PROTECTING GENERAL-LINGUISTIC HYPOTHESES FROM REFUTATION*

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1. Introduction

Is theoretical linguistics, and specifically transformational genera-
tive grammar, an empirical science?   This question, clearly, invites
a reply which is either positive or negative.   The present paper,
however, will argue neither for nor against the empirical status of
transformational generative grammar.   On a general level it will
rather argue that the question of the empirical status of transforma-
tional generative grammar is exceedingly complex --- a question not
to be approached with a cavalier attitude.   On a more specific level
the present paper will attempt to justify the following thesis:

(1)   The question of the empirical status of transforma-
        tional generative grammar should be denied the status
        of an "obviously profound" question.

A question is "profound" if its resolution leads to a significant
increase in the understanding of the phenomenon or phenomena in question.
And, a question is "obviously" profound, if a rational person can hardly
deny its profundity.   To argue against this background for the thesis
(1), thus, is to provide a justification for two inter-related points:

(2)   (a)   The question of the empirical status of transform-
                ational generative grammar is of such a nature that
                replies to it can be "proper" without, in fact, con-
                tributing to our understanding of the intellectual
                enterprise called "transformational generative grammar".

        (b)   It is perfectly rational, and not perverse at all, to
                judge the question under consideration to be non-profound.

It is clear that to defend the thesis (1) and the points (2)(a) and (b)
is to play, in the context of the present round-table discussion, the role
of devil's advocate.

My discussion of the question of the empirical status of trans-
formational generative grammar will focus on general-linguistic hypo-
theses.   That is, the thesis (1) will be argued with reference to
linguistic hypotheses which postulate linguistic universals.   A
conventional sort of approach to the general question of the empirical
status of general-linguistic hypotheses would take as its point of
departure the following more specific question:

(3)   Which conditions should general-linguistic hypotheses
        meet in order to be empirical?

To this more specific question a conventional reply would be:

(4)   To be empirical general-linguistic hypotheses should
        be refutable in principle, where "refutable" means
        'capable of being shown false'.

This reply would lead, within the conventional sort of approach, to a
second, still more specific question:

(5)   Which conditions should general-linguistic hypotheses
        meet to be refutable in principle?

A proper reply to this question would run, within the conventional sort
of approach, as follows:

(6)   For general-linguistic hypotheses to be refutable in
        principle
        (a)   the content of these hypotheses should be so
                clear that they have precise test implications;
        (b)   there should, in principle, be available "empi-
                rical" data with which these test implications
                may be confronted;

(c)   these hypotheses, or the theory within which
        they are inter-related, should not incorporate
        devices which protect them from refutation.

Thus, within the conventional sort of approach obscurity in content,
unavailability (in principle) of "empirical" data, and availability of
protective devices constitute factors which adversely affect the refu-
tability, and thus the empirical status, of general-linguistic hypotheses.
To the philosophical basis of the above-sketched conventional approach
I return in §7. below.

The argument for the thesis (1) will be developed below by means
of two moves.   Firstly, I will consider the refutability of general
-linguistic hypotheses from the point of view of factor (6)(c) above.
That is, I will deal, in the conventional manner, with a number of
protective devices whose availability appear to be harmful to the refu-
tability of general-linguistic hypotheses.   At this stage of the dis-
cussion, protective devices may be characterized as concepts, conceptual
distinctions, auxiliary hypotheses, methodological assumptions, etc. by
means of which a hypothesis or theory may be made compatible with data
that appear to conflict with one or more of the test implications of the
hypothesis or theory.   Conventionally, data which appear to conflict
with test implications of a hypothesis or theory are taken to provide
adverse/negative evidence or counter-examples to this hypothesis or theory.

Secondly, I will move on to a higher level of abstraction and take
a critical look at my treatment of the devices which appear to protect
general-linguistic hypotheses from refutation.   That is, I will subject
the conventional sort of approach to the question of the empirical status
of general-linguistic hypotheses to critical scrutiny.   Specifically,
the question will be raised of how insightful the conventional sort of
discussion of protective devices is.

2.   The Structure-Preserving Constraint

The discussion below of the nature of devices which may be used to pro-
tect general-linguistic hypotheses from refutation will be illustrated

primarily with reference to Emonds's Structure-Preserving Constraint.
Emonds (1976:5) defines the Structure-Preserving Constraint (hence-
forth: SPC) as follows:

(7)   Major grammatical transformations are either root
       or structure-preserving operations.[1]

Emonds (1976:2) proposes the SPC as a universal constraint on syntactic
transformations: a constraint of the type which specifies that consti-
tuents cannot be moved into certain structural configurations.   Infor-
mally, the SPC forbids a transformation which is neither a local nor a
root-transformation to move, copy, or insert a node C into some position
where C cannot be otherwise generated by the grammar.[2]   Transforma-
tional operations which appear, to Emonds (1976:3), "to have the struc-
ture-preserving property are (i) the postposing of the subject noun
phrase (NP) into a verb-phrase-final prepositional phrase (PP) of the
passive construction, (ii) the preposing of the object NP into the sub-
ject NP position in the passive, (iii) the 'raising' of various depen-
dent clause NP's into subject or object NP positions of a containing
clause, (iv) the extraposition of various S constituents into a VP-final
S position, and (v) the transformational movement of various adverbial
phrases into positions where other adverbials of the same syntactic cate-
gory can be generated in deep structure".

Though Emonds's development of the SPC will provide the bulk of
the illustrative material for the present discussion, this discussion
does not represent an exhaustive or systematic discussion of the refu-
tability of the SPC.[3]   Emonds's work on the SPC has been chosen as
the primary source of illustrative material for two reasons.   Firstly,
in my view this work represents, within the strict Chomskyan approach,
one of the very best recent attempts at syntactic theory construction.
Thus, it is reasonable to expect that what appears to be methodological
difficulties in this work will characterize less meritorious work as well.
The converse assumption, of course, is far less plausible.   Secondly,
reference to the SPC is actual in a general way: much of the recent
work in syntactic theory is concerned with universal constraints on syn-

tactic transformations.   I will supplement the illustrative material
drawn from Emonds's work with similar material from Chomsky's recent
writings on syntax.

3.   Potential vs. actual counter-examples

For the purpose of developing the remaining part of this discussion,
a distinction between potential and actual counter-examples to general
-linguistic hypotheses is needed.   Let us consider this distinction
with reference to what may be called the "standard conception of
linguistic universals".   The core of this conception is presented in
the following two quotations --- the first from Chomsky and Halle's
The sound pattern of English (1968:25, n.12), and the second from
Chomsky and Katz's article "What the linguist is talking about" (1974:
360-361):

    (8)   (a) "In one sense, a general principle counts as a
                linguistic universal if it is compatible with the
                facts for all human languages."

