

ROOT TRANSFORMATIONS AS A WASTE-BASKET FOR POTENTIAL
COUNTER-EXAMPLES TO THE STRUCTURE-PRESERVING CONSTRAINT*

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1. Introduction

Generative grammarians have often claimed that transformational generative grammar does have the status of an empirical science.¹⁾ Botha (1978, p.30) points out that this claim is problematic in more than one sense. He (1978, p.30) formulates one of the problems that arises in connection with this claim as follows:

- (1) ".... a problem arises if one is willing to accept the conventional, falsificationist approach to protection. This is the problem of how generative grammarians could claim their field to be an empirical science and, simultaneously, take extensive measures to immunize general-linguistic hypotheses from refutation."²⁾

Among the generative grammarians who claim empirical status for transformational generative grammar are Chomsky and Emonds. Emonds (1976), for example, presents the Structure-Preserving Constraint (henceforth SPC) as an empirical hypothesis.³⁾ In (Sinclair 1977) I examine in depth the objectionable protective devices which are in principle available for the protection of Emonds's SPC. I also show that many of the protective devices which are in principle available for the protection of the SPC are in fact used by Emonds to protect the SPC. The findings presented in (Sinclair 1977) illustrate the lengths to which generative grammarians are willing to go in order to protect a fundamental hypothesis such as the SPC. These findings point to a dilemma for generative grammarians such as Chomsky and Emonds, who claim that transformational generative grammar (and general-linguistic hypotheses such as the SPC) is empirical. The one horn of the dilemma is to reject the objectionable protective devices discussed in (Sinclair 1977), abandon the SPC as refuted, and maintain the claim that the SPC (or transformational generative grammar in general) is empirical. The other horn is to uphold the objectionable protective devices in question, to retain the SPC as not refuted, and abandon the claim that the SPC (or transformational generative grammar in general) is empirical.

In this paper I discuss a number of the objectionable protective devices examined in (Sinclair 1977). In particular, I consider the role which the notion 'root transformation' plays in the protection of the SPC. This notion is a key notion in Emonds's (1976, p.5) formulation of the SPC:

- (2) "All major transformational operations are either root or structure-preserving operations." ⁴⁾

Emonds (1976, p.3) defines the notion 'root transformation' as follows:

- (3) "A transformation (or a transformational operation, in the case of a transformation performing several operations) that moves, copies, or inserts a node C into a position in which C is immediately dominated by a root S in derived structure is called a 'root transformation' (or a root transformational operation)."

It should be clear from (3) that the notion 'root transformation' is dependent on the notion 'root S'. A transformation must satisfy only one requirement to qualify as a root transformation. The constituent moved, copied or inserted by it must be attached directly to a root S. The notion 'root S' is defined as follows by Emonds (1976, p.2):

- (4) "A root S ('sentence') is an S that is not dominated by a node other than S."

The discussion below of the role which the notion 'root transformation' plays in the objectionable protection of the SPC, indicates that this role is indeed a very important one. It seems that the class of transformations defined by this notion, i.e., the class of root transformations, acts as a waste-basket into which nearly all problematic major non-structure-preserving transformations may in principle be deposited.

2. Some analyses of root S's in terms of the "original" definition

2.1 Introduction

I take the definition of 'root S' presented by Emonds (1976, p.2) to be the "original" definition of the relevant notion within the context of (Emonds 1976). This definition was presented in §1 above as (4), and will henceforth be referred to as 1.(4). One of the modifications that Emonds makes to this definition, concerns the possibility of there being an initial (non-recursive) node E in the grammar.⁵⁾ Emonds (1976, p.2, note 2) states that if there were such a node, "the definition of a root S can be amended so that a root S is an S that is not dominated by any node that S can dominate, other than S". For the purposes of this section, it is not necessary to distinguish between these two definitions. It is now possible to indicate the aim of §2. In this section several analyses of Emonds are critically examined. All the analyses examined have the following properties in common:

- (i) Each analysis concerns a clause in which root transformations may apply;
- (ii) In each case, the relevant clause apparently does not have the status of a root S, with 'root S' as defined in 1.(4);
- (iii) In each case, Emonds argues that the relevant clause does indeed have the status of a root S, with 'root S' as defined in 1.(4).

In all cases discussed in §2, it could be argued that the relevant transformations are counter-examples to Emonds's characterization of 'root transformation' and/or 'root S', and not to the SPC as such. Unless, however, these transformations can acquire the status of root transformations through some non-ad hoc modification of the characterization of either 'root S' or 'root transformation', the relevant transformations are potential counter-examples to the entire SPC. For this reason, I treat all transformations discussed below in §2 as potential counter-examples to the SPC.

2.2 Sentence relatives introduced by the complementizer as

A first case to be considered here is Emonds's analysis of "sentence relatives" introduced by the complementizer as. Emonds (1976, p.23, note 2) points out that, since SUBJECT-AUXILIARY INVERSION applies freely in them, these sentence relatives are potential counter-examples to a root formulation of SUBJECT-AUXILIARY INVERSION. Thus, SUBJECT-AUXILIARY INVERSION is a potential counter-example to the SPC. Emonds (1976, p.24, note 2) furnishes the following examples of sentences in which SUBJECT-AUXILIARY INVERSION has applied in sentence relatives introduced by as.

- (5) a. John must do his own laundry, as must every student here.
 b. I was looking for faults in his presentation, as was my friend.

Emonds, however, denies SUBJECT-AUXILIARY INVERSION the status of an actual counter-example to the SPC. This he (1976, p.24, note 2) does by claiming that the clauses in (5) in which SUBJECT-AUXILIARY INVERSION has applied, are root S's.

- (6) "The auxiliary inversion that occurs in 'sentence relatives' introduced by as is quite free, but may be attributed to the fact that these S's can be assigned a root status (that is, we can analyze sentence relatives as S sisters to the main clause; note the comma intonation): ..."

The manner in which Emonds protects the SPC by claiming that sentence relatives introduced by as are root S's, may be outlined as follows:

- (7) a. Sentence relatives introduced by as are root S's, with 'root S' as defined in 1.(4).
 b. SUBJECT-AUXILIARY INVERSION in sentence relatives introduced by as may, therefore, be formulated as a root transformation.
 c. Thus, SUBJECT-AUXILIARY INVERSION in sentence relatives introduced by as is not an actual counter-example to the SPC.

The question now is whether or not Emonds provides sufficient independent justification for his claim that sentence relatives introduced by as are root S's, in that they are S sisters to the main clause. The only independent justification which Emonds provides for this claim is that such sentences exhibit comma intonation. Emonds (1976, p.43) formulates the principle of comma intonation to which he alludes here, as follows:

- (8) "A root S (immediately) dominated by another S is set off by commas."

