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A Grammatical Nonfiction

Takashi Sugimoto

§ 1. Aim

This paper[1] is meant to be a counter-squib to Bresnan (1970) (, which is reproduced in § 2 in its entire form). Like the bumper crop of all other squibs and discussions in recent books and journals, the conclusion reached in this small article is merely one of those tiny pieces of evidence that purport to prove some theoretically very important point ; it is no surprise then if the present paper is discarded the minute it is read into a linguistics waste-basket.

My whole point in this paper is to show that there *is* a principled way of excluding grammatical fictions like the one introduced in Bresnan (1970) (see § 2 below) and that Generative Semantics (cf. § 3.1) is the most plausible grammatical model among the various competing theories currently available to us, that is, if it is ever to be allowed to draw a general conclusion like this on the force of such a slender piece of evidence as in the present squib.

§ 2. Bresnan (1970)

A GRAMMATICAL FICTION *Joan Bresnan, MIT*

Suppose that governed rules exist and that semantic rules are defined over syntactic derivations. Then it is formally possible to derive all instances of predicate complementation from one d.s. type, the one produced by the base rules V→V NP, NP→NP S. This can be done by enriching the T-component.

Let us say that *force* differs from *believe* syntactically only in that it is subject to a governed transformation T_i, which removes the

complement subject and daughter-adjoins it to the matrix S to the right of V. Subject-Raising (=It-Replacement), a not dissimilar operation, applies later to verbs like *believe*. One transformation that might be ordered after T_i and before Subject-Raising ($=T_j$) is Pseudo-Clefting. In this way one could capture the facts

*What I forced was ...
What I believed was ...

Now since semantic interpretation is defined over derivations, it is no problem that

I forced John to examine the doctor.

and

I forced the doctor to be examined by John.

are not synonymous, while the same S's with *believed* substituted for *forced* are synonymous. Clearly, there must be a principle of interpretation operating on the "shallow structure" K_i, which is the output structure of T_i where $i < j$. This principle of interpretation (in some as yet unspecified way) will provide information as to the recipient of verbal action. Plainly, this semantic notion "recipient of verbal action" is not the grammatical relation Verb-Object: the latter is defined over d.s. but the former cannot be, since it is needed to express the fact that recipient of verbal action must be [+animate] from structure K_i on. That is why sentences like

I forced there to be a snowstorm.

are semantically anomalous.

What is wrong with the above fiction? One cannot argue that T_i and T_j "duplicate" each other in their structural effects, for Subject-Raising and Equi-NP Deletion duplicate each other in a parallel fashion: both change structures with predicate complements into structures with subjectless predicate complements. To say that Equi-NP Deletion is triggered by *force*-type verbs and Subject-Raising by

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believe-type verbs is to say just this. Moreover, the above fiction, unlike the current fiction, *explains* why the NP are Equi : there can never be an NP object of the matrix non-identical with the NP subject of the complement, a fortiori. And of course there is no need to resort to the device of abstract verbs to derive

I forced John to be examined.

What is needed is a principled way of excluding fictions like the above. Does the fault lie in the notion of rule government, the idea of semantic interpretation over derivations, or somewhere else ?

§ 3. *Theories to be considered*

Before we can see whether there is any principled way of excluding a grammatical fiction like the one above, it is first necessary to clarify what kind of grammar would be brought under investigation. The grammars I wish to take up here are Generative Semantics (GS), Standard Theory (ST), Reinterpreted Standard Theory (RST), Extended Standard Theory (EST), and Extended Lexical Hypothesis Theory (ELHT) (: these theories are not meant to be exhaustive). I shall indicate below the general but non-exhaustive characteristics of each theory that are germane to the subsequent discussion. (I assume some familiarity with the transformational literature, particularly those in the references.)