           (b) "... linguistic universals are principles common
                to the competence of native speakers of every
                natural language."

The core of the standard conception of linguistic universals is that
a given linguistic principle is a universal only if it is instantiated
by every individual human language.   A human language that does not
instantiate a given linguistic principle P provides a potential
counter-example to the general-linguistic hypotheses that P is a lin-
guistic universal.

    This point may be illustrated with reference to the SPC.   A trans-
formation in the grammar of some particular natural language which is
neither a local nor a root transformation, and which, moreover, lacks
the property of structure-preservingness would constitute a potential
counter-example to the (general-linguistic hypothesis postulating the)
SPC.   That is, a non-local, non-root transformation which moves, copies
or inserts a node C into some position where C cannot be otherwise gene-

rated by the grammar for the language in question would be a potential
counter-example to the SPC.

According to Emonds (1976:34ff.), transformations in the grammar
of English that permute constituents with NP's over be are potential
counter-examples to the SPC.   COMPARATIVE SUBSTITUTION, for example,
permutes adjective phrases whose heads are compared by means of more,
less, most, least, or as over be with a subject NP in an apparently
non-structure-preserving manner.   This transformation has played a
role in the derivation of the sentences of (9).

(9)   (a)   More important has been the establishment of
            legal services.
      (b)   Just as surprising was his love for clothes.
      (c)   Most embarrassing of all was losing my keys.
      (d)   No less corrupt was the ward boss.
      (e)   Equally difficult would be a solution to
            Russell's paradox.

The substitution of an AP for an NP is, as pointed out by Emonds (1976:
35), not a structure-preserving operation.   Other transformational
rules that perform, in the grammar of English, this operation are PARTI-
CIPLE PREPOSING[4] and PP SUBSTITUTION.[5]

By using a protective device of the sort characterized above a
linguist can deny a potential counter-example to a general-linguistic
hypothesis the status of an actual counter-example to this hypothesis.
A protective device makes the test implications of this hypothesis
compatible with data which otherwise would have contradicted them.
The devices by means of which general-linguistic hypotheses may be
protected from refutation belong to a variety of types.   Within the
limited scope of the present paper, it is impossible to consider more
than one of these types.   This is the type of protective devices
which is based on conceptions of the nature of linguistic universals
that differ from the standard conception presented above.[6]

Recall that the core of the standard conception of linguistic
universals is that a linguistic principle represents a linguistic
universal only if it is instantiated by every individual human lan-
guage.   This conception of linguistic universals constitutes a
strong or an absolute one.   In the literature on transformational
generative grammar one finds at least two conceptions of linguistic
universals which are weaker than the standard one:

> (10)   (a)   A linguistic principle constitutes a linguistic
>   universal even if some individual languages
>   instantiate it partially only.
>
>   (b)   A linguistic principle constitutes a linguis-
>   tic universal even if some individual languages
>   do not instantiate it at all.

Let us consider a number of putative protective devices which are
based on these weaker conceptions of linguistic universals.

4.   Protective devices based on partial instantiation

The conception that linguistic universals may be partially instantia-
ted only in some languages receives various articulations in Emonds's
work on the SPC.

4.1.   "Breaking universal linguistic constraints"

Emonds (1976:34-35) gives the conception of partial instantiation a
first articulation when he considers COMPARATIVE SUBSTITUTION, etc. as
potential counter-examples to the SPC:

> (11)   "In this section, I discuss some constructions that are
>   not so clearly root transformations as those previously
>   discussed.   Rather, these constructions throw into
>   relief the possibility of falsification of the struc-
>   ture-preserving hypothesis, and ways in which other syn-
>   tactic or semantic processes may interrelate with the
>   constraint on transformations I propose.   The rules
>   that produce these constructions are not structure-pre-

> serving;   nonetheless, they SOMETIMES and FOR SOME
> SPEAKERS ONLY can apply in nonroot S's in normal English
> speech.   In order to retain the hypothesis that non
> -structure-preserving, nonlocal movement rules must be
> root transformations (the structure-preserving constraint),
> I assert that the use of these rules in embedded sentences
> is ungrammatical in the strict sense, and that the struc-
> ture-preserving constraint is being broken for purposes of
> emphasis, clear communication, etc.   Since I am not in a
> position to be able to characterize the conditions under
> which ungrammatical sentences can be used, my theory, in
> the only sense that I can make it precise, does not always
> coincide with judgments of acceptability.   However, it is
> likely that the way to correct it is to study the condi-
> tions under which the structure-preserving constraint can
> be broken, and not to abandon the constraint itself."

The crucial notion in this quotation is that of speakers breaking univer-
sal linguistic constraints.   A language whose speakers do this partially
instantiates a linguistic universal only in the sense that not every rule
within the scope of the universal obeys it.

    The notion of speakers breaking universal linguistic constraints can
be used as a conceptual device for protecting linguistic universals such
as the SPC from refutation.   This device may be used as follows:

    (12)   (a)   The speakers of an individual language may, under.
                   certain conditions, break universal linguistic con-
                   straints otherwise obeyed by the language.

            (b)   COMPARATIVE SUBSTITUTION, etc. are rules of English
                   in the case of which speakers have broken the SPC.

            (c)   Thus, COMPARATIVE SUBSTITUTION, etc. are not actual
                   counter-examples to the SPC.

As is clear from the quotation (11), Emonds in fact uses the notion
'breaking a universal linguistic constraint' in this way to protect the
SPC from the refuting impact of COMPARATIVE SUBSTITUTION, etc.   Notice
that within the general framework of (12) every universal linguistic con-
straint may be given this sort of protection.

4.2.   "Preserving structure in a weaker sense"

Within the context of Emonds's discussion (1976:111ff.) of COMPLEX NP
SHIFT as a potential counter-example to the SPC, the conception of the
partial instantiation of linguistic universals receives a second arti-
culation.   In Emonds's grammar of English, this transformation relates
the (a)-sentences to their respective (b)-counterparts by moving object
NP's to the end of the verb phrase if these NP's dominate an S or, in
some cases, a PP:

(13)   (a)   I've sent every letter I ever received to my lawyer.
       (b)   I've sent to my lawyer every letter I ever received.

(14)   (a)   They brought the robe I had asked for into my room.
       (b)   They brought into my room the robe I had asked for.

(15)   (a)   She presented a plan for redistributing the land
             before the council.
       (b)   She presented before the council a plan for redis-
             tributing the land.

