WHY AMHARIC IS NOT A VSO LANGUAGE

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1. Introduction

The verb is almost always last in Amharic clauses, and the subject is almost as consistently first. The order SVO only occurs in clefted sentences of the type ዋስሶ የአ ይልግለት እ (he is that-came-he) 'He is the one who came'; OSV occurs when the object is topicalized [Getachew 1971:102]. Despite this fact that SOV order is almost universal in Amharic surface structures, Emmon Bach [1970: "Is Amharic an SOV language?"] was able to present an ingenious argument leading to the conclusion that the underlying order of Amharic basic constituents is VSO. This paper will review that article, and show how, in spite of Bach's insistence that positing underlying SOV order for Amharic leads to loss of generality and even violation of the widely accepted prohibition against logical quantification in transformational rules, a grammar with SOV deep order is superior to the grammar with VSO deep order. In the process Amharic comes to be seen as evidence against the theory of gapping proposed by John Ross [1970], and as evidence in favor of the theory of a non-linear base (as proposed by Gerald Sanders [1970] and Wallace Chafe [1970]).

Section 2 of this paper examines the main arguments presented by Bach that the facts require a VSO analysis of the deep order of Amharic main constituents. The result of this examination is the conclusion that the grammar of Amharic as a VSO language does indeed appear superior, but only marginally so, to the SOV grammar. Section 3 then shows that the advantage of the VSO grammar is equally present if we posit the order SOV, but with post-posed relative clauses and post-positions, neither of which, like VSO order, ever appear in Amharic surface structures. The success of

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V and O are to be understood in their most general sense, with V including the copula, and O any verb-phrase complement. Where I have used Bach's examples, I have taken the liberty of conforming them to the phonemicization which is common in the literature on Amharic (ə = Bach's ə, phonetically [ə]; ã = Bach's ã, phonetically [ɔ]), and have also in some cases added morpheme boundaries.
this non-intuitive analysis brings into serious question the efficacy of
the VSO analysis of Amharic. Section 4, therefore, compares the three
differently ordered grammars of Amharic and reveals the generalization
about Amharic syntax which permits rejection of Bach's hypothesis that it
is a VSO language. With this generalization recognized, the grammar which
posits SOV ordered deep structures is shown to be superior by the criterion
of naturalness, and also in generality to grammars with other possible deep
orders of constituents. Finally, Section 5 shows that, nevertheless, there
is actually no evidence that the linear order of deep structure is a factor
in stating the transformations in question, and hence in justifying gram-
mars at this level. This is true since the generalization which permits
the rejection of VSO ordered deep structures is true regardless of how
deep structures are linearly ordered. An alternative hypothesis which
thus suggests itself is that linear order is only specified post-trans-
formationally, and deep structure is non-linear.

2. Amharic as a VSO language: arguments and counter-arguments

Six of Bach's arguments will be examined in Section 2. The first
four of these may be called 'descriptive', since they are based on claims
of greater simplicity, or increased generality in the grammar of Amharic
with VSO ordered deep structures. The fifth and sixth arguments may be
called 'explanatory', the latter offering an historical explanation of
how Amharic, with no VSO ordered surface structures, could be a VSO
language in deep structure, and the former explaining this by a proposed
criterion of naturalness.

a. Gapping. 'Gapping' refers to the phenomenon illustrated by the
following English sentences [Ross 1970:249]:

(1)  a. I ordered mashed potatoes, Tom ordered peaches, and Suzie
ordered liver.

       b. I ordered mashed potatoes, Tom peaches, and Suzie liver.

That is, English, an SVO language, gaps as in (1b) to the right, in the
pattern SVO - SO. Ross noted that Japanese, which is indicated by the
criteria in Greenberg [1963] is a quite unambiguously SOV language, gaps
to the left, in a pattern which can be represented as in (1c).
Among SOV and SVO languages (the only two types which Ross dealt with, see Ross [1970:255]), some seemingly SOV languages (Hindi, German, and Turkish) do gap sentences both to the right and left, but no languages exhibit only the gapping pattern SOV - SO. That is, where the SOV - SO pattern occurs, it co-occurs with the SO - SOV pattern in seemingly SOV languages. Ross illustrated in a table comparable to (2) below the complex of facts about gapping in various languages which his theory of gapping sought to explain. The table shows that all languages surveyed do employ gapping, none have only the SOV - SO (B) pattern, and none have both the patterns A and B, or A and C, though both B and C occur in three languages as previously noted. The so-called 'free word order languages' Latin and Russian are said to have all three patterns: A, B, and C. (It would be interesting to know what source Ross used to determine the gapping patterns of Latin.) The pattern SO - SVO seems never to occur.

<table>
<thead>
<tr>
<th>No gapping</th>
<th>A: Only SVO - SO</th>
<th>B: Only SOV - SO</th>
<th>C: Only SO - SOV</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>English</td>
<td>none</td>
<td>Japanese</td>
</tr>
<tr>
<td></td>
<td>French</td>
<td></td>
<td>Siouan</td>
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<td></td>
<td>German (main</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>clauses)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A and B</td>
<td>A and C</td>
<td>B and C</td>
<td>A, B, and C</td>
</tr>
<tr>
<td>none</td>
<td>none</td>
<td>Hindi</td>
<td>Russian</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Turkish</td>
<td>Latian</td>
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<tr>
<td></td>
<td></td>
<td>German (sub-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ordinate clauses)</td>
<td></td>
</tr>
</tbody>
</table>

It is not possible here to examine Ross's article in detail (for this see Sanders [1970]). However, it is important to put the hypothesis presented there into perspective as speculative, and to recognize the conclusion as considerably under-determined by the evidence on which it is based. The particular part of Ross's argument which concerns Amharic is the "chain of inferences" [Ross 1970:253] which led him to the
conclusion that Hindi is only superficially an SOV language, having deep SVO order.

