish, Czech, Serbo-Croatian	—	+
English, Romanian, Bulgarian	+	—
Chinese, Japanese	—	—

2.3 Discussion of Lasnik and Saito (1984).

Hypothesis 2 above (page 4) is similar to the hypothesis concerning the structure of Comp at LF (see [LS84], [Hae91], chapter 9) which is widely assumed within GB. Lasnik and Saito state that “at LF every *wh* must be in COMP universally” (p.236) and it must be in “a position c-commanding the S that is the scope of the *wh*.” They also assume that “the first *wh* into COMP assigns COMP its index” (p.250). One more crucial, though implicit, assumption is that assigning γ -features at LF takes place **after** this LF *wh*-movement¹⁴.

In this section I will present some original data which might at first seem to contradict Lasnik and Saito’s proposal, but which actually support it in an interesting way.

Consider first the following example:

- (13) Kto co przyniesie? (Polish)
 Who what will bring?
 ‘Who will bring what?’

and its S-structure (without committing oneself yet to any of the hypotheses discussed in section 2.2, i.e. *IP* below represents the lowest segment of IP):

- (14) [_{CP} Kto_i co_j [_{IP} t_i [_{VP} przyniesie t_j]]]

There are no problems here, both traces are properly governed. t_j is θ -governed by the verb *przyniesie*, while t_i is antecedent-governed by *kto_i*. Let’s now see what is happening in LF. Both *wh*-elements have to find their way to CP-Spec (see [Hae91], p.450). Regardless of which hypothesis we assume, some form of *wh*-movement will take place at LF¹⁵ and one of the traces resulting from this movement will not be properly governed:

- By hypothesis (3), *Kto_i* is the head of CP-Spec, and so shares with it the index. LF *wh*-movement will affect only *co_j*, but since it will not become

¹⁴This assumption was used to explain ungrammaticality of **What did who see?* (see their (21), p.240).

¹⁵Borsley’s claim that in Polish “*wh*-movement only applies in the derivation of S-structure from D-structure” ([Bor91], p.197) seems to be gross oversimplification, probably for pedagogical reasons.

the head of CP-Spec (because it has a head), it will not share index with CP-Spec, and so it will not antecedent-govern its trace. θ -government of course is not possible here.

- By hypothesis (4), one might argue that both *wh*-elements can stay in LF their S-structure positions: both are in COMP and both c-command S that is their scope¹⁶. See discussion concerning adjuncts below for arguments that this cannot be the case. Hence, as before, *co_j* moves and the same argument applies — intermediate trace is not properly governed.
- By hypothesis (5), both *wh*-elements move to COMP (i.e. CP-Spec), so — whatever the order — one intermediate trace will not be properly governed.

This is a worrying situation. [Hae91] writes “we shall postulate that traces resulting from movement at LF are also subject to the ECP.” She uses this assumption to justify grammaticality of:

(15) I don’t remember who said what.

contrasted with ungrammaticality of:

(16) *I don’t remember what who said.

Fortunately, there is a way of accounting for the above data, by assuming that movement does not always leave traces. LF movements of *what* in (15) and *who* in (16) have to leave traces — this is required by Extended Projection Principle. On the other hand, LF *wh*-movements in (14) described above do not have to leave intermediate traces — they are not required by EPP, and they do not have to be present later on to govern other traces. This account is still well within Lasnik and Saito’s (1984) framework.

Let’s turn now to a different example, of a kind that [LS84] avoid, i.e. involving *wh*-movement of *wh*-adjuncts. In the example below neither of the traces of *wh*-elements is θ -governed:

(17) Kto kiedy kichnął? (Polish)
 Who when sneezed?
 ‘Who sneezed when?’

S-structure of (17) is:

(18) [_{CP} Kto_i kiedy_j [_{IP} t_i [_{VP} kichnął] t_j]]

¹⁶ *co_j* c-commands S because S does not dominate *co_j*; all branching nodes dominating *co_j* also dominate S.