After the application of COMPLEX NP SHIFT the structure of the (b)-sen-
tences has an aspect which Emonds (1976:111-112) represents as follows:

(16)   PP
                           / | \
              V _____PP   NP

With reference to (16), Emonds (1976:112) points out that "since the
sequence V-PP-NP is not generable by the phrase structure rules of
English (i.e., since no empty NP is generable after PP's in a VP), this
rule is not structure-preserving according to our definition in Chapter I.".

    COMPLEX NP SHIFT, thus, appears to be a potential counter-example
to the SPC.   Let us consider in outline the steps taken by Emonds
(1976:112) to deny this rule the status of an actual counter-example to
the SPC:

(17)   "... it does not seem to be an accident that the condition
on complex NP shift is that the NP dominate an S or a PP,
and that the NP in question is moved to the S or PP posi-
tion at the end of the VP.   In more general terms what
seems to be happening is the following: Ordinarily a
transformational operation that substitutes a constituent
B for a constituent A is structure-preserving if and only
if B and A are of the same category.   But complex NP
shift is a transformational operation that may substitute
a constituent B (an NP) for a constituent A (an empty PP
or S in VP-final position) whenever B DOMINATES A.

Thus we must weaken somewhat the structure-preserving con-
straint to allow for this variation on it, but we should
weaken it under as restrictive a condition as possible.
One such condition would be the requirement that this
weakening of the structure-preserving constraint can take
place only if A is a rightmost or leftmost constituent of
an S.

In fact there is good evidence that this is nearly the cor-
rect version of the condition under which rules are required
to preserve structure only in a weaker sense ... "

Note that the notion 'to preserve structure only in a weaker sense' is
crucial to these quoted remarks of Emonds's.   Within the present dis-
cussion a rule which obeys a weaker version of a universal linguistic
constraint only is a rule which only partially instantiates the constraint.

The idea that a universal linguistic constraint may apply either in
a strong or a weak(er) sense forms the basis of a second putative device
for protecting the SPC from refutation.   This device may be used as fol-
lows to protect the SPC from potential counter-examples such as   COMPLEX
NP SHIFT:

(18)   (a)   Universal linguistic constraints may apply either in
a strong or a weak(er) sense to the rules of indivi-
dual languages.

(b)   COMPLEX NP SHIFT is a rule of English to which the
SPC applies in a weaker sense/preserves structure
in a weaker sense only.

(c)   Thus, COMPLEX NP SHIFT is not an actual counter
-example to the SPC.

The SPC, of course, is not the only general-linguistic constraint
which may apply either in a strong or a weak(er) sense to the rules of
particular grammars.   That is, within the general framework of (18) a
larger class of general-linguistic hypotheses may be protected from
adverse evidence.   This point may be illustrated with reference to
Chomsky's autonomy thesis.

Chomsky (1975:177-178) draws a distinction between a "(fairly)
strong" and a "weaker" or "parameterized" version of this general-lin-
guistic thesis:

(19)   "One might formulate a 'thesis of autonomy of formal gram-
       mar' of varying degrees of strength.   As in the case of
       the question of independence of grammar, discussed a
       moment ago, we might construct a linguistic theory in
       which formal grammar is independent in its structure but
       'open' at certain designated points with respect to the
       full range of semantic primitives.   The problem, then,
       will be to determine the specific ways in which semantic
       information enters into the determination of a formal
       grammar.   If a fairly strong thesis of autonomy in this
       sense proves correct, we will proceed to supplement it
       with a theory of the interconnection of semantic and
       formal grammatical structures, much as in the case of
       the study of grammar in relation to fact and belief.
       The theory of linguistic form may still be a theory with
       significant internal structure, but it will be construc-
       ted with 'semantic parameters'.   The actual choice of
       formal grammar will be determined by fixing these para-
       meters.   Suppose that the parameterized theory includes
       parts of the dictionary, and suppose further that the
       semantic parameters can be localized to the dictionary.
       Then questions of fact and belief may also enter into the
       choice of grammar at this point, consistent with the para-
       meterized autonomy thesis.   Note that the significant
       question with regard to the autonomy thesis may not be a
       question of 'yes' or 'no', but rather of 'more' or 'less'
       or more correctly, 'where' and 'how much'."

Within the framework of Chomsky's distinction between a "strong" and a
"parameterized" version of the autonomy thesis, potential counter-exam-
ples to this thesis may be viewed as merely indicating the limitations
of the degree to which the language in question instantiates the prin-
ciple postulated by the thesis.   Thereby this distinction acquires the
status of a device protecting the autonomy thesis from adverse evidence. (7)

4.3.   The "general idea" of a linguistic universal

We come now to the third articulation which the conception of the par-
tial instantiation of linguistic universals receives in Emonds's work.
This happens within the context of Emonds's discussion (1976:6) of the
status of a potential counter-example to the SPC which has been suggested
by Saib.   As presented by Emonds (1976:6-7), this counter-example takes
on the form of a movement rule in Classical Arabic.   The rule applies
only in subordinate clauses introduced by annahu.   It moves an
NP from the right of the verb to the left of the verb in cases where the
NP is not adjacent to the verb.   According to Saib, Classical Arabic is
characterized on the level of deep structure by an order of constituents
in which the verb comes first.   This implies that there is no NP to the
left of the verb into which the rule under consideration can move the
NP.   Since this rule is not a local transformation, it appears to violate
the SPC, thereby becoming a potential counter-example to this constraint.

It is interesting to consider the manner in which Emonds (1976:6)
handles this potential counter-example to the SPC:

(20)   "At first glance, when one compares the preceding formula-
tion of the structure-preserving constraint to some rather
obvious grammatical processes in languages other than
English, it appears that the constraint is seriously in-
adequate.   However, it seems likely to me that the con-
straint 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 con-
straint 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 trans-
formations 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."

Emonds (1976:7) goes on to suggest that it may be that in Classical
Arabic certain complement S's, namely those introduced by anna(hu), can
play the role of root S's.

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 dif-
ferently.   Thereby each of these languages instantiates the full univer-
sal only partially.

This articulation of the notion of partial instantiation may be
used as follows to protect a linguistic universal such as the SPC from
adverse evidence:

(21)   (a)   A linguistic universal comprises a "general idea"
             and one or more peripheral components.

       (b)   Individual languages may instantiate the periphe-
             ral component(s) of a linguistic universal diffe-
             rently.

       (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 movement rule of Classical
             Arabic which is apparently not structure-preser-
             ving 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.

Obviously, the SPC is not the only linguistic universal which may be
protected in this manner from negative evidence.   This point may be
illustrated with reference to Chomsky's $\overline{X}$-convention.

Consider the following insightful comment which Chomsky (1972b:
53) offers on the universal status of the $\overline{X}$-convention:

(22)   "... it can be expected that the base rules for any
language will contain language-specific modifications
to the general pattern."

