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ABSTRACT

Arguments for the introduction of an adverbial node label (ADV) in transformational grammar are examined and rejected. The following question is raised: Is a node label ADV necessary, or can the phenomena associated with adverbials be explained in terms of the set of node labels used to explain other areas of grammar? The author argues that a new node label can be justified if and only if some required transformation must be formulated so as to refer to it. Furthermore, it is necessary to demonstrate that no analysis which excludes ADV is tenable. Thus, the author concludes, the existence of any tenable analysis which handles the adverbial data without making use of ADV is strong evidence that ADV does not exist. Presented are grammatical references to ADV; arguments in favor of an ADV node which examine adverbs without adjective paraphrases, the multiplicity of tranformations, the positioning of ly-adverbs, the -ly ending, and a non-argument in favor of an ADV node; arguments against an ADV node; and alternatives to ADV which examine case analyses and higher sentence (S) analyses. (HOD)

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ON THE NODE LABEL 'ADV'

Stanley E. Legum

ABSTRACT

Arguments for a category label ADV to be used in the analysis of English adverbials are examined and rejected. An analysis deriving adverbials from higher sentences is proposed.

ON THE NODE LABEL 'ADV'

Stanley E. Legum

In analyzing adverbials the question arises: Is a node label 'ADV' necessary or can the phenomena associated with adverbials be explained in in terms of the set of node labels used to explain other areas of grammar? It is clear that the introduction of a new node label can only be justified if the grammar needs to refer to that label. That is, a new node label can be justified if and only if some required transformation must be formulated so as to refer to it. It is not sufficient in arguing for an ADV node to posit the new entity, ADV, and demonstrate that some set of data can be described using this additional mechanism. It is necessary to also demonstrate that no analysis which excludes ADV is tenable. Thus, the existence of any tenable analysis which handles the adverbial data without making use of ADV is strong evidence that ADV does not exist.

GRAMMATICAL REFERENCES TO ADV

Weak evidence against the necessity of ADV comes from the observation that all of the well motivated node labels are referred to many times by the transformations in all analyses of English, but these analyses have not needed to refer to an ADV node, except for transformations which reposition adverbs. It is precisely this placing of adverbs in different locations within the sentence which it is necessary to show either can or cannot be described without recourse to an ADV node.

The most comprehensive generative grammar of English yet attempted is that by Stockwell, Schachter, and Partee (1968). Of the 62 transformational rules adopted in their grammar, only five reference ADV:

(1) AUX-Attraction, (2) Preverbal Particle Placement, (3) REL-Reduction B, (4) S-initial ADV Placement, and (5) Preverbal ADV Placement. The first three of these rules can be reformulated within the framework adopted by Stockwell et al. so as to avoid referencing ADV explicitly. This can be accomplished by replacing the symbol ADV by the variable X and making the corresponding minor adjustments.

The Stockwell et al. AUX-Attraction rule is stated as (1).

1. SI: (S CONJ)* # $\left\{\begin{matrix}\text{ADV}\\ \text{NP}\end{matrix}\right\}$ [X $\left\{\begin{matrix}[+\text{WH}]\\ [+\text{NEG}]\end{matrix}\right\}$ X] X TNS ($\left\{\begin{matrix}\text{M}\\ \text{HAVE}\\ \text{BE}\end{matrix}\right\}$)

1 2 3 4 5 6

(NEG) (ADV) X #

7 8 9 10

SC: 1. Attach 5, 6, 7 as right sisters of 3

2. Delete (original) 5, 6, 7

COND: 1. If 6 is null, 9 = $\left\{\begin{matrix}[+\text{V}]\\ [-\text{BE}]\end{matrix}\right\}$ +λ

2. The rule is obligatory

3. The rule applies last cyclically

In their notes discussing this rule, Stockwell et al. state:

> The rule is intended to apply to WH questions (see below), alternative questions and sentences with preposed negative adverbials (cf. NEG). In fact, the rule will not apply to alternative questions unless the WH-spreading rule were to insert a node ADV dominating the feature [+WH]; alternatively, constituent 3 of the S.I. could be stated to be any single constituent immediately dominated by S.

Adopting the alternative analysis proposed in this remark and allowing the optional ADV of constituent 8 to be subsumed by the following variable X, the rule can be reformulated as (2).