It is easy to see that according to each hypothesis Kto_i ('who') antecedent-governs its trace in S-structure, so the trace gets + γ -feature. Trace of $kiedy_j$ ('when') will have its γ -feature assigned at LF.

However, in LF predictions made by these three hypotheses differ crucially. Hypotheses 3 and 4 assume that the first of clause-initial *wh*-elements is in S-structure in COMP of S', that is, in the upmost CP-Spec, thus determining its index. According to the assumptions spelled out in the beginning of this section, all other *wh*-elements have to move to the same specifier (in case of simple sentences like the ones considered here). This in turn means that LF-structure of (17) should be:

$$(19) \quad [_{CP} [_{Spec_i} [Kto_i] kiedy_j] t_j' [_{IP} t_i [_{VP} kichnął] t_j]]$$

Clearly, $kiedy_j$ does not antecedent-govern its intermediate trace, so ECP is violated. This result sharply contrasts with perfect grammaticality of the sentence. It is worth noticing that in this case intermediate trace t_j' cannot be left out. It has to be there in LF to properly govern t_j , which in turn was created by movement from a position which was base-generated. I think that this reasoning is a strong evidence against hypotheses 3 and 4 (though, it crucially hinges on Lasnik and Saito's idea of ECP)¹⁷.

Hypothesis 5 does not, on the other hand, make any predictions about order in which *wh*-elements move to CP-Spec, which is still unoccupied at S level; it can be understood to be optional. If so, then movement of $kiedy_j$ ('when') first ensures that CP-Spec gets index j and will subsequently govern the intermediate trace t_j' . LF *wh*-movement of Kto_i does not have to leave any trace (or alternatively: leaves a trace which is deleted later on, but before the assignment of γ -features) because initial trace of Kto_i , being in argument position, received its γ -feature at S level.

The next example is, I believe, a strong case for ECP and for assumptions about LF listed in the beginning of this section. Let's consider what ECP's predictions are in case there are two *wh*-adjuncts, e.g. *when* and *where*. Without getting into too much detail, it is obvious that in simple sentences they will have to turn up in the same CP-Spec at LF. They will both have to antecedent-govern their traces, but only one of them will manage to 'pass' its index to CP-Spec. Hence, ECP violation is unavoidable. The judgements below closely correspond to this analysis

- (20) a. Kto gdzie kichnął? (Polish)
Who where sneezed?

¹⁷[LS84] must have been aware of this problem: in footnote 58 on p.279 they note "Interestingly, adjuncts in Polish behave as if they were lexically governed." The assumption that adjuncts are lexically governed saves hypothesis 3 in context of examples (13) and (17), but it wrongly allows for fronting of multiple *wh*-adjuncts (see below).

- ‘Who sneezed where?’
- b. Kto co kiedy wziął? (Polish)
Who what when took?
‘Who took what when?’
- c. Kto co komu kiedy dał? (Polish)
Who what to whom when gave?
‘Who gave what to whom and when?’
- (21) a. * Gdzie kiedy Janek kichnął? (Polish)
Where when Janek sneezed?
‘Where and when did Janek sneeze?’
- b. * Jak czemu Janek dał pióro Marii? (Polish)
How why Janek gave pen to Maria?
‘Why and how did Janek give a pen to Maria?’

Examples (20) show that the number of clause-frontal *wh*-elements is restricted only by the number of arguments plus one adjunct. Examples (21) show that the sheer number of *wh*-elements is not a constraining factor; questions with just two *wh*-elements corresponding to adjuncts are ungrammatical. Hence, ECP explains these apparently complex data in a very elegant way.

Of course questions about, let’s say, time and place of a certain event are still possible, and English translations of the above examples suggest a way of realizing them:

- (22) a. Gdzie i kiedy Janek kichnął? (Polish)
Where and when Janek sneezed?
‘Where and when did Janek sneeze?’
- b. Jak i czemu Janek dał pióro Marii? (Polish)
How and why Janek gave pen to Maria?
‘Why and how did Janek give a pen to Maria?’