Ross found that almost all the facts summarized in (2) can be explained if it is hypothesized that (i) main constituent order uniquely determines gapping pattern: SOV order only allows gapping to the left (SO - SOV), and the SVO pattern gapping to the right (SVO - SO); and (ii) gapping is an optional "anywhere rule", i.e., applies before or after a "scrambling" or verb-inversion rule where such a rule exists in a language. But these two hypotheses are contradicted by Hindi and Turkish, which seem to be SOV languages, but which gap to the right (SOV - SO), as well as to the left (SO - SOV). The contradiction is this: When we begin with the conjoined structure SOV - SOV, gapping -- if it is only to the left in such cases -- can only yield the pattern SO - SOV. Hence Ross extended his hypothesis with an additional claim: (iii) Hindi and Turkish are deep SVO languages with an obligatory "scrambling" or verb-inversion rule; the string SVO - SVO can then by gapping yield SVO - SO, which scrambling will make SOV - SO, or, alternately, since gapping is an "anywhere rule", scrambling can apply first to yield SOV - SOV which by gapping would become SO - SOV. German, which has the gapping patterns of Hindi and Turkish in its subordinate clauses, and the surface orders SVO and SOV (subordinate clauses), gives support to the analysis, since it must have the verb-inversion rule which Hindi and Turkish are hypothesized to have. Thus the claims (i), (ii), and (iii) constitute an explanatory hypothesis which engrosses all the facts of (2).

Now, what of Amharic? Amharic, like Hindi and Turkish also apparently an SOV language, similarly has, according to Bach [1970], both gapping patterns: SOV - SO, and SO - SOV. His examples are:

(3)  a. ወን ዓ-ማክינה, ዓን酡ձመ-_svg ያብ-ባብሱ ሥትት’افة. (SO - SOV)
    I by-car brother-my but by-train came-he
    'I came by car, but my brother by train.'

    b. ወን ዓ-ማክינה ሥትት’افة-ሹ, ዓን酡ձመ-_svg ያብ-ባብሱ. (SOV - SO)
    I by-car came-I brother-my but by-train
    'I came by car, but my brother by train.'
Amharic appears to be like Hindi and Turkish in having SOV surface structures and two patterns of gapping. Bach [1970:11] accepts Ross's chain of inferences and is led to the conclusion that Amharic is therefore not a deep SOV language. But he also observes that another conclusion is available, namely:

"It is false that deep SOV languages can only gap from right to left. If we draw [this] conclusion, then Ross's argument breaks down, and we must seek another explanation for the facts he presented, assumed here to be correct. Thus it is important to look for possible independent evidence about the deep order of Amharic sentences."

So Bach goes on to his other arguments.

But can we leave the gapping argument at this? Ross has presented an interesting theory of how facts about gapping might be explained. But the theory indulges in an uncommonly large degree of circularity. Its part (i) says that main constituent order uniquely determines gapping possibilities, and part (iii) says that all exceptions (Hindi, Turkish, and now Amharic) are due to a hypothetical rule of verb-inversion. Part (ii), which makes this possible, posits the existence of an "anywhere rule", which applies whenever it finds an ungapped but gappable string, but then only optionally.

In terms of such an explanatory theory the occurrence of two gapping patterns in Amharic does not reasonably constitute an argument for the existence of a verb-inversion rule. It rather tells us to hypothesize the existence of such a rule. The obligation is still completely on us to prove, on independent grounds, that the rule exists. This is true since the gapping theory itself is in need of substantiation which it can only gain by direct evidence that a verb-inversion rule is necessary in Amharic, or in Hindi or Turkish. The hypothesis itself cannot constitute evidence for the rule, especially when that hypothesis is based on as dubious a device as the "anywhere rule". However, if in our examination of Amharic we are unable to find any grammar-internal basis for treating the language as having other than deep SOV order, we concurrently do have evidence against Ross's theory of gapping.
Even if we accept the data on which Ross's theory is based (data brought into question by Dingwall [1969]), and allow the claim that the theory successfully explains the phenomenon of gapping in Subject-initial languages (a claim disproven, as will be seen below, in Sanders [1970]), there would still be no necessity to accept the theory itself. This is so because the facts about gapping explained by Ross's three claims can as adequately be explained with considerably less theoretical apparatus than that required by Ross.

The trick, recall, is to accomplish the following: (i) generate in SVO languages the gapped string SVO - SO, (ii) in some SOV languages the single gapped string SO - SOV, (iii) in other SOV languages the two possibilities SO - SOV and SOV - SO, (iv) in 'free word order languages' all three of these, (v) in every case to exclude the possibility *SO - SVO, and, of course, (vi) to do all this in a principled way. It seems, in fact, that there is a principle involved, a principle which has nothing to do with "anywhere rules" or with the linear order of deep structure.

Gapping reductions involve deletion of redundant verbs. Thus after reduction we have for all languages, excluding considerations of linearity, the string which can be represented ((S, (V, 0)), (S, 0)). There is only one verb in the string, but there are two objects. For all the languages in question here there is a general requirement that subjects be ordered first in surface structures (regardless of where and how in derivations such a condition is met). Now for SVO languages like English we can see that there is in addition either a 'verb second', or 'object last' condition on the order of non-subject elements in surface structures. For non-gapped sentences the result is the same when it is stated in either way: SVO. But if there were in these languages an 'object last' condition, this would predict the acceptability of the gapped surface structure SO - SVO, since this sequence fulfills such a condition. Since in fact such a string is prohibited, we may conclude that this class of languages has instead the 'verb second' condition. This requirement can permit only the gapped structure SVO - SO, since this possibility and not SO - SVO fulfills the condition of getting a 'verb second'. 
Similar reasoning leads to the conclusion that Japanese-type languages have, in addition to the 'subject first' condition, a 'verb last' rather than an 'object second' condition. The only pattern of gapping which this requirement would permit would be the occurring pattern for these languages: SO - SOV. SOV languages of the Amharic/Hindi type, however, permit either SO - SOV or SOV - SO; that is, they appear to make no consistent choice between either the 'verb last' or 'object second' conditions. The 'free word order' languages, as Ross agrees, involve a convergence of the other three types; hence, appropriately, they allow all three gapping patterns: SO - SOV, SVO - SO, and SOV - SO.