However, Emonds's argument that sentence relatives introduced by as are root S's immediately dominated by another S because they exhibit comma intonation, cannot be accepted. The principle of comma intonation, as formulated in (8), implies that all root S's immediately dominated by another S exhibit comma intonation. In other words, (8) claims that a clause which does not exhibit comma intonation cannot be analyzed as a root S immediately dominated by another S. That is, in terms of (8), comma intonation is defined as a necessary condition for root S's immediately dominated by another S. This point may be clarified by reformulating (8) as an if-then statement.

- (9) If a root S is immediately dominated by another S, then it is set off by commas.

However, Emonds's claim that sentence relatives introduced by as are root S's immediately dominated by another S, is apparently not based on the principle that all root S's immediately dominated by another S exhibit comma intonation. His argument is based, rather, on the principle that only root S's immediately dominated by another S exhibit comma intonation. That is, in terms of this second principle a clause which exhibits comma intonation must be analyzed as a root S immediately dominated by another S. In terms of this second principle, therefore, comma intonation is defined as a sufficient condition for root S's which are immediately dominated by another S. The second principle, however, is not implied by the former principle of comma intonation, as formulated in (8) above. If the principle of comma intonation (8) is to imply the latter principle, (8) would have to be modified as follows:

- (10) If an S is set off by commas, then it is a root S (immediately dominated by another S.

Thus, one may conclude that Emonds's argument for the root status of "sentence relatives" with as, is fallacious. It rests on an assumption which he neither explicitly nor implicitly defends.

There is one possible objection to the above-mentioned criticism of Emonds's argument for the root status of sentence relatives introduced by as. It could be argued that Emonds's argument for the root status of sentence relatives with as, is not based on the claim that comma intonation is a sufficient condition for root S's immediately dominated by another S. Rather, it could be claimed that Emonds's argument is based on (8) itself, i.e., on the assumption that comma intonation is a necessary condition for root S's immediately dominated by another S. In the latter case, Emonds's argument for the root status of sentence relatives with as should be reconstructed as in (11).

- (11) If a root S is immediately dominated by another S, then it is set off by commas.

Sentence relatives introduced by as are set off by commas.

Thus, sentence relatives introduced by as are root S's immediately dominated by another S.

Suppose that Emonds's argument must be reconstructed as in (11). This argument (11) would be acceptable only if the principle of comma intonation (8), subsequently reformulated as (9), were correct; that is, if comma intonation were in fact a necessary condition for a root S immediately dominated by another S. However, there is evidence that comma intonation is not a necessary condition for root S's immediately dominated by another S. In his analysis of mixed indirect discourse, Emonds analyzes clauses which do not exhibit comma intonation as root S's immediately dominated by another S. In connection with this construction in German, Emonds (1976, p.25, note 3) remarks that the reported sentence "is sometimes set off by a comma". The Black English sentences presented by Emonds

(1976, p.24), do not exhibit comma intonation at all. Thus, the principle of comma intonation (8) is probably not correct, that is, it is probably false. Consequently, the argument in (11) is unacceptable. It is based on an incorrect assumption.

In sum: Emonds's argument for the root status of sentence relatives introduced by as, can be reconstructed in two alternative ways. Firstly, Emonds's argument can be analyzed as being based on the assumption that comma intonation is a sufficient condition for root S's immediately dominated by another S. Secondly, Emonds's argument can be analyzed as being based on the assumption that comma intonation is a necessary condition for root S's immediately dominated by another S. In either case, one may conclude that Emonds has provided no independent justification for his claim that "sentence relatives" with as have root status.

Moreover, Emonds fails to specify any independent test implications of the claim in question. It also seems as if this claim has no independent test implications in principle. Such a claim would have independent test implications only if it were clear what properties root S's immediately dominated by other S's have. This is, however, not clear. Emonds, in formulating the principle of comma intonation (8), implies that comma intonation is a necessary condition for root S's immediately dominated by another S. However, as pointed out above, Emonds analyzes certain clauses which do not exhibit comma intonation as root S's immediately dominated by another S. In his discussion of mixed indirect discourse, Emonds (1976, pp.24-25) appears to suggest that the absence of a complementizer is a distinguishing characteristic of root S's immediately dominated by another S. Consider, in this connection, his reference to the absence of a complementizer in the relevant Black English clauses and the German clauses. However, in the case of the sentence relatives under discussion, Emonds analyzes clauses introduced by a complementizer (as in this case), as root S's. Thus, it is not at all clear what distinguishing properties root S's immediately dominated by another S have as a class. This implies that any claim to the effect that a particular clause should be analyzed as a root S immediately dominated by another S, is without any independent test implications. Therefore, it seems that Emonds's claim for the root status of sentence relatives introduced by as, functions as an ad hoc protective device.

2.3 Nonrestrictive relative clauses

Emonds (1976, p.7, note 6) considers various potential counter-examples to the SPC. Hooper and Thompson (1973) argue that root transformations may apply in certain dependent clauses in English. Such root transformations are potential counter-examples to the SPC. Hooper and Thompson (1973) argue for an analysis of the applicability of root transformations that differs from Emonds's analysis. In particular, their analysis allows for the application of root transformation in certain dependent sentences, that is, sentences which do not qualify as root S's in terms of the definition 1.(4). Emonds (1976, p.7, note 6), however, remarks that in some cases, he is "not sure that really different claims are made". He then proceeds to argue that two types of dependent clauses in which, according to Hooper and Thompson (1973), root transformations can apply, could possibly be analyzed as root S's in terms of the definition 1.(4).

The first type comprises the nonrestrictive relative clauses, exemplified by (12) below:

(12) John, who is usually reliable, came in late.

Emonds (1976, pp.7-8, note 6) claims that such clauses could possibly be derived transformationally from a coordination of root S's. For example, Emonds claims that the structure underlying (12) could be derived from the structure underlying (13) by means of his (1976, Section II.9.) transformation of PARENTHETICAL FORMATION.

(13) John came in late, and he is usually reliable.

By claiming that nonrestrictive relative clauses are root S's, Emonds denies any major non-structure-preserving transformation which may apply in such clauses, the status of an actual counter-example to the SPC. For each of the relevant transformations, an argument analogous to (7) above may be constructed.

The question arises whether or not Emonds's claim about the root status of nonrestrictive relative clauses makes it possible to protect the SPC in an objectionable manner. Consider, firstly, the question of the inde-

pendent justification which Emonds provides for the relevant claim. The only piece of independent justification which Emonds provides for his claim about the root status of nonrestrictive relative clauses, is that a root analysis of such clauses predicts the unacceptability of the sentence in (14).

- (14) ?Bill asked John, who is usually responsible, for the rent money Sunday.