Sentences like these can be analyzed in a straightforward manner: two *wh*-elements form a complex adjunctive *wh*-phrase (or are base-generated as such, this issue will not concern us here), which can subsequently behave as a single *wh*-element.

This is the right place to go back for a moment to the problem of competing hypotheses 3, 4 and 5. Discussing example (13) in the context of hypothesis 4, I mentioned that *wh*-elements cannot stay in their respective COMPs in LF and I adjourned the evidence for later. Now the proof of this fact is obvious: If *wh*-elements were allowed to stay in their COMPs then there would be no way of accounting for the ungrammaticality of (21): all the principles, including ECP, would be satisfied.

3 Rudin’s Proposal

In this section I will present a broader view on the phenomenon of multiple *wh*-fronting. Section 3.1 contains a short introduction to Rudin’s (1988) hypothesis accounting for different patterns of multiple *wh*-movement in languages such as Bulgarian and Romanian on one hand, and Serbo-Croatian, Czech and Polish on the other. This presentation is by no means exhaustive and the reader is referred to the source for details. In section 3.2 I will discuss her proposal concerning Serbo-Croatian, Czech and Polish, arguing that the hypothesis adopted in section 2 accounts for all the phenomena introduced by Rudin at least as well as the hypothesis she adopts.

3.1 Presentation

Rudin’s proposal is simply a compilation of some of the hypotheses considered by [Tom81]. What is new in her account is the abandonment of homogeneous treatment of languages with multiple *wh*-movement. She argues that in case of languages such as Bulgarian and Romanian hypothesis 2 (i.e. first substitution into CP-Spec, then adjunction to CP-Spec with index passing as in [LS84]) should be adopted, while for languages such as Serbo-Croatian, Czech and Polish hypothesis 3 (i.e. first substitution into CP-Spec, then adjunction to IP) holds. Accordingly, she calls the first group of languages *+MFS languages* (for ‘Multiply Filled Spec-CP’), and the second *–MFS languages*.

In this section I will briefly sketch Rudin’s evidence for this division. All the examples come from her article.

Multiple Wh-Extraction from a Clause. The first difference between the two groups of languages [Rud88] examines is the possibility for movement of multiple *wh*-phrases out of an embedded clause. She presents broad evidence that such extraction is possible in the *+MFS languages* (see examples from Bulgarian, (23)), but not in the *–MFS languages* (see examples from Serbo-Croatian, (24) and Czech, (25)).

- (23) a. Koj kŭde misliš ĉe e otišŭl? (Bulgarian)
Who where you think that has gone?
‘Who do you think (that) went where?’
b. *Koj misliš ĉe e otišŭl kŭde?
c. *Kŭde misliš ĉe koj e otišŭl?
d. *Koj misliš kŭde (ĉe) e otišŭl?
e. *Kŭde misliš koj (ĉe) e otišŭl?
- (24) a. *Ko ŝta Źelite da vam kupi? (Serbo-Croatian)
Who what want to you buy?

- ‘Who do you want to buy you what?’
- b. *Šta ko želite da vam kupi?
- (25) a. * Kde kdy si myslíš, že budeme spát? (Czech)
Where when *refl* you think that we will sleep?
‘Where do you think we will sleep when?’
- b. * Na koho kdy si myslíš, že čekal?
For whom when *refl* you think that he waited?
‘Who do you think that he was waiting for when?’

According to Rudin, Romanian parallels with Bulgarian, while Czech parallels with Serbo-Croatian. Polish in this case behaves in a little different way because in this language extraction from embedded clauses is prohibited in general. An exception to this rule are embedded clauses introduced by subjunctive complementizer *żeby*¹⁸. In this case extraction, but only of a single *wh*-element, is possible:

- (26) a. Maria chce, żeby co Janek kupił? (Polish)
Maria wants that what Janek buy?
‘What does Maria want Janek to buy?’
- b. Co Maria chce, żeby Janek kupił?
- (27) a. Maria chce, żeby co komu Janek kupił? (Polish)
Maria wants that what to whom Janek buy?
‘What does Maria want Janek to buy for whom?’
- b. *Co komu Maria chce, żeby Janek kupił?