§ 3. 1. *Generative Semantics (GS)*

This position is held notably by Lakoff, McCawley and Postal (see, for instance, Lakoff (1969, 1971, 1972), McCawley (1968, 1971, 1972), Postal (1970)). In its essence, generative semantics position is that "syntax and semantics cannot be separated and that the role of transformations, and of derivational constraints in general, is to relate semantic representations and surfaces structures (Lakoff (1971)), p. 232)." True there are still differences of opinion even among these three linguists, but they all agree on the centrality of semantics in a

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grammar. For the present purpose it is enough to consider this grammar as making the following general but central claims[2]:

(1)   i. there exists no level of syntactic deep structure (as in Chomsky (1965))[3]

        ii. lexical insertion is interspersed over the whole derivation

        iii. a grammar must contain global as well as local derivational constraints that are well-formedness constraints on (non-)successive phrase markers.

These three tenets may be sufficient for our present investigation, although there is today more concern among "good guys" for the notion of grammaticality/well-formedness (see, for example, McCawley (1973) Lakoff (1971, to appear in 1974))[4].

§ 3. 2. *Standard Theory (ST)*

This position, now held by none of the currently active generative grammarians, is best represented by such works as Chomsky (1965) and Katz and Postal (1964) (hence sometimes called CKP theory). All other theories here considered are "spin-offs" of this theory ; this is why it is called Standard Theory. This theory maintains, excepting those features not pertinent to the present discussion, that

(2)   i. there does exist a level of deep structure (Cf. note 3)

        ii. semantic component is purely interpretive ; it makes no contribution to the meaning of a sentence

        iii. lexical insertion is effected en bloc before any grammatical transformation is applied.

§ 3. 3. *Reinterpreted Standard Theory (RST)*

This unusual name may be bewildering to the present reader, for it is of my own coinage. But there is some reason to call it this way. Notice Katz, who now takes this position, maintains that his theory is no different from CKP theory but gives a new interpretation over

the use of "△" not originally contemplated by Chomsky or anyone else. Thus, according to his interpretation (apparently originated in his discussion with M. Bierwisch (cf. Katz (1972), pp. 384 ff.)), the substitution symbol "△" may be "carried on down in a derivation and only be replaced by a lexical item after the application of a number of syntactic transformations (Katz (1973), p. 556)." Whether this reinterpretation of CKP theory is valid or not much depends on the kind of constraint, if any at all, required by the grammar on the output of the base, on which point ST is not so explicit as to disallow the position held by Katz. Otherwise RST may be said to be identical with ST. In fact Katz may wish to claim himself as the most dogged follower of CKP theory.

§ 3. 4. *Extended Standard Theory (EST)*

This is the position presently held by Chomsky and others (cf. Chomsky (1972)), and it differs from ST in the following two important respects (again I disregard points not crucial to the subsequent discussion) :

(3)   i.   transformations do not perform derivational morphology

         ii. surface structure information also plays a role in determining semantic representation (while in ST it is determined solely by the deep structure).

§ 3. 5. *Extended Lexical Hypothesis Theory (ELHT)*

So called because in this theory transformations are "restricted to movement rules and insertion and deletion of constants and closed sets of items (Jackendoff (1972), p. 13)." In this theory, as in RST above, lexical insertion is considered to be optional ; in fact, it *must* be optional to allow for the free occurrences of "△". But, what is most crucial, semantic rules are defined over syntactic derivations in ELHT. This is the position now held by Jackendoff.

§ 4. *On with the show*

Now let us see whether a grammar has any principled way of excluding fictions like the one in § 2 : if it does not, then, to that extent, that grammar is inadequate ; if it does, which alternative does it allow ? what is the consequence of choosing that alternative ?

§ 4. 1. *Setting the stage*

Recall, in Bresnan (1970), there are proposed two alternatives that seem to be equally plausible (, of which the second as explicated below is what Bresnan calls a grammatical fiction). In the first alternative verbs like *believe, expect*, etc. have an underlying complement structure of the form, NP-V-S, while verbs like *force, persuade*, etc, have the form, NP-V-NP-S : Equi NP Deletion applies to NP-V-NP-S to delete the complement subject coreferential to the matrix object while Subject Raising applies to NP-V-S and extracts the complement subject. In the second alternative all verbs that take object predicate complements have the underlying structure like NP-V-(NP-S)$_{NP}$, and a transformation T_i will apply to this structure in case V dominates verbs like *force, persuade*, etc. and extracts the complement subject and daughter-adjoins it to the matrix S to the right of V. The output structure of T_i is defined as shallow structure, where semantic interpretation is effectd. Later Subject Raising applies in much the same fashion as in the first alternative. The following may facilitate the understanding of these two alternatives.