The proposed analysis predicts the unacceptability of (14), since PARENTHETICAL FORMATION may move constituents only. It is, however, not clear that this prediction of the root analysis of nonrestrictive relative clauses is correct. For Emonds cannot claim that speakers judge the sentence in (14) to be totally unacceptable. However, even if this sentence were totally unacceptable, it could hardly be maintained that Emonds presents sufficient independent justification for a root analysis for nonrestrictive relative clauses. Moreover, it seems as if Emonds's claim to the effect that nonrestrictive relative clauses are root S's, has no independent test implications either. This is so because it is unclear what distinguishing properties root S's immediately dominated by another S have, independent from the SPC. Consequently, it may be concluded that Emonds's analysis of nonrestrictive relative clauses as root S's, represents a case of ad hoc protection of the SPC.

2.4 "Nonrestrictive" subordinate clauses

Emonds (1976, p.8, note 6) discusses a second type of clause, the "nonrestrictive" subordinate clause. This is exemplified by (15) below.

- (15) John isn't coming, because I just talked to his brother.

Hooper and Thompson (1973) claim that, as in nonrestrictive relative clauses, root transformations apply freely in such nonrestrictive subordinate clauses. Since the latter clauses are apparently dependent clauses, any root transformation which may apply in them would be a potential counter-example to the SPC. Emonds, however, denies that the applicability of root transformations in nonrestrictive subordinate clauses

provides actual counter-examples to the SPC. This he does by proposing that nonrestrictive because may be a coordinate conjunction. If this were so, a clause introduced by nonrestrictive because would be a root S. The manner in which Emonds's claim about the root status of nonrestrictive subordinate clauses may be used as a device for protecting the SPC, can be outlined in a form analogous to (7) above.

It must now be considered whether or not Emonds's claim about the root status of nonrestrictive subordinate clauses functions as a device for protecting the SPC in an objectionable manner. Consider, firstly, what independent justification Emonds provides for the claim under discussion. Following a suggestion by Klima, Emonds (1976, p.8, note 6) contends that preposability is a characteristic of subordinate, but not of coordinate, clauses. Nonrestrictive subordinate clauses introduced by because cannot be preposed. The sentence in (16) differs in regard to meaning from (15) above. By contrast (16) has the same meaning as (17), which incorporates a restrictive subordinate clause.

(16) Because I just talked to his brother, John isn't coming.

(17) John isn't coming because I just talked to his brother.

If nonpreposability is a valid test for coordinate clause status, it may be concluded that nonrestrictive because is a coordinate, rather than a subordinate, conjunction. Consequently, nonrestrictive subordinate clauses may be root S's. Against this background, root transformations which may apply in nonrestrictive subordinate clauses are not actual counter-examples to the SPC. The question, however, is whether or not nonpreposability is a valid test for coordinate clause status. Emonds (1976, p.8, note 6) himself points out that nonpreposability does not necessarily indicate coordinate clause status.

(18) "The nonpreposability of nonrestrictive because does not REQUIRE that we assign it coordinate conjunction status; it only makes it possible. It may be that nonrestrictive subordinate clauses and coordinate clauses simply share a structural similarity that excludes preposing."

Thus, it may be that the nonpreposability of nonrestrictive because is not in an essential manner related to its status as a coordinate conjunction. Consequently the nonpreposability of nonrestrictive subordinate clauses can provide very little justification for the claim that such clauses are root S's. In view of the dubious nature of this single piece of independent justification for a root analysis of nonrestrictive subordinate clauses, it is proper to conclude that Emonds has failed to provide sufficient independent justification for this analysis. Moreover, as in the case of Emonds's root analysis of nonrestrictive relative clauses, his claim about the root status of nonrestrictive subordinate clauses has no independent test implications either. Thus, one may conclude that Emonds's claim about the root status of nonrestrictive subordinate clauses has the status of an ad hoc protective device.

2.5 Mixed indirect discourse

2.5.1 A brief outline of the two-sentence analysis of mixed indirect discourse

Emonds (1976, pp.24-25, note 3) distinguishes between two indirect discourse constructions in German. In the first type, "the reported sentence is like other nonroot S's in that it is introduced by dass, its verb is in final position, certain fronting transformations cannot occur in it". Emonds furnishes the following examples to illustrate this type of indirect discourse construction in German:

- (19) a. Er sagte dass er krank sei.
 b. *Er sagte dass gestern er nach Hause gekommen sei.
 c. *Er sagte dass mich sie geschlagen habe.

In the second type the reported sentence, like the reported sentence in direct discourse, is a root S. The verb is second, certain fronting transformations can apply, and dass does not introduce the clause. It is this latter type of indirect discourse construction that Emonds denotes by means of the expression "mixed indirect discourse". Emonds (1976, pp.24-25) also characterizes the mixed indirect discourse of German as a construction "in which the tenses and pronouns of indirect speech appear

in clauses that otherwise have all the characteristics of main clauses (i.e., of direct quotation)." Emonds (1976, p.25, note 3) furnishes the following examples to illustrate the mixed indirect discourse construction in German:

- (20) a. Er sagte, er sei krank.
 b. Er sagte, gestern sei er nach Hause gekommen.
 c. Er sagte, mich habe sie geschlagen.

Emonds (1976, p.25) claims that constructions such as those in (21) are similar to the mixed indirect discourse construction of German.

- (21) John wondered (mused), (why) should he be early.

Emonds (1976, p.25) comments as follows on the derivation of sentences such as (21):

- (22) "Such 'complement' sentences have main clause status throughout the transformational derivation; i.e., they are derived from two-sentence sources as in (12) and transformed into [_S S - S] structures:

- (12) John wondered thus: Why should he be early.
 John asked me this: Why was he supposed to be early."

Note that the derivation of sentences such as (21) from their underlying form, requires a transformational rule that (i) deletes the anaphoric NP, and (ii) attaches the right S as a sister to the left S.

2.5.2 The reason for Emonds's adoption of a two-sentence analysis of the mixed indirect discourse construction

In Section II.1. of his book Emonds examines the rule of SUBJECT-AUXILIARY INVERSION. In terms of the SPC, this rule must be a root transformation i.e., it must apply in root S's only. Emonds (1976, p.24) provides the following examples of Black English sentences that exhibit SUBJECT-AUXILIARY INVERSION in dependent clauses:

- (23) a. I don't know how did I do it.
 b. Where did she get the coat from I don't know.

Sentences such as (23) constitute potential counter-examples to a root analysis of SUBJECT-AUXILIARY INVERSION. Consequently SUBJECT-AUXILIARY INVERSION is a potential counter-example to the SPC. Emonds does not, however, admit that the sentences in (23) constitute actual counter-examples to a root analysis of SUBJECT-AUXILIARY INVERSION. He claims, rather, that these sentences are instances of mixed indirect discourse and are derived from two independent clauses. Hence, the 'dependent' clauses in (23) are in fact independent clauses. Emonds (1976, p.25) concludes:

- (24) "It therefore seems plausible that Black English differs from Standard American in allowing question clauses to appear in 'mixed indirect discourse', and that it does NOT allow auxiliary inversion in true dependent clauses."