This reasoning leads to two conclusions: 'subject first' languages, for their second rule, choose between either the 'verb second' or 'verb last' condition on surface order. In addition, if they make the latter choice, this may be interpreted as an 'object second' condition for application to cases of gapped conjunction. Derivation is then as follows, after the 'subject first' constraint is met for the language types in question (as indicated by -).

\[
\begin{array}{|c|c|c|}
\hline
\text{Japanese} & \text{Hindi} & \text{English} \\
\hline
(S-(V,O)),(S-O) & (S-(V,O)),(S-O) & (S-(V,O)),(S-O) \\
\text{Verb second} & \text{does not apply} & \text{does not apply} \\
\text{Verb last} & (S-O)-(S-(0-V)) & (S-(V-O))-(S-O) \\
\text{Object second} & \text{does not apply} & \text{does not apply} \\
& \text{OR: } (S-0)-(S-(0-V)) & \\
\hline
\end{array}
\]

It will have perhaps been noted that one apparently ad hoc assumption has been necessary to make this simple 'theory' work: a 'verb second' condition may not be interpreted as an 'object last' condition in realizing the surface order of gapped conjunctions in SVO languages. This single ad hoc claim is necessary in order to have the theory fully engross the facts of (2). And there is no obvious reason why, when some SOV languages have a 'verb last' condition and others seem to have an 'object second' condition, SVO languages do not correspondingly have either a 'verb second', or 'object last' condition, but are limited to the 'verb second'
interpretation. (It is just conceivable that this gap could be accidental.)

At present I have no good explanation in support of this necessary but
ad hoc claim. It simply seems to express the facts. However, it is
important to see that, regardless of this problem, the theory of gapping
which makes this claim is, overall, no more elaborate nor any less
reasonable than Ross's theory. The two theories have the following
comparable parts:

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2 It seems to me that the combination subject-verb imposes considerably
greater limitation on possible objects (or complements) than the combi-
nation subject-object imposes on possible verbs. Thus 'John opened' is
quite sure to be followed by some openable, concrete object from a
relatively limited list. But conversely, the sequence 'John a box'
doesn't in a similar way limit the verb which follows. 'Sat on', 'opened',
'picked up', 'drew', and 'peered into' are almost equally possible, and
the list of possible such verbs is considerably more difficult to begin
to enumerate than the list of openable objects. This line of reasoning
may make sense only because it is based on examples from an SVO language,
English. But if it is basically correct, it would be reasonable that
once a language developed dominant SVO order, it could as a result develop
a dependence on the added redundancy that having the verb second permits.

For a language that does without this redundancy, however, e.g. an SOV
language, it cannot make much difference which of the two objects in a
gapped string comes second, or even whether the verb follows the first of
these objects directly (i.e., in the pattern SOV - SO), or brings up the
end of the sentence, as in the usual sentence (the pattern SO - SOV).
But this will not deny the possibility that a particular SOV language may
for basically stylistic reasons require the second of these two possibili-
ties (as in Japanese, though apparently even in that language the gapping
pattern SOV - SO doesn't have the ring of ungrammaticality that the pattern
SO - SVO has in English).

This is sheer speculation for the present, but seems to me to offer a
better line of research than the search for constraints on types of
transformations in languages of different main constituent order-types
(such as is carried on by Ross [1970], McCawley [1970], and Bach [1971])
constraints which, if they exist, will still probably require explanation
in terms of the communicative purpose of language.
(5) **Ross [1970]**

(i) Linear order of main constituents determines direction of gapping.

(ii) Some superficially SOV languages have SVO ordered deep structures, and an obligatory verb movement rule.

(iii) There are no surface SVO languages with SOV deep order, and a movement rule.

(iv) Gapping is an "anywhere rule".

**Alternative (as in (4))**

Conditions which establish surface order of main constituents determine direction of gapping.

Some SOV languages employ an 'object second' interpretation of their 'verb last' condition.

There are no SVO languages with an 'object last' interpretation of the 'verb second' condition.

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The two theories are quite parallel -- even to explaining things in near parallel terms -- up to the point where Ross posits the "anywhere rule". The alternative way of looking at gapping has no parallel for this claim. Nor does it require any parallel, since its claim (i) is maintained throughout, whereas Ross's claim (ii) allows for movement rules that would render his claim (i) inadequate if it were not for gapping's being an "anywhere rule"; i.e., basic and derived order of main constituents determine each a gapping pattern. Thus the movement rules are the weak link in the theory, necessitating the additional claim that gapping is an "anywhere rule". The existence of these movement rules is suspicious because of their absence in SVO languages, a fact attested in Ross's claim (iii). Ross himself [1970] has attempted, as have Bach [1971] and McCawley [1970], to discover some principle behind his claim (iii). A possible explanation for the necessity of claim (iii) in the alternative approach is given in footnote 2. However, it is sufficient for now to note that Ross's theory must fail anyway on account of the apparent fact (see below) that gapping cannot be an "anywhere rule". The alternative theory is consistent, however, with the discovery that gapping, like all conjunction reduction, is post-cyclic.

Sanders [1970] shows that gapping is just one aspect of the general process of conjunction reduction, which takes place after the position of
elements in surface structure is finally established. This is made clear by examples (except for 6b from Sanders [pp. 5-7]) such as:

(6)  
   a.  i. Nicholas drank vodka and Alexander water.
       ii. Vodka was drunk by Nicholas and water by Alexander.
   b.  i. Bees swarmed in the garden and gnats on the porch.
       ii. The garden swarmed with bees and the porch with gnats.
   c.  i. I like rice well-cooked and well-seasoned.
       ii. I like well-cooked and well-seasoned rice.

These sentences show that:

"If coordinative reduction operates on ordered structures, then all grammatical surface orderings in the language must be available for such operation and no re-ordering of constituents needs to be specified subsequent to it. Moreover, as evidenced by [6d-f], coordinative reduction, if it applies to ordered structures, not only can apply to surface orders alone, but in some cases at least, must apply only to such orders."  [Sanders 1970:5-6]

(6)  
   d.  i. John wrote a letter to the president, and Bill to the governor.
       ii. *John wrote the president a letter, and Bill to the governor.
   e.  i. John chased the dog, and Bill the cat.
       ii. *The dog was chased by John, and Bill the cat.
   f.  i. *I like well-cooked and rice well-seasoned.
       ii. *I like well-cooked rice and well-seasoned.

