

ON THE STRUCTURE OF ADVERBIAL SUBORDINATE CLAUSES
IN ENGLISH AND POLISH*

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In this paper I will be concerned with a suggestion made within X-bar theory, notably by Jackendoff (1977) and Emonds (1976), that PP (P')¹ has the string P— \bar{S} as one of its expansions. This structure, they claim, can be assigned to adverbial subordinate clauses, with the traditionally understood subordinating conjunctions generated under the P node and the adverbial clauses under the \bar{S} node.

In what is to follow, I will first survey the analysis at issue, as presented in Jackendoff (1977) and Emonds (1976). Then, I will discuss a criticism of the analysis, made by Hendrick (1976). I will next re-examine some data and tentatively suggest that an alternative approach to English adverbial subordinate clauses, proposed in passing by Hendrick, should be assumed. Finally, I will consider some adverbial subordinate clauses in Polish and show that the Jackendoff-Emonds proposal is not applicable there. I will tentatively conclude that a generalization made within X-bar theory, involving the expansion of PP mentioned above, is questionable as far as English is concerned and, as the Polish facts show, it cannot be claimed to be universal.

1. *Theoretical preliminaries*

Jackendoff (1973) argued that prepositional phrases have a richer syntax

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¹ I will use the X-bar notation where it is necessary for the clarity of the presentation of the material. Otherwise, I will use the traditional notation.

than had been traditionally assumed. His more recent suggestion (Jackendoff 1977: 81, 82) is that (1) is an appropriate rule for expanding PP (P')

$$(1) P' \rightarrow P - (N''') (\bar{S}) (P''')$$

This rule, he claims, generates the PP's in the following sentences:

- (2) John was standing [P' [Poutside]]
- (3) Mary is [P, [Pin] [N,,the house]]
- (4) Bill ran [P, [Pup] [P,,to your bedroom]]
- (5) Sam sent a letter [P, [Pto] [N,,Bill] [P,,in New York]]
- (6) Tom left [P, [Pbefore] [s the ball was over]]

The rule for P' in (1) is rather similar to the rule for V' in (7):

$$(7) V' \rightarrow V - (N''') - (P''') - (\bar{S})$$

Comparing (1) and (7), it can be noticed that prepositions and verbs may be followed by the same constituents in the same relative order. These parallels in the expansions of P' and V' lead Jackendoff to the assumption within the feature analysis of X-bar theory that both verbs and prepositions have the same basic set of syntactic features $\begin{bmatrix} +\text{Obj} \\ +\text{Comp} \end{bmatrix}$ and that their phrase structure rules can be collapsed into one general rule. Thus, in place of (1) and (7), Jackendoff (1977: 82) introduces (8):

$$(8) \begin{bmatrix} X \\ +\text{Obj} \\ +\text{Comp} \end{bmatrix} \rightarrow X - (N''')_1 - (P''')_2 - (\bar{S})_3$$

Condition: If X=P, not (3 and (1 or 2)).

Such cross-categorial generalizations provide evidence for the X-bar theory assumptions that syntactic categories should be analyzed as feature complexes².

The crucial point about the generalization involving (1) and (7) that I will be concerned here with, as mentioned in the introduction, is the occurrence of \bar{S} in the expansion of P' as well as V'. While it is quite uncontroversial that an \bar{S} can be a V' complement, the claim that it can also be a P' complement is a novel development in the treatment of prepositional phrases.

² The apparently simple condition in (8) handles the fact that, unlike with verbs, with prepositions, there cannot be any constituent between the head and the complement sentence. Jackendoff admits (1977: 82) that in the cases of collapsing other categories, where their individual expansions differ to a larger extent, the conditions stated in the negative form may become so elaborate that the generalizations intended to be captured by the phrase structure rules may look implausible.

As Jackendoff points out, the idea that he develops goes back to Klima (1965) who

claims that subordinating conjunctions can also be analyzed as prepositions which take an S complement [... E.J.] This provides the simplest description of the relations between the prepositions in $\begin{bmatrix} \text{before} \\ \text{after} \end{bmatrix}$ the ball and the 'conjunctions' in $\begin{bmatrix} \text{before} \\ \text{after} \end{bmatrix}$ the ball is over: *before* and *after*, like many verbs, nouns and adjectives allow either an object or a subordinate clause (1977:79).

It follows from the above quotation that the occurrence of an \bar{S} in the expansion of P' provides for an additional generalization within X-bar theory, namely, that the four major syntactic categories, V', P', N' and A', are expanded in a similar way. This generalization is broader than the other one. It is obvious that if the narrower generalization does not hold, the broader one does not hold either. I will argue that the assumption about the expansion of P' as P- \bar{S} is problematic and that, probably, the generalizations mentioned above cannot be maintained.

Jackendoff, quoting Klima, illustrates the point with *before* and *after* only. In terms of traditional grammar (e.g. Quirk et al. 1972), they can function as both prepositions and subordinating conjunctions, depending on whether they immediately precede a noun phrase or a clause. There are other words, such as *since*, *until* and *despite*, which can also be used in these two ways. (9)–(11) illustrate:

- (9) a. John has been living in Canada since the end of the war.
b. John has been living in Canada since the war ended.
- (10) a. I will stay here until the beginning of the film.
b. I will stay here until the film begins.
- (11) a. Peter had a swim despite the storm.
b. Peter had a swim despite that the storm was very heavy.

There is also a class of traditionally understood subordinating conjunctions which cannot be immediately followed by a noun phrase, and thus do not function as ordinary prepositions. These are, for example, *because*, *if*, *unless* and *although* in (12)–(15):³

- (12) a. John will come because you have asked him to.
b. *John will come because you.
- (13) a. John will come if you ask him to.
b. *John will come if you.

³ Hendrick (1976: 117), in his discussion of Jackendoff (1977), which I will consider in the next section, implies that *when* too would be dominated by P in Jackendoff's framework. This, however, is not Jackendoff's position. He explicitly says (1977:75) that *when*-clauses are S's generated immediately under V'.

- (14) a. John will come unless you ask him to.
 b. *John will come unless you.
 (15) a. John will come although you haven't asked him.
 b. *John will come although you.

Of the above subordinating conjunctions only *because* can be immediately followed by the preposition *of* and a noun phrase. Thus, parallel to (12)b. we have (16) but we cannot have (17), for instance, parallel to (14)b.

- (16) John will come because of you.
 (17) *John will come unless of you.

Clearly, then, there are at least three distinct classes of traditionally understood subordinating conjunctions: those which can be immediately followed by a noun phrase (e.g. *before*) and thus function also as prepositions, those which can be followed by a noun phrase with the preposition *of* intervening (e.g. *because*) and those which can never be immediately followed by a noun phrase (e.g. *if*). It is the first class of subordinating conjunctions that has been the direct motivation for Klima and, consequently, for Jackendoff to assign them to the category P. Emonds (1976 : 175) explicitly assigns the subordinating conjunctions of the two other classes to this category too. Within the assumptions presented here, this seems to be a reasonable thing to do and perhaps Jackendoff would agree on the matter. If he did not, the claim would not be a very interesting one as it would concern only a small group of traditionally understood subordinating conjunctions which would be analyzed as prepositions and the remainder would be analyzed as something else. In this way, a possible generalization about subordinating conjunctions would be missed. It is preferable for a theory to analyze all subordinating conjunctions in a uniform way. Whether this is a simple task to perform is not clear. For the purpose of my discussion, I will concentrate on the first two classes of subordinating conjunctions mentioned at the beginning of this paragraph.

While Jackendoff (1977) gives only one reason for regarding adverbial subordinate clauses as PP's, namely, that certain subordinating conjunctions appear elsewhere as ordinary prepositions followed by a noun phrase, Emonds (1976 : 173—5) provides a number of arguments for such an analysis. The first observation he makes is that adverbial subordinate clauses, like ordinary PP's can appear in focus position in cleft sentences:

- (18) It was to John that I spoke.
 (19) a. It was after the president had finished that the disorder began.
 b. It was because John left that Mary cried.

The second observation is that prepositions expressing spatial or temporal direction or location can be preceded by the particle *right*, as illustrated in (20) and (21):

- (20) Mary is planning to go right to London.
 (21) John arrived right before the last speech.

The particle *right* can also precede *before* when it introduces a clause:

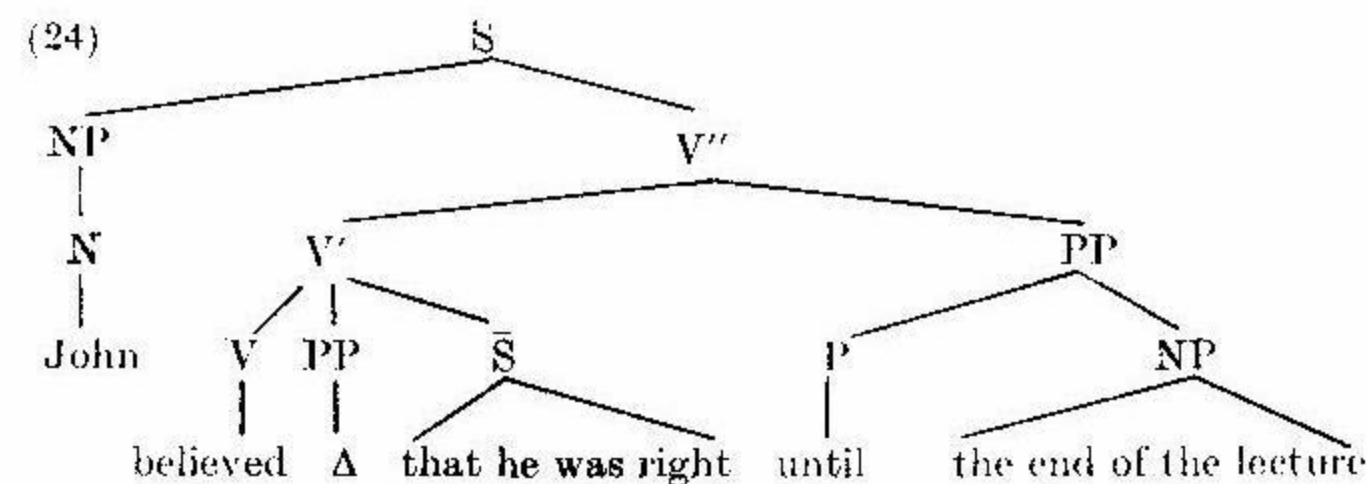
- (22) John arrived right before the last speech began.

Consequently, *before* in (22) should, according to Emonds, be regarded as the head of a PP.

The third argument for the position that adverbial subordinate clauses are PP's given by Emonds (1976 : 176—8) concerns the operation of a structure preserving PP lowering rule. This rule relates the following can sentences:

- (23) a. John believed that he was right until the end of the lecture.
 b. John believed until the end of the lecture that he was right.