These examples show that Polish patterns with Serbo-Croatian and Czech in this respect.

This data is, in Rudin’s view, in consonance with predictions of her hypothesis.

Wh-Islands. Rudin notices that in *+MFS languages*, but not in *-MFS languages*, extraction out of *wh*-islands is possible. She argues that this is predictable from her hypothesis: if adjunction to CP-Spec is allowed, then *wh*-phrase cannot be blocked from moving through or leaving a trace in a CP-Spec that contains another *wh*-word, and so subjacency is not violated. In case of *wh*-islands, however, matters are not so clear-cut, in particular in both groups relative *wh*-elements behave differently than interrogative *wh*-elements.

Clitics, Parentheticals, etc. Rudin gives multiple examples showing that in Bulgarian and Romanian neither clitics nor parentheticals can be placed between *wh*-words. This is completely different in case of Serbo-Croatian, Czech

¹⁸See Przepiórkowski (1994) for discussion of this phenomenon.

and Polish: in all these languages various lexical elements can intervene between *wh*-words. This fact is consistent with the hypothesis that in *+MFS languages* all *wh*-elements form one constituent, while in *-MFS languages* they do not. See section 2.1 for some examples ((6) and (7)), and section 3.2 for more examples and discussion.

Wh-Word Order. As noted in section 2.2, Polish, Czech and Serbo-Croatian have totally arbitrary *wh*-word order (see examples (10-12)). This is not the case in Bulgarian (see (28)) or Romanian (see (29) and (30)):

- (28) a. Koj kogo vižda? (Bulgarian)
 Who whom sees?
 ‘Who sees whom?’
 b. *Kogo koj vižda?
- (29) a. Cine ce a spus? (Romanian)
 Who what has said?
 ‘Who said what?’
 b. *Ce cine a spus?
- (30) a. Cine cu cine vorbește? (Romanian)
 Who with whom speaks?
 ‘Who is speaking with whom?’
 b. *Cu cine cine vorbește?

In both languages subject always precedes objects. This is consistent with Rudin’s hypothesis that *wh*-movement is adjunction to CP-Spec if it is always adjunction to the right: first *wh*-element corresponding to subject moves into CP-Spec (substitution) establishing its index for purpose of antecedent-government of the trace, and then *wh*-objects adjoin to CP-Spec to the right, thus obtaining *subject* → *objects* order.

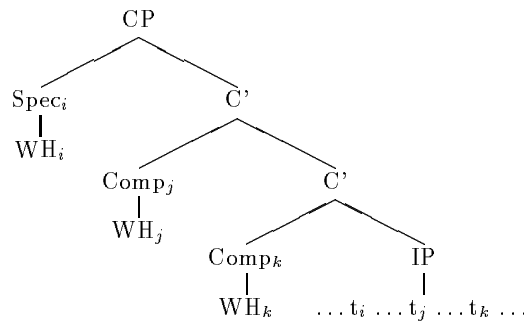
3.2 Discussion

In this section I will be mainly concerned with that part of Rudin’s proposal which attempts to explain multiple *wh*-movement in Polish, Czech and Serbo-Croatian. Her arguments for a different treatment of Bulgarian and Romanian seem convincing. Also applying hypothesis 2 to the analysis of these languages apparently explains patterns of their behaviour outlined in section 3.1. Unfortunately, I do not possess relevant data in Romanian and Bulgarian to check the predictions spelled out in section 2.1, namely that *wh*-questions would not be able to contain more than one *wh*-element corresponding to subject or adjunct. Rudin herself does not analyze *wh*-adjuncts at all, stating that “the facts in this area are subtle and complex, and I leave their untangling for future work”

(footnote 21, p.476). However, in the same footnote she notices that “oversimplifying (...) nonsubcategorized adjuncts like *how* and *why* are not permitted in multiple questions in *+MFS languages* at all.” Such distribution is more constrained than (but not contradictory to) the predictions.