2. SI: (S CONT)* # X [X $\begin{bmatrix}[+WH]\\[+NEG]\end{bmatrix}$ X] X TNS ($\begin{bmatrix}M\\HAVE\\BE\end{bmatrix}$)

1 2 3 4 5 6

(NEG) X #

7 8 9

SC: 1. Attach 5, 6, 7 as right sisters of 3

2. Delete (original) 5, 6, 7

COND: 1. 3 is a single constituent, immediately dominated by S

2. If 6 is null, 8 = X + $\begin{bmatrix}[+V]\\[-BE]\end{bmatrix}$ + X

3. The rule is obligatory

4. The rule applies last cyclically

Preverbal Particle Placement is stated as (3).

3. SI: X - Neg - (ADV) - $\begin{bmatrix}TNS\\TNS\end{bmatrix}$ $\begin{bmatrix}M\\HAVE\\BE\end{bmatrix}$ $\begin{bmatrix}-V\\-X\end{bmatrix}$ -X

1 2 3 4

SC: 1 - ø - 3+2 - 4[1]

This rule is obligatory and is intended to provide the appropriate input to the NEG Contraction rule so as to produce the sentences in (4).[2]

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[1]The change in notational conventions in the various transformations cited from Stockwell et al. is noncritical. It is due to the fact that different sets of authors were responsible for the different sections of this work. The reformulations offered in this section use the same notational conventions as the original transformations.

[2]The examples in (4) are Stockwell et al. (1963).

4. a. John didn't come visit his mother

b. John hasn't often visited his mother

c. John hasn't ever seen the ocean

d. John can't swim

Since the only thing which can come between the NEG marker and the TNS marker at this point in the grammar is the optional adverb, there is no reason to mention the adverb explicitly. Thus the rule can be reformulated as (5).

5. SI: $X - NEG - X - \begin{Bmatrix} TNS \\ TNS \end{Bmatrix} \begin{Bmatrix} M \\ HAVE \\ BE \end{Bmatrix} - \begin{Bmatrix} V \\ X \end{Bmatrix} - X$

1 2 3 4

SC: 1 - ∅ - 3+2 - 4

REL-Reduction B is intended to derive sentences such as (6a)[3] from the structures underlying sentences like (6b).

6. a. Anyone undergoing yesterday what he underwent deserves a vacation.

b. Anyone who underwent yesterday what he underwent deserves a vacation.

Two versions of REL-Reduction B are given by Stockwell et al. (p. 522 and p. 903). The first of these is presented in (7).

7. SI: X NOM [ART X TNS (NEG) V X] X
[-PRO] S [+REL] S

1 2 3 4 5 6 7 8

[3](6a) = Stockwell et al. (135).

SC: (a) Delete 3

(b) Attach -ing to 5, erasing [± PAST], or

If 5 dominates [± PAST], attach ing, have, en, as

daughters of 5, and erase [± PAST]

(c) Attach 4 - 7 as right daughters of 1

The authors note at this point that the fourth constituent "is provided on the assumption that pre-verbal adverbs like only may still be in this position." The second version of this rule is identical to the first except for notational differences and the replacement of the variable X as the fourth constituent by (ADV). Since the second formulation is found in the comprehensive listing of rules and no additional discussion is presented to motivate the change, it is safe to assume that the inclusion of (ADV) is merely a mnemonic device. Thus it is clear that REL-Reduction B need not refer to ADV. Furthermore, it is not obvious from the discussion exactly what set of words Stockwell, et al. believe can occur in this position. If only is a fair representative--and it is the authors' sole example--then these so called 'preverbal adverbs' may in fact not be true adverbs but limiters.

The remaining two transformations--S-Initial ADV Placement and Preverbal ADV Placement--deal directly with the positioning of adverbs in the grammar and will not be discussed at this time.

The conclusion to be drawn from this review of Stockwell, et al. is that except for the two rules required to position adverbs much--if not all--of English grammar does not need to refer to adverbs. Such a state of affairs is inconceivable for the node labels S, NP, and V.[4] These

[4]The node labels P (preposition), VP, C (conjunction), and AUX have been omitted from this list because their status is in doubt.

facts suggest that the label ADV may never need to be referenced by the grammars in which it is employed outside of the adverb positioning rules. Since no one is willing to claim that the bounds of English grammar have yet been recognized, the possibility exists that an entire new realm of grammar may open up in which many of the rules must make use of some such node as ADV. Until that happens, however, the existence of ADV must rest on the case which can be made for it on the grounds that it is needed to correctly formulate the adverb positioning rules.