It is clear that in (23)b. the *until* phrase has been moved to the position preceding the embedded clause. Since the embedded clause is a strictly subcategorized argument of the verb *believe*, it originates as a daughter of V'. The adverbial PP originates as a sister of V' and so, when it precedes the \bar{S} in (23)b., there is a clear indication that movement of the PP has taken place. The structure to which the PP lowering applies is presented in (24)⁴:



Assuming that adverbial subordinate clauses are also PP's, the relation between the two sentences in (25) can be explained by claiming that the PP lowering rule has moved the adverbial subordinate clause, a PP, into V' and thus changed the order of the last two constituents.

- (25) a. John believed that he was right until the lecture ended.
 b. John believed until the lecture ended that he was right.

These three pieces of evidence, then, argue quite strongly that the traditionally understood subordinating conjunctions are heads of prepositional phrases. It does not, of course, follow that the underlying structure of ad-

⁴ For simplicity, I will include lexical items in their surface forms.

verbal subordinate constructions is $P-\bar{S}$, as Emonds (1976:172) recognizes. This claim is derived solely from some parallels between verbs and prepositions and serves as some motivation for X-bar theory. The natural questions to ask, then, are whether there is any evidence to the contrary of the view that subordinating conjunctions are, indeed, prepositions and, if they are, whether they are actually followed by \bar{S} or by some other constituent in the underlying structure. Obviously, these are two distinct problems. In the next section I will discuss a critique of the view that English subordinating conjunctions are heads of PP's made by Hendrick (1976).

2. Hendrick's criticism of the PP analysis of adverbial subordinate clauses

I am now going to discuss a criticism of Hendrick's (1976) of an expansion of the PP node as $P-\bar{S}$. He suggests that subordinating conjunctions are not prepositions but complementizers and, consequently, that adverbial subordinate constructions should be analyzed as \bar{S} 's, not as PP's. At the end of his critique, he briefly mentions an alternative possibility for some clauses of this kind to be analyzed as consisting of a preposition followed by a complex NP, hence as PP's.

Although it is not my aim here to defend the $P-\bar{S}$ analysis, I will show that Hendrick's criticisms have no force at all. Moreover, the facts which Emonds is concerned with, argue against his analysis. In the light of Emonds' arguments, the $P-\bar{S}$ analysis seems superior to the proposed COMP- \bar{S} analysis. However, there does exist a stronger argument against the former analysis and the problem involved there can easily be dealt with if we take up Hendrick's suggestion to employ the $P-NP$ structure for some English adverbial subordinate constructions.

Hendrick presents three arguments in support of his claim against Jackendoff's $P-\bar{S}$ structure. The first one is that embedded clauses introduced by subordinating conjunctions show different behaviour with respect to extraction from ordinary PP constructions. The second argument involves a parallel between complementizers and subordinating conjunctions with respect to a rule moving sentence adverbs. The third argument concerns a distributional fact that generally no surface complementizer is possible after a subordinating conjunction.

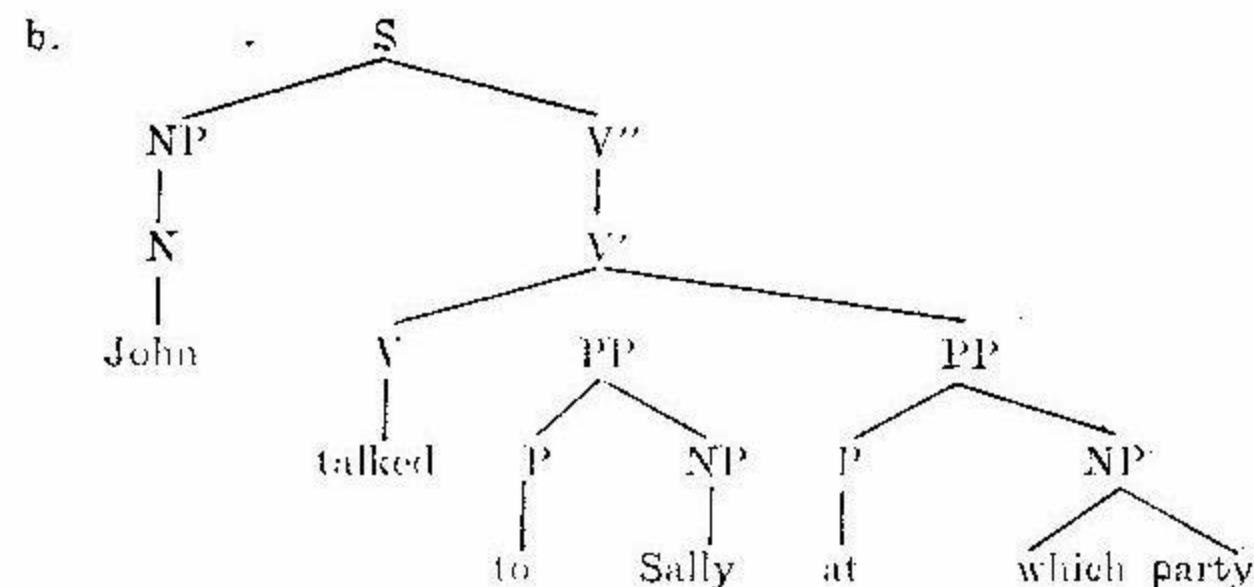
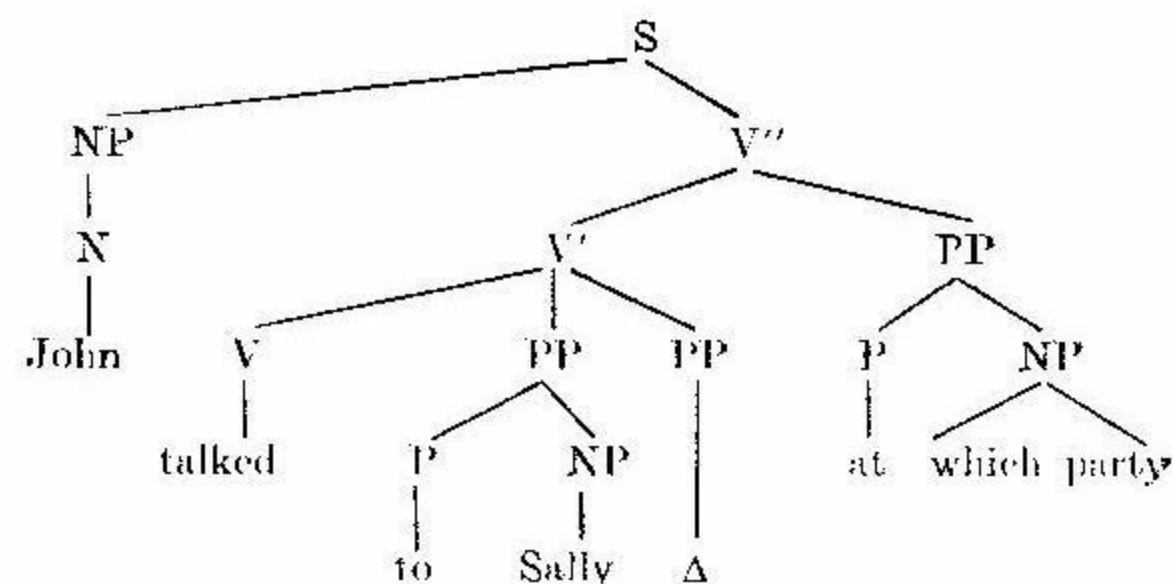
The first of the above arguments is based on the following assumptions: 1) sisters of V' are syntactic islands; 2) daughters of V' are not syntactic islands; 3) there is a structure preserving PP lowering rule which can move an adverbial PP into V' with the result that it ceases to be an island. Hendrick claims that if adverbial subordinate constructions are PP's, originating as sisters of V' , it should be possible for them to be lowered into V' and, hence for extraction to be possible. This prediction, he notices, is false because even when the PP lowering rule is assumed to have operated, extraction from an

adverbial subordinate clause gives an ungrammatical result (Hendrick 1976:117):

- (1) a. *What is John tired because he went to late?
- b. *Who won't we be satisfied until our demands are met by?
- c. *What did John school when he realized?⁵

In contrast, extraction from an ordinary PP is possible, due to the restructuring presented in (3):

- (2) Which party did John talk to Sally at?
- (3) a.



Wh-movement applies to (3)b, giving the question in (2). The possibility for the lowering rule to operate on (3)a, follows from the fact that in the initial structure, there is an available PP node in V' . This condition is necessary since the rule in question is structure preserving.

Hendrick concludes that adverbial subordinate clauses cannot be PP's but

⁵ As noted earlier (see fn. 3), Hendrick takes *when* to be a subordinating conjunction.

S's, sisters of V', which explains why they are always syntactic islands. A close look at some data, however, suggests that the situation is not as straightforward as Hendrick would like it to be.

Let us first consider sentences containing three ordinary prepositional phrases following the verb. On Hendrick's assumptions, it should be impossible to extract from the third PP because it would mean moving a constituent out of a sister of V'. This would have to be so because there are only two potentially available PP nodes generated in V'. In the sentences below, one or both of these nodes are occupied by strictly subcategorized arguments of the verbs and there are one or two adverbial PP's generated immediately under V'. The operation of the PP lowering rule would involve the first of the two adverbial PP's, as in (4), (5) and (7), and the rightmost PP would always be left as a sister of V'. Therefore, it would be an island and extraction from it would be impossible. The grammaticality judgements Hendrick gives to illustrate the point are consistent with this prediction. The sentences in (4) and (5) are his (1976:117). He marks the questions in b. as ungrammatical. This is somewhat surprising since these questions, as well as the other two, are grammatical to all my English informants.

- (4) a. John sent a package to New York by registered mail for the friend who was ill and couldn't go to the post office himself.
 b. (*)Who did John send a package to New York by registered mail for?
- (5) a. We talk about mathematics in the reading room on Tuesdays.
 b. (*)What days do we talk about mathematics in the reading room on?
- (6) a. John talked to Bill about Mary at Harry's birthday party.
 b. Which party did John talk to Bill about Mary at?
- (7) a. Mike talked to his aunt from France on Monday at the 'Poznań' Hotel.
 b. ?Which hotel did Mike talk to his aunt from France on Monday at?

If the *wh*-questions in (4)b.—(7)b., and especially the last one, are dubious, they are so probably just for perceptual reasons. (7)b. contains an extra PP, *from France*, embedded in an NP. This extra phrase certainly extends the 'distance' between the *wh*-phrase and the proposition associated with it at the end of the sentence. A structurally similar but shorter sentence (6)b., containing simple NP's in the prepositional phrases, is fully acceptable. Since there are only two PP nodes in V', there is no possibility for a third PP to become a daughter of V'. Therefore, we must conclude that the third PP remains its sister at the point at which *wh*-movement applies.

Another piece of evidence supporting the criticism of this aspect of Hendrick's account comes from questions like the ones in (8) and (9):

- (8) a. John said that he had met a spy in a low tone of voice.
 b. What tone of voice did John say that he had met a spy in?

- (9) a. John heard that Martin owns a Fiat on Friday.
 b. Which day did John hear that Martin owns a Fiat on?