The expression "the general pattern" in this quotation refers to the
language-independent schema associated with major categories.   Jackendoff (1974:11) represents this schema as follows:

(23)

$$\overline{\overline{X}}$$

Spec$_{\overline{X}}$ $\overline{X}$

X   Comp$_X$
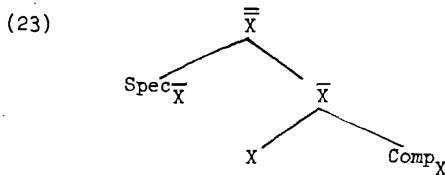
Of course, for a language to modify a linguistic universal in a language-specific manner is for the language to instantiate the universal
partially only.

Selkirk is another Chomskyan linguist who appears to allow for
language-specific modifications to the $\overline{X}$-convention.   Thus, she (1975:
753) points out that:

(24)   "Chomsky's postulation of a formalism designed to permit
the schematization of the rules generating these categories ... embodies the claim that such a parallelism
is significant and, in some sense, inherent in language."

The significant expression in this quotation is the qualification "in
some sense".   This qualification provides for the possibility of the
partial instantiation of the $\overline{X}$-convention by individual languages.[8]

5.   Protective devices based on non-instantiation

This brings us to the conception that a linguistic principle may consti-
tute a linguistic universal in spite of the fact that some individual
languages do not instantiate it at all. Let us consider two of the arti-
culations which this conception of linguistic universals has received in
the work of Chomsky and his associates.

5.1.   "Relative" vs. "absolute interpretation" of linguistic universals

At the basis of the first articulation of the non-instantiation concep-
tion is Chomsky's distinction between a "relative" and an "absolute
interpretation" of linguistic universals.   Chomsky (1973:235-236) ex-
plicates the content of this distinction as follows:

(25)   "Notice that the condition (3) ⌈i.e., the A-over-A
        principle --- R.P.B.⌋ does not establish an absolute
        prohibition against transformations that extract a phrase
        of type A from a more inclusive phrase of type A.   Rather,
        it states that if a transformational rule is nonspecific
        with respect to the configuration defined, it will be
        interpreted in such a way as to satisfy the condition.
        Thus it would be possible to formulate a (more complex)
        rule with a structural condition imposing the factoriza-
        tion indicated by --- in (4); such a rule might extract
        Bill, Mary, and the race, respectively.   Alternatively,
        one might interpret the A-over-A constraint as legislating
        against any rule that extracts a phrase of type A from a
        more inclusive phrase A.   The former interpretation,
        which in effect takes the A-over-A Condition to be an
        integral part of the evaluation measure, is perhaps more
        natural ...

        In contrast, we interpret the Complementizer Substitution ·
        Universal (2) as imposing an absolute restriction against
        rules that move an item to the right to a COMP position.
        But the A-over-A principle, rather than legislating against
        the existence of certain rules, permits an ambiguous and
        unspecific formulation of such rules as Passive, con-
        straining their application in a specific way.   The logic
        of this approach is essentially that of the theory of
        markedness." (9)

Chomsky (1976:8) refers to his view of the universal status of con-
straints such as the A-over-A principle as "a relative interpretation".(10)
By contrast, he calls his view of the universal status of linguistic

principles such as the Complementizer Substitution Universal "an abso-
lute interpretation".   It is now clear that what has been called "the
standard conception of linguistic universals" is identical to Chomsky's
"absolute interpretation" of linguistic universals.

It seems to me that Chomsky's distinction between an "absolute"
and a "relative interpretation" of linguistic universals allows, in
principle, for two forms of non-instantiation of linguistic universals
by individual languages.   The first is a limited form of non-instantia-
tion, and is related to Emonds's first articulation of the notion of
partial instantiation.   In terms of this limited form of non-instantia-
tion only some of the rules of a language within the scope of a universal
linguistic constraint obey it.   The rules which are within the scope
of this universal constraint but which fail to obey it, however, do not
have the status of actual counter-examples to the constraint.   These
"disobedient" rules are simply "less highly valued" or "more costly"
than the rules which do obey the universal constraint.   A language is
"marked" to the extent that it incorporates such "costly" rules.

By means of the distinction under consideration a universal lin-
guistic constraint such as the SPC may be protected in the following
manner from such potential counter-examples as the English rule of COM-
PARATIVE SUBSTITUTION:

(26)   (a)   A distinction should be drawn between an "absolute"
and a "relative interpretation" of universal lin-
guistic constraints.

(b)   The SPC is, within the framework of this distinc-
tion, a "relative" linguistic universal.

(c)   The non-instantiation of the SPC by COMPARATIVE
SUBSTITUTION makes this rule "less highly valued/
more costly".

(d)   Thus, the non-instantiation of the SPC by COMPARA-
TIVE SUBSTITUTION does not constitute an actual
counter-example to the SPC.

The line of argument of (26) is, of course, available for the protec-
tion of any "relative" linguistic universal from adverse evidence.

We now come to the stronger form of non-instantiation provided for
by Chomsky's distinction between an "absolute" and a "relative inter-
pretation" of linguistic universals.   This stronger form of non-instan-
tiation creates the possibility for a given linguistic principle to be
a linguistic universal even though there are individual languages which
do not instantiate it at all.   Suppose, for example, that it is found
that a given language has no rules which obey the SPC.   This language
may then still be denied the status of a source of actual counter-examples
to the SPC.   In terms of the "relative interpretation" of linguistic
universals, this language would merely be "very highly marked".

That Chomsky does, in fact, allow for this strong form of non
-instantiation of linguistic universals is clear from, among other things,
the way in which he (1975b:114) operates with a notion of 'choice':

(27)   "The theory of grammar makes a variety of devices avail-
        able, and languages may differ as to their choice among
        them."

The choice of a language not to use a given linguistic universal is,
within the framework of the present discussion, an instance of the strong
form of the non-instantiation of this universal.

The idea of individual languages "choosing" linguistic universals
goes back, at least, to Chomsky and Halle's work on the theory of phono-
logy.   Consider, for example, their (1968:178) view of the universal
status of the processes of assimilation and dissimilation:

(28)   "Observe that by permitting variables in the formulation
        of rules, we in effect commit ourselves to the view that
        assimilation and dissimilation are not merely a matter
        of fortuitous coincidence of almost identical rules, but
        are, rather, linguistic universals --- that is, proces-
        ses available to all languages though not necessarily
        used in all."

The significant idea in this quotation, of course, is that a linguistic
principle may be a linguistic universal despite the fact some individual
languages do not "use" it all.   In this context, "non-use" is equivalent
to the strong form of non-instantiation.