ARGUMENTS IN FAVOR OF AN ADV NODE

The only explicit arguments which have been presented in favor of a node ADV are those contained in Ray Jackendoff's (1969) dissertation.[5] Jackendoff argues that introducing a node ADV is preferable to deriving ly-adverbs transformationally because:

8. Some ly-adverbs (e.g., merely) do not have adjective paraphrases involving a copula ("because mere never occurs in a copula").
9. The semi-productivity of adjective paraphrases of adverbs will require a large number of transformations and of exception features, if a transformational analysis is to work.
10. The use of more than one transformational rule deriving ly-adverbs make it "accidental that all the adverbs wind up in essentially the same positions in the sentence".

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[5]Bresnan (1969) claims to show "that the category 'Instrumental Adverb' must be present in deep structure." Bresnan does show that instrumental prepositional phrases must be syntactically distinguishable. She does not, however, present evidence that the only way to capture this fact is to posit a node label 'Instrumental Adverb'.

11. The use of more than one transformational rule deriving ly-adverbs makes it accidental "that -ly is the ending added to all adjectives to form adverbs".

Jackendoff does not argue, however, that it is not possible to account for the positioning of adverbs in the sentence when deriving them transformationally.

"Adverbs" Without Adjective Paraphrases

Jackendoff offers three examples of "ly-adverbs" which do not have appropriate adjective paraphrases: truly, simply, and merely. As he correctly points out the sentences ... (12b) do not paraphrase those in (12a).[6]

12. a. Albert is {truly / simply / merely} a fool.

b. It is {true (non-paraphrase) / *simple / *mere} that Albert is a fool.

It is clear, however, that simply and merely are limiters in (12a). The sentences in (13) illustrate that simply and merely can occur in the definitive environments for limiters.

13. a. John gave the job to {simply the first boy who came along / merely a novice}.

b. Ralph offered the jobs {?simply to the first boys who came along / merely to the advanced students}.

c. Ray believed {simply any argument / merely a boy}

d. Harold {simply / merely} {accepted his status without complaining / tolerated his lot}

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[6]Example (12) = Jackendoff's (5).

Since limiters have been shown to have different privileges of occurrence than true adverbs, there is no reason to expect them to be derived by the same transformational rules which derive ly-adverbs. On the contrary, since some of the clearest cases of limiters either do not end in -ly (e.g., just, even) or do not have obvious adjective paraphrases (e.g., only), it would be more natural to enter them directly in the lexicon.[7]

The status of truly is not so clear cut. Examples such as (14a) and (15a) demostrate that its status as an adverb is suspect.

14. a. ?*John gave his books to Mary truly.

    b. John gave his books to Mary gallantly.

15. a. ?*John truly gave his books to Mary.

    b. John gallantly gave this books to Mary.

For speakers who can accept (16) but reject (17), truly is an intensifier.

16. Ice cream is truly fattening.

17. ?This ice cream may be truly better.

For most speakers, however, truly probably patterns more like a limiter as illustrated in (18).

18. a. ?He gave the job to truly a boy.

    b. ?He gave the job truly to a boy.

    c. He saw truly a boy.

    d. ?He truly was asking for it when he called Tarzan a dirty name.

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[7]Whether or not limiters and intensifiers need special node labels is a topic worth investigation. It is, however, beyond the scope of this paper.

Whatever the correct analysis of truly may be, its unique pattern of usage clearly demostrates that it should not be classified as a typical true adverb. For this reason, it makes no sense to attempt to justify the use of ADV or to criticize a transformational derivation of adverbs by reference to truly.

Thus, all the examples which Jackendoff offers of ly-adverbs without adjective paraphrases are in fact not examples of true ly-adverbs. Even if it could be demonstrated that there is a small number of ly-adverbs which cannot be derived transformationally from other lexical entries, we would not have provided a conclusive argument against transformationally deriving the remaining ly-adverbs. It would always be possible to classify these unusual words in the lexicon as idioms. That is, they could be listed in the lexicon with the same structure as ly-adverbs would have under a transformational analysis. Obviously we would want to reject such an analysis if it were required for a large number of lexical items. But at this time, no words have been noticed which require such a treatment.

The Multiplicity of Transformations

Jackendoff is partially correct in making claim (9). It is quite likely that more than one set of transformations will have to apply in order to account for all the distinct types of ly-adverbs. How many such sets are needed and how many exception features, if any, are required to describe ly-adverbs remain open questions. The fact that two or more transformations are probably needed to account for ly-adverbs is hardly conclusive evidence against a transformational analysis. On the contray, one would expect the complexity of the

grammar to reflect the well recognized complexity of the data. On the other hand, Jackendof 's strategy of listing all ly-adverbs separately in the lexicon, precludes any attempt to utilize syntactically the different co-occurrence relations shared by the adverbs and the corresponding adjectives.