The final prepositional phrases in (8) and (9) cannot be said to have been lowered into V' even though there are two available PP nodes for them there; the base rules devised for V' by Emonds (1976:175) and Jackendoff (1977:71) require that the *that*-clause is generated at the end of the string in V', following the PP nodes.⁶ Therefore, since the *in*- and *on*-phrases in (8)b. and (9)b., respectively, follow the embedded clauses, they must be directly dominated by V''. Again, then, we are dealing with extraction from a PP that is a sister of V''.

Facts like the above undermine Hendrick's claim that prepositional phrases which are sisters of V' are syntactic islands. I will now show that another of Hendrick's assumptions, that derived daughters of V' are not islands, is dubious too.

One set of data supporting this criticism involves a contrast between the a. and b. questions in (10)—(12):

- (10) a. What tone of voice did John say that he had met a spy in?
 b. ?What tone of voice did John say in that he had met a spy?
- (11) a. Which day did John hear that Martin owns a Fiat on?
 b. ?Which day did John hear on that Martin owns a Fiat?
- (12) a. Which party did John announce that he was married at?
 b. ?Which party did John announce at that he was married?

The questions in (10)a. and (11)a. are repeated examples (8)b. and (9)b. We have just seen that these sentences are good, contrary to the predictions of Hendrick's assumptions. His assumptions also predict that the b. examples in (10)—(12), involving extraction from a lowered PP, should be grammatical. Clearly, this prediction does not hold either.

Finally, it should be noted that while it is difficult to extract from a PP which has been lowered into V', extraction from a PP which originates in V' as a strictly subcategorized argument is perfectly natural. (13)—(15) illustrate:

- (13) Who did John hear from that Mary lives in Sweden?
 (14) Who did Bill argue with that Reagan was insane?
 (15) Who did Sally shout at that she wasn't going to do the washing up?

It follows, then, that Hendrick's first argument against the PP analysis of adverbial subordinate constructions is unacceptable. The assumptions it is

⁶ Unlike Jackendoff, Emonds does not give a full expansion of V' (his VP). The part of the phrase structure rule for V' he provides, however, is sufficient to establish the order of the final elements in the phrase:

(i) VP → ... V ... (PP) (S)

The final part of Jackendoff's expansion of V' allows the following possibilities:

(ii) V' → ... V ... (PP (PP))

based on and the predictions they lead to are disconfirmed by the facts about extraction from PP's, as illustrated in (4)–(15). The claim that a PP has to be lowered into V' in order for extraction to be possible cannot be maintained. Therefore, to say that the sentences in (1) violate the condition on extraction from a PP and, hence, that adverbial subordinate constructions should not be regarded as PP's is wrong.

It should be noted that the formation of questions like the one in (2) above does not necessarily involve the derivation argued for by Hendrick and presented in (3) since the crucial PP does not precede a strictly subcategorized argument.

Hendrick's second argument directed against the position that adverbial subordinate constructions are PP's of the structure P- \bar{S} is that there is a parallel between complementizers and subordinating conjunctions with respect to a rule moving sentence adverbs. He refers here to a rule called Sentence Adverb Fronting (SAF), introduced by Wexler and Culicover in an unpublished paper. This rule is responsible for relating the following sentences:

- (16) a. John said that he would arrive tomorrow, hopefully.
b. John said that, hopefully, he would arrive tomorrow.

Hendrick notices that an adverb can occur between *that* and the following clause as well as between a subordinating conjunction and the following clause.

- (17) John will be in Paris next year because, hopefully, he'll get a Fulbright.

He claims that the adverb cannot immediately precede an S if the complementizer *that* is not present on the surface, as illustrated in (18) below:

- (18) *John said, hopefully, he would arrive tomorrow.

Thus, he concludes, when we assume that subordinating conjunctions are complementizers, the position of sentence adverbs in sentences like (16)b. and (17), and their impossibility in sentences like (18) can be explained in a simple way by saying that they always have to follow an overt complementizer in a complement clause. Under that P- \bar{S} analysis of adverbial subordinate constructions this statement would have to involve two categories, a complementizer and a preposition. Therefore, since the former description is less complex than the latter one, the COMP-S analysis of adverbial subordinate constructions should be preferred.

It is not clear from what Hendrick says, however, what kind of constraint he is assuming. One possibility is to say that SAF is an ordinary movement rule and that it is a constraint or the rule stipulating that it can only apply in an embedded clause when there is a complementizer. This, however, would not block the derivation of (18). Following Chomsky and Lasnik (1977), Hendrick

would probably assume that movement rules precede deletion rules and that (18) had an underlying complementizer which was deleted after the application of SAF. Thus, the condition stated on the rule itself would fail to prevent the generation of sentences like (18).

Another possibility, then, is to say that the condition is stated as a surface filter. For Chomsky and Lasnik (1977), surface filters operate on the output of deletion. A simple filter like (19) would rule out sentences like (18), as Hendrick's grammaticality judgements require.

- (19) *[COMP] Adv

Yet another possibility is to say that SAF is not an ordinary syntactic but a stylistic rule. For Chomsky and Lasnik (1977), stylistic rules operate after deletion and filters. The condition could then be stated on the application of the rule.

Whatever possibility Hendrick would adopt, the constraint on SAF within his COMP-S analysis would be simpler than within Jackendoff's P- \bar{S} analysis. For Jackendoff, if the constraint had the form of a surface filter, an additional condition indicating that a sentence adverb may follow either a complementizer or a preposition would be required. The filter would, then, be something like (20):

- (20) *[COMP] Adv,
unless [COMP] preceded by P.

A similar complication would arise for Jackendoff if the constraint were imposed on SAF regarded not as an ordinary syntactic but as a stylistic rule. In either case, then, Jackendoff's analysis would necessitate a more complicated condition.

This would be an advantage for Hendrick's position, only if he were right about the facts. Crucial for him is sentence (18), with no overt complementizer. According to his grammaticality judgements, this sentence is not possible. However, all my informants agree that (18), as well as (21) and (22) below are grammatical.

- (21) Mary thought, probably, Bill would phone her up.
(22) Fred believed, eventually, he'd get a grant.

What may be wrong with these sentences is that out of context they are a little odd for perceptual reasons: in the absence of the complementizer it is unclear whether the adverb should be associated with the higher or the lower clause. (23) provides a context in which the sentence in question is unambiguous:

- (23) A.: What did John say when you last saw him?
B.: He said, hopefully, he'd be back with us next year.

Thus, the rule of SAF does not provide any evidence one way or another in favour of the COMP—S analysis of adverbial subordinate constructions. It does not provide any evidence against the P— \bar{S} analysis either. This conclusion follows from our re-examination of some crucial data, misinterpreted by Hendrick. The oddity of the data can be ascribed not to their ungrammaticality but, apparently, to perceptual factors.

The third and the last of Hendrick's arguments has to do with the fact that, in general, subordinating conjunctions are not followed by complementizers. He suggests that the reason why there is no complementizer following a conjunction is that conjunctions are themselves complementizers. Therefore, we do not get strings like **because that*, **before that*, etc. An analysis assuming a P— \bar{S} structure of adverbial subordinate constructions would have to account for the absence of a complementizer after certain subordinating conjunctions. An account, however, can easily be provided.

Firstly, one might assume with Jackendoff that the complementizer *that* is obligatorily deleted in modern English (1977:79).⁷

Secondly, one might claim that prepositions are followed by a bare S, not an \bar{S} . Bresnan (1979) proposes that this is true of certain verbs. Assuming that prepositions often behave like verbs, subordinating conjunctions, regarded as prepositions within X-bar theory, could be said to be followed by a bare S in the underlying structure and, thus, the COMP node would never appear in such structures.

These solutions indicate, then, that the absence of the complementizer *that* in adverbial subordinate clauses does not constitute a problem for regarding subordinating conjunctions as prepositions followed by sentences. Furthermore, as Hendrick himself notices, there are some cases where subordinating conjunctions which can also function as ordinary prepositions are followed by a *that*-clause:

- (24) a. John went for a walk despite the rain.
 b. John went for a walk despite that it was raining.
 (25) a. The problem lies in Mary's arrival.
 b. The problem lies in that Mary is arriving tomorrow.

In traditional grammar, *despite that* and *in that* are regarded as complex subordinating conjunctions (cf. Quirk et al. 1972). Clearly, they do not constitute a problem for the Jackendoff analysis. In fact, he does not discuss these cases. If he did, he would probably modify the claim about obligatory deletion of *that* by saying that it is obligatory with some prepositions, like *before*, and blocked with others, like *despite*. Again, this would make the class of preposi-

⁷ Chomsky and Lasnik (1977) would say that *that* is deleted by the rule of free deletion in COMP of elements that have no semantic content. This rule has been criticized by Pullum and Postal (1979).

tions look more similar to verbs. Certain verbs, like *want*, normally require deletion of a complementizer:

- (26) a. *John wanted for Mary to go out with him.
 b. John wanted Mary to go out with him.

Following Bresnan (1979), we could say that, like verbs, prepositions can be grouped into those which take a bare S and those which take an \bar{S} as their complements.

Hendrick's proposal concerning *despite that* and *in that* follows from his earlier claims about the structure of adverbial subordinate clauses. He suggests that they should be regarded as complex complementizers. He also, however, briefly considers an alternative in which strings like *despite that S* are analyzed as a preposition (*despite*) followed by a complex NP containing an empty head noun and an S (*that S*). He suggests that there is no direct motivation for the empty node in English and quotes an example from Dutch where a pronoun following a subordinating conjunction appears when the complement clause has been extraposed out of the NP.

It seems to me that the P—NP analysis of adverbial subordinate clauses has more to it than Hendrick seems to be aware of. Eventually, I will tentatively propose that while the P—S analysis cannot satisfactorily explain certain facts about extraction and about the structure of some adverbial subordinate clauses in English, the P—NP analysis can.

Concluding this section, we can say that it is clear that Hendrick's criticisms of the P— \bar{S} analysis of adverbial subordinate constructions cannot be accepted. This is so because his assumptions about extraction from PP's, sisters and daughters of V' are untenable; the data he considers is more complex than his idiosyncratic judgements indicate; and, finally, where he is undoubtedly right about facts, they pose no real problem for the proponents of the P— \bar{S} analysis. Furthermore, saying that adverbial subordinate clauses are S's and not PP's, Hendrick completely ignores Emonds' three arguments for the PP analysis: the fact that prepositional phrases, not sentences (Emonds 1976:133), can occupy the focus position in cleft sentences; the occurrence of the intensifier *right* before prepositions; and the fact that adverbial subordinate constructions, generated as sisters of V' phrase structure rules, can, in some circumstances, appear as daughters of V'. If these constructions were \bar{S} 's and not PP's, there would be no simple explanation of these facts.