(4) i. *First Alternative*

$$\left\{ \begin{array}{l} believee \\ expect \\ \text{etc.} \end{array} \right\} \qquad \text{NP-V-S}$$

$$\left\{ \begin{array}{l} force \\ persuade \\ \text{etc.} \end{array} \right\} \qquad \text{NP-V-NP-S}$$

Transformations (lots of details are omitted)

Equi NP Deletion

$\text{X} - \text{V} - \text{NP}_i - (\text{NP}_i - \text{Y})_s - \text{Z}$

1	2	3	4	5	6	$\longrightarrow$
1	2	3	$\emptyset$	5	6	

Subject Raising

$\text{X} - \text{V} - it \ (\text{NP} - \text{Y})_s - \text{Z}$

1	2	3	4	5	6	$\longrightarrow$
1	2	4	$\emptyset$	5	6	

ii. *Second Alternative*

$$\left\{ \begin{array}{l} believe \\ expect \\ force \\ persuade \\ \text{etc.} \end{array} \right\} \qquad \text{NP-V-(NP-S)}_{\text{NP}}$$

Transformations

T_i

$\text{X} - \text{V} - (it \ (\text{NP} - \text{Y})_s)_{\text{NP}} - \text{Z}$

1	2	3	4	5	6	$\longrightarrow$
1	2+4	3	$\emptyset$	5	6	

············ Shallow Structure ············

(Semantic Rules operate here)

T_j (=SubjectRaising)

$\text{X} - \text{V} - it \ (\text{NP} - \text{Y})_s - \text{Z}$

| 1	2	3	4	5	6	$\longrightarrow$
1	2	4	$\emptyset$	5	6	

Now that the stage is set we can see whether the second alternative can be avoided on some principled basis.

§ 4. 2. *Structure Preserving Principle*

It is obvious that Equi NP Deletion, T_i and T_j are not root transformations : they can operate upon any pair of deeply embedded clause and its immediately embedded complement clause, and hence they must be susceptible to Emonds' structure preserving constraint[5]. Thus we get (I write OK if the grammar can exclude the second alternative on a principled basis, and REJECT if it cannot) :

(5)

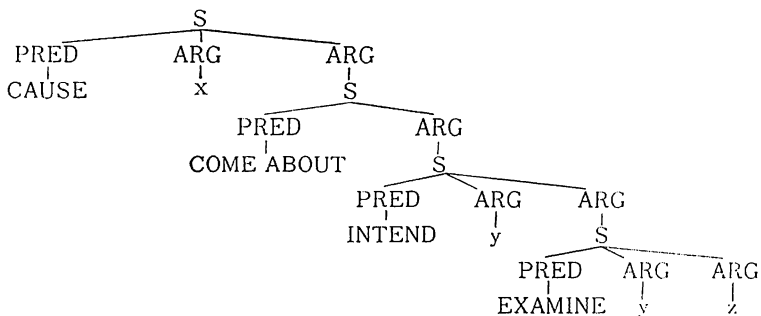| Model Criterion	ST	RST	EST	ELHT
Structure Preserving Principle	OK	OK	OK	OK

Notice the transformation T_i introduces the complement subject as the daughter of the matrix sentence, thereby producing the following structure :

(6)

$$NP - V - NP - \underset{it \quad S}{\overset{\frown}{NP}}$$
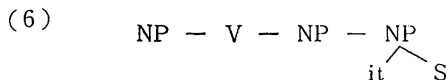
But this structure, i. e., verb followed by two NP's, cannot be produced in the base in the second alternative[6] ; this then clearly violates Emonds' principle (see Emonds (1970)). All these four theories then can exclude the grammatical fiction on the basis of structure preserving principle.