By claiming that the Black English sentences in (23) are derived from a two sentence source, and transformed into a $[\text{ }_s \text{ S} - \text{ S}]$ structure, Emonds protects his root analysis of SUBJECT-AUXILIARY INVERSION from refutation. In terms of this analysis, the relevant Black English clauses are reinterpreted in such a way as to acquire the status of root S's in terms of the definition 1.(4). The manner in which Emonds protects the SPC by means of his mixed indirect discourse analysis, may be outlined as follows:

- (25) a. Black English has mixed indirect discourse constructions, which are derived from two-sentence sources and transformed into $[\text{ }_s \text{ S} - \text{ S}]$ structures.
 b. The Black English sentences in (23) are instances of mixed indirect discourse.
 c. The dependent clauses in the Black English sentences (23) are, therefore, root S's, with 'root S' as defined in 1.(4).

- d. SUBJECT-AUXILIARY INVERSION in the Black English sentences (23) may, therefore, be formulated as a root transformation.
- e. Thus, SUBJECT-AUXILIARY INVERSION in the Black English sentences (23) is not an actual counter-example to the SPC.

It must now be considered whether or not the protection of the SPC in the manner outlined in (25), represents a case of objectionable protection.

2.5.3 Mixed indirect discourse in Black English: objectionable protection?

Suppose that there is sufficient independent justification for the postulation of a mixed indirect discourse construction derived from a two-sentence source. Emonds must then still provide sufficient independent justification for the hypothesis that the Black English sentences are instances of mixed indirect discourse. A critical analysis of Emonds's (1976, pp.24-25) discussion of the relevant Black English sentences reveals that he presents no such justification for the hypothesis under consideration. Concerning the question of whether or not the Black English sentences in (23) are instances of mixed indirect discourse, Emonds (1976, p.24) merely remarks that the "absence of a complementizer in a dependent clause suggests that this construction is like the 'mixed' indirect discourse of German ..." It is impossible to accept this remark as sufficient justification for analyzing the Black English sentences as instances of mixed indirect discourse.

There is another consideration which indirectly supports the claim that Emonds does not provide sufficient independent justification for a mixed indirect discourse analysis of the Black English sentences. This consideration relates to an alternative analysis which Emonds proposes for the Black English sentence. As regards this alternative analysis, Emonds (1976, p.25) declares that Black English "may exhibit auxiliary inversion more freely because of a larger class of root S's." The two alternative analyses for the Black English sentences which Emonds proposes, make con-

flicting claims about the status of the dependent clauses in the Black English sentences (23) in which SUBJECT-AUXILIARY INVERSION has applied. The mixed indirect discourse analysis claims that such clauses have the status of root S's, in terms of the definition 1.(4) of the notion 'root S'. In particular, the mixed indirect discourse analysis claims that such clauses are root S's immediately dominated by another S. The alternative analysis proposed by Emonds (1976, p.25) claims that the relevant clauses do not have the status of root S's in terms of the definition 1.(4) of the notion 'root S'. That is, this alternative analysis claims that the relevant clauses are not root S's immediately dominated by another S. The second analysis claims that the relevant clauses have the status of root S's only in terms of a generalized definition of 'root S', which defines certain clauses dominated by nodes other than S, as root S's. The fact that Emonds is willing to consider this second alternative, indirectly supports the claim that he does not provide sufficient independent justification for a mixed indirect discourse analysis for the Black English sentences.

Let us now consider the question of the testability of a mixed indirect discourse analysis of the Black English sentences. In order to answer this question, it must be considered whether or not the claim that the Black English sentences (23) are instances of mixed indirect discourse, has any test implications on the basis of which the latter claim may be refuted. For the latter claim to have any independent test implications, some of the defining characteristics of mixed indirect discourse must be unrelated to the applicability of root transformations. A critical examination of Emonds's (1976, pp.24-25) discussion of mixed indirect discourse reveals that he does not state such defining characteristics. In his characterization of mixed indirect discourse in German, Emonds (1976, p.25, note 3) describes this type of indirect discourse as a construction in which the reported sentence is a root S. It has been made clear above that no claim to the effect that a particular S is a root S immediately dominated by another S, has any independent test implications. Furthermore, Emonds (1976, p.25, note 3) refers to the applicability of root transformations in the reported sentences of mixed indirect discourse. This characteristic, however, is obviously not independent of the SPC. The last two characteristics presented by Emonds (1976, p.25, note 3) are

the absence of a complementizer and the comma intonation of the reported sentence. It has been pointed out in §2.2 that the status of these two characteristics of root S's immediately dominated by another S, is unclear. Consequently, it must be concluded that the mixed indirect discourse construction, as defined by Emonds (1976, pp.24-25), has no defining characteristics unrelated to the applicability of root transformations. As a further consequence, it must be concluded that any claim to the effect that a particular sentence is a case of mixed indirect discourse, has no test implications on the basis of which it may be refuted. Thus, one must conclude that protection of the SPC in the manner outlined in (25), amounts to an ad hoc protection of the SPC.

However, if Emonds's mixed indirect discourse construction were the same thing as Banfield's (1973) free indirect style in non-literary language, any claim to the effect that a particular sentence is an instance of mixed indirect discourse, would have certain independent test implications. Banfield (1973, p.27) presents the following examples of free indirect speech in non-literary language:

- (26) a. Oh God, would she forget? she_i asked herself.
 b. Would she_i be late, she_i wondered.

Emonds's (1976, p.25) reference to Banfield (1973) must, presumably, be interpreted such that he considers the mixed indirect discourse construction as identical to the free indirect style discussed by Banfield (1973).

Banfield (1973, p.26) analyzes the free indirect style as a sequence of E's. Thus, in Banfield's analysis, a sequence of two E's would underlie the sentence quoted by Emonds (1976, p.25:(11)). The verb of the first E must be a verb of consciousness, e.g., think, suppose.⁶⁾ Because the second clause in the sequence is an E, the latter clause may contain (i) constructions derived by root transformations, and (ii) expressive elements which, according to Banfield's analysis, must be dominated by an E. Exclamations are examples of expressive elements which may not be embedded.⁷⁾ It is now possible to state why any claim to the effect that a particular sentence is an instance of mixed indirect discourse, would have independent test implications if the latter type of construc-

tion were the same as Banfield's free indirect style. Any claim to the effect that a particular sentence is an instance of mixed indirect discourse, would imply that the sentence which appears on the right in the underlying form should not only contain constructions derived by root transformations, but should contain expressive elements as well. Thus, if Emonds's mixed indirect discourse is identical to Banfield's free indirect style, then any claim to the effect that a particular sentence is an instance of mixed indirect discourse would have test implications on the basis of which this claim could be refuted.

In sum: Emonds's claim that the Black English sentences (23) are instances of mixed indirect discourse has independent test implications, if Emonds's mixed indirect discourse is identical to Banfield's free indirect style. This claim cannot, however, be regarded as non-ad hoc, since insufficient independent justification is provided for it.