3. Extraction and the structure of adverbial subordinate constructions

Facts about extraction become relevant when the structure of a constituent is to be determined. As we have seen, Hendrick's attempt to use this kind of evidence to explain the islandhood of adverbial subordinate clauses fails through his inadequate attention to data. For him, extraction from sisters of V' is not possible. Adverbial subordinate clauses generated as \bar{S} 's directly

under V'' are always islands since they cannot undergo Emonds' lowering rule. We have seen, however, that Hendrick's general assumption about the islandhood of sisters of V' is wrong.

As far as I can see, given Jackendoff's analysis of adverbial subordinate clauses, the only principle that might be invoked to block sentences like (1) is Chomsky's subjacency condition. In its most recent formulation (Chomsky 1980), the condition states that certain rules, in particular movement rules, cannot operate across the boundary of more than one bounding node.

(1) *What did Bill arrive before started?

In (2), successive cyclic application of *wh*-movement, in accordance with Chomsky's assumptions about the operation of the rule, is presented:

(2) [\bar{S} what [\bar{S} did Bill arrive [$_{PP}$ before] [\bar{S} t [\bar{S} t started]]]]]

It follows from (2) that the implications of subjacency are dependent on the choice of the bounding nodes. On the second application of *wh*-movement in (2), the *wh*-word crosses three boundaries. At least two of them must be bounding nodes in order for subjacency to account for (1). Baltin (1978) argues that PP, NP and \bar{S} are all bounding nodes. Clearly, the *wh*-word in (2) crosses two of them, \bar{S} and PP, on the second cycle and this is how extraction from adverbial subordinate clauses could be explained. However, this combination of bounding nodes is problematic. Although it can correctly block sentences like (3)a. in the way presented schematically in (3)b., it cannot block sentences like (4)a., noticed by George Horn (personal communication to Bob Borsley), as illustrated in (4)b.

(3) a. *Who did you destroy a book about?
b. [\bar{S} who [\bar{S} did you destroy [$_{NP}$ a book] [$_{PP}$ about t]]]]

(4) a. *About who did you destroy a book?
b. [\bar{S} about who [\bar{S} did you destroy [$_{NP}$ a book t]]]]

While in (3) the *wh*-word crosses two bounding nodes, NP and PP, on its way to the front of the sentence, the *wh*-phrase in (4) crosses only one bounding node, NP. To block (4)a., S and NP must be bounding nodes. However, if PP is also a bounding node, as it is for Baltin, (5)a. is blocked, as illustrated in (5)b.:

(5) a. Who did you talk to?
b. [\bar{S} who [\bar{S} did you talk [$_{PP}$ to t]]]]

It follows, then, that if PP were not a bounding node and S and NP were, sentences like (3)a., (4)a. and (5)a. would be correctly predicted by the subjacency condition on *wh*-movement. With S and NP as bounding nodes, however, subjacency would not be able to explain the islandhood of adverbial subordinate clauses exemplified in (1) and (2).

The above considerations as well as some independent criticism available in the literature (cf. Bresnan 1976, Mailing 1978, Borsley 1979, Allen 1980 and Horn and Borsley in preparation) lead us to the conclusion that it is impossible to account for the islandhood of adverbial subordinate clauses with subjacency and, anyway, subjacency is a dubious constraint.

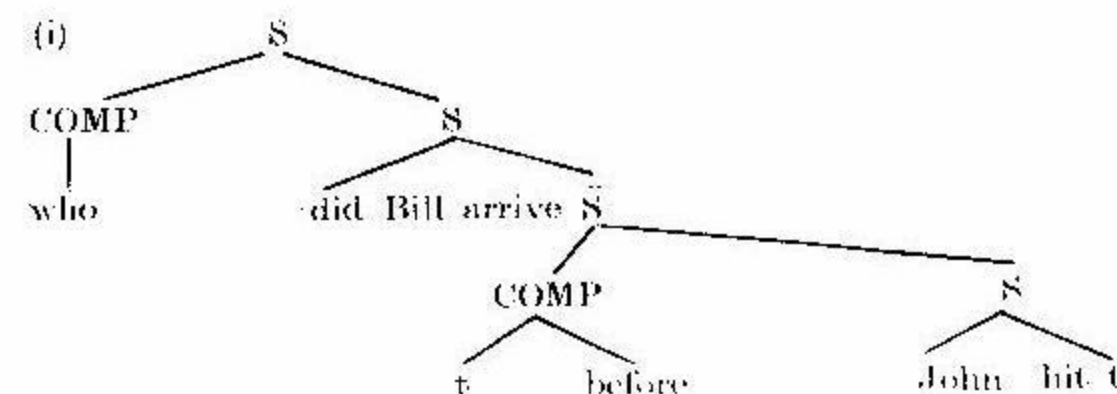
In fact, it is worth noting that Hendrick cannot invoke subjacency either. Consider the following:

(6) a. Bill arrived [\bar{S} before] [\bar{S} John hit Mary]]
b. *Who did Bill arrive before John hit?
c. [\bar{S} who [\bar{S} did Bill arrive [\bar{S} before] [\bar{S} John hit t]]]]

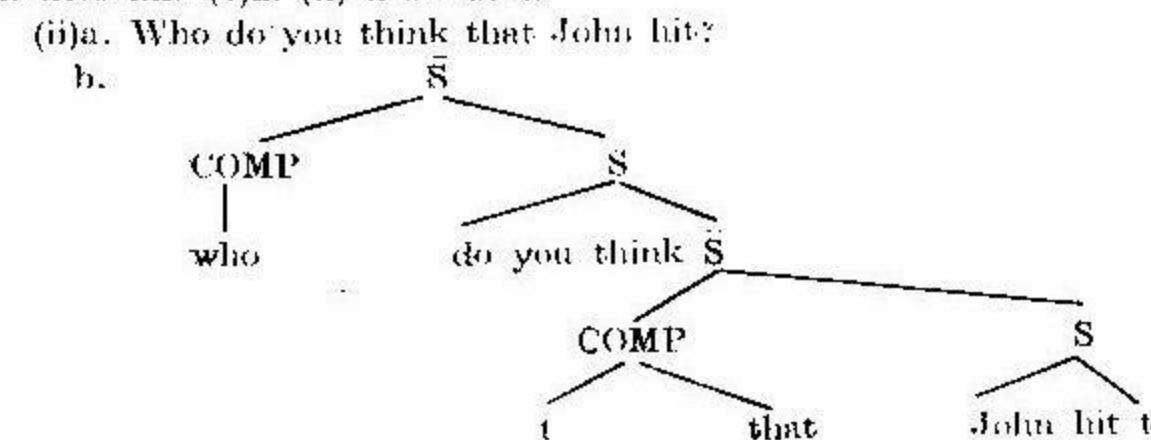
(6)a. represents the structure which Hendrick assumes for adverbial subordinate constructions. Unless S and \bar{S} are both bounding nodes, there is no way to prevent the derivation of (6)b.⁸ Obviously, these two nodes cannot be both bounding nodes, as it would never be possible to generate sentences like (7):

(7) a. Who did you think that John hit?
b. [\bar{S} who [\bar{S} did you think [\bar{S} COMP that] [\bar{S} John hit t]]]]

⁸ Actually, the derivation of (6)b. might be blocked by the opacity condition of Chomsky (1980). The condition says that if α is in the domain of the subject of β ($\beta = S$ or NP) then α cannot be free in β . In (6)b., the trace in the original position is in the domain of the subject of the embedded clause and, thus, should not be free within the lower S. It is, however, since the trace in COMP does not c-command it, as illustrated in (i):

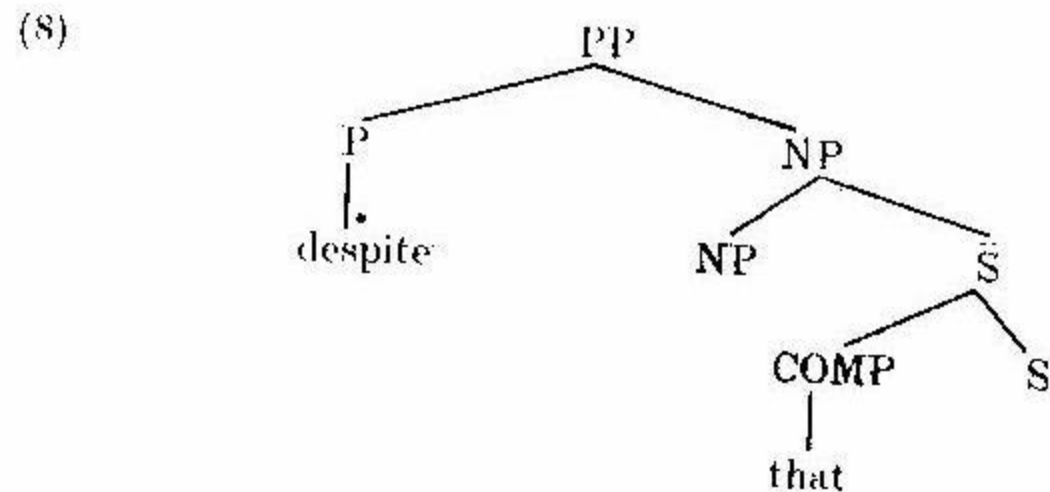


It seems dubious, on the other hand, whether the opacity condition is a viable means of blocking (6)b. since, as Bob Borsley pointed out to me, it should also block good sentences like (7)a. (ii) illustrates:



We can conclude, then, that there is no obvious way on Jackendoff's assumptions on the one hand and Hendrick's assumptions on the other to handle extraction from adverbial subordinate clauses. Therefore, it seems reasonable to look for another solution to the problem of the internal structure of these constructions.

A possible account of the islandhood of adverbial subordinate clauses is suggested by Hendrick's brief proposal that certain constructions of this type could be analyzed as a preposition followed by a complex noun phrase. (8) illustrates the idea:⁹



For Hendrick, this structure is relevant only in the cases of adverbial subordinate clauses where *that* is overtly present. I would like to propose, rather tentatively, that all English adverbial subordinate clauses involve a complex NP in the underlying structure. This proposal would treat all adverbial subordinate constructions as PP's and would thus be compatible with the three arguments given by Emonds. It would also, however, affect Jackendoff's generalization concerning verbs and prepositions in that it would be only verbs but not prepositions which could be followed by a sentential complement. Thus, sentences like (9)a. and (10)a. would, respectively, have structures presented schematically in (9)b. and (10)b.:

- (9) a. John went out despite that it was raining.
 b. John went out [PP [P despite] [NP [NP e] [S-bar that it was raining]]]
 (10) a. John went out before it started to rain.
 b. John went out [PP [P before] [NP [NP e] [S-bar it started to rain]]]

The advantage of assuming the P-NP analysis of adverbial subordinate clauses rests in the fact that extraction from these clauses can be regarded as a violation of the complex NP constraint first formulated by Ross (1967:70). The exact nature of the constraint is not important here: it can be regarded either as a consequence of Chomsky's subadjacency condition or of Horn's (1974,

⁹ (8) is a slightly modified version of the diagram given by Hendrick (1976: 119).

1979) NP constraint. What is important here is that complex NP's are syntactic islands and thus that the extraction facts can be explained if adverbial subordinate constructions involve a complex NP.