In GS we do not have to let Emonds' principle decide the right alternative, for verbs like *persuade* etc. are further decomposed and have at no level of representation the same structure as *believe*-type sentences. In other words GS requires that the two classes of verbs never receive the same structural analysis, thus automatically excluding the kind of fiction in question. For instance "x persuaded y to examine z" and "x believed y to examine z" are analyzed as (7) and (8) respectively (omitting some important but non-pertinent details) :

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(7)

```
                        S
         ┌──────────────┼──────────────┐
       PRED           ARG            ARG
        │              │              │
      CAUSE            x              S
                          ┌───────────┼───────────┐
                        PRED                     ARG
                         │                        │
                     COME ABOUT                   S
                                     ┌────────────┼────────────┐
                                   PRED         ARG          ARG
                                    │            │            │
                                  INTEND         y            S
                                                   ┌──────────┼──────────┐
                                                 PRED        ARG        ARG
                                                  │           │          │
                                               EXAMINE        y          z
```
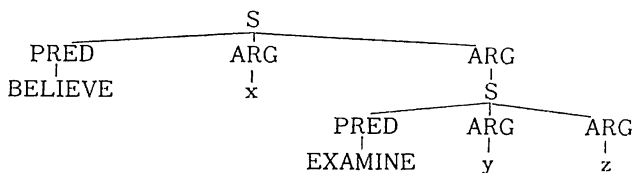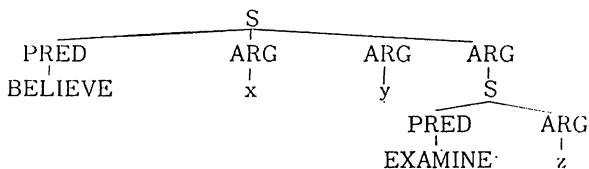
      (This structure, through various intermediate stages,
      is transformed to:)

```
                        S
       ┌────────────────┼──────────────┬────────────────┐
     PRED             ARG            ARG               ARG
      │                │              │                 │
   CAUSE   PRED        x              y                 S
                                               ┌────────┴────────┐
     COME ABOUT   PRED                        PRED             ARG
                   │                           │                │
                 INTEND                      EXAMINE            z
   ┌─────────────────────────────┐
   └──────────────┬──────────────┘
            persuade
```

(8)

```
                        S
         ┌──────────────┼──────────────┐
       PRED           ARG            ARG
        │              │              │
     BELIEVE           x              S
                          ┌───────────┼───────────┐
                        PRED         ARG         ARG
                         │            │           │
                      EXAMINE         y           z
```
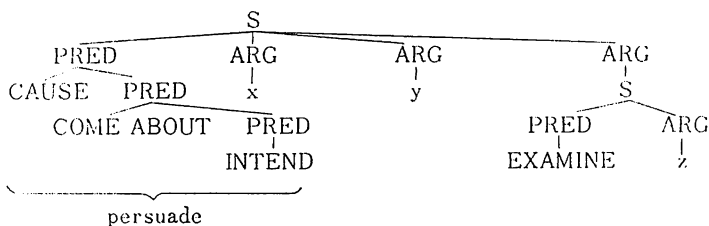
      (this structure is transformed to:)

```
                        S
         ┌──────────┬───┼──────────┬──────────┐
       PRED        ARG ARG        ARG
        │           │   │          │
     BELIEVE        x   y          S
                              ┌────┴────┐
                            PRED       ARG
                             │          │
                          EXAMINE       z
```

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So regardless of Emonds' principle GS can exclude the kind of grammatical fiction raised in § 2.

§ 4. 3. *Requirement on Meaning*

Recall GS, ST and RST all explicitly require the meaning be determined on some unique level. EST takes the position that the surface structure information as well as deep structure information contributes to the determination of meaning. (It is not clear whether this theory makes use of some intermediate stage in the determination of meaning : this is a possibility not clearly mentioned anywhere, hence "?" below.) ELHT, as indicated above, lets the semantic rules be defined over syntactic derivations. So we get :

(9)