5.2.   "Vacuous application" of linguistic universals

The view that linguistic universals need not be instantiated by all
individual languages receives, in the work of Chomsky, a second arti-
culation in terms of a notion of 'vacuous application'.   This is
clear from the following remarks by Chomsky (1975c:2) on the nature of
linguistic universals:

> (29)   "We will therefore be particularly interested in proper-
>   ties of attained linguistic competence that are vastly
>   underdetermined by available experience in general, but
>   that nevertheless hold of the linguistic competence
>   attained by any normal speaker of a given language, and
>   in fact by all speakers of all languages (perhaps
>   vacuously in some cases) on the natural assumption of
>   uniformity across the species."

The view that linguistic universals may "hold vacuously" can be traced
back to Chomsky and Halle's work on phonological theory as well.   Thus,
they (1968:25, note 2) allow for the possibility that

> (30)   "... the transformational cycle might apply vacuously in
>   a certain language, in particular if the language has
>   very shallow surface structure.   Thus a highly aggluti-
>   native language might be expected to offer little or no
>   support for the principle of the transformational cycle,
>   at least within the bounds of a word.   This, if true
>   would be entirely irrelevant to the status of this prin-
>   ciple as a linguistic universal."

To say that a linguistic universal "holds" or "applies vacuously" in a
given language, clearly, is to say that the universal is not instantiated
by this language at all.

Chomsky and Halle's final remark in the quotation (30) is quite
revealing: it indicates how the notion of "vacuous application" may be
used to protect linguistic universals from potential counter-examples.
Specifically, a language in which a linguistic universal "applies
vacuously" does not provide an actual counter-example to the general
-linguistic hypothesis that postulates the universal.

6.   Appraisal of the protective devices

The discussion so far has been couched in neutral terms.   That is, a
number of putative devices for the protection of general-linguistic
hypotheses have been described in a non-evaluative manner.   The con-
ventional sort of approach to the use of such devices, however, goes a
step further.   Within this approach a distinction is drawn between
objectional and non-objectional protective devices.   The former devices
are considered harmful to the refutability of the hypotheses or theories
protected by them.   The latter devices are taken to be harmless in this
sense.   A protective device is conventionally considered objectionable
if it can be used to make claims which are obscure, ad hoc, or not inde-
pendently testable.   Such claims are, conventionally, called "ad hoc
(auxiliary) hypotheses".   By contrast, a protective device in terms of
which claims may be made that are clear, non-ad hoc, and independently
testable is considered non-objectionable.   The claims made in terms of
such non-objectionable protective devices are assigned the status of
"(non-ad hoc) auxiliary hypotheses".

Let us then, in keeping with the conventional approach, try to
establish whether the protective devices outlined in §§4-5 are objec-
tionable or non-objectionable.   This may be done by raising a series
of diagnostic questions about the conceptual basis of each device.
Since these questions are self-explanatory, it is not necessary to com-
ment separately on each individual question.

To begin with, consider the protective device central to which is
Emonds's notion 'breaking universal linguistic constraints'.   As regards
the conceptual basis of this device questions such as the following
arise: Which universal linguistic constraints can/cannot be broken?
Is it possible to delimit in a principled manner the class of universal
linguistic constraints that can be broken?   What are the conditions
under which universal linguistic constraints can/cannot be broken?
Can these conditions be characterized in a principled manner?   Is it
possible to predict for an arbitrary universal linguistic constraint that
it will/will not be broken under given conditions?   Under which circum-
stances will Emonds be willing to abandon the general claim that univer-
sal constraints can be broken?

Concerning the second protective device --- the one based on
Emonds's notion 'preserving structure in a weaker sense' --- ques-
tions such as the following may be asked: What is the weakest sense in
which structure can be preserved without the SPC being non-instantiated
by transformational rules?   Why should the condition proposed by Emonds
on the weakening of the SPC be accepted as non-ad hoc?   What are the
other (possible) conditions under which the SPC may be weakened?   Is
it possible to predict other potential weakenings of the SPC?   Which
other universal linguistic constraints can be weakened?   Is it possible
to delimit the class of universal linguistic constraints which can be
weakened in a principled manner?   What would count as an actual counter
-example to the weakened version of the SPC?   Under which conditions
would Emonds be willing to give up his claim that universal linguistic
constraints such as the SPC can be weakened?   Notice that an analogous
range of questions may be raised in regard to Chomsky's distinction
between a "strong" and a "parameterized" version of the autonomy thesis.

This brings us to the third protective device discussed above in
relation to the SPC: the one which has at its basis Emonds's distinction
between the "general idea" and the peripheral component(s) of the SPC.
In connection with the conceptual basis of this device questions such as
the following arise: Is there a principled manner of assigning certain
aspects of a linguistic universal the status of "peripheral components"
and of assigning other aspects the status of "general ideas"?   To which
universal linguistic constraints does this distinction applies?   Can
the class of linguistic universals to which the distinction applies be
defined in a non-ad hoc manner?   How much of the content of a universal
linguistic constraint may be considered peripheral?   Under which condi-
tions would Emonds give up the claim that a distinction may be drawn
between the "general idea" and the peripheral component of the SPC (or
any other universal linguistic constraint)?   Which embedded clauses
can, for principled reasons, not be reanalyzed as root S's?   What are
these reasons?

Chomsky's related notion of 'language-specific modifications to
the general pattern (= linguistic universals)' invites a similar range
of questions.   For example: Which general/universal aspects of natural
language can/cannot undergo language-specific modifications?   Can these

two classes of universals be delimited in a principled manner? Which
(types of) language-specific modifications to linguistic universals
are possible/impossible?   To what extent may a language modify a lin-
guistic universal without ceasing to instantiate it?   What (sorts of)
data would have the status of actual counter-examples to a claim to the
effect that the language L has modified the linguistic universal U
without having ceased to instantiate U?   Under which circumstances
would Chomsky be willing to give up his view that linguistic universals
can undergo language-specific modifications?

At the basis of the fourth protective device considered above lay
Chomsky's distinction between an "absolute" and a "relative interpre-
tation" of linguistic universals (specifically universal constraints on
syntactic transformations).   In connection with this distinction ques-
tions such as the following may be asked: To which (classes of) lin-
guistic universals does this distinction apply?   Is it possible to
give a principled characterization of the (classes of) linguistic uni-
versals to which the distinction in question applies?   Can the class
of "relative universals" be defined in a non-ad hoc manner?   What
would count as an actual counter-example to the claim that a given lin-
guistic universal, say the A-over-A principle, constitutes a "relative
universal"?   What would count as an actual counter-example to the claim
that a given rule is "costly" or "less highly valued"?   What would
count as an actual counter-example to the claim that a given language is
marked in a particular respect?   How many languages should fully instan-
tiate a linguistic principle before this principle may be assigned the
status of a linguistic universal?   If only one language instantiates a
given linguistic principle, on which grounds can then be argued against
the claim that this linguistic principle is a linguistic universal and
that all the languages which do not instantiate it are marked in this
respect?   How highly marked can a language be before it fails to qualify
as a human language?   Under which circumstances would Chomsky be willing
to give up the distinction between an "absolute" and a "relative inter-
pretation" of linguistic universals?