In (6d-f) three hypothetical movement transformations have applied after conjunction reduction, in (d) and (e) the gapping type of reduction in particular. All these cases resulted in ungrammaticality. The examples of (6a-c) show that conjunction reduction, including gapping, can be delayed until the post-cyclic stage, and the examples of (6d-f) that gapping can't apply before at least three transformations. Gapping does not appear to be an anywhere rule, and Ross's theory of gapping loses its mainstay. With it goes the ability of that theory to say anything about the deep order of Amharic main constituents.
A final comment on gapping: the gapped Amharic sentences of (3) are not freely occurring sentences of the language. Two Amharic speakers to whom I showed these sentences differed in their judgements of them. One remained unhappy with both; another accepted both, but after some puzzle-ment. It would be useful to have relatively unusual sentences of this sort judged by complete monolinguals, since we have little idea of how knowledge of another language might affect the judgements of bilinguals. It may not be just coincidental that the gapped sentence (3b), whose existence Bach considers to contradict the surface order of Amharic, is the sort that occurs in English, the language most likely to influence present-day Amharic, and certainly the idiolect of Bach's informant.

b. Genitives and relative clauses. The first independent argument that Amharic is a VSO language begins with two observations: (i) possessor-possessed phrases in Amharic are introduced by the prefix ይኢ, which is identical to the verb prefix which marks relative clauses; (ii) such possessive phrases are "presumably derived by reducing relative clauses with 'have' constructions..." [Bach 1970:12]. Thus (7a) and (7b) below are paraphrases:

(7)  
    a. ይIGH-መ ከ  'my house'  
        of-I house  
    b. (መ) ይ-ስለ-ን ከ  'the house that I have'  
       ( I ) of-is (to)me house  

As an indication that these two ይIGH's are lexically identical it can be shown that both are deleted (or, at least, do not occur) after any other prefix. For example:

(7)  
    c. ቅ-መ ከ  'at my house'  
       at-I house  
    d. *.Designer-መ ከ  
       at-of-I house  
    e. (መ) ቅ-ስለ-ን ከ  'at the house that I have'  
       ( I ) at-is (to)me house  
    f. *(መ) ቅ-ስለ-ን ከ  
       ( I ) at-of-is (to)me house
The rule disallowing Ḣē in this environment is not phonologically conditioned, but seemingly refers specifically to Ḣē as a prefix; Bachi notes the phrase Ḣē-ḪeK at 1 'of (the month of) ḤeK at' in which the phonological syllable Ḣē follows a prefix but is not deleted. He proposes a derivation of possessive phrases as below from relative clauses with the clause in VSO order; derivation of the unreduced clause is also illustrated in (8):

(8)

```
    P-marker
     ___
    /    /
   S   N
  /     /
P  S   bet
     /
    Ḣē alḪān ṣene bet
```

**Derivation**

(a. Genitive phrase)

```
NP    S
[ Ḣē [alḪān ṣene bet] bet ]
```

(b. Relative clause)

```
NP    S
[ Ḣē [alḪān ṣene bet] bet ]
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<table>
<thead>
<tr>
<th>NP deletion</th>
<th>Ø</th>
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</thead>
<tbody>
<tr>
<td>Copula deletion</td>
<td>Ø</td>
</tr>
<tr>
<td>Ḣē-attachment</td>
<td>Ḣē-ṣene</td>
</tr>
<tr>
<td>Verb-shift</td>
<td>does not apply</td>
</tr>
<tr>
<td>Ḣē-ṣene bet</td>
<td>ṣene Ḣē-Ḫānl</td>
</tr>
<tr>
<td>of-I house</td>
<td>I of-'have'-I house</td>
</tr>
<tr>
<td>'my house'</td>
<td>'the house that I have'</td>
</tr>
</tbody>
</table>

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3That the mme of Ḣamme, the full relative marker with Amharic imperfect verbs, remains when Ḣē is deleted shows that Ḣamme is Ḣē + mme, a further sign that the Ḣē which marks relative clauses is a preposition. Loss of a Ḣē syllable occurred in an earlier stage of Amharic, cf. verbs such as ḤeK Ḧa 'go' < kāyāḏā; qāṛā ḨeK 'remain' < qārāyā. The modern rule Ḣē→Ø/Prep could be a remnant of this formerly phonologically conditioned deletion. [Leslau 1968: sections 71, 75]
This manner of derivation requires a "rule of copula deletion, a rule attaching yä to the next element to the right -- call it yä-attachment -- and, of course, Verb-shift, a rule putting the verb form at the end of the clause, applying in that order". The derivation of a genitive construction from reduced relative clauses in an SOV ordered structure, Bach says, requires

"two rules for yä-attachment, one affixing it to a verb at the end of the clause, if there is one, otherwise to the first element in a noun phrase... What we miss in this analysis is the generalization that yä is attached to the next lexical element, no matter what it is, and since we have two rules, we fail to explain the identity of the two elements in the two rules." [1970:13]

Let us grant that Amharic relative and genitive yä prefixes are in some fundamental sense identical; the homophony and the independence of the reduced relative clause analysis of genitives which can connect them up make this reasonable. Still, Bach's first argument for VSO structure fails, The derivation illustrated in (8) is said to have a certain advantage. What this comes down to is the assertion that the verb first structure allows a single rule of yä-attachment for both relative clauses

"All the Amharic prepositions, including those which function as subordinating conjunctions, pattern like bä and yä. The clitics which mark adverbial clauses are, like the prepositions, prefixed to verbs. The following examples with endä- 'like', 'as' are typical (from Bach [1970:18]):

a. yohannes endä-abbaṭu gäzzä
   John like-father-his ruled-he
   'John ruled like his father'

b. yohannes abbaṭ-u endä-gäzza gäzza
   John father-his like-ruled-he ruled-he
   'John ruled like his father ruled'

The generalization about Amharic grammar which correctly accounts for the distribution of yä and bä will therefore handle all these.
and genitive constructions. That is, in the VSO relative clause, yā is always attached "to the next element to the right". If the verb is deleted, that next element is the noun phrase destined to become a genitive or possessor. If the verb remains in an unreduced relative clause yā is attached to it, and the rule of Verb-shift carries yā along when the verb is positioned at the end of the clause.

However, the advantage of positing a single rule of yā-attachment is also present in the derivation from an SOV ordered structure, if we simply order attachment after the rule which the SOV analysis has in lieu of Verb-shift: a rule which for the present can be called 'yā-shift'. This rule moves yā and puts it before the verb of a relative clause. Since the point is important, the SOV derivation comparable to (8) is illustrated in (9). The necessary rule of verb agreement is irrelevant, and has been assumed in both (8) and (9).

(9)