As has been mentioned earlier, Hendrick sees no real motivation for the empty head of the complex NP in English. It seems, however, that some motivation can be provided. Consider the following pairs of sentences:

- (11) a. John arrived on time despite that the train was late.
 b. John arrived on time despite the fact that the train was late.
 (12) a. John didn't come because his car had broken down.
 b. John didn't come because of the fact that his car had broken down.
 (13) a. Bill arrived before John hit Mary.
 b. Bill arrived before the time at which John hit Mary.

Sentences (11)a.—(13)a. contain the controversial adverbial subordinate constructions. They are synonymous with the b. sentences of (11)—(13). The latter can plausibly be assigned the structure in (8) with a non-empty head NP. As regards the a. sentences, one might claim, then, that they derive from an underlying structure identical to that of the b. sentences via deletion of the lexical heads *the fact* or *the time*.¹⁰ The deletion of the head noun in (11)—(13) is optional. Alternatively, one might claim that the underlying structure of the a. sentences differs only slightly from that of the b. sentences in that the head NP in the former is an empty node. No deletion would then be necessary to derive (11)a.—(13)a.

If the above proposal for an analysis of adverbial subordinate structures in English is correct, Emonds's and Jackendoff's claims about the identity between verbs and prepositions in that they both take sentential complements are not true for English. The P-NP analysis has the advantage over the P-S-bar analysis in that it explains why extraction from adverbial subordinate clauses is not

¹⁰ The deletion of the head NP in (11)b. and (12)b. would trigger the deletion of the complementizer. It is not quite clear how exactly to handle the *of* in (12). An ad hoc solution is to say that *because of* is a complex P and the *of* can be deleted under certain circumstances. A second solution is to say that the preposition *because* is followed by a PP in the following structure:

- (i) [PP because [PP [P of] [NP NP]] [the fact [S-bar that his car broke down]]]

This structure would be consistent with Jackendoff's expansion of a PP given in (1) in the first section of the paper but it would be inconsistent with our claim that all subordinating conjunctions are followed by an NP. It would also be dubious since the only possible preposition to follow *because* is *of* and not any other. A third solution is to say that the *of* is inserted and Chomsky-adjoined to the NP *the fact that S* if the deletion rule has not applied. *Of*-insertion is discussed by Jackendoff (1977: 70-71) in connection with the derivation of *election of John* from *elect John*. Sentences like (12), then, can be a potential problem for a uniform account of subordinating conjunctions.

Geis (1970) suggests that sentences like (13) b. constitute an intermediate structure from which (13)a. is derived through deletion of *the time at which*.

possible. Furthermore, it offers a way to account for the synonymy of certain types of sentence pairs, like those in (11)–(13). Whether these two arguments are strong enough to make us definitely reject the other analyses of adverbial subordinate constructions in English is not yet entirely clear. Tentatively, then, I will assume that (8) is an appropriate structure for at least some adverbial subordinate clauses in English.

4. Adverbial subordinate clauses in Polish

As we have seen, the initial motivation for regarding the English subordinating conjunctions as prepositions is the fact that they can be followed by a sentence as well as by a noun phrase:

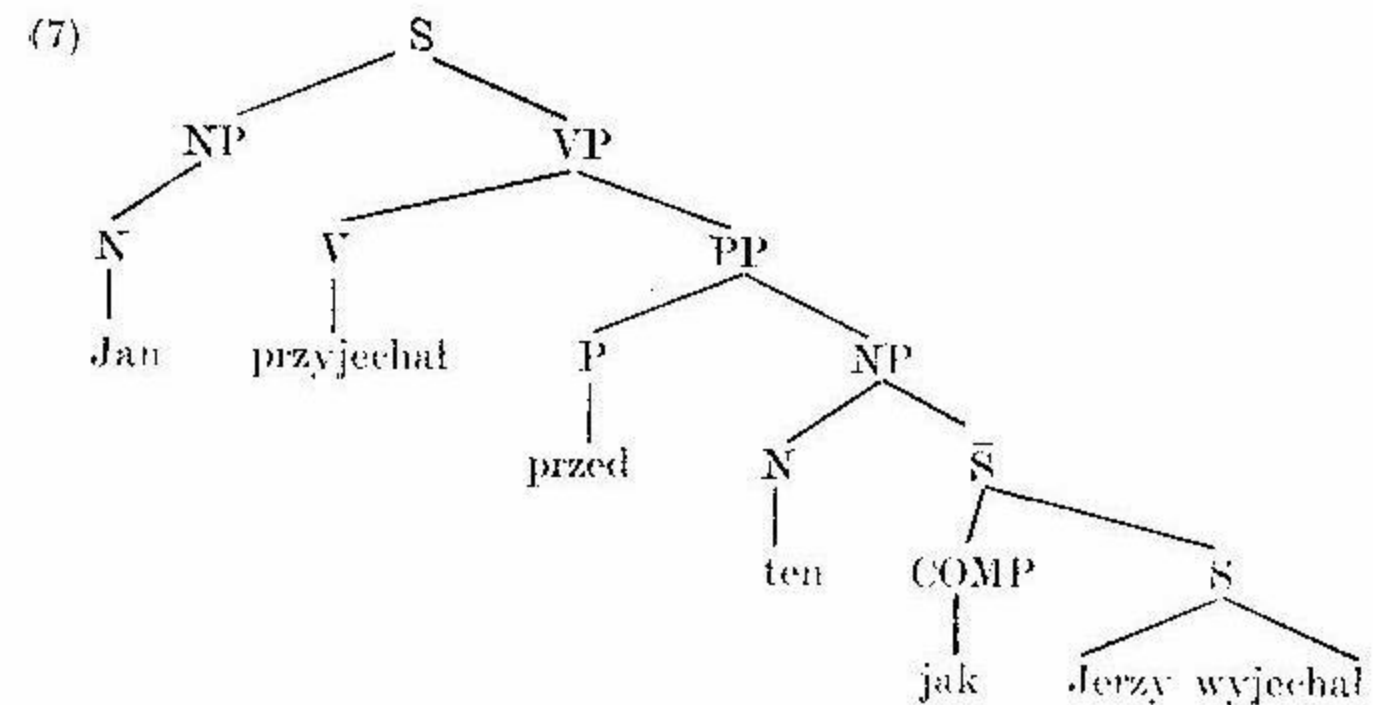
- (1) a. John arrived before midnight.
 b. John arrived after midnight.
 (2) a. John arrived before Jack left.
 b. John arrived after Jack left.

As is illustrated below, the equivalent Polish prepositions *przed* ('before') and *po* ('after') can only be followed by a noun phrase, not by a sentence.

- (3) a. Jan przyjechał przed Marią.
 John arrived before Mary
 [+Ins]
 'John arrived before Mary.'
 b. Jan przyjechał po Marii.
 John arrived after Mary
 [+Loc]
 'John arrived after Mary.'
 (4) a. *Jan przyjechał przed Jerzy wyjechał.
 John arrived before George left
 'John arrived before George left.'
 b. *Jan przyjechał po Jerzy wyjechał.
 John arrived after George left
 'John arrived after George left.'
 (5) a. Jan przyjechał przed wyjazdem Jerzego.
 John arrived before departure George's
 [+Ins]
 'John arrived before George's departure.'
 b. Jan przyjechał po wyjeździe Jerzego.
 John arrived after departure George's
 [+Loc]
 'John arrived after George's departure.'
 (6) a. Jan przyjechał przed tym, jak Jerzy wyjechał.

- John arrived before this how George left
 [+Ins]
 'John arrived before George left.'
 b. Jan przyjechał po tym, jak Jerzy wyjechał.
 John arrived after this how George left
 [+Loc]
 'John arrived after George left.'

As is evident from (3), *przed* takes an object NP in the Instrumental case and *po* takes an NP in the Locative case. If a subordinate clause immediately follows either of the prepositions, as in (4), the whole sentence is ungrammatical. The adverbial subordinate clause has to be introduced by the demonstrative pronoun *ten* ('this'/masc.) in the appropriate case,¹¹ followed by the complementizer *jak* ('how'),¹² as in (6). It seems plausible, then, that (6) should be assigned an underlying structure like (7), along the lines suggested by Hendrick (1976) and presented in (8) in the preceding section.



Similar to *przed* and *po* is *mimo* ('despite'). On the surface, *mimo* can be followed either by a simple or a complex NP:

- (8) Jan był w dobrym humorze mimo uwag Anny.

¹¹ The Instrumental and the Locative forms of *ten* are both *tym*:

- (i) Jan rozmawiał z tym żołnierzem.
 John talked with this soldier
 'John talked with this soldier.'
 (ii) Jan rozmawiał o tym żołnierzu.
 John talked about this soldier
 'John talked about this soldier.'

¹² See Borsley (1979) for arguments that in certain circumstances *jak* should be regarded as a complementizer rather than as a *wh*-word.

John was in good humor despite remarks Ann's

[+Gen]

'John was in a good mood despite Ann's remarks.'

(9) Piotr poszedł na spacer mimo tego, że nie miał parasola.

Peter went on walk despite this that not (he) had umbrella

[+Gen]

'Peter went for a walk despite that he hadn't got an umbrella.'

Mimo takes an NP in the Genitive case.¹³ Again, we notice that when it is followed by an adverbial clause, the clause is preceded by a demonstrative.

Unlike with *przed* and *po*, where the demonstrative is obligatory, the demonstrative after *mimo* is optional. (10) and (11) illustrate:

(10) *Jan przyjechał $\left\{ \begin{array}{l} \text{przed} \\ \text{po} \end{array} \right\}$ jak Jerzy wyjechał.

(11) Piotr poszedł na spacer mimo, że nie miał parasola.

Therefore, we can say that *mimo* is quite like the English *despite* in that it is optionally followed by an NP preceding an embedded clause. In the case of *mimo*, the NP is a form of a demonstrative pronoun, in the case of *despite* it is *the fact*. The non-occurrence of the demonstrative in Polish, like of *the fact* in English, can be explained in two ways: either the demonstrative head of the complex NP is present in the underlying structure and then optionally deleted or the head N is generated as an empty node in some circumstances. Which analysis is correct is not important here. The important thing is that with prepositions like *przed*, *po* and *mimo* followed by adverbial subordinate clauses the underlying structure is clearly P-NP, and not P- \bar{S} .

Another set of Polish adverbial subordinate clauses is presented in (12)–(14):

(12) Jan będzie w Paryżu w przyszłym roku dlatego, że dostanie
John will be in Paris in next year for-this that (he) will get

stypendium.

grant

'John will be in Paris next year because he will get a grant.'

(13) Piotr poznał Annę przedtem, jak kupił samochód.

¹³ *Mimo* takes also noun phrases in the Accusative case:

(i) a. mimo wszystko
despite everything
[+Acc]

b. /*mimo wszystkiego
despite everything
[+Gen]

The demonstrative pronoun *ten* following *mimo* as the head of a complex NP may appear either in the Accusative or in the Genitive form (cf., for example, Urbańczak (1966: 274–275) and Pisarek (1978: 56)).