The Positioning of ly-Adverbs

Jackendoff's claim that the use of more than one transformational rule deriving ly-adverbs makes it "accidental that all the adverbs wind up in essentially the same positions in the sentence" is simply false. It is possible for a transformational analysis to use the same technique as Jackendoff to account for the positioning adverbs. By attaching adverbs to either the S or the VP node and allowing transportability (see Keyser, 1968; as well as Jackendoff) apply to them, exactly the same distribution is achieved as by an interpretive analysis.

The -ly Ending

Jackendoff may or may not be correct in his claim that the use of multiple transformations in deriving ly-adverbs makes it accidental "that -ly is the ending added to all adjectives to form adverbs." If there is only one ly-spelling or ly-attachment transformation, then Jackendoff is in error. It is possible that multiple transformations build the appropriate structures which satisfy the structural index of ly-spelling or ly-attachment while utilizing only one such "spelling" or "attaching" transformation.

On the other hand, Jackendoff may be correct in assuming that more than one transformation is required to add -ly to adjectives in order to

form adverbs. While this is an inelegance we would prefer to avoid, it should be noted that a lexicalist-interpretative analysis like Jackendoff's suffers from the identical problem. In such an analysis all the adverbs are listed in the lexicon as separate lexical entries. Under such an analysis there is no possibility of capturing generalizations about the phonological form of adverbs. At the very least a transformational analysis has the capability of capturing such generalizations if they exist.

A Non-Argument in Favor of an ADV Node

An implicit line of reasoning in favor of an analysis utilizing ADV is based on the adoption of the Lexicalist Hypothesis (Chomsky, 1969; Jackendoff, 1969) which prohibits transformations from performing derivational morphology.[8] Two points need to be made about this potential line of reasoning. First, it should be borne in mind that the Lexicalist Hypothesis remains an unproven hypothesis. Second, it is data such as that provided by adverbs which can help confirm or disprove this hypothesis.

To summarize, none of the arguments given by Jackendoff (8-11 above) in favor of an analysis utilizing ADV as opposed to one deriving adverbs transformationally stands close scrutiny. In addition an argument based

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[8]Even Jackendoff who adopts a stronger form of the Lexicalist Hypothesis allows transformations to add inflectional endings such as number, gender, case, person, and tense to lexical items. Jackendoff's Extended Lexicalist Hypothesis prohibits transformations from deleting lexical items.

on adoption of the Lexicalist Hypothesis begs the question of whether or not that hypothesis is justified.

ARGUMENTS AGAINST AN ADV NODE

Two general arguments against the adoption of ADV can be presented. The first deals with the interaction of the Universal Base Hypothesis and the hypothesized node. The second deals with the inability of a grammar utilizing ADV to capture certain generalizations.

If we adopt the hypothesis that the grammars of all languages share the same base component, or the somewhat weaker hypothesis that node labels are language universals, then it becomes difficult to posit a terminal node ADV. For if ADV were a terminal node in a wide range of languages, then we would expect many languages to exhibit clear-cut evidence for a form-class of adverb-like morphemes. This does not seem to be the case in non-Indo-European languages. The Semitic, Algonguian, Chinese, and Japanese languages all appear to be analyzable without recourse to a terminal node ADV.[9]

If ADV were assumed to be a non-terminal node, it would presumably dominate, at a minimum, sentences and noun phrases.[10] In this way adverbial clauses and phrases would be treated in a uniform manner. Where than would single word adverbs come from? Either they would have

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[9]Note Bloomfield's (1933), comments on the non-universality of Indo-European form classes.

[10]Prepositional phrases can, of course, be analyzed as coming from noun phrases.

to be derived transformationally from sentences and noun phrases, or they would have to be entered in the lexicon in such a way as to allow them to be directly attached to ADV, S, or NP. Whether or not we should allow lexical insertion to occur on non-terminal nodes remains an open question. It would be possible to argue that such insertion would simplify the analysis of proper nouns and, if we adopt the lexicalist hypothesis, pro-forms. No one has yet attempted to justify such an analysis. Jackendoff (1969) does sketch some analyses using a non-terminal node AdvP (adverbial phrase) for such strings as "even ten years ago" and "not even ten years ago." It is not clear how seriously he intends this analysis of adverbial phrases since he is primarily discussing the interaction of not and until with durative and point action verbs as opposed to the internal structure of adverbial phrases. Since Jackendoff utilizes both ADV and AdvP, it is reasonable to assume that he intends ADV to be a terminal node.