```
P-marker
     /\  
    /   
 NP  N
    /  
   /   
 S  S
  /  |
 yā  Ωene bet allān
```

**Derivation**

<table>
<thead>
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<th>a. Genitive phrase</th>
<th>b. Relative clause</th>
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<tr>
<td>[ yā [Ωene bet allān] bet]</td>
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</tr>
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<td>Ø</td>
<td>does not apply</td>
<td>Ωene yā allān</td>
<td>yā-allān</td>
<td>Ωene yā-allān bet</td>
<td>I of-'have'-I house</td>
<td>'the house that I have'</td>
</tr>
</tbody>
</table>
The number of transformations and the apparent complexity of their operations is precisely the same in (8) and (9). Yā-attachment in both cases says: 'Attach yā to the next element to the right'. Thus the identity of relative and genitive yā is expressed in the same way in both.

At this point we have two approaches which are fundamentally different only in (i) deep order of main constituents -- the point at issue -- and (ii) in the element moved by transformation: if we begin with the order VSO (we may call this the abstract analysis) a rule of Verb-shift is required, and if we begin with SOV order (the concrete analysis), a rule of yā-shift.

c. **Preposition attachment.** Additional arguments for Amharic as a VSO language are said to "converge on the conclusion that there would be a rule of Verb-shift". The first of these concerns the attachment of prepositions in noun phrases. The prepositions may be attached to the first of a series of simple modifiers which precede their head noun, or to the verb of a relative clause, and otherwise to the noun itself. Bach's examples [p. 12] are:

(10)  a. yā-yohannes bet 'John's house'
     b. bā-yohannes bet 'at John's house'
     c. (ene) yā-ayyā-hu-t bet 'the house that I saw'
        ( I ) of-saw-I-it house
     d. (ene) bā-ayyā-hu-t bet 'at the house that I saw'
        ( I ) at-saw-I-it house

He says:

"Under [the VSO analysis] we need only assume that [the rule of yā replacement required by the examples of (7)] applies after yā-attachment and before Verb-shift in order to get examples like [10b] and [d]. The preposition will then be shifted along with the verb. Consider the alternative under [an SOV analysis]. Once again it would be necessary to split the rule into two cases, one for immediately adjacent instances of yā, the other for yā which is attached to the verb at the end of the sentence." [1970:12]
But, as in the previous argument, this fails to recognize that in number of operations the alternatives are completely equivalent if under the concrete analysis ýä-attachment is ordered after the movement rule. Under the concrete analysis derivation begins with a structure like (11):

(11)
```
PP
  P      NP
    S     N
      P
        S
          ýä
            ...
```

That is, underlying (10b), the string:

(12) a.  [bā [ [ ýä [yohannes bet allāw] bet ] ]  
P  NP  S  S
      at  of  John  house 'has'-he  house

Or, for (10d):

(12) b.  [bā [ [ ýä [êne bet ayyā-hu-t] bet ] ]  
P  NP  S  S
      at  of  I  house  saw-I-it  house

From (12a), which yields (10b), if the copula allāw is deleted, we get:

(13) a.  bā ýä yohannes bet

From (12b), the input for (10d), without verb deletion, we get:

(13) b.  (êne) bā ýä ayyāhut bet

In each case with the SOV analysis we need a rule stating that when the verb remains, prepositions (including ýä) are attracted to it. That is, rather than ýä-shift in lieu of Verb-shift, we must speak of Preposition-shift. In the derivations of both (10b) and (10d), after Prep-attachment the rule of ýä-deletion discussed above in connection with the examples of (7) applies:

(14) ýä → φ / Prep— X
Under the abstract analysis we have Verb-shift, and under the concrete analysis Prep-shift, or Prep-attraction. There is no discernible difference in number of transformations or in their complexity. The next section concerns Bach's claim that indeed Preposition-shift suffers from a fatal complication.

d. **Does Prep-shift require logical quantification?** Next, let us consider the claim that "there is a stronger argument against the [SOV analysis]" [Bach 1970:13]. This concerns a purported violation by the concrete analysis of the constraint against logical quantification in transformational rules. Imagine, begins the argument, derivation of the phrase which would translate 'at the house of the man that I saw'.

(15) (one) bā-ayyāhut sāwye bet
( I ) at-saw-I-it man house

This involves "a noun phrase [which] contains a relative clause inside a relative clause...the outer relative clause is reduced by Copula deletion, and further...the whole noun phrase stands in a prepositional phrase" [ibid]. The tree diagram (16) illustrates the SOV ordered structure in question.

(16)
After the obligatory identical noun deletions indicated in (16) we should derive (17).

(17) (ene) yä-ayyāḥut sawye bā-allāw bet
   (I) of-saw-I-him man at-'has'-he house
   'at the house that the man that I saw has'

(17) is derived just in case the copula allāw in the higher clause (S₂) is not deleted. However, in the case in question allāw is deleted in S₂ in order to derive the shorter phrase (15). As Bach correctly observes, the rule that must move yä or other preposition to a verb may be stated unconditionally in the S₁ cycle only when that verb is the clause-final element. But in (16) when allāw is deleted in S₂ other material will stand between the righthand clause-boundary and the verb ayyāḥut of S₄ to which the prepositions including yä must now be attached. And that material is of theoretically infinite length. In (15) the moved preposition needs to step over only the simple noun sawye, but that noun potentially can be modified by an indefinitely long string of adjectival and other simple modifiers; for example, instead of ene bā-ayyāḥut sawye bet 'at the house of the man that I saw', we might have the string underlying 'at the house of the tall, thin, important... man from Kenya that I saw': ene bā-ayyāḥut rāj̄jem, qēčč'en, telleq... yä-Kenya sawye bet. Such an example is just to illustrate Bach's point that the rule of preposition movement which the concrete analysis requires is "impossible to state as a transformation (in Chomsky's sense), since it is necessary to use logical quantification in the part of the structural description corresponding to the phrase 'the last [=rightmost] verb form in the... clause [of the cycle in process]':... [ X Verb Y ] NP ... where there is no verb in Y" [ibid, p. 14]. Therefore, it does seem that if we want to maintain the constraint against logical quantification in transformational rules, we must rule out the rule of Prep-shift. Unless we can find a way to avoid the necessity of logical quantification in the rule, we have cause to reject the SOV analysis of Amharic deep main constituent order which employs that rule. Fortunately, such a solution does exist. By way of introduction to that discussion, let us first note a necessary condition on the rule of
Verb-shift, the rule which the abstract VSO analysis of Amharic requires instead of Preposition-shift.

The rule of Verb-shift has to be last-cyclic. Last-cyclic application is necessary for this rule in the cases of VSO ordered structures such as underlie (15), in which one of the verbs can be deleted, or in which both yā and a preposition precede one of the verbs. Diagram (18) illustrates the VSO ordered structure which parallels (16) and underlies (15) and (17) in the VSO analysis of Amharic:

(18)