Peter met Ann before-this how (he)bought car

'Peter met Ann before he bought the car'.

(14) Piotr poznał Annę potem, jak kupił samochód.

Peter met Ann after-this how (he) bought car

'Peter met Ann after he bought the car'.

Superficially, adopting Jackendoff's analysis, *dlatego*, *przedtem* and *potem* should be assigned to the category P, followed by *że*- and *jak*-clauses within a PP. However, *dlatego*, *przedtem* and *potem* can never be followed by a noun phrase. Therefore, treating them as prepositions in the above sentences would be quite dubious.

Following Hendrick's proposal of the COMP — S analysis of adverbial subordinate clauses, one might claim that *dlatego że*, *przedtem jak* and *potem jak* are complex complementizers. We have seen, however, that the idea of a complex complementizer is not very plausible for English and, likewise, does not seem very appealing as far as Polish is concerned. Later, I will present an argument against this idea for Polish. For now, the rejection of this solution can be justified by the fact that there are two other, more plausible ways to analyze the adverbial subordinate constructions in (12)–(14).

The first possible analysis is based on the observation that *dlatego*, *przedtem* and *potem* are each composed of two elements: a preposition, *dla* ('for'), *przed* ('before') and *po* ('after'), and a form of the demonstrative pronoun *ten* ('this'). In the case of *dlatego*, *ten* appears in its Genitive form *tego*. This is not surprising since *dla* is normally followed by a noun phrase in the Genitive case:

(15) Herbata jest dla Aliny.

tea is for Alina

[+Gen]

'The tea is for Alina'.

In the cases of *przedtem* and *potem*, *ten* appears in a phonologically modified form of *tym*. We have seen that *przed* takes a noun phrase in the Instrumental case and *po* takes a noun phrase in the Locative case.

The *że* following *dlatego* in (12) is clearly a complementizer, a traditionally understood subordinating conjunction, as it introduces subordinate clauses like the one in (16):

(16) Jan powiedział, że przyjdzie.

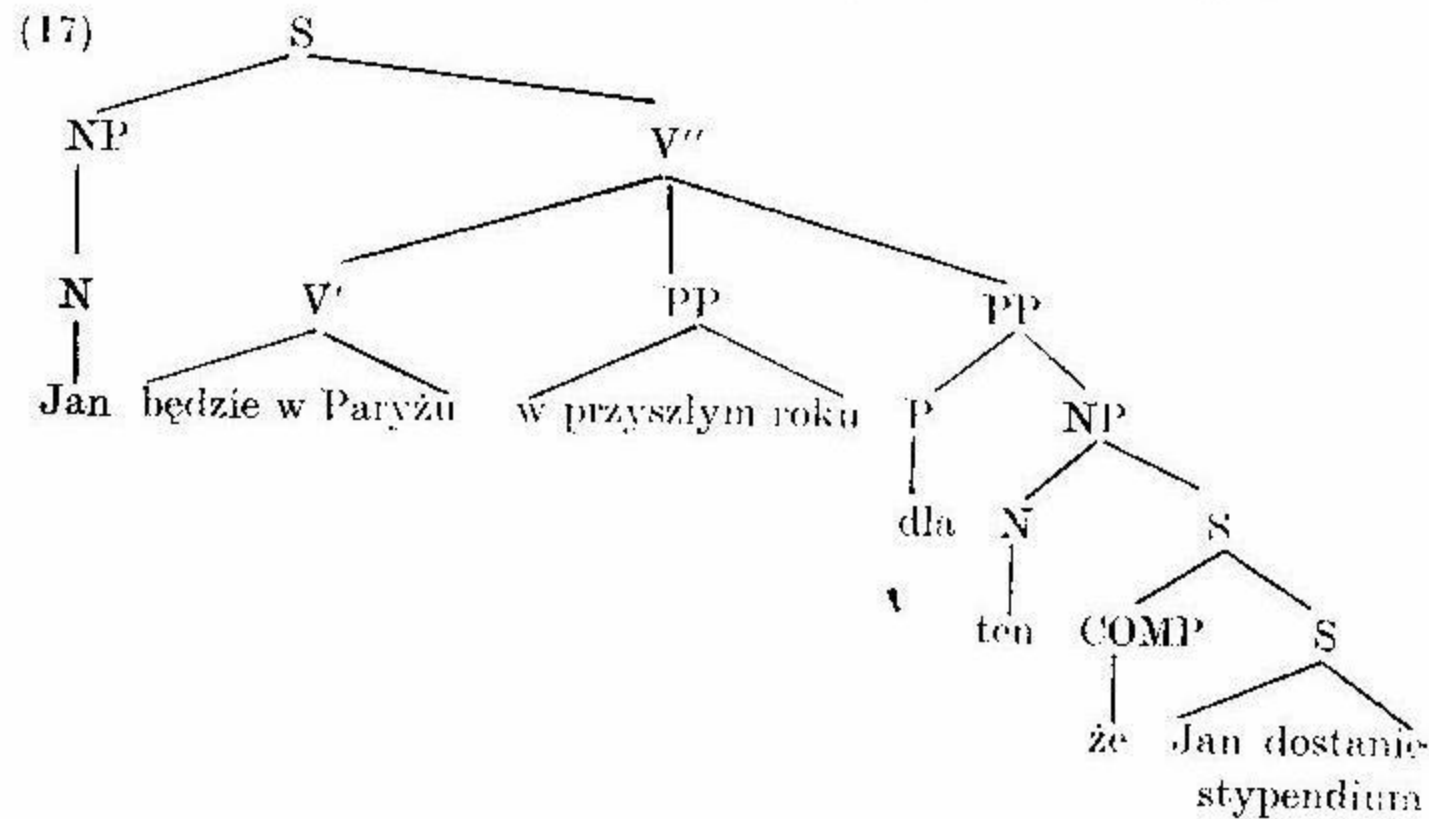
John said that (he)will come

'John said that he would come'.

The *jak* following *przedtem* and *potem* in (13) and (14) is also a complementizer (cf. fn. 12).

Thus, using evidence from case marking of *ten*, we could say that *dlatego że S*, *przedtem jak S* and *potem jak S* derive from a PP containing the preposi-

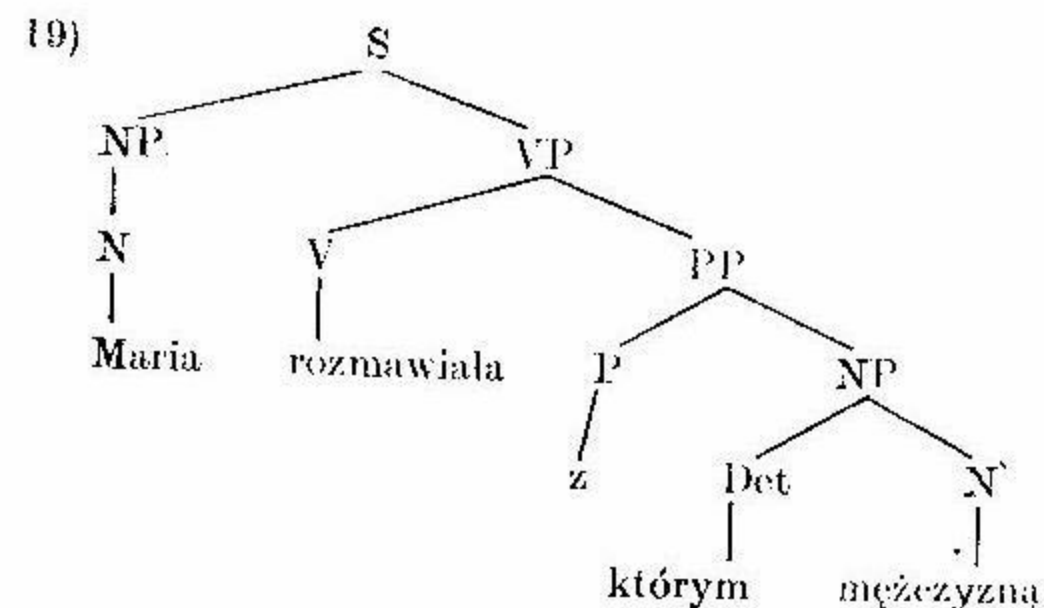
tions *dla*, *przed* and *po*, respectively, followed by a complex NP with *ten* as the head. This analysis is essentially similar to the one proposed for sentences like (6). (17) illustrates the underlying structure of (12):



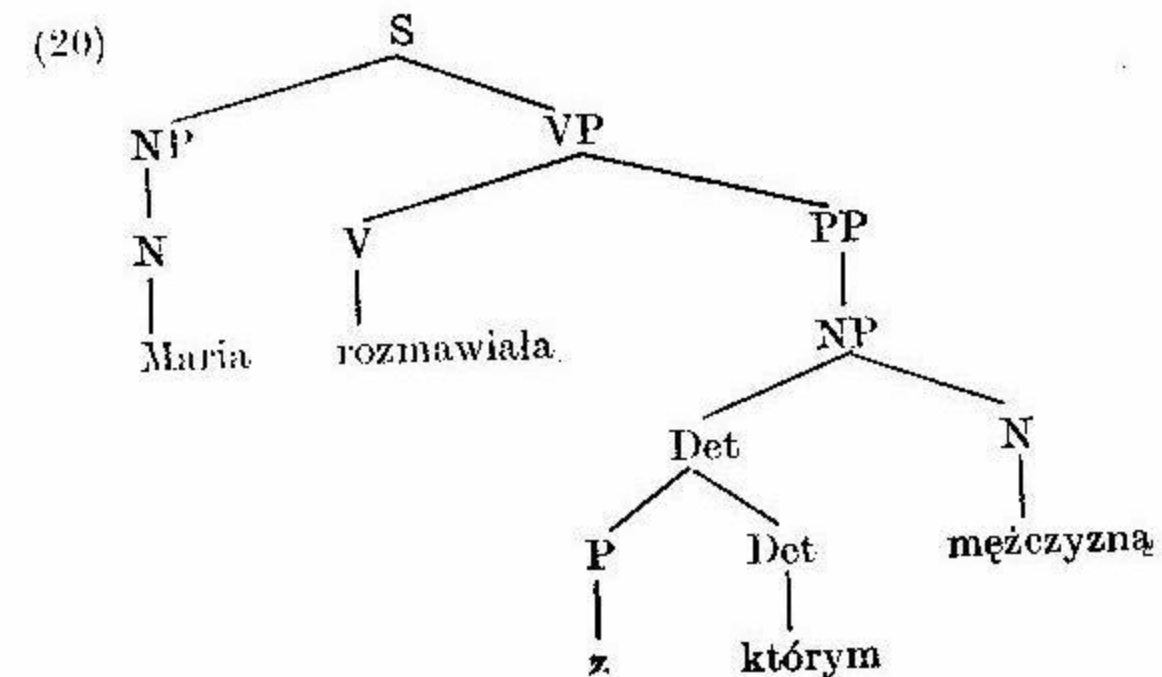
After *ten* in (17) has been assigned the Genitive case marking, the preceding preposition is adjoined to it, which results in *dlatego*. This readjustment operation is independently motivated by *wh*-questions like (18):

- (18) Z którym Maria rozmawiała mężczyzną?
with which Mary talked man
'Which man did Mary talk to?'