The introduction of ADV as a terminal node has the adverse effect of preventing a unified treatment of the placement of adverbial clauses, adverbial phrases and single word adverbs. Any transformations which move ADV, must mention prepositional phrases and adverbial clauses separately. To the extent that ADV is subject to the same grammatical restrictions as adverbial clauses and phrases, such an analysis misses important generalizations. The treatment of ADV as a non-terminal node would allow the grammar to capture such generalizations. If it can be shown that these generalizations can in principle be captured without the use of non-terminal ADV, then ADV becomes that much harder to justify.

ALTERNATIVES TO ADV

If the existence of a node ADV is rejected, what are the characteristics of a tenable analysis of adverbs and adverbials? It is clear that such an analysis must make use only of mechanisms which can be independently motivated by other areas of the grammar. If this condition is not met, the analysis is open to the charge that it is merely a notational variant of an analysis with ADV. Any analysis of adverbs must account for the varying numbers of adverbs which can appear in sentences. The distributional privileges of different classes of adverbs must be captured in a natural manner. Ideally, it should be possible to capture the concept "adverbial" by demonstrating that true adverbs and other adverbials undergo one or more transformations in common that other grammatical forms do not undergo, or that they have some sort of distinguishing structural characteristic.

Case Analyses

The approach adopted by Fillmore (1968) in "The Case for Case" does not deal with the question of single word adverbs directly. Fillmore does, however, attempt to account for prepositional phrases by generating numerous NP sisters of the verb with the phrase structure rules. Each of these NPs is labeled as being of one specific type such as instrumental, benefactive, agentive, and so forth. It is possible to allow these NPs to dominate sentences in order to account for the similarities between adverbial clauses and adverbial phrases. It is presumably possible in a case framework to posit one or more transformations which derive single word adverbs from NPs or Ss.

Two basic problems exist with a case analysis. First, there is no natural way in which to account for the fact that sentences can have more than one instance of an adverb or adverbial of a given type. The only way for Fillmore to account for all of the time adverbials in (19) is to attempt to derive it from a structure underlying a series of relative clauses like those in (20).[11]

19. John will meet his brother tomorrow, in the morning, at six.

20. ?John will meet his brother at six which is in the morning which is tomorrow.

The second problem faced by a case grammar is that it obscures the fact that direct and indirect objects are more closely related to the verb than are single word adverbs, adverbial phrases and adverbial clauses. A case analysis makes the claim that verbs are subcategorized equally with respect to adverbials, subjects, direct objects, and indirect objects. This stand is apparently only justifiable when subjects, direct objects, and indirect objects are taken as instances of the various cases. When NPs in the various cases are not in these three 'privileged' positions they rarely if ever subcategorize the verb. A somewhat more precise way to put this is that verbs do not appear to be subcategorized by more than three NPs simultaneously. There is no neat way in which this statement can be proved. It is, however, open to refutation. The claim can be refuted by exhibiting a partitioning of the set of verbs such that one set of the partition can occur only in environments containing four noun phrases of different cases. The existence of such a partition seems

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[11] Fillmore (1971) recognizes that problems exist with this type of structure. He notes that on the semantic level there is only one time specification for (19).

doubtful, for languages are simply not that complicated. Relatively few verbs in the lexicon of any language can even be considered four place predicates. Although this remains an open matter, it will be assumed in the remainder of this paper that 'kernel' sentences of English have at the most three NPs.

Higher S Analyses

An alternative approach to a case analysis which does not require ADV is the introduction of adverbials in higher sentences. Under this analysis adverbials are introduced as Vs or NPs in the higher sentence and the surface structure main clause is the subject of the higher S. Such an analysis requires a lowering rule similar to that posited by Carden (1970) for quantifiers. It has the advantage of utilizing the recursiveness of the S-node to account for the varying number of adverbials which can appear in a sentence. On the other hand, it requires the statement of a set of constraints prohibiting non-occurring sequences of adverbials.

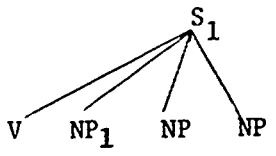
A higher S analysis probably needs to assume only the following set of base rules (exclusive of rule schematas for conjunction).

21. a. S --> V NP NP NP

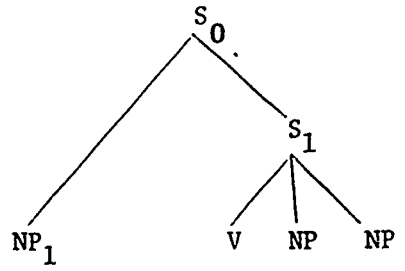
b. NP --> $\left\{\begin{matrix}\text{NP}\\ \text{N}\end{matrix}\right\}$ S

Under this analysis English is assumed to be a VSO language with a rule of subject formation which derives structures like (23) from structures like (22) by Chomsky-adjoining the left-most NP to the S node.