```
          PP
           ↑
        P     NP
        ↑     ↑
      bā    bet
        ↑     ↑
      S1     S2
        ↑     ↑
      P     NP
      ↑     ↑
    yā     bet
      ↑     ↑
    VP     S3
      ↑     N
    S4     bet
      ↑     ↑
    S3     N
      ↑     ↑
    N     bet
      ↑     ↑
  ayyāhuṭ  sawye
      ↑     ↑
    V     NP
      ↑     N
    VP     sawye
      ↑     ↑
    S4     N
      ↑     ↑
    N     sawye
      ↑     ↑
  one     Ø
```

In (18), if the copula allāw is deleted, the yā at its left in S₁ as well as bā should be attached to the verb of S₄ in order to give the correct result in (15). Recall that Prep-attachment in the VSO analysis simply attaches a preposition to the item to its right. But if Verb-shift has applied cyclically, in the S₄ cycle ayyāhuṭ will have moved to the right of its clause, stranding the yā of S₃. Similarly, if the copula of S₂ is not deleted in order to derive (17), cyclic application of Verb-shift in that cycle would move allāw to the right, now stranding
the ūə of $S_1$. The preposition of the higher cycle, bă, in the VSO analysis is supposed to be attached, on its cycle, to ūə -- and hence to allāw where it remains; and if allāw is deleted, to ūə of $S_3$ -- and hence to ayyāhū† where it belongs in the derivation of (15). Now if Verb-shift is a cyclic rule, bă will be unable to simply attach to the right. (Note that the problem of stranding will remain for bă even if we make ūə a sister of the NP and VP of subordinate sentences. Bach has posited the $S_1$ and $S_3$ nodes, and since ultimately nothing is at issue in this, I have retained them here.)

The way to solve this little problem is to make Verb-shift last-cyclic, as Bach has noted [1970:16]. In each cycle Prep-attachment will apply after deletion rules uniformly and at once whenever its structural description is met; last-cyclic Verb-shift will then move just the right prepositions: those attached during earlier cycles to verbs. So, last-cyclic Verb-shift saves the day for the VSO analysis of Amharic. It is worthy of a passing observation here that, when we succeed in rejecting the VSO analysis of Amharic, we also show this seemingly necessary employment of the notion of last-cyclic rules to be unnecessary.

Bach sees the necessity that Verb-shift be last-cyclic as no particular drawback to the VSO analysis, but suggests that this necessity is reasonable "since rules like Verb-shift in many languages seem to act differently in dependent and independent sentences. Thus in German verbs occur at the end of the sentence in dependent clauses, and in English only non-embedded questions have inversion, and so on" [ibid].

If Verb-shift in the VSO analysis of Amharic can be made workable by last-cyclic application, we should consider whether a similar solution is available for the problem with Prep-shift in the SOV analysis. In fact, with addition of one condition, it is. Notice, in the SOV ordered structure (16), that a last-cyclic rule which combines Prep-shift and Prep-attachment in a conjunctively ordered sequence can assure correct derivation of (15) or (17) as follows:
Working from left to right on the string at the bottom of (16), the preposition bä does not meet the environment of the rule of Prep-shift, having no verb as the right-most member of the Prep-phrase cycle, and undergoes Prep-attachment, being attached to the item to its immediate right, the yä of S₁; now, these two combined (bä-yä) when the copula in S₂ is not deleted, meet the environment of Prep-shift and are prefixed to alläw (bä-yä-alläw). If alläw is deleted in order to derive (15), the environment of Prep-shift fails and the sequence bä-yä is attached to the item to its right, the yä of S₃, which with bä-yä prefixed meets the environment of Prep-shift, and is moved over and prefixed to the verb of S₄, yielding bä-yä-yä-ayyähu. And this, by two applications of Prep-deletion (rule (14)), gives the correct output bä-ayyähu. (In a slight variation we could say that the rule of Prep-deletion is a persistent rule deleting any yä- /Prep-- as soon as the sequence occurs, so that we never get anything but one preposition shifted at a time.)

In this way the SOV analysis of Amharic gives the right results without violation of the constraint against logical quantification in transformations. The disadvantage of this solution is, however, the necessity that Prep-shift and Prep-attachment apply conjunctively from left to right in the last cycle. In positive terms, the advantage of the VSO analysis is that its rules of Prep-attachment and Verb-shift apply straightforwardly, though Verb-shift must be last cyclic.

In fact, there is a way to bring about a solution with SOV ('concrete') ordered structures that does not require the extraordinary left to right condition on application of Prep-attachment and Prep-shift. This solution has nothing to do with last-cyclic application of rules, or the linear sequence of items in the structural description of transformational rules. Before turning to discuss this solution, however, it is possible to finish
up the consideration of Bach's argument that Amharic is a VSO language. His final syntactic argument is too sketchily drawn to permit an accurate counter-argument, but it does not appear to accomplish anything that the SOV grammar constructed above does not also accomplish. Let me go on to two other points which he makes, 'explanatory' arguments, which will perhaps be very persuasive to some linguists: one concerning naturalness in syntax, and one concerning a historical development in Amharic.

e. **Syntactic naturalness.** Bach has argued that an SOV analysis will not work, though we have seen that it does, if awkwardly. Perhaps ultimately more important is his criticism that the solution which an SOV analysis of Amharic requires is not 'natural', since it employs a movement rule of a sort which seems not to occur in languages, moving a clitic to an "arbitrarily far removed and deeply embedded item" [1970:14]. Here recall that the revised, last cyclic rule of Prep-shift does not involve movement to a "deeply embedded item", but rather to a verb as the rightmost item of the clause. The objection on grounds of naturalness can only remain, then, an objection to moving a preposition rather than a verb (to an "arbitrarily far-removed item"). The VSO analysis requires moving a verb an arbitrary distance, but such movement is said to be clearly necessary in languages such as German, in which "we must either assume that the verb is positioned as in English and have a rule moving it to final position in subordinate sentences or assume it is given initially in end position and shift it to the second position" [ibid]. This conceivably could be the strongest argument yet in favor of Amharic as a VSO language, though, as Bach admits, in the absence of better ideas about naturalness in syntax, it is not, for the time being, a strong one. There are two obvious counter-arguments.