Chomsky's related notion of 'languages choosing/using linguistic
universals' gives rise to similar questions.   Thus: Which linguistic
universals must a language choose in order to be a human language? What
would count as an actual counter-example to the claim that a given lin-

guistic principle which has not been chosen by a particular language
has in fact been available as a linguistic universal to this language?

The fifth protective device that we considered above had as its
conceptual basis Chomsky's notion of 'vacuous application'.   This
notion invites questions such as the following: Can every linguistic
universal "apply vacuously" to individual languages?   If not, is it
possible to draw a principled distinction between linguistic universals
which can and linguistic universals which cannot "apply vacuously" to
individual languages?   Under which circumstances would Chomsky be wil-
ling to give up this notion of 'vacuous application'?

The literature in which the protective devices in question has
been found does not contain explicit and systematic answers to the
questions listed above.   In the spirit of the conventional approach
to protective devices, three inter-related conclusions may be drawn
from the absence of such replies.   These conclusions concern the
methodological status of the claims --- claims such as (12), (18),
(21), (26) --- which the adoption of these devices make possible:

> (31)   (a)   These claims are obscure in regard to content.
>
> (b)   These claims are ad hoc: their sole function is
> the protection of general-linguistic hypotheses
> from refutation.
>
> (c)   These claims do not yield independent predictions
> or test implications which may, in turn, be con-
> tradicted by actual counter-examples.

In short, the claims allowed by the protective devices under considera-
tion are obscure, ad hoc, and not independently testable.

Within the conventional approach a further conclusion --- based
on the conclusions (31)(a)-(c) --- may be drawn:

> (32)   The general-linguistic hypotheses protected by means of
> these objectionable devices are not refutable in prin-
> ciple.

And, from this conclusion an ultimate conclusion may be drawn:

(33)   Transformational generative grammar should be denied
       the status of an empirical science.

The all-important question, now, concerns the acceptability of the
conclusions (31)-(33). If these conclusions may be seriously ques-
tioned, they clearly are uninsightful, revealing nothing of the nature
of the intellectual enterprise called "transformational generative
grammar".   So, let us look into the matter of the acceptability of
the conclusions stated above.

7.   Appraisal of the conventional approach

The conventional approach to the methodological status of protective
devices is based on various assumptions which have not been explicitly
presented in the preceding sections.   Fundamental among these assump-
tions are the following two:

(34)   (a)   The distinction drawn between objectionable and
             non-objectionable protective devices in terms of
             the notions 'obscure', 'ad hoc', and 'independently
             testable' is both non-obscure and non-arbitrary.

       (b)   Refutability is the hallmark of scientific ration-
             ality.

Now, both of these assumptions are questionable.   Moreover, both of
these assumptions have generated additional assumptions which, though
less fundamental, are not less questionable.

Before considering the assumptions (34)(a) and (b) separately,
their origin should be clarified.   I can claim credit for neither of
these assumptions.   Both, in fact, are theses of Popper's.   And, the
so-called conventional approach to protective devices is nothing but
an informal version of Popper's approach to these devices.   But let
us consider the two assumptions of (34) separately.

7.1.   Objectionable vs. non-objectionable protective devices

As regards the assumption (34)(a): the distinction drawn between objec-
tionable and non-objectionable protective devices in terms of the
notions 'obscure', 'ad hoc', and 'independently testable' is out and
out Popperian.   Specifically, this distinction represents the views
of Popper as these are summarized in, for example, his "Replies to my
critics" (1974: especially pp.983-987).   Thus, to Popper (1974:986),
a "conjecture" or "auxiliary hypothesis" is

> (35)   "... 'ad hoc' if it is introduced ... to explain a parti-
>   cular difficulty, but if ... it cannot be tested inde-
>   pendently."

It is to these ad hoc hypotheses that he (1974:983) assigns the status
of "evasive tactics in the face of refutations", "conventionalist stra-
tegems [or twists] " or (after Hans Albert) "immunizing tactics or
strategems".

   The problem now is that Popper's characterization (35) of ad hoc
hypotheses is highly problematical, as has been shown by various philo-
sophers of science.   Thus, for example, Hempel (1966:30) has shown
that "there is, in fact, no precise [= logical, R.P.B.] criterion for
ad hoc hypotheses".[11]   And, Grünbaum (1976c:342-347) argues convin-
cingly that Popper's attempt to characterize the notion 'ad hoc hypo-
thesis' in terms of a concept 'degrees of falsifiability' fails as well.
Thus, counter to the assumption (34)(c), it is not so that the crucial
notions 'ad hoc' and 'independently testable' are, from a logical or
epistemological point of view, non-obscure.

   It is therefore not surprising to find in the philosophical lite-
rature various theories of ad hoc hypotheses which have been proposed
as alternatives to the Popperian one stated as (35) above.   These alter-
natives include, among others,

(36)   (a)   Hempel's (1966:30) theory which attempts to expli-
             cate the notion of an independent consequence in
             terms of the pragmatic concept of an independent
             observational consequence;

       (b)   Grünbaum's (1976c:33ff.) approach which proceeds
             from three historically relevant senses of ad hoc
             such that these senses differ in regard to logical
             strength;

       (c)   Lakatos's (1970:124, 125, 175) theory within which a dis-
             tinction between three concepts of ad hocness is
             drawn with reference to the notions 'progressive'
             and 'degenerating problem-shift';

       (d)   Schaffner's (1974:67-73) Bayesian theory;

       (e)   Leplin's (1975:331) theory within which a condition
             of non-fundamentality is invoked as a universal con-
             dition for ad hocness;

       (f)   Laudan's (1977:ch.III) theory within which a notion
             of reduced problem-solving effectiveness is central
             to the characterization of ad hoc hypotheses.