Let’s analyze the structure of her argument for assuming hypothesis 3 for *-MFS languages*. In this argument she considers three possibilities: Toman’s hypotheses 3 and 4, and one more hypothesis, not presented here¹⁹, by [Cic86]. She easily shows that Cichocki’s hypothesis and Toman’s hypothesis 4 are inadequate, demonstrates that hypothesis 3 does not exhibit deficiencies of the previous two, and concludes that this must be the right one.²⁰ In the remaining of this section I will re-examine Rudin’s evidence for hypothesis 3 showing that it applies equally well to hypothesis 5 (adopted in section 2.3). I will also give some additional arguments in favour of the latter.

Starting Point I will first examine the structures for *-MFS languages* considered by Rudin. First of them is Toman’s hypothesis 4, proposing the following structure:



Some arguments against this hypothesis were given in section 2.2.

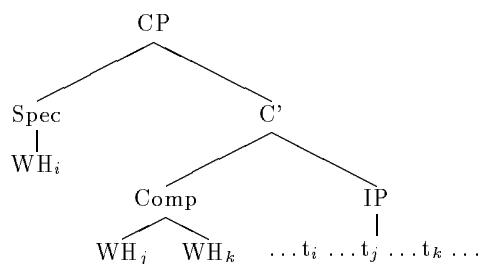
The second structure draws on Cichocki’s (1983) proposal, according to which:

Hypothesis 6 *In Polish, unlike in English, there are two COMPs: the first wh-element moves to the first COMP, and all the other wh-phrases move to the other one.*

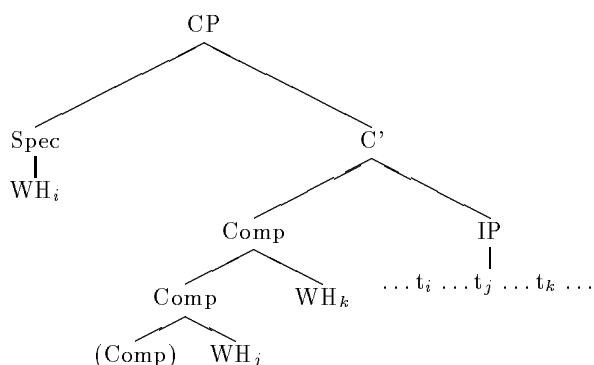
This can be translated into \overline{X} -theory as either:

¹⁹Due to unavailability of the article.

²⁰Ironically, this is exactly the kind of reasoning which is criticized by Toman: he shows that Wachowska arrived at her conclusion that every movement of *wh*-element in Polish must be genuine *wh*-movement (understood as movement into COMP) by inspecting two kinds of movement (*wh* and pronoun movement), giving some evidence that this cannot be the latter, and concluding that this must be the former (i.e. *wh*-movement to COMP).



or:



This hypothesis was based on observation that in Polish clitics, parentheticals, etc. can take position only after the first *wh*-element, not after the second or third one. Hence, Cichocki reasons, all clause-frontal *wh*-phrases apart from the first one form a constituent. This hypothesis clearly cannot hold for Czech and Serbo-Croatian: both languages allow parentheticals between any two *wh*-elements. Also Polish data that Cichocki gives seem to me a little biased towards his proposal. In case of examples (31) and (32) (taken from [Rud88], p.465 and 469) sentences (a) are preferable to (b), though the latter are not completely ungrammatical, they deserve at the most '?' rather than '*':

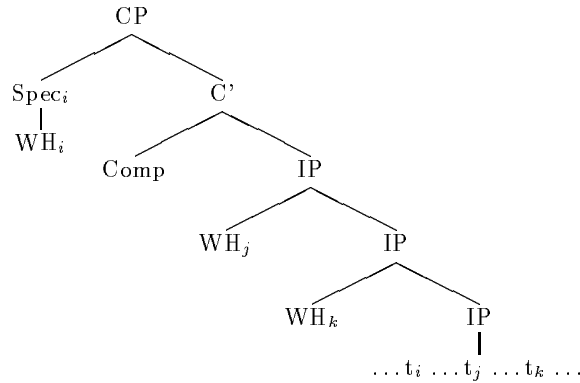
- (31) a. Kto **by** komu jaką napisał książkę? (Polish)
 Who would to whom what kind write book?
 'Who would write what kind of book for whom;
 b. *Kto komu **by** jaką napisał książkę?
- (32) a. Kto według ciebie komu co dał? (Polish)
 Who according to you to whom what gave?
 'Who in your opinion gave what to whom?'
 b. *Kto komu według ciebie co dał?