Assuming that (18) derives directly from an underlying structure like (19), we would have to say that a non-constituent *z którym* is fronted by *wh*-movement.



Since it is generally accepted that only constituents can be moved (Schwartz 1972), the preposition *z* ('with') in (19) must first form a constituent with *którym* ('which'). The result of the operation of this readjustment rule is something like (20):



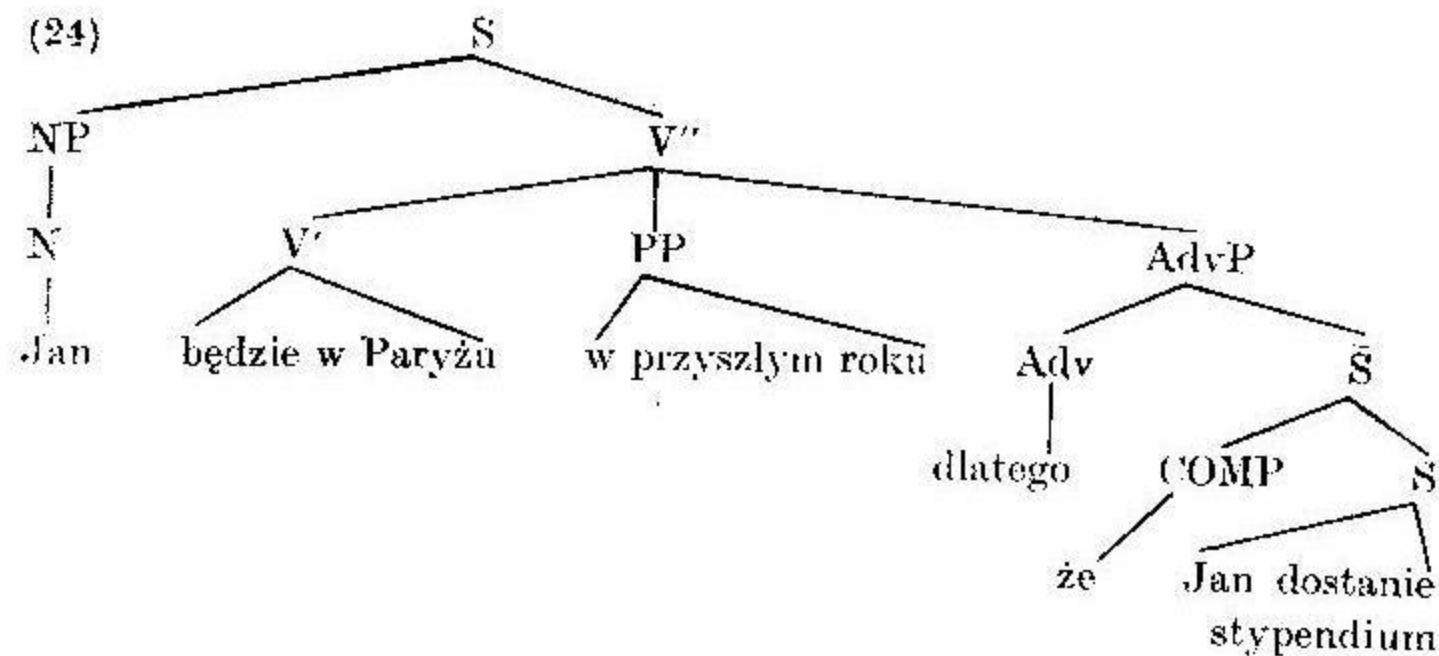
Thus, to claim that *dlatego* derives from *dla* and *tego* as well as *przedtem* and *potem* from *przed* and *tym*, and *po* and *tym*, respectively, does not seem unreasonable.

Under the second possible analysis of the adverbial subordinate clauses in (12)–(14), *dlatego*, *przedtem* and *potem* are simply adverbs and they are not derived structures. (21)–(23) illustrate the adverbial use of *dlatego*, *przedtem* and *potem*:

- (21) Jan dlatego nie przyszedł do szkoły.
John for-this not came to school
'This is why John didn't come to school'.
(22) Maria była tu przedtem.
Mary was here before-this
'Mary has been here before'.
(23) Marek przyjdzie potem.
Mark will come after-this
'Mark will come afterwards'.

In (21), *dlatego* refers to an earlier mentioned reason for John's not coming to school. In (22) and (23), *przedtem* and *potem*, respectively, refer to some specific time, previously mentioned in the discourse.

Assuming that *dlatego*, *przedtem* and *potem* are always adverbs, it seems quite plausible to propose that the adverbial subordinate constructions in (12)–(14) are complex adverbial phrases. (24) illustrates the idea for (12):



Shortly, I will argue that an analysis illustrated in (24) is preferable to the one illustrated in (17).

A rather different type of adverbial subordinate clauses is illustrated in the following:

- (23) Jan nie przyjdzie, bo złamał nogę.
John not will come because (he)broke leg
'John won't come because he's broken a leg.'
- (26) Maria była tu, zanim poznała Pawła.
Mary was here before (she)met Paul.
'Mary was here before she met Paul.'
- (27) Przetłumacz ten tekst, odkąd zaznaczyłem.
(you)translate this text from-where (I)marked
'Translate this text from where I've made a mark.'
- (28) Przeczytaj ten list, dokąd ci pokazałem.
(you)read this letter to-where you (I)showed
'Read this letter up to where I've shown you.'
- (29) Piotr zadzwoni, skąd będzie mógł.
Peter will phone from-where (he)will be can
'Peter will phone from where he'll be able to.'

Bo ('because'), *zanim* ('before'), *odkąd* ('from where'), *dokąd* ('to where') and *skąd* ('from where') function here as subordinating conjunctions. They can never, however, be followed by an NP like ordinary prepositions and therefore it would be quite strange to claim that (25)–(29) conform to Jackendoff's analysis of adverbial subordinate clauses.

There is strong evidence, on the other hand, that these subordinating conjunctions are in COMP. While *bo* and *zanim* in (25) and (26) introduce only adverbial subordinate clauses, *odkąd*, *dokąd* and *skąd* appear in *wh*-questions, as illustrated in (30)–(32):

- (30) Odkąd mam przetłumaczyć ten tekst?
from-where (I)have translate this text
'Where do I have to translate this text from?'
- (31) Dokąd mogę przeczytać ten list?
to-where (I)can read this letter
'How far can I read this letter?'
- (32) Skąd Piotr zadzwoni?
from-where Peter will phone
'Where will Peter phone from?'

It seems reasonable, then, to assume that the words in question in (27)–(29) are *wh*-words. In fact, they are *wh*-words in COMP of free relative clauses.¹⁴ Their ability to appear with the suffix *-kolwiek*, indicative of free relative constructions (cf. Bresnan and Grimshaw (1978) for this kind of evidence for English free relatives) confirms this proposal:

- (33) a. Przetłumacz ten tekst odkądkolwiek chcesz.
(you)translate this text from-wherever (you)want
'Translate this text from wherever you like'.
- b. Przeczytaj ten list dokądkolwiek chcesz.
(you)read this letter to-wherever (you)want
'Read this letter to wherever you like'.
- c. Piotr zadzwoni skądkolwiek będzie mógł.
Peter will phone from-wherever (he)will be can
'Peter will phone from wherever he will be able to'.

Bo and *zanim* cannot introduce *wh*-questions but since they occupy exactly the same positions in (25) and (26) as the *wh*-words in (27)–(29), they may be regarded as occupying the COMP position too.

There are three further arguments in support of this claim about (25)–(29). Firstly, there is a general agreement that all subordinate clauses in Polish, unlike in English, must have a complementizer in surface structure. (34)–(37) illustrate the point:

- (34) John married the girl he had met on the train.
- (35) a. Jan poślubił dziewczynę, którą poznał w pociągu.
John married girl which (he) met in train
'John married the girl who he had met on the train'.
- b. *Jan poślubił dziewczynę, poznał w pociągu.
- (36) John thinks he is clever.
- (37) a. Jan myśli, że jest zdolny.
John thinks that (he)is clever

¹⁴ For a discussion of Polish free relatives see Borsley (1980).

'John thinks that he is clever.'

b. *Jan myśli, jest zdolny.

We can conclude, then, that the subordinating conjunctions in (25)–(29) can be regarded as occupying the COMP position since there is no other obvious candidate for this position in these sentences.

Secondly, the first and second person past tense inflections can be moved away from the verb and attached to the words under consideration, just as they can to other, more obvious complementizers and *wh*-words in COMP.¹⁵ (38)–(41) illustrate:

- (38) a. Jan wiedział, że ty przyszedłeś.
John knew that you came
'John knew that you'd come'.
b. Jan wiedział, żeś ty przyszedł.
- (39) a. Kiedy widzieliście Marię?
when (you/pl.)saw Mary
'When did you see Mary'?
b. Kiedyście widzieli Marię?
- (40) a. Maria była tu zanim ją poznałeś.
Mary was here before her (you)met
'Mary was here before you met her'.
b. Maria była tu, zanimś ją poznał.
b. Maria była tu, zanimś ją poznał.
- (41) a. Przeczytałem ten list, dokąd mi pokazałeś.
(I)read this letter to-where me (you)showed
'I read the letter up to where you'd shown me'.
b. Przeczytałem ten list, dokądś mi pokazał.

As noted in Borsley (in preparation), mobile inflections cannot appear outside the first \bar{S} that dominates the verb with which they are associated. Thus, for example, an inflection can be attached to the relative pronoun in COMP but not to the head noun, which is outside the \bar{S} . (42) illustrates:

- (42) a. Mężczyzna, którego widziałeś, wyjechał do Francji.
man which (you)saw went to France
'The man you saw has gone to France'.
b. Mężczyzna, któregoś widział, wyjechał do Francji.
c. *Mężczyznaś, którego widział, wyjechał do Francji.

This fact argues for an analysis of subordinating conjunctions under which they are within an \bar{S} , i.e. in COMP. If subordinating conjunctions were treated

¹⁵ Speakers vary in the realization of this phenomenon with *jak*: *jakżeś* and *jakieś* are the alternatives. *Jakś* has been chosen here for the sake of simplicity.

as prepositions, mobile inflections would have to be said to be crossing a clause boundary when they appear with *bo*, *zanim*, etc. Moreover, another restriction on the movement of mobile inflections would be violated, namely, that they cannot be attached to prepositions. (43) illustrates:

- (43) a. Do Paryża pojechałeś.
to Paris (you)went
'You went to Paris'.
b. Do Paryżaś pojechał.
c. *Doś Paryża pojechał.

Thus, the occurrence of mobile inflections with subordinating conjunctions provides evidence that they should be treated as complementizers rather than prepositions.