3. A modified definition of 'root S'

Emonds (1976, p.2, note 2) suggests a possible modification to the original definition 1.(4) of 'root S':

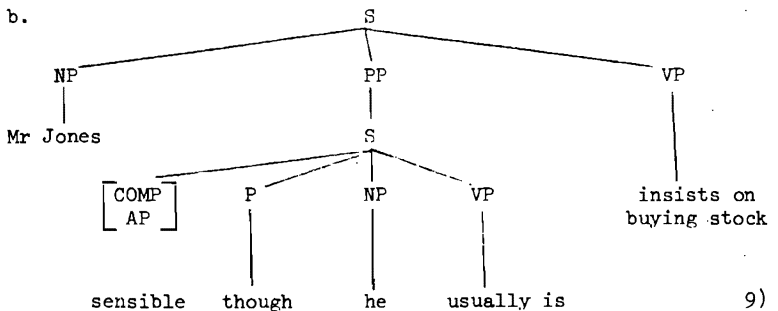
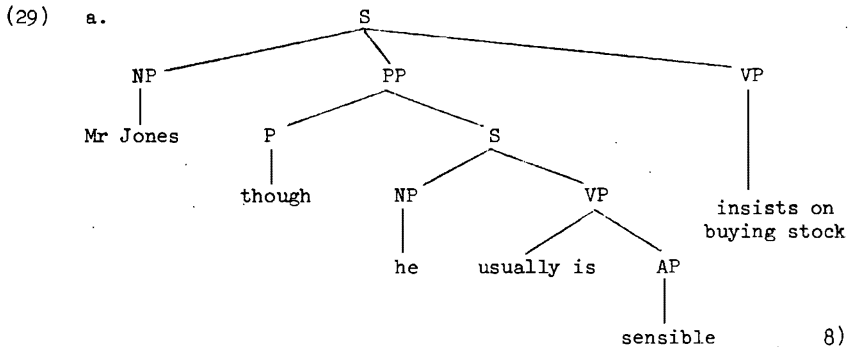
- (27) "... a root S should probably be defined slightly differently:
 S_i is a root S if and only if, for any noninitial node $B \neq S$
 such that $B = WS_iX$, then $W = X = \emptyset$..."

In terms of (27), an S that is dominated by a node other than S is under a certain condition, a root S. In terms of the original definition of 'root S', however, an S that is dominated by a node other than S is never a root S. In this section I critically analyze the role of the amended definition (27) of 'root S' in Emonds's work, in order to determine whether or not it may play a role in the objectionable protection of the SPC.

Emonds considers the modified definition of 'root S' once only: in his discussion of the rule which relates the a. and b. sentences in (28) below:

- (28) a. Mr. Jones, though he usually is sensible, insists on buying stock.
 b. Mr. Jones, sensible though he usually is, insists on buying stock.

Emonds (1976, p.57) claims that the structure underlying the sentence in (28)b. is derived from the structure underlying the sentence in (28)a., by means of a rule that preposes the adjective into the COMP position of its clause, and inverts though with this COMP. Emonds calls this rule ADJECTIVE PREPOSING, though INVERSION. This rule transforms the underlying structure (29)a. into the structure (29)b.



Emonds (1976, p.58) claims that the operation which fronts the adjective is a root transformational operation, that is, that the adjective is directly attached to a root S. Emonds claims that the subordinate S, to

which the adjective is attached, is turned into a root S by the operation which inverts though with COMP. If the latter S were not a root S, the operation which moves the adjective into the COMP position would not be a root transformation. Thus the latter operation would be a potential counter-example to the SPC. Note that the S node in question does not have the status of a root S under the definition of 'root S' in 1.(4). This S node is dominated by a node other than S, namely PP. However, this S node does have the status of a root S under the modified definition presented in (27) above. Consequently, this modified definition of 'root S' enables Emonds to protect the SPC in the following manner from a potential counter-example.

- (30) a. The definition of 'root S' should be modified so that S_i is a root S if and only if, for any noninitial node $B \neq S$, such that $B = WS_iX$, then $W = X = \emptyset$.
- b. The S node in (29)b. does have the status of a root S under the modified definition of 'root S', since PP (= B) dominates no material not dominated by this S.
- c. In (28)b., the attachment of an adjective to an S node that is dominated by a PP, therefore, is a root transformational operation.
- d. Thus, the preposing of the adjective to form a sentence like (28)b. is not an actual counter-example to the SPC.

Let us now consider whether or not the modified definition (27) protects the SPC in an objectionable manner from potential counter-examples. Firstly, note that Emonds provides no independent justification for the modification of the original definition. In fact, the only role which this modified definition plays within the SPC framework, is that of protecting the SPC from one particular potential counter-example. Moreover, it is not clear whether or not the proposed modification of the notion 'root S' has any independent test implications. Emonds fails to specify any such independent test implications. Therefore, one may conclude that Emonds's (1976, p.2, note 2) claim that the definition of the notion 'root S' be modified, has the status of an ad hoc protective device.

4. A modification to the definition of 'root transformation'

According to the definition of 'root transformation' presented by Emonds (1976, p.3) a transformation must satisfy the following necessary condition to qualify as a root transformation: The transformation must attach the node moved, copied or inserted by it, directly to a root S. The latter definition of 'root transformation' was presented in §1 as (3), and will henceforth be referred to as 1.(3). In the context of his analysis of two clitic inversion rules of Modern French, Emonds suggests that the above-mentioned condition does not have to be a necessary condition for root transformation status. In this section I raise the question whether or not this proposed modification to the definition of 'root transformation' plays a role in the objectionable protection of the SPC.

The two clitic inversion rules in question are discussed in (Emonds 1976, Section VI.1.). The rules are (i) SUBJECT-CLITIC INVERSION, and (ii) AFFIRMATIVE IMPERATIVE INVERSION. By means of the application of SUBJECT-CLITIC INVERSION main clause questions with the subject clitic in the position after the first finite verb are derived. Emonds (1976, p.202) furnishes the following examples:

- (31) a. Quand parlerez-vous à Jean?
 b. Ne s'est-il pas souvenu de nous?
 c. Vous y ont-ils amenés à temps?
 d. Pourquoi les chats ont-ils une telle faim?

By means of the application of AFFIRMATIVE IMPERATIVE INVERSION, affirmative imperatives with the pronominal clitic objects in the position after the verb are derived. Emonds (1976, p.202) furnishes the examples in (32).

- (32) a. Donnez-moi ces cigares!
 b. Conduisez-les-y dans mon auto.
 c. Presentez-la-nous avant le diner.