22.



23.



Since S_1 is distinguishable from S_0 by the fact that it dominates a V, we can adopt the familiar notation VP for the S_1 node and simultaneously simplify the exposition which follows.

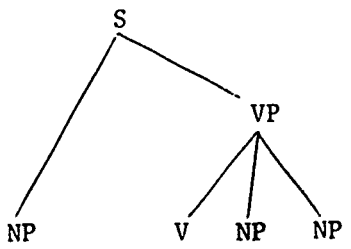
This notational device is somewhat misleading in that it inaccurately suggests that (21) is merely a slightly more abstract analysis than one involving the rules in (24).

24. a. S --> NP VP

b. VP --> V NP NP

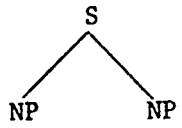
The rules in (24) do produce the structure in (25) which is, except for labeling, identical to that in (23).

25.

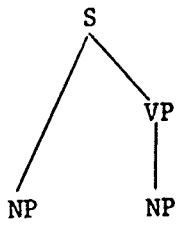


The differences in the two systems show up at the point of copula insertion.[12] In an analysis utilizing copula insertion all the category symbols to the right of the arrows can be considered optional with the understanding that at least one of the symbols must be chosen. This allows (21) to generate structures such as (26), and (24) to generate structures such as (27).

26.

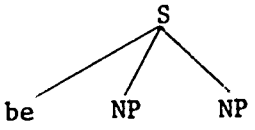


27.

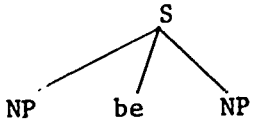


At the point of copula insertion (26) can become either (28a) or (28b), depending on the details of the analysis of the insertion rule.

28. a.



b.



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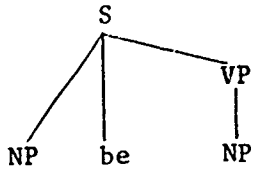
[12] See the discussion on copula insertion in the "Sketch of English Adverbs," TN-2-72-28.

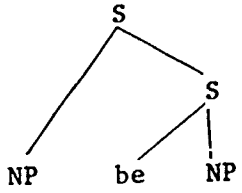
On the other hand, in an analysis generating (27), copula insertion will produce (29).[13]

29.



If subject formation applies to (28a) the structure (30) is formed.

30.



Structure (30) creates problems in trying to describe the positioning of limiters which neither (29) nor (28b) share. If on the other hand, (28b) is the structure that is available at the time subject formation can apply, either a new subject formation rule is needed for copulas, or no subject will be formed. Since the NPs and the copula are already in their surface order, their is no reason whatsoever to demand that a rule of subject formation apply. Since equational sentences in English intuitively seem to be structurally simpler than other English sentences, and since there is no analytic need for the VP node in a structure like (29), it will be assumed that (21) is a more accurate representation of the English phrase structure rules than (24) and that the copla insertion

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[13]The possible existence of an AUX node does not affect the basic argument being presented.

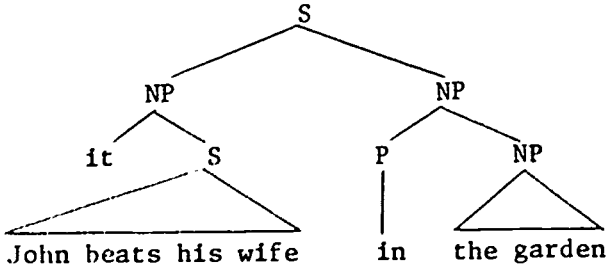
rule is formulated so as to derive (28b) rather than (28a). These assumptions are not critical to the analysis which follows, but they do have the advantage of eliminating a good deal of excess structure from the underlying structures of sentences with adverbials as well as simplyfing the underlying structure of copular sentences.

Given these assumptions about the structure of English we can represent adverbial phrases and clauses like (31) and (32) in a natural manner with underlying structures (33) and (34).