This list of alternative theories of what ad hoc hypotheses are is not
exhaustive. The debate about the potentialities and limitations of the
various alternative theories continues.   At present it is, in fact,
impossible to judge which one of the rival theories has the best chance
of survival.   But in §6 Popper's theory of ad hoc hypotheses was adopted,
without argument, as the basis for appraising the devices protecting
general-linguistic hypotheses from refutation.   Consequently, it is
simply not so --- as is stated in the assumption (34)(a) --- that
the distinction between objectionable and non-objectionable protective
devices in terms of the notions 'obscure', 'ad hoc', and 'independently
testable' is non-arbitrary.

     Thus, we see that both on the point of non-obscurity and the point
of non-arbitrariness the assumption (34)(a) is questionable.   Conse-
quently, the conclusion of (31) that the analyzed protective devices are
obscure, ad hoc, and not independently testable have a basis which is

not only infirm but which, moreover, is probably inappropriate for
the use to which it has been put.   In short, it is not at all clear
that the protective devices outlined in §§4-5 and appraised in §6 are,
in fact, objectionable ones.   From this follows that the conclusion,
(32), that general-linguistic hypotheses are not refutable in princi-
ple lacks a solid basis.   And this, in turn, implies that the con-
clusion, (33), that transformational generative grammar should be
denied the status of an empirical science is more than highly tenta-
tive.

It is difficult to overemphasize the complexity of the problem
of finding a satisfactory basis for characterizing the notion 'ad hoc
(auxiliary) hypothesis'.   For, it is not only necessary to decide in
the case of individual auxiliary hypotheses whether or not they are
ad hoc.   It is, moreover, necessary to decide in the case of (auxiliary)
hypotheses which appear to be ad hoc whether they are hopelessly ad hoc
or whether they are "redeemably" ad hoc.   The history of empirical
science provides --- as shown, for example, by Agassi (1975b) ---
numerous instances of auxiliary hypotheses which appeared at first to
be, in some sense, clearly ad hoc, but which later on became testable,
and even well-confirmed, hypotheses.   A paradigm case --- discussed
by Agassi (1975b:192), Grünbaum (1976c:330) and Leplin (1975:337ff.) ---
is the physical hypothesis which postulates the existence of neutrinos.
An inadequate theory of ad hoc hypotheses would have warranted the
rejection of this hypothesis --- and of many other fruitful scienti-
fic hypotheses --- as "non-empirical".   This rejection would,
obviously, have impeded the growth of scientific knowledge.

7.2.   Overemphasizing refutability?

This brings us to the second assumption, (34)(b), which was fundamental
to the appraisal in §6 of the devices by means of which general-linguis-
tic hypotheses may be protected from refutation.   Recall that this
assumption assigns to refutability the status of hallmark of scientific
rationality.   It is clear that, if this assumption were questionable,
then the question of the empirical status of a scientific theory would
lose much, if not all, of its apparent profundity.   Moreover, if this

assumption were questionable, then criticizing a hypothesis or theory
for being non-refutable would cease to be a destructive criticism.
And, under these circumstances, the search for ad hoc hypotheses, pro-
tective devices, or immunizing stratagems would lose much of its inte-
rest.

An obvious question, then, presents itself: Is or isn't refuta-
bility the hallmark of scientific rationality?   The answer is: Yes,
within the framework of Popper's falsificationist   methodology, refu-
tability certainly has this status.   But, it should immediately be
added that Popper's falsificationist   methodology constitutes but one
of the alternative theories of scientific rationality.   As shown, for
example, by Lakatos (1971:92ff.), there are at least three alternatives
to Popper's falsificationist   methodology: inductivism, conventiona-
lism, and the methodology of research programmes.   And, within none of
the latter methodological theories refutability has the status of hall-
mark of scientific rationality.

What is even more important: Popper's falsificationist   methodo-
logy has been subjected to severe criticism.   His falsificationist
theory has been incisively criticized from both a philosophical and a
historical point of view.   The philosophical criticisms   --- such as
those by Grünbaum (1976a, b, c, d) --- are intended to show that Pop-
per's theory suffers from fundamental defects of a logical and epistemo-
logical sort.   The present paper will not go into these philosophical
criticisms.[12]   The historical criticisms of Popper's methodological
theory are intended to show that, when interpreted as a his-
toriographical theory, the history of science does not bear out the
fundamental theses of this theory.

Lakatos (1971), one of the most outspoken critics of Popper's falsi-
ficationist   methodology, in fact claims that the history of science
"falsifies" Popper's theory of scientific rationality.   In particular,
Lakatos (1971:111) argues that Popper's "demarcation criterion" should
be rejected bacause it is inconsistent with the "basic appraisals of the
scientific elite".   Within the context of our study, this means that
Popper's assumption that refutability is the hallmark of scientific
rationality is refuted by counter-examples from the history of science.

This point, as it bears on the use of protective devices, is expli-
cated as follows by Lakatos (1971:112):

(37)   "... in large research programmes there are always known
        anomalies: normally the researcher puts them aside and
        follows the positive heuristic of the programme.   In
        general he rivets his attention on the positive heuristic
        rather than on the distracting anomalies, and hopes that
        the 'recalcitrant instances' will be turned into con-
        firming instances as the programme progresses.   On Pop-
        per's terms the greatest scientists in these situations
        used forbidden gambits, ad hoc stratagems: instead of
        regarding Mercury's anomalous perihelion as a falsifica-
        tion of the Newtonian theory of our planetary system and
        thus as a reason for its rejection, most physicists
        shelved it as a problematic instance to be solved at
        some later stage --- or offered ad hoc solutions.
        This methodological attitude of treating as (mere) anoma-
        lies what Popper would regard as (dramatic) counter
        -examples is commonly accepted by the best scientists.
        Some of the research programmes now held in highest
        esteem by the scientific community progressed in an ocean
        of anomalies.   That in their choice of problems the
        greatest scientists 'uncritically' ignore anomalies (and
        that they isolate them with the help of ad hoc strata-
        gems) offers, at least on our metacriterion, a further
        falsification of Popper's methodology.   He cannot inter-
        pret as rational some most important patterns in the
        growth of science."[13]

Observations of this sort on the history of science, of course, are not
unique to Lakatos.   Scholars such as Kuhn (e.g., 1970) and Feyerabend
(e.g., 1970) have been making similar observations for quite a time.

    It should be clear now that the assumption (34)(b), that refuta-
bility is the hallmark of scientific rationality, is highly questionable.
On the one hand, this assumption is central to only one of the rival
theories of scientific rationality, viz. Popper's falsificationist
methodology.   On the other hand, construed as a hypothesis about the
history or growth of science the assumption in question appears to be
refuted by numerous counter-examples.