Emonds (1976, p.203) shows that neither of these two transformations can be formulated as a local transformation or a structure-preserving transformation. Therefore, the SPC predicts that they are root transforma-

tions. Emonds (1976, p.203) states that "the structure-preserving constraint correctly predicts that subject-clitic inversion and affirmative imperative inversion are root transformations; i.e., they apply only in main clauses."³ He (1976, p.203, note 3) makes the following additional remarks about the root status of the two transformations:

- (33) "The two root transformations discussed here that apply to French clitics indicate that it is not quite correct to require root transformations to attach clitics to the highest S. No nonroot S can dominate a clitic moved by a root transformation, but the status of a clitic as an affix somehow overrides the requirement that a root transformation attach a constituent to the root directly. I am not capable of elucidating the exact nature of the dominance relations involving clitics at this time. The main point in the text is that it is striking that the only two violations of preverbal clitic positions in French occur in nonembedded sentences. This problem in formulating these root transformations was pointed out by Richard Kayne (personal communication)."

To summarize: The two clitic inversion rules of French are neither local nor structure-preserving. The SPC accordingly predicts that they are root transformations. This implies that neither of the two rules can apply in embedded sentences. Moreover, it implies that the clitics moved by these rules must be attached directly to the root S. Although the clitic inversion rules apply only in nonembedded sentences, they do not attach the inverted clitics directly to the root S. Thus, the two clitic inversion rules are potential counter-examples to Emonds's characterization 1.(3) of 'root transformation'. Suppose that the characterization of 'root transformation' cannot be modified in an other than ad hoc manner to account for the two clitic inversion rules. In this case, the two clitic inversion rules would also be potential counter-examples to the SPC. Consequently, any attempt by Emonds to modify the characterization of 'root transformation' to account for these two rules, may be viewed as a step to protect the SPC from potential counter-examples.

Emonds denies the two clitic inversion rules the status of actual counter-examples to his characterization of 'root transformation'. He (1976, p.203, note 3) does this by claiming that "the status of a clitic as an affix somehow overrides the requirement that a root transformation attach

a constituent to the root directly". As pointed out above, the latter claim by Emonds may be viewed as a step to protect the SPC from potential counter-examples, as well. The manner in which the proposed modification to the characterization of 'root transformation' is used by Emonds to protect the SPC from subject clitic inversion as a potential counter-example, may be outlined as follows:

- (34) a. The status of a clitic as an affix overrides the requirement that a root transformation directly attach a constituent to the root S.
- b. The status of the clitic moved by the non-local non-structure-preserving transformation of SUBJECT CLITIC INVERSION as an affix, overrides the requirement that SUBJECT CLITIC INVERSION directly attach this clitic to the root.
- c. SUBJECT CLITIC INVERSION, therefore, has the status of a root transformation.
- d. Thus, SUBJECT CLITIC INVERSION is not an actual counter-example to the SPC.

An analogous argument may be constructed in regard to AFFIRMATIVE IMPERATIVE INVERSION.

The question which must now be considered, is whether or not the protection of the SPC in the manner outlined in (34), represents a case of objectionable protection. Notice, firstly, that Emonds weakens the requirement that a root transformation should directly attach a constituent to the root S in the case of the two clitic inversion rules of French only. The sole function of this weakening is to account for two rules which are potential counter-examples to Emonds's characterization of 'root transformation' and, ultimately, to the SPC. Furthermore, Emonds fails to show that his claim to the effect that the status of clitics as affixes overrides the requirement that a root transformation should directly attach a constituent to the root S, has any independent test implications. Thus, one may conclude that the protection of the SPC in the manner outlined in (34), represents a case of protection of

the SPC in an ad hoc manner.

Underlying Emonds's claim that the status of a clitic as an affix overrides the requirement that a root transformation should directly attach a constituent to the root S, is a more general claim: The claim that certain considerations may override certain of the requirements specified by universal linguistic constraints. Viewed from this angle, Emonds's protection of the SPC by means of the claim concerning the status of clitics as affixes, may be outlined as follows:

- (35) a. Certain considerations may override certain requirements of linguistic universals.
- b. The SPC, in conjunction with Emonds's definition of 'root transformation', requires that all major non-structure-preserving transformations attach a constituent directly to a root S.
- c. In the case of SUBJECT-CLITIC INVERSION in French the status of a clitic as an affix overrides the requirement that a major non-structure-preserving transformation attaches a constituent directly to a root S.
- d. Thus, SUBJECT-CLITIC INVERSION in French is not an actual counter-example to the SPC.

Obviously, more linguistic universals than the SPC may be protected from negative evidence within the framework of (35).

Let us consider briefly whether or not the claim that certain considerations may override certain requirements of universal linguistic constraints, must be considered an objectionable device for the protection of general-linguistic hypotheses. Notice, firstly, the lack of independent justification for this claim. It appears that the sole function of this claim is to protect general-linguistic hypotheses from refutation. Notice, secondly, that it is not clear what independent test implications this claim has. For the claim in question to have independent test implications, at least the following points must be clear:

- (i) the type of requirements of universal linguistic constraints that may be overridden;
- (ii) the type of considerations that may override the requirements of universal linguistic constraints;
- (iii) the distinction between evidence that provides actual counter-examples to a linguistic universal, and evidence that indicates that a certain consideration may override a requirement of a universal linguistic constraint.

Emonds (1976) does not clarify these points at all. Consequently, one may conclude that the claim in question functions as an ad hoc device for the protection of linguistic universals.

5. Other nodes that play the role of root S's

The SPC claims that major non-structure-preserving transformations can apply in root S's only. Emonds, however, provides for the possibility that nodes other than those specified in 1.(4), may play the role of root S's. In particular, he suggests that major non-structure-preserving transformations may apply in embedded clauses. Thus, Emonds (1976, p.6) states that "in some languages where movement transformations are more freely applicable in certain embedded clauses, a somewhat larger class of nodes may play the role that root S's play in English and French."¹⁰ In this section I critically examine this generalization of the SPC in order to determine whether or not it creates the possibility of protecting the SPC in an objectionable manner.

Emonds (1976, pp.6-7) illustrates his proposed generalization of the SPC with reference to an analysis of Classical Arabic proposed by Saib (1972). Saib argues that the deep structure order in Classical Arabic is verb-subject-object. In addition to the verb-subject-object order, two types of subject-verb-object order, both transformationally derived, occur in surface structure. These orders are presented in (36) below:

- (36) a. $\left[\begin{array}{c} \text{NP} \\ + \text{NOM} \end{array} \right] - \text{V} - \left[\begin{array}{c} \text{NP} \\ + \text{ACC} \end{array} \right]$

$$b. \left[\begin{array}{c} \left\{ \begin{array}{l} \text{'inna} \\ \text{'anna} \end{array} \right\} \\ \text{COMP} \end{array} \right] \left[\begin{array}{c} \text{NP} \\ + \text{ACC} \end{array} \right] - \text{V} - \left[\begin{array}{c} \text{NP} \\ + \text{ACC} \end{array} \right] \quad 11)$$

As predicted by the SPC the order (36)a. occurs in root S's only. The order (36)b., however, occurs not only in main clauses (i.e., root S's), but in certain types of subordinate clauses (i.e., nonroot S's) as well.