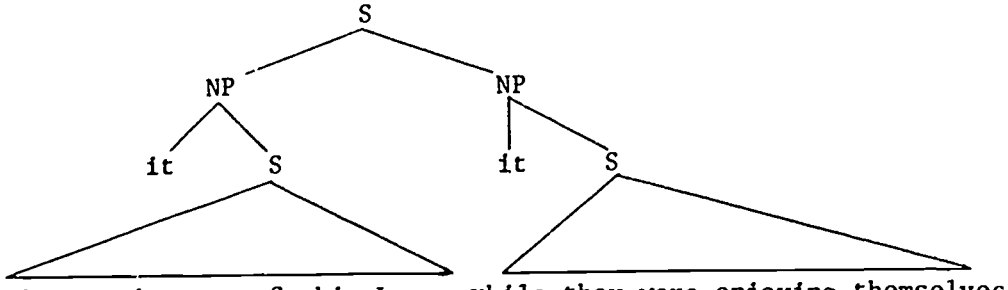
31. John beats his wife in the garden.

32. The tourists saw Sophia Loren while they were enjoying themselves.

33.



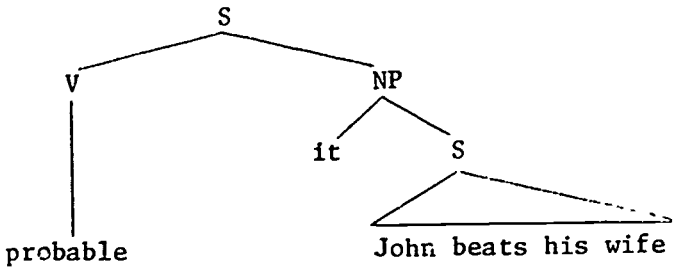
34.



Following Schreiber (1971) we can analyze sentences like (35) as having underlying structures like (36).

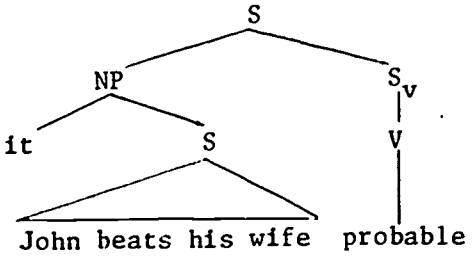
35. Probably John beats his wife.

36.



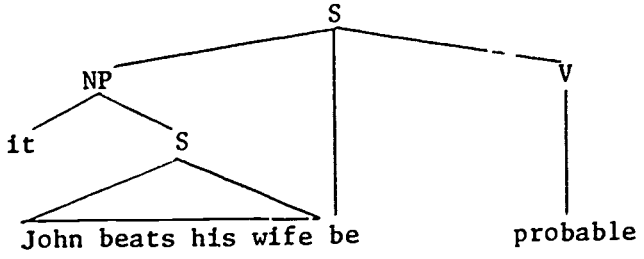
Subject formation can apply to (36) to produce (37).

37.



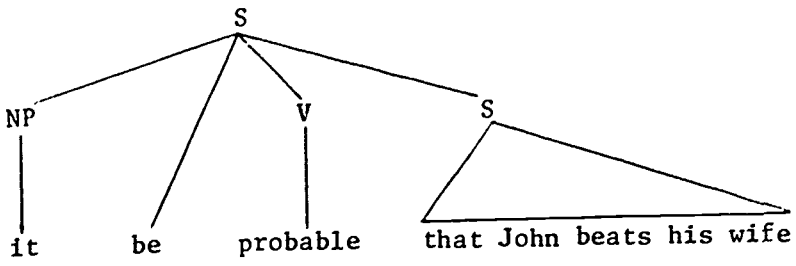
The S_v node will then be pruned. If copula insertion applies to (37), (38) is produced.

38.



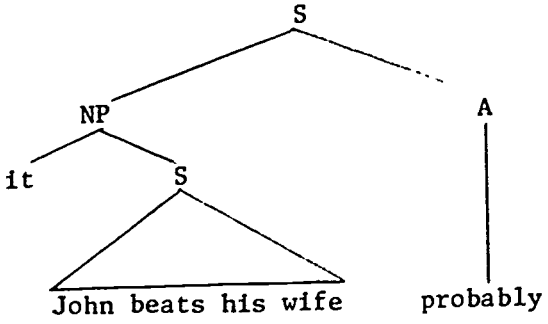
Extraposition can apply to (38) to produce (39).

39.



Alternatively, ly-adverb formation can apply to the pruned version of (37) to produce (40).

40.



The precise analysis of the node labeled A needs to be determined. One fact that can be brought to bear in analyzing this construction is the desirability of capturing the parallelism between the sentences in (41) and those in (42).

41. a. In the garden, John beats his wife.

    b. While they were enjoying themselves, the tourists saw Sophia Loren.

    c. Probably, John beats his wife.

42. a. John beats his wife in the garden.

    b. The tourists saw Sophia Loren while they were enjoying themselves.

    c. Joh beats his wife, probably.