We can also use the facts about mobile inflections to justify the rejection of the idea of a complex COMP for *dlatego że*, *przedtem jak* and *potem jak*, suggested in connection with sentences (12)–(14). The inflections can only be attached to the second element, not to the first:

- (44) a. Byłeś tam dlatego, żeś dostał stypendium.
(you)were there for-this that(you)got grant
'You were there because you'd got a grant'.
b. *Byłeś tam dlategoś, że dostał stypendium.
- (45) a. Poznałeś Annę przedtem, jakś kupił samochód.
(you)met Ann before-this how(you) bought car
'You met Ann before you bought the car'.
b. *Poznałeś Annę przedtemś, jak kupił samochód.
- (46) a. Poznałeś Annę potem, jakś kupił samochód.
(you)met Ann after-this how(you) bought car
'You met Ann after you bought the car'.
b. *Poznałeś Annę potemś, jak kupił samochód.

The third argument in favour of regarding the subordinating conjunctions in (25)–(29) as occupying the COMP position is that they can be preceded by various adverbs. Parallel to (25)–(29), we have (47)–(51):

- (47) Jan nie przyjdzie dlatego, bo złamał nogę.
John not will come for-this because (he)broke leg
(48) Maria była tu przedtem, zanim poznała Pawła.
Mary was here before-this before (she)met Paul
(49) Przetłumacz ten tekst odtąd, odkąd zaznaczyłem.
(you)translate this text from-here from-where (I)marked
(50) Przeczytaj ten list dotąd, dokąd ci pokazałem.
(you)read this letter to-here to-where you (I)showed

(51) Piotr zadzwoni stąd, skąd będzie mógł.

Peter will phone from-here from-where (he)will be can.

The above sentences show a great similarity to those in (12)–(14). Therefore, they should all be analyzed in a uniform fashion.

We can now return to the question of whether the analysis in (17) or (24) is appropriate for certain adverbial subordinate constructions in Polish. If we tried to extend the analysis in (17) to *odtąd* ('to-here') and *stąd* ('from-here') we notice that while *-tego* of *dlatego* and *-tem* of *przedtem* and *potem* can appear on their own elsewhere, *-tąd* of *odtąd*, *dotąd* and *stąd* cannot. Therefore, it seems preferable to postulate that *odtąd*, *dotąd* and *stąd*, and, consequently, *dlatego*, *przedtem* and *potem* are not derived forms. Thus, the analysis in (24) is preferable for both (12)–(14) and (47)–(51). This analysis provides a uniform account for two types of adverbial subordinate clauses: those introduced by an 'ordinary' complementizer and those introduced by a *wh*-word in COMP. As far as the latter type is concerned, it supports the claim made by Borsley (1980) that Polish free relatives are headless relative clauses.

It is easy to notice that the adverbial heads in (47)–(51) are optional. *Potem* in (14) is also optional, as (52) illustrates:

(52) Piotr poznał Annę, jak kupił samochód.

Dlatego in (12), unlike in (25), is obligatory, as (53) illustrates:

(53) *Jan będzie w Paryżu w przyszłym roku, że dostanie stypendium.

Przedtem in (13) is obligatory, as its absence results in the reading under which the order of the events described in the original sentence is reversed. *Przedtem* is optional, however, if the complementizer *zanim*, not *jak*, introduces the embedded clause.

Generalizing the description, we can say that the adverbial head is obligatory unless it precedes some specialized complementizer, associated only with this adverb. If the complementizer is *że* or *jak*, associated with *dlatego* and *potem*, respectively, in adverbial subordinate constructions but also appearing elsewhere, introducing other kinds of subordinate clauses, the adverb is obligatory. Whether, in the cases where the adverb is optional, in the underlying structure the Adv node always dominates some lexical material which can later be deleted or whether it is sometimes generated as an empty node is not important for the present discussion.

5. Conclusion

In the above discussion I have been concerned with adverbial subordinate constructions. According to Jackendoff (1977) and Emonds (1976), the subordinating conjunction belongs to the category P and is followed by an \bar{S} in the underlying structure. This assumption makes the base rule of a PP

parallel to the base rule of a VP, which provides motivation for X-bar theory: verbs and prepositions can be referred to in terms of the same basic features [+Obj] and [+Comp], and this kind of generalization across various syntactic categories is exactly what the theory is supposed to capture. If an \bar{S} were not a possible complement of a PP, the generalization about the two categories and the subsequent simplification would have to be complicated. Consequently, a broader generalization within which all the four major syntactic categories, NP, VP, PP and AP, can take a final \bar{S} in their expansions, would not be possible either. The initial motivation for treating subordinating conjunctions as prepositions was that some of them, like *before* and *after*, do function as ordinary prepositions elsewhere (i.e. are followed by an NP).

Hendrick (1976) tries to show that, for various reasons, an adverbial subordinate construction cannot be treated as a preposition followed by an \bar{S} . His main alternative to the P- \bar{S} analysis is that a subordinating conjunction is a complementizer, followed by an S. As I have shown, his arguments against Jackendoff (and Emonds) as well as for his own position are untenable. He makes an important observation, however, that extraction from adverbial subordinate clauses, unlike from other types of subordinate clauses, is impossible. As we have seen, there is no obvious way to account for this with either a P- \bar{S} or a COMP-S analysis. In this respect, the COMP-S analysis is as defective as the P- \bar{S} analysis.

A re-examination of the English data within yet another analysis, mentioned but not explored by Hendrick, has led us to explain why extraction from adverbial subordinate clauses gives ungrammatical results. This analysis treats an adverbial subordinate construction as a PP consisting of a preposition (the subordinating conjunction) followed by a complex NP. As is generally accepted, no movement rule can apply to a constituent of a noun phrase. A very tentative claim is, then, that adverbial subordinate constructions are, indeed, prepositional phrases, which is consistent with Emond's arguments and Jackendoff's assumption, but that their internal structure is P-NP, which is inconsistent with the X-bar theory claim. Thus, the facts about extraction argue against the cross-categorical generalization and remove one piece of motivation for X-bar theory.

Polish adverbial subordinate constructions do not provide any motivation at all for the analysis advocated by Jackendoff. No ordinary preposition in Polish can be immediately followed by a clause in any circumstances. Prepositions in Polish always have to be followed by NP's, simple or complex. Unlike in English, then, in Polish, the traditionally understood prepositions and subordinating conjunctions are two distinct classes of words, not overlapping with each other. As far as the Polish subordinating conjunction is concerned, good reasons have been given above for regarding it as a complementizer in an \bar{S} embedded in a complex NP or AdvP. Jackendoff's analysis

of adverbial subordinate structures, even if it is adequate for English, is not applicable in Polish and cannot be claimed to be universal.

It remains to be seen whether the argument against the P— \bar{S} analysis of English adverbial subordinate constructions presented in this paper is the only one available and whether it is strong enough to constitute a serious problem for X-bar theory. Other cross-categorial generalizations that provide motivation for X-bar theory should also be looked at critically. It also remains to be seen whether there are any more convincing arguments favouring the COMP — S analysis of the English constructions than the ones given by Hendrick. Certainly, more data has to be considered, especially subordinating conjunctions like *although*, *if* etc., which I have neglected in the present paper. Similarly, an examination of further Polish data should reveal whether it is true of all Polish subordinating conjunctions that they are complementizers.

REFERENCES

- Allen, C. 1980. "Movement and deletion in Old English". *Linguistic inquiry* 11. 261—323.
- Anderson, S. and P. Kiparsky (eds). 1973. *A festschrift for Morris Halle*. New York: Holt, Rinehart and Winston.
- Baltin, M. 1978. "PP as a bounding node". *Proceedings from the Eight Annual Meeting of the North Eastern Linguistic Society*. 33—40.
- Borsley, R. D. 1979. "Wh-movement and unbounded deletion in Polish equatives". Paper presented at the Autumn Meeting of the Linguistic Association of Great Britain, University of Sussex, September 1979.
- Borsley, R. D. 1980. "Free relatives in Polish and English". Paper presented at the 18th International Conference on Contrastive Projects, Adam Mickiewicz University, December 1980.
- Borsley, R. D. In preparation. "Mobile inflections in Polish".
- Bresnan, J. W. 1976. "Evidence for a theory of unbounded transformations". *Linguistic analysis* 2. 353—93.
- Bresnan, J. W. 1979. *Theory of complementation in English syntax*. New York: Garland.
- Bresnan, J. W. and J. Grimshaw. 1978. "The syntax of free relatives". *Linguistic inquiry* 9. 331—91.
- Chomsky, N. 1980. "On binding". *Linguistic inquiry* 11. 1—46.
- Chomsky, N. and H. Lasnik. 1977. "Filters and control". *Linguistic inquiry* 8. 425—504.
- Emonds, J. E. 1976. *A transformational approach to English syntax*. New York: Academic Press.
- Emonds, J. E. (ed.). 1976. *Proposals for semantic and syntactic theory*. UCLA papers in syntax, vol. 7.
- Geis, M. L. 1970. "Time prepositions as underlying verbs". *CLS* 6. 235—49.
- Hendrick, R. 1976. "Prepositions and the X' theory". In Emonds, J. E. (ed.). 1976. 95—122.
- Horn, G. M. 1974. *The noun phrase constraint*. Ph. D. dissertation, University of Massachusetts, Amherst, reproduced by the Indian University Linguistics Club 1977.

- Horn, G. M. 1979. "A lexical interpretive approach to some problems in syntax". Bloomington: Indiana University Linguistics Club.
- Horn, G. M. and R. D. Borsley. In preparation. "The condition of the conditions".
- Jackendoff, R. S. 1973. "The base rules for prepositional phrases". In Anderson, S. and P. Kiparsky (eds). 1973. 345—56.
- Jackendoff, R. S. 1977. *X syntax: a study of phrase structure*. Cambridge, Mass.: The MIT Press.
- Klima, E. S. 1965. *Studies in diachronic syntax*. Unpublished Ph. D. dissertation, Harvard University.
- Maling, J. 1978. "An asymmetry with respect to wh-islands". *Linguistic inquiry* 9. 75—89.
- Pisarek, W. 1978. *Słownik języka niemy-polskiego, czyli błędy językowe w prasie*. Wrocław: Zakład Narodowy im. Ossolińskich.
- Pullum, G. K. and P. M. Postal. 1979. "On an inadequate defense of 'trace theory'". *Linguistic inquiry* 10. 689—706.
- Quirk, R., S. Greenbaum and G. Leech. 1972. *A grammar of contemporary English*. London: Longman Group Ltd.
- Ross, J. R. 1967. *Constraints on variables in syntax*. Ph. D. dissertation, MIT, distributed by the Indiana University Linguistics Club.
- Schwartz, A. 1972. "Constraints on movement transformations". *Journal of linguistics* 8. 35—85.
- Urbańczyk, S. (ed.). 1966. *Polszczyzna piękna i poprawna*. Wrocław: Zakład Narodowy im. Ossolińskich.