Emonds (1976, p.7) now comments as follows on the status of (36)b. as a potential counter-example to the SPC.

- (37) "As Saib has pointed out to me, order (7b) (= (36)b. --- M.S.) is a counterexample to the structure-preserving constraint if the definition of root S given here is to hold for Arabic. The rule that moves an NP to the left of the verb to yield (7b) (= (36)b. --- M.S.) applies only in subordinate clauses introduced by 'annahu, and it sometimes moves the object NP, which is not adjacent to the verb, so it cannot be a local movement transformation. Thus it may be that in Classical Arabic certain complements S's --- those introduced by 'anna(hu) --- can play the role of root S's, in line with the suggestion of Hale's mentioned earlier." 12)

The manner in which Emonds protects the SPC in (37) above, may be outlined as follows:

- (38) a. In some languages where movement transformations are more freely applicable in certain embedded clauses, a somewhat larger class of nodes may play the role that root S's --- with 'root S' as defined in 1.(4) --- play in English and French.
- b. In Classical Arabic a larger class of nodes than those allowed by the original definition of 'root S' may play the role that root S's play in English and French.
- c. Thus, the transformation which derives the subject-verb-object order in Classical Arabic complement clauses introduced by 'anna(hu), is not an actual counter-example to the SPC.

It must now be determined whether or not the protection of the SPC in the manner outlined in (38) represents a case of objectionable protection. Consider the following remarks by Emonds (1976, p.8) on the possible sets of nodes that may function as root nodes in languages other than those like English:

- (39) "However, at this point I am not in a position to define what are the possible sets of nodes that may function as root nodes in languages other than those like English. A reasonable working hypothesis would be that only S nodes can play the role of root nodes in any language; a stronger one would be that only left- or right-branching S nodes can play this role. Interesting work in this regard I must leave for future research."⁷

Emonds (1976, p.8, note 7) makes the following important remark in connection with the possibility of an expanded set of root S's:

- (40) "If some languages have a larger set of root S's than English, another question that is immediately raised is whether such variation is random or related to other formal properties of the languages in question."

To summarize: Emonds claims that a larger set of nodes than those defined by the original definition of 'root S', may play the role of root S's. However, he makes no specific proposal about the nature of this expanded set of root S's. Moreover, he does not make specific proposals in which the class of root S's in a language is related to other formal properties of the language in question. The obscure nature of Emonds's proposals on an expanded set of root S's has a very important consequence, namely that the class of nodes that play the role of root S's in a language can be determined in one way only. This is, by determining to which nodes major non-structure-preserving transformations may directly attach a constituent. The fact that no specific proposals are made concerning the relation between the class of nodes that play the role of root S's in a given language, and any other formal property of this language, makes it in principle impossible to determine, independently from the SPC, the class of nodes that play the role of root S.

The above-mentioned fact affects in an important manner the refutability

of the SPC. Recall that the only criterion for root transformation status is that a transformation must attach a constituent directly to a root S. That is, these transformations have no independent property which systematically correlates with their status as root transformations. If the class of root S's is to be determined by determining to which clauses major non-structure-preserving transformations may directly attach a constituent, any potential counter-example to the SPC may be analyzed as a root transformation, provided that the transformation in question attach a constituent directly to an S node. Thus, the generalization of the class of nodes which play the role of root S's in languages other than English makes it possible, in principle, to protect the SPC from a whole class of potential counter-examples. This class of potential counter-examples may be defined as "the class of major non-structure-preserving transformations which attach a constituent directly to an S node that does not have the status of a root S in terms of 1.(4)." If nodes other than S nodes are permitted to play the role of root S's, the proposed generalization would, of course, make it possible to protect the SPC from a larger class of potential counter-examples than that defined above. This larger class of potential counter-examples would include major non-structure-preserving transformations that attach constituents to nodes other than S nodes.

The point made above about the potential protection which the SPC may receive from Emonds's proposed generalization of the class of nodes which play the role of root S's, may be stated alternatively in the following way: The class of nodes that play the role of root S's in a language other than English or French, cannot be determined in a manner independent of the SPC. Consequently, the SPC can make no precise predictions about the applicability of major non-structure-preserving transformations in languages other than English or French, on the basis of which it may be refuted. Thus, one may conclude that the protection of the SPC by means of the notion 'a larger class of nodes that play the role of root S's', is ad hoc.

Underlying Emonds's claim that a larger class of nodes may play the role of root S's in some languages, is a more general claim: The claim that individual languages may instantiate the peripheral components of a lin-

guistic universal in a language-specific manner. Consider, in this connection, the interpretation which Botha (1978, p.13) provides for Emonds's remarks concerning a larger class of nodes which play the role of root S's:

- (41) "From the point of view of the refutability of general -linguistic hypotheses, the quotation (20) is interesting in two general respects. Firstly, it contains the suggestion that a distinction should be drawn between, on the one hand, the 'general idea' of a linguistic universal and, on the other hand, what may be called the 'peripheral aspect(s)/ component(s)' of a linguistic universal. Secondly, the quotation (20) provides for the possibility that different individual languages may instantiate the peripheral aspect(s) of linguistic universals differently. Thereby each of these languages instantiates the full universal only partially."

The quotation (20) which Botha refers to in (41), is presented in (42) below.

- (42) "At first glance, when one compares the preceding formulation of the structure-preserving constraint to some rather obvious grammatical processes in languages other than English, it appears that the constraint is seriously inadequate. However, it seems likely to me that the constraint can be generalized in certain ways so that the general idea of the constraint remains intact. I will discuss two types of such inadequacies and suggest ways in which the structure-preserving constraint might be revised in order to account for these cases.

The most general form of the structure-preserving constraint may contain language-specific variables other than the set of phrase structure or base rules, so that the preceding statement of the constraint would be in fact a special case of a more general formal universal.

In particular, in some languages where movement transformations are more freely applicable in certain embedded clauses, a somewhat larger class of nodes may play the role that root S's play in English and French."

Viewed from the angle of the distinction between the general idea and the peripheral components of linguistic universals, Emonds's protection of the SPC by means of the claim that a larger class of root S's is possible, may be outlined as follows:

- (43)
- a. A linguistic universal comprises a "general idea" and one or more peripheral components.
 - b. Individual *languages* may instantiate the peripheral component(s) of a linguistic universal differently.
 - c. The concept 'root (sentence)' is a peripheral component of the SPC.
 - d. Classical Arabic instantiates the concept 'root (sentence)' in a language-specific manner.
 - e. The above-mentioned rule of Classical Arabic which is apparently not structure-preserving applies to the language-specific class of root sentences of the language.
 - f. Thus, this movement rule does not constitute an actual counter-example to the SPC.¹³⁾

It should be clear that the SPC is not the only linguistic universal which may be protected in this manner against negative evidence. Within the general framework of (43), a larger class of general-linguistic hypotheses may be protected from negative evidence.