The first of these parallels the non-naturalist position in recent controversy in phonology, namely: if Amharic illustrates an unusual situation, ought it not be described by an unusual (i.e., 'un-natural') rule? The second counter-argument is a naturalist argument; it simply observes the fact that the surface order VSO never occurs in Amharic,
and asks the question: 'What could be more unnatural than deep linear order which never has surface realization?'

Moreover, looking at Amharic from a different perspective permits a different line of thought about what is unnatural about Amharic. This is not the fact that it has an SOV order of main constituents; many languages have this order — and there is no logical reason for believing that this order is any less natural or more marked than the orders SVO, or VSO (if these three are indeed less marked than OSV or OVS order). What is odd, and problematic about Amharic is its failure, as noted by Schwartz [1971], to indicate the beginning of an embedded sentence. Others [Dawkins 1969:87-88 and Ullendorff 1965:8-9] have commented on the complexity of Amharic syntax, without noting this specific cause. Since there is nothing illogical about SOV order, it is not reasonable to suppose that the learner of Amharic, child or otherwise, is obligated to abduce an underlying VSO order, with a verb-movement rule, in order to overcome the real perceptual problem — the non-clause-initial position of the subordinator ḳē and the prepositions which replace it. A rule of verb-movement can only indirectly express this vagary of Amharic syntax, by saying that the subordinators get moved out of logically desirable position by virtue of being prefixed to the verb. Why would not a learner simply treat the problem at its source, and abduce a rule moving just the subordinators, provided the rule can be made explicit? This rule of preposition movement will express the vagary directly.

f. Historical considerations. The historical argument that Amharic is a VSO language begins with the observation that "Comparative Semitic evidence alone would lead us to conclude that the Ethiopic Semitic languages have undergone a syntactic change and that originally the verb was positioned at the head of the sentence" [Bach 1970:19]. It is commonly believed that Ethiopia is an area of Semitic intrusion (ca. 1000-700 B.C.) from South Arabia into a region of north-east Africa where the substratum was Cushitic, a family which today exhibits SOV syntax. VSO order is common in earlier Semitic — typically in Ge'ez, and in Classical Arabic and Biblical Hebrew, for example. Many peculiarities of Ethiopian Semitic relative to common
Semitic have been explained as due to the influence of Cushitic. A hypothesized change in Amharic from VSO to SOV can be (and has been: Lslau [1945:73]) similarly explained. Bach recognized that the question cannot be left at this point, since what is of interest is not only why, but by what mechanisms in the grammar could such a fundamental change come about. The addition of a single rule, verb-movement, as a late (in fact, last cyclic) rule is the best hypothesis, he suggests.

Even if it was apparent that Proto-Ethiopian Semitic was a VSO language, the conclusion would not follow either (i) that SOV syntax results originally from addition of a verb-movement rule, of (ii) that a later generation of Amharic speakers would be able to abduce such a movement rule in the face of nothing but SOV ordered observable sentences. Again a parallel with controversy in phonology is clear, and the conclusion has been anticipated. The ultimate concern of linguistic description is the psychological reality of a grammar rather than the form which directly reflects historical developments. It is only be determining what is psychologically real that what is truly natural can be determined in a non-circular way; and while some such circularity cannot be avoided, it has to be recognized that the theory of generative grammar is at present strong enough to make many descriptions conform to preconceptions of naturalness based largely on diachronic considerations.

3. Amharic as the near mirror-image of a VSO language

At this point it is clear, perhaps, that there is not a lot of difference between the VSO and SOV analyses of Amharic; and the choice between them is not obvious. Both are completely workable, and criteria of naturalness and language history are too ambiguous to permit a choice. The VSO analysis is somewhat preferable on grounds of elegance, since Amharic as an SOV language requires an unusual condition on its rules of Prep-attachment and Prep-shift. But, as Bach was forced to recognize [1970:16], this advantage which the VSO analysis holds, will have to be shared with its near mirror-image (Bach refers to it as a mirror-image, but an actual mirror-image of VSO order is OSV, rather than SOV). The advantage of the abstract analysis derives from having prepositions
including yā immediately next to the verbs to which they attach, and this advantage is also present if we set up "underlying structures which are exact [sic] mirror images of those we have posited; that is, we assume verb end order, but place the relative clause after the noun phrase that it modifies, and let yā and prepositions follow" [Bach 1970].

(19)

"In this way," Bach goes on, "we avoid the necessity of a Verb-shift rule, but we are forced to give a rule for preposing prepositions" [ibid]. There is also an added necessity for a rule preposing relative clauses. In order to maintain the superiority of the VSO analysis it was necessary for Bach to give arguments against structures like (19). Two are given: (i) two rules are necessary to get the relativizer yā in the right position, one to move it before a noun in cases where the verb has been

---

5Bach neglects this problem since he believes that relative clauses might, indeed, be postposed in Amharic deep structure. He refers in two places [1970:16,19] to Amharic relative clauses acceptable to his informant which are positioned after their head. Such clauses are, to say the least, most extraordinary.
deleted (säwe-yä → yä-säwe 'of the man'), and another to move it before the undeleted verb (säwe alläw-yä → säwe yä-alläw 'that the man has'); (ii) the second argument against (19) is that "under the [VSO analysis] we have a 'natural' explanation for the fact that yä is a prefix, whereas under the [near mirror-image] hypothesis it is simply an accident" [1970:17].