    How, then, does all of this bear on the conventional approach which
we have adopted to the question of the empirical status of transforma-
tional generative grammar?   I think that the discussion above has pro-
vided ample justification for the thesis formulated as (1) in the intro-

duction to this paper.   Recall that this thesis asserted that the
question of the empirical status of transformational generative grammar
should be denied the status of an "obviously profound" question.   It
is now clear that this question is profound within the framework of a
falsificationist theory of scientific rationality alone.   And, as
the most sophisticated version of such a theory, Popper's methdologi-
cal theory appears to suffer from grave defects.   Consequently, within
the framework of this theory one can pursue the question of the empiri-
cal status of a scientific theory such as transformational generative
grammar without gaining deeper insight into the nature of (linguistic)
science.   Thus, it is not perverse at all to deny the question of the
empirical status of transformational generative grammar the epithet
"obviously profound".

The objection may be raised that in the preceding discussion only
one of the aspects of the question of the empirical status of transfor-
mational generative grammar has been considered: the aspect of protec-
tion.   The point of this objection would be that the discussion of
the other aspects of this question --- for example, the availability
of "empirical" data --- may be philosophically less hazardous and
more insightful.   The reply to this point takes on the form of a simple
question: Are there good reasons for this optimistic expectation?

8.   A word of consolation

The preceding sections have developed an argument for the "non-profundity"
thesis of (1).   Perhaps it is not superfluous to point out that in these
sections I have NOT argued for a number of theses which may appear to be
(vaguely) related to the "non-profundity" thesis.   Specifically, no at-
tempt has been made to justify the following theses:

(38)   (a)   Refutability should play no role at all in scientific
             rationality.
       (b)   It is completely pointless to pursue the question of the
             empirical status of transformational generative grammar.

As regards the latter thesis, I will briefly present one reason why it is
not completely pointless to pursue the question under consideration.

Leading generative grammarians have repeatedly claimed that trans-
formational generative grammar does have the status of an empirical
science.   Nowhere has this claim been made more clearly than in Chom-
sky and Halle's The sound pattern of English (1968:ix):

(39)   "One of the best reasons for presenting a theory of a par-
ticular language in the precise form of a generative
grammar, or for presenting a hypothesis concerning gene-
ral linguistic theory in very explicit terms, is that
only such precise and explicit formulation can lead to
the discovery of serious inadequacies and to an under-
standing of how they can be remedied.   In contrast, a
system of transcription or terminology, a list of
examples, or a rearrangement of the data in a corpus is
not 'refutable' by evidence (apart from inadvertence
--- errors that are on the level of proofreading mis-
takes).   It is for just this reason that such exercises
are of very limited interest for linguistics as a field
of rational inquiry."

Claims such as these by generative grammarians provide a reason for
pursuing the question of the empirical status of transformational gene-
rative grammar.   For, against the background of the preceding discus-
sion, these claims are problematic in one of two senses, neither of
which is uninteresting.

On the one hand, 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 against refutation.   On the
other hand, a problem arises if one questions the appropriateness and
insightfulness of the conventional, falsificationist,   approach to
protection.   This is the problem of why generative grammarians would
want transformational generative grammar to make refutable claims if
refutability were the hallmark of scientific rationality within the
framework of a probably defective methodological theory alone.   Both
the former and the latter problem appear to me to warrant a cautious
and self-critical inquiry into the question of the empirical status of
transformational generative grammar.   I hope that this is a word of

consolation for all those scholars who have been disappointed by the
conclusion that the question of the empirical status of transforma-
tional generative grammar is not an "obviously profound" question.

FOOTNOTES

*   Paper presented at the Round-Table Discussion of "Linguistics as an
empirical science", XIIth International Congress of Linguists, Vienna,
29th August - 2nd September 1977.   I would like to thank Ray Theron
for imporving the formulation of this paper.

1.   Emonds (1976:70, n.4;   193, n.14) proposes various modifications

to the SPC.   None of these modifications, however, need to be

considered at this point of the discussion.

2.   Emonds furnishes the following definitions for the theoretical

terms local transformation, root-transformation, and root sentence:

> "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)."
> (1976:4).

> "A transformation (or a transformational operation, in
> 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 de-
> rived structure is a 'root transformation' (or a root
> transformational operation)." (1976:3).

> "A root S ('sentence') is an S that is not dominated by
> a node other than S." (1976:2).

3.   For such a discussion cf. Sinclair in preparation.

4.   By means of PARTICIPLE PREPOSING, Emonds (1976:36) derives English

sentences such as Speaking at today's lunch will be our local con-

gressman., Taking tickets at the door was a person I had previously

roomed with., Examined today and found in good health was our nation'

chief executive., Taking turns, as usual, were his two sisters.

5.   PP SUBSTITUTION is, within Emonds's (1976:37) grammar of English,

the rule by means of which sentences such as In each hallway is

(hangs, has long stood) a large poster of Lincoln., Among the

guests were (sat) John and his family., and On the porch is a large

wicker couch. are derived.

6.   For some discussion of other types of devices that have been used
     to protect general-linguistic hypotheses from adverse evidence cf.
     Botha 1971:§5.2.3., and Botha in preparation.

7.   For a more detailed discussion of the devices by means of which
     Chomsky's autonomy thesis may be protected against refutation cf.
     Botha in preparation.

8.   Not only "true Chomskyans" operate with a notion of 'language-spe-
     cific modifications to linguistic universals'.   A related notion
     is involved in Perlmutter and Postal's principle of "line drawing"
     and in Keenan and Comrie's principle of "the accessibility hierar-
     chy".   For references cf. Postal 1976:169.

9.   In this quotation, (3) refers to the following formulation of the
     A-over-A principle by Chomsky (1973:235):

     "If a transformation applies to a structure of the form
     $[_{\alpha} \cdots [_{A} \cdots] \cdots]$
     where α is a cyclic node, then it must be so interpre-
     ted as to apply to the maximal phrase of the type A "

     By means of (4) Chomsky (1973:235) denotes the following facto-
     rized strings:
     (a)   John and-Bill-saw-Mary
     (b)   The man who saw-Mary-bought-the book
     (c)   John's winning-the race-surprised-me
     Finally, Chomsky (1973:234) formulates the Complementizer Substi-
     tution Universal (2) as follows:

     "Only languages with clause-initial COMP permit
     a COMP-substitution transformation."

10. Chomsky's "relative interpretation" of linguistic universals may
     be traced back to Chapter 9 of The sound pattern of English where
     the outlines of a markedness theory of phonology are presented.

11.   Cf. Grünbaum 1976c:347-350 for a discussion of this conclusion of
      Hempel's.

12.   For more criticisms of a philosophical sort of Popper's falsifi-
      cationist methodology cf. Schilpp (ed.) 1974.

13.   In the footnotes to this quote Lakatos presents bibliographical
      information which is irrelevant to the present discussion.

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