Let us now consider whether or not the distinction between the general idea and the peripheral components of a linguistic universal makes it possible to protect linguistic hypotheses in an objectionable manner. Consider firstly, the distinction between the general idea of the SPC and the peripheral components of the SPC. Recall that in the discussion above I have concluded that Emonds does not make it clear which embedded clauses may function as root sentences. Furthermore, it is not clear what is (i) the general idea of the SPC, and (ii) the different peripheral components of the SPC. As a consequence, it is not possible to distinguish between (i) evidence that provides actual counter-examples to the SPC, and (ii) evidence which indicates a language particular instantiation of a peripheral component of the SPC. Thus, one may conclude that the distinction between the general idea and the peripheral components of the SPC makes it possible to protect the SPC in an objectionable manner.

Let us now consider the distinction between the general idea and the peripheral components of a linguistic universal, in general. For this distinction to be a nonobjectionable protective device, at least the following points must be clear:

- (i) the class of linguistic universal that may exhibit language particular instantiation of peripheral components;
- (ii) the manner in which one may determine what part of a linguistic universal constitutes the general idea of this universal, and what part constitutes the peripheral components;
- (iii) the extent of the content of a linguistic universal that may be peripheral (and may, therefore, be instantiated in a language specific manner);
- (iv) the distinction between evidence that indicates a language-particular instantiation of a linguistic universal, and evidence which provides actual counter-examples for this linguistic universal.

Emonds does not in any way clarify these points, nor are they clarified elsewhere in the relevant literature. Thus, one may conclude that the distinction between the general idea of a linguistic universal and the peripheral components of a linguistic universal makes it possible to protect general-linguistic hypotheses in an ad hoc manner.

6. Conclusion

In §§2-5 the role which the notion 'root transformation', and the related notion 'root S', may play in the protection of the SPC, has been carefully analyzed. It has now become possible to show that the class of root transformations can serve as a waste-basket for potential counter-examples to the SPC.

The arguments presented in §§2, 3, and 5 clearly show that the notion 'root S' is to a large extent an obscure notion. In §2 several analyses under the original definition, i.e., 1.(4), were critically examined. It was argued there that any claim to the effect that a particular S node is a root S immediately dominated by another S, apparently has no independent test implications. In §3 a proposed modi-

fication to the 1.(4) definition of 'root S' was critically examined. In terms of this modification S nodes which are dominated by nodes other than S may, under a certain condition, qualify as root S's. It was argued that the proposed modification is ad hoc. In §5 Emonds claim to the effect that in some languages a larger class of nodes may play the role of root S's, was critically examined. It has been argued that the claim in question is highly obscure. Emonds fails to specify any relation between the set of nodes that may play the role of root S's in a language L, and other formal properties of L. This failure of Emonds has the following consequence: In languages where a larger class of nodes may play the role of root S's, there is only one way to determine the class of root S's. This is by determining to which S nodes major non-structure-preserving transformations may directly attach constituents.

The obscurity of the notion 'root S' has an important consequence for the refutability of the SPC. It seems that, in principle, any major non-structure-preserving transformation which directly attaches a constituent to an S node, may be formulated as a root transformation. Consequently, it seems that in languages where a larger class of nodes may play the role of root S's, no transformation which attaches a constituent to an S node, has to be an actual counter-example to the SPC. The class of root transformations can thus serve as a waste-basket into which a whole class of potential counter-examples to the SPC may be deposited: All major non-structure-preserving transformations which directly attach constituents to S nodes.

The capacity of the class of root transformations to serve as a waste-basket into which potential counter-examples to the SPC may be deposited is apparently even larger than indicated above. Note that Emonds (1976, p.8) makes no definite claim that only S nodes can play the role of root S's. Moreover, in §4 it has been shown that Emonds is willing to relax the requirement that a root transformation must attach a constituent to a root S directly. Thus, it seems as if even major non-structure-preserving transformations which do not attach constituents to S nodes, may in principle be formulated as root S's.

In sum: The class of root transformations has a large capacity to

accommodate potential counter-examples to the SPC. To put it differently: The notion 'root transformation' makes it possible to protect the SPC from large numbers of potential counter-examples. The potential of the notion 'root transformation' to protect the SPC obviously harms the refutability of the SPC. Thus, this state of affairs is incompatible with Emonds's claim that the SPC is an empirical hypothesis.

FOOTNOTES

*This working paper is based on parts of an M.A.-thesis, which was presented at the University of Stellenbosch in 1977, under the supervision of Prof. R.P. Botha.

1. For references to transformationalist writings in which empirical status is claimed for transformational generative grammar, cf. for instance the references cited in Sinclair 1977, §1.
2. Within the conventional approach, protection by means of ad hoc auxiliary hypotheses is considered to be objectionable. An ad hoc auxiliary hypothesis is a claim for which no independent justification is available, or which has no independent test implications. Such a claim is said to be an ad hoc protective device. Protection by means of non-ad hoc claims, i.e., claims which have independent justification and which are independently testable, is considered to be non-objectionable. Cf. Botha 1978 and Sinclair 1977, §2.3 for more detailed discussions of the conventional approach to protection.
3. For evidence that Emonds presents the SPC as an empirical hypothesis, cf. Sinclair 1977, pp.3-5.
4. Major transformational operations are non-local transformational operations, where 'local transformational operation' is defined as follows by Emonds (1976, p.4):

"A transformation or a transformational operation that affects only an input sequence of a single nonphrase node C and of one adjacent constituent C' that is specified without a variable, such that the operation is not subject to any condition exterior to C and C', is called a 'local transformation' (or a local transformational operation)."

Emonds (1976, p.3) defines structure-preserving transformations as follows:

"A transformation (or a transformational operation, in the case of a transformation performing several operations) that introduces or substitutes a constituent C into a position in a phrase marker held by a node C is called 'structure-preserving'."

Emonds's definition of 'root transformation' is presented as (3) below.

5. For a discussion of the node E, cf. Banfield 1973, pp.14-16.
6. Cf. Banfield 1973, p.26 for further examples of verbs of consciousness.
7. Cf. Banfield 1973, pp.13ff. for a detailed discussion of the constructions which must be dominated by an E.
8. Cf. Emonds 1976, p.57.
9. Cf. Emonds, 1976, p.58.
10. Emonds 1976, p.6 attributes this idea to Ken Hale.
11. Cf. Emonds 1976, p.7.
12. Footnote 6 omitted.
13. Cf. Botha 1978, p.13. The claim that languages may instantiate the peripheral aspects of linguistic universals in a language specific manner, is analyzed by Botha (1978, pp.12-14, 20).

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