Model Criterion	GS	ST	RST	EST	ELHT
Requirement on Meaning	OK	OK	OK	OK (?)	REJECT

In other words the requirement on meaning in each theory, except ELHT, excludes the second alternative above, for all of these four theories do not allow meaning to be determined over syntactic derivations, while it is this kind of mechanism that is needed by the second alternative in order to be workable within a grammar ; ELHT is the only grammar that admits of this mechanism, and it accordingly cannot decide in a non ad hoc manner which alternative is the one to be chosen. To tabulate the results (here a cross indicates that the criterion is not applicable) :

(10)

Model Criterion	GS	ST	RST	EST	ELHT
Structure Preserving Principle	×	OK	OK	OK	OK
Lexical Decomposition	OK	×	×	×	×
Requirement on Meaning	OK	OK	OK	OK (?)	REJECT

Thus ELHT is weak in that it cannot solve the grammatical-fiction-problem on the basis of the requirement on meaning alone. In order for this theory to be able to exclude the fiction, either Emonds' principle has to be operative or it has to get rid of whatever has led to "REJECT" from the grammar, i. e., the idea of semantic interpretation over derivations has to be abandoned (it is rather ironical then that this idea is the core of Jackendoff's grammar).

§ 5. *A Final Screening*

In the previous sections we saw how some general principle required within a grammar on independent grounds can exclude the grammatical fiction in question. So far as this fiction is concerned these grammars can all survive. But apart from this there is one important respect connected with the treatment of the complement structures in question in which all theories except GS and ELHT can be shown to be descriptively inadequate.

First let us consider ST, RST and EST. As Perlmutter (1971) has conclusively argued (see especially Chapter I), verbs like *scream* are subject to deep structure unlike subject constraint; what is more, the only plausible exception mechanism developed within the general framework of ST, i. e. Lakoff (1965) is also shown to be descriptively inadequate for treating cases like deep structure unlike subject constraint. Today Lakoff's exception mechanism is abandoned as incompetent, and the grammaticality/ungrammaticality of sentences like :

(11)   i. I screamed for Clyde to commit himself
       ii. *I screamed for me to commit myself
       iii. *I screamed to commit myself
       iv. I screamed to be allowed to shave myself

are all accounted for by Perlmutter's deep structure constraint. But then we see that Perlmutter's deep structure constraint cannot take

care of *persuade*-type sentences ; thus :

(12) i. I persuaded John to be examined by a doctor
      ii. I persuaded John to go with Mary

Perlmutter argues that verbs like *persuade* etc. are subject to deep structure like subject constraint. But the sentences of (12) are presumably derived from structures underlying :

(13) i. I persuaded John (a doctor examine John)
      ii. I persuaded John ((John and Mary) go)[7]

What is going on here is that these verbs do not meet deep structure like subject constraint, but rather they meet like subject constraint just before the application of Equi NP Deletion. Put differently the input structure to this transformation must meet the like subject construction. So within the framework of ST, RST or EST, it is necessary, in order to account for both (11) and (12), to exploit both Perlmutter's deep structure unlike subject constraint *and* exception mechanism developed in Lakoff (1965). But this is quite an uncalled-for move, for what the deep structure unlike subject constraint does is to get rid of the kind of mechanism developed in Lakoff (1965). There is thus no general principle that can account for both (11) and (12). The only way we can achieve this goal is to incorporate the global derivational constraint into the grammar, and this is exactly what GS does. Given this constraint, we can specify that verbs like *scream* meet unlike subject structure at the very beginning of their derivation while verbs like *persuade* meet like subject structure at the stage prior to the application of Equi NP·Deletion. This way we can account for both (11) and (12). These considerations lead us to believe that, even with this restricted part of syntax, GS is the only theory that can survive (: we return to ELHT immediately below).