Moreover, there are many examples of questions in which the position of clitic or parenthetical after the second *wh*-element is equally good or even preferable:

- (33) a. Co kto **by** komu dał? (Polish)
 What who would to whom give?

- ‘Who would give what to whom?’
- b. Kto kogo **najpierw** czym uderzył? (Polish)
 Who whom first with what hit?
 ‘Who hit whom first using what?’

Finally, the hypothesis adopted by Rudin (hypothesis 3) is exemplified below:



Apart from giving some of the arguments presented above, [Rud88] states (p.486) that the main difference between the first two hypotheses and the last one is that in the former *wh*-phrases other than the initial one are in *Comp*, while in the latter they are not. Then she shows that in *-MFS languages* *wh*-word cannot precede complementizer and argues that this fact would be difficult to account for assuming hypotheses 4 and 6. By hypothesis 3, on the other hand, this can be easily explained assuming *Doubly-Filled Comp Filter* stating that CP-*Spec* and *Comp* cannot be lexically filled both at the same time²¹. It is easy to see that, regardless of whether this argument is actually correct or not, it can be equally well applied to the hypothesis 5 adopted in section 2.3: that hypothesis also does not assume that *Comp* contains more than one *wh*-element (in fact it assumes that *Comp* contains **no** *wh*-element).

Let’s now turn to the data presented by [Rud88] (see section 3.1) and see whether it can provide any arguments favouring hypothesis 3 (adopted by Rudin) over hypothesis 5 (adopted in this paper).

Extraction from Embedded Clauses and Wh-Islands. Rudin notes that in case of *-MFS languages* extraction from both embedded clauses and *wh*-islands is in general impossible. She explains this fact by means of subjacency: in order to avoid subjacency violation all *wh*-phrases have to go through the embedded CP-*Spec* leaving there their traces. Since in *-MFS languages* adjunction to CP-*Spec* is forbidden, only one *wh*-element can pass through it. Clearly, if we understand hypothesis 5 as condition on ultimate *wh*-position (i.e. *wh*-phrases can substitute, but not adjoin, to CP-*Spec* as long as they ultimately adjoin to IP), then the above reasoning applies to this hypothesis as well.

²¹According to proposals 4 and 6, both CP-*Spec* and *Comp* would be filled in case of multiple *wh*-movement.

What is unclear to me is why (assuming either hypothesis) *wh*-words would have to go through CP-Spec. Rudin justifies this saying that in *-MFS languages* IP (and not CP) is the bounding node. This still does not explain the phenomenon: since *wh*-words are adjoined to IP, it does not dominate them and, hence, is not a barrier.²² It should not matter then whether *wh*-elements cross CP passing through CP-Spec, or straight from IP-adjunction.

Moreover, Polish data presented by Rudin (p.454) does not really support this explanation (though it does not contradict it either). She argues that in some cases *wh*-extraction of a single element from an embedded clause is possible (example (26) repeated below), but even then extraction of multiple *wh*-phrases is forbidden (see (27) below). However, adopting this explanation, multiple *wh*-movement with one *wh*-phrase moving to the matrix clause should be possible: only one *wh*-element passes through CP-Spec. Unfortunately, this is not the case. Compare (27) with judgements in (34):

- (26) a. Maria chce, żeby **co** Janek kupił? (Polish)
 Maria wants that what Janek buy?
 ‘What does Maria want Janek to buy?’
 b. **Co** Maria chce, żeby Janek kupił?
- (27) a. Maria chce, żeby **co komu** Janek kupił? (Polish)
 Maria wants that what to whom Janek buy?
 ‘What does Maria want Janek to buy for whom?’
 b. ***Co komu** Maria chce, żeby Janek kupił?
- (34) a. ***Co** Maria chce, żeby **komu** Janek kupił?
 b. ***Komu** Maria chce, żeby **co** Janek kupił?