In particular, it would be desirable that the same rule which derives (41a) and (41b) from (42a) and (42b) could also derive (41c) from (42c). Assuming that the sentences in (42) have (33), (34), and (40) as underlying structures this can be accomplished by formulating the structural index of the adverb preposing rule as (43).[14]

43. S.I. $[\ S\ X\ ]_S$

1 2

COND: 2 is a single constituent

Alternatively, it would be possible to avoid positing an adverb preposing rule altogether and assume that (41) is a constraint on the Transportability Convention as described by Keyser (1968). It is also necessary that the ly-adverb depending from A in (40) be distinguishable from the adverbial phrases and clauses of (33) and (34) so that adverb lowering can attach ly-adverbs, but not prepositional phrases and adverbial clauses, to the verb phrase in front of the verb. This result can be obtained independent of the choice of A in (40) by limiting adverb lowering to either one word forms satisfying (43) or, more restrictively, to forms containing a final morpheme +ly. The latter analysis will be adopted since it predicts that (44) but not (45) is acceptable.

44. John probably kissed Mary.

45. *John perhaps kissed Mary.

---

[14]The statement of (41) assumes that it-deletion has applied by the time preposing occurs.

Thus neither of the movement rules which affect the material under the A node require any specific label for A. In fact, neither transformation even needs to refer to A explicitly.

There is some reason to believe that the A node is null, and that single word adverbs depend directly from the topmost S. Note that under the assumption that grammars are semiordered, it is simpler to posit an extrinsically unordered rule than to posit the otherwise identical rule ordered extrinsically.[15] If A is taken to be either V or NP, either copula insertion would have to be extrinsically ordered before ly-adverb formation or the structural index of copula insertion would have to distinguish ly-adverbs from the other constructions which could depend from the node. This could, of course, be accomplished by reference to the +ly morpheme. By allowing A to be other than V or NP, however, it is possible to allow ly-adverb formation to be unordered and to avoid complicating the copula insertion transformation. The only other candidates for the A node are S and N. Since there is no evidence to indicate that ly-adverbs have any of the distinctive properties of either of these categories, the choice of either would be a purely ad hoc matter. For these reasons, it seems most plausible to assume that A is null. Thus after it-deletion and ly-adverb formation have applied, (42c) would have the structure (46).

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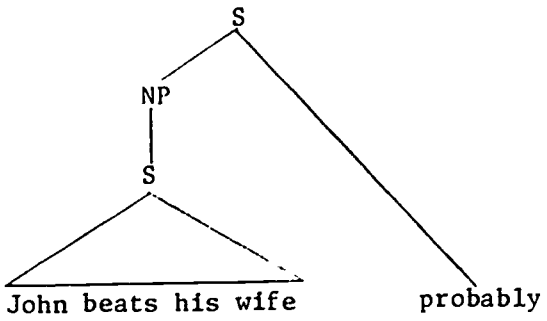
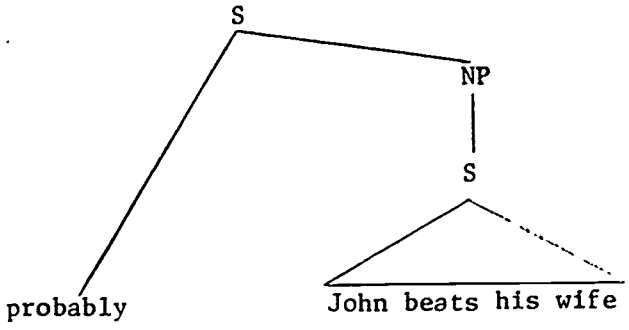
[15] See Koutsoudas (1972), Ringen (to appear) for discussion of this point.

46.



After adverb preposing or transportability has applied, (47) would be produced. This is an appropriate derived structure for (41c).

47.



The above sketch of a higher-S analysis of adverbials demonstrates that it is in principle feasible to account for adverbials without making use of any new mechanisms. Various refinements such as the treatment of English as a VSO language and the use of unordered rules serve to motivate certain decisions which would otherwise be arbitrary, but are in no way crucial to the basic analysis.

The recursive power of sentences can be used to account for the varying numbers of adverials which can occur in sentences. The distributional privileges of adverbials have not been described, but it seems clear that constraints such as those noticed by Bresnan (1969) and

Fillmore (1971) can be formulated as well in terms of a higher S analysis as any other so far postulated.

The concepts "adverb" and "adverbial" are captured in the higher-S analysis in a straight-forward manner. Any structure which satisfies (43) at some point in its derivation is an adverbial. Any single-word adverbial is an adverb.

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