As for ELHT we can see that the semantic rules can have the same effect as global derivational constraints (recall, in this theory,

semantic rules are defined over syntactic derivations). It is the full use of "⋀" that allows for this kind of flexibility on semantic rules that operate on the complement structures in question (Cf. Jackendoff (1972), especially Chapter V). So far as explicating both (11) and (12) are concerned, we can say GS and FLHT are equally adequate. In conclusion we get the following table:

(14)

Model\\Criterion	GS (LMP)	ST (CKP)	RST (K)	EST (C)	ELHT (J)
Structure Preserving Principle	×	OK	OK	OK	OK
Lexical Decomposition	OK	×	×	×	×
Requirement on Meaning	OK	OK	OK	OK (?)	REJECT
Can it treat complement structures?	YES	NO	NO	NO	YES

Those grammars that answer "NO" to the fourth criterion must be rejected by all means, for they lack the descriptive power that is needed on empirical grounds. This leaves us with GS and ELHT. ELHT can exclude the grammatical fiction introduced in § 2 if and only if it allows in a full-fledged use of Emonds' structure preserving principle; otherwise it must be abandoned since it lacks a principled way of excluding that fiction. GS then seems to be the best theory so far as excluding the current grammatical fiction is concerned: everything that is independently required in this grammar indicates that the kind of grammatical fiction introduced by Bresnan has no chance of manifesting itself in this framework.

Appendix : Notes on Equi NP Deletion

There are at least three different structures on which forward

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Equi NP Deletion applies (as for backward Equi NP Deletion, see for instance Postal (1970)). They are:

(1) a. NP_i-V-$(NP_i$-X$)_s$ e. g. I tried to go
    b. NP_k-V-$NP_i(NP_i$-X$)_s$ e. g. I persuaded John to go
    c. NP_i-V-$NP_k(NP_i$-X$)_s$ e. g. I promised you to go

In each instance the complement subject NP_i is deleted under identity with some NP_i in the matrix sentence. Although many grammarians seem to consider that only one single transformation is responsible for these three structures, there is some reason to believe that this position may turn out to be untenable in a grammar that directly generates grammatical/deviant sentences.[8] Take a look at the following sentences:

(2)   i. a. Lucille shouted for the thief to stop
         b.*Lucille$_i$ shouted for her$_i$ to stop
         c.*Lucille shouted to stop (the subject of "stop" being
                                 understood as "Lucille")
         d. Lucille shouted to Bill to stop

        ii. a. I screamed for Clyde to stop
         b.*I screamed for me to stop
         c.*I screamed to stop (the subject of "stop" being under-
                                 stood as "I")
         d. I screamed to myself to stop

       iii. a. I promised you to go
         b.*I promised you to go (the subject of "go" being under-
                                 stood as "you")

As (2i)a-c indicate, "shout" is a verb that must not meet the structural description of Equi NP Deletion, and naturally it cannot undergo this transformation. But with the structural description (1b), "shout" can undergo this transformation as the grammaticality of (2id) in-

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dicates. The same can be said with "scream" in (2ii). In (2iii) we can see that "promise" can undergo Equi NP Deletion with the structure (1c) but not with that of (1b). Thus whether a verb can undergo an Equi NP Deletion depends on the kind of structure it appears in, and if there are three different structures, we must say, in spite of the obvious similarity of their operation, that there are three different transformations. Perhaps some generalization is to be found, but at present it makes no sense to simply say that there is one and only one Equi NP Deletion that deletes the complement subject under identity in a direct generation grammar.

Notes

1. The main gist of this paper was orally presented at Osaka City University monthly meeting in September 1973. I thank all those who were present then and there for tea and sympathy.

2. In fact there is one more very important claim that is now seen to be most central to generative semantics: "that the rules of grammar, which generate the grammatical sentences of English, filtering out the ungrammatical sentences, are not distinct from the rules relating the surface forms of English sentences to their corresponding logical forms (Lakoff (1972), p. 553)".

3. Notice the burden of proof of this point rests on the shoulders of those who claim that there *is* such a level of representation as traditionally called deep structure. Thus even if some one says to you, "I have a very cute girl-friend," you cannot really believe him unless he shows up with such a girl.

4. I am grateful to Nishimitsu for drawing my attention to Lakoff (to appear in 1974).

5. I take the validity of this constraint as established, particularly within the framework of EST.

6. On the contrary this structure is precisely the one the second alternative purports to do away with.

7. Cf. Lakoff and Peters (1966).

8. On the other hand, in a grammar that directly generates only gramma-

tical sentences, there always arises a which-NP-is-the-controller-? problem.

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