Both hypotheses (3 and 5) fail to explain the ungrammaticality of the last two examples. It is possible that altogether different principle is responsible for this state of affairs.²³

Clitics and Parentheticals The facts that clitics in all three *-MFS languages* appear after the first *wh*-element “clearly support an analysis in which the first *wh*-word alone is a constituent separate from the other WHs: the first WH is in SpecCP, while the others are not” (p.466). This conclusion seems to be too far-fetched. First of all, at least in colloquial Polish clitics can appear after the second *wh*-element (see (33) above). Secondly, in all three languages parentheticals can appear between any two *wh*-elements. Finally, even if both

²²The only way of making a segment of IP a barrier I can see is to assume a rich internal structure of INFL (see [Cow92], chapter 11). In this case ‘adjunction to IP’ could be understood as, say, adjunction to AGRP, and TP_{+Tense} could act as a barrier.

²³Rudin’s data from the three *-MFS languages* contains only equivalents of (27) and it does not allow to check whether Czech and Serbo-Croatian parallel with Polish as far as sentences like (34) are concerned.

clitics and parentheticals could appear only after the first *wh*-phrase, it would not be an argument in favour of Rudin’s hypothesis. On p.471, she gives an example (after [LS84]) showing an instance of adjunction to IP:

- (35) Maria powiedziała, że kto odwiedza Janka? (Polish)
 Maria said that who visits Janek?
 ‘Who did Maria say visits Janek?’

Kto (‘who’) — she says — cannot be in CP-Spec because it follows Comp: it has to be adjoined to IP. If we accept this reasoning then *Kto* has to be adjoined to IP in the following sentence as well:

- (36) Maria powiedziała, że kto **by** kogo odwiedził? (Polish)
 Maria said that who would whom visit?
 ‘Who did Maria say would visit whom?’

Of course, in this sentence clitic **by** does not follow a constituent which is in CP-Spec, and the sentence is still perfectly grammatical. Rudin’s reasoning can be still saved if we assume the analysis presented in Przepiórkowski (1994), namely that indicative complementizer *że* subcategorizes for CP, rather than IP. However, the same paper suggests that subjunctive complementizer *żeby* subcategorizes for IP, so in example (37) clitic *się* follows *wh*-word which is adjoined to IP:

- (37) Maria chciała, żeby kto **się** kiedy ogolił? (Polish)
 Maria wanted that who *self* when shave?
 ‘Who did Maria want to shave when?’

In summary, clitics and parentheticals do not constitute evidence that the initial *wh*-element is in CP-Comp.

Wh-Word Order Not much remains to be said here: assuming either analysis, *wh*-words are allowed to have free word order in *-MFS languages*.

4 Conclusion

This paper presents a short review of the attempts of explaining the phenomenon of multiple *wh*-movement which were put forward in the eighties (sections 2.1, 2.2 and 3.1). It also gives multiple arguments in favour of Toman’s (1981) neglected hypothesis that all the *wh*-elements adjoin to IP (sections 2.2, 2.3 and 3.2). Some of these arguments are intuitive, though most of them are posed on strictly theoretical grounds. The latter show that this hypothesis, but not the others, properly accounts for distribution of *wh*-adjuncts (section 2.3).

Even though there are some facts concerning distribution of *wh*-phrases which still remain to be explained, whenever the hypothesis favoured by [LS84] and [Rud88] deals with some phenomena, the hypothesis adopted here accounts for them as well (section 3.2).

The simplicity and effectiveness of the hypothesis proposed in this paper makes one wonder why it has not been seriously taken into consideration before. The reason might be mainly psychological reluctance to admit *wh*-movement which does not involve movement to CP. After all, for two decades '*wh*-movement' always meant movement to COMP or CP-Spec. The main aim of this paper is to show that it does not have to be the case.

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