The latter argument against the 'near mirror-image of VSO' analysis, if it has any validity, can be paraphrased and used against the VSO analysis itself: under an analysis with SOV ordered deep structures we have a 'natural' explanation for the fact that the verb is last in Amharic surface structures, whereas under the VSO hypothesis this is simply an accident. As for the former argument, there is no reason to my knowledge why the two cases of "prepositioning" cannot be collapsed into one: namely # X-Prep # → # Prep-X #. As a matter of fact, derivation from (19) is almost as efficient as that from a VSO ordered structure like (18). The point is important, since it reveals the exact nature of the advantage which the VSO analysis holds, and also further underlines the element of arbitrariness in selection among different deep orders of constituents. Therefore derivation of (17) from (19) is illustrated below. Deletions and Prep-attachment are cyclic. Prep-deletion is the mirror-image of the previously discussed, persistent rule version in (14). Two post-cyclic rules are needed: Relative clause preposing, and Prepositioning. (19b) shows the result from (19) after identical noun deletion, and Prep-attachment. (19c), then, is from (19b) by Relative clause preposing and Prepositioning. (19c) underlies (17). If the copula alläw is deleted in S₂, bä will be attached in (19b) to the next item to the left, yä of S₄. At this point Prep-deletion applies, deleting yä and permitting derivation of the shorter phrase (15): ņe bä-aYYahuṯ säwe be† 'at the man I saw's house'.

This manner of derivation, even though it requires two last cyclic rules of movement, might even find support in the fact that the two clitics bä and lä which generally function as prepositions, also frequently do occur postposed on verbs where their heads are anaphoric pronouns:
(19) b. PP
   NP
   N bet
   NP S2 VP
   NP N S4 V VP
   N adj V
   adj V P allaw
   adj V P bā
   adj V yā
   adj V ayyahut

(19) c. PP
   NP
   S2 N
   NP N S4 V VP
   NP V sāwye
   adj V P bā
   adj V allaw
   adj V yā
   adj V ayyahut

allā-bbā-t 'is present-in-it'; lakā-llā-n 'sent-to-me'. This analysis of Amharic deep constituent order has the advantages that it (i) permits the SOV order of main constituents in deep structure, (ii) avoids, if this is assumed undesirable, a rule moving a preposition an arbitrary distance, and (iii) still expresses in a direct way the perceptual difficulty brought about in Amahric by the surface position of the clause subordinates: affixed to verbs and hence deeply embedded in the clause. The
The difficulty here would be attributed to a phrase structure rule which at the deepest level of syntactic structure postposes these items on dependent clauses.

We now have three analyses to choose among: (i) the totally concrete analysis, with SOV order, pre-posed relative clauses and prepositions; (ii) the semi-concrete analysis, with SOV order with post-posed clauses and postpositions; and (iii) Bach's abstract analysis, with VSO order, pre-posed clauses and prepositions. The VSO analysis requires a post-cyclic rule of Verb-shift. The semi-concrete analysis requires two last-cyclic rules applying in any order. Finally, the totally concrete SOV analysis requires two last-cyclic rules ordered conjunctively and applying from left to right. The semi-concrete analysis seems somewhat superior in generality to the totally concrete SOV analysis, and slightly less general than the VSO analysis.

3. **Amharic as an SOV language**

The superiority of the VSO analysis lies in the generality of its rule of Prep-attachment: prepositions always attach to the item to their right. The inferiority of the concrete SOV analysis lies in two things: (i) the left to right condition on application of its rules of Prep-attachment and Prep-shift, and (ii) the condition that its rule of Prep-attachment come, whenever applicable, after the rule of Prep-shift. For a moment let us focus on the latter problem. The rule, with its two conjunctively ordered cases, may be given as:

\[
W [ \_{i} \ \text{Prep} \ X \ Y ]_{i} Z \\
1 \ 2 \ 3 \ 4 \ 5 \\
\text{where } Y = V \\
\begin{cases} \ 1 \ 3 \ 2-4 \ 5 \\
1 \ 2-3 \ 4 \ 5 \end{cases} \text{ otherwise}
\]

If these two rules could be reversed, and the second, 'otherwise' case of (20) made cyclic, we would have a solution with SOV ordered deep structure completely comparable to that with VSO order. That is, we want Prep-attachment to apply cyclically in just those cases where the last-cyclic rule of Prep-shift will not apply. In other words, all 'true' prepositions, and the subordinators (yä and others) whose verbs have been deleted should attach to the next item to their right.

Now note that the class of prepositions which should undergo Prep-attachment, 'true' prepositions and the subordinator yä in cases when
the copula is deleted, share a common feature. 'True' prepositions always occur in the configuration (21a), where X may be null. And in a clause from which the copula and an identical noun have been deleted (a reduced relative clause), yā remains in the very similar configuration (21b), as sister to an NP.

(21)  a. 
P 
PP
NP
X
NP
b. 
S
P
NP
X
NP

This reveals that the rule of Prep-attachment, if ordered after copula and identical noun deletion may be stated as follows:

(22)  W [ Prep [ X NP ] Z
____ NP ______
 1 2 3 4 5  \implies  1 2-3 4 5  where X may be \emptyset
and 2-\emptyset 4 4 = 2-4

Prepositions attach to the item to the right just when their sister is a noun phrase -- whose rightmost item is a noun or another noun phrase. Since, however, except for cases derived through conjunction reduction, all rightmost nouns or noun phrases can have only one sister -- a sentence or sentence derived modifier, the result of applying Prep-attachment by rule (22) will be as in (23): (23a) by rule (22) becomes (23b).

(23)  a. 
P 
PP
NP
X
NP
\ldots
b. 
P 
PP
NP
X
NP
\ldots

The preposition is Chomsky-adjointed to X. Thus, for the structure underlying an Amharic phrase of the sort in question, yohannes bā-ällāw bet 'at the house (that) John has', application of rule (22) to (24a) gives (24b):
(24) a.  
\[
\begin{array}{c}
\text{PP} \\
\text{P} \\
\text{NP} \\
\text{bä} \\
\text{S} \\
\text{N} \\
\text{bet} \\
\text{NP} \\
\text{VP} \\
\text{yä} \\
\text{N} \\
\text{V} \\
\text{yohannes} \\
\text{alläw}
\end{array}
\]  
\[
\begin{array}{c}
\text{PP} \\
\text{NP} \\
\text{S} \\
\text{S} \\
\text{bet} \\
\text{NP} \\
\text{VP} \\
\text{yä} \\
\text{N} \\
\text{V} \\
\text{yohannes} \\
\text{alläw}
\end{array}
\]

Prep-attachment to the right, which requires that the preposition be sister to a noun phrase, will no longer apply in (24b), but there are two prepositions which should undergo Prep-shift. The rule of Prep-shift can now be recognized as applying only when the right sister of a preposition is a sentence. The rule of Prep-shift may now be written as in (25):

(25)  
\[
W \left[ \text{Prep}\ [ X \ V ] \right] Z
\]
\[
\begin{array}{cccccc}
1 & 2 & 3 & 4 & 5
\end{array}
\]  
\[=\Rightarrow 1 \ 3 \ 2 \ 4 \ 5\]

Prep-shift applies in a configuration like (26a), to yield a configuration like (26b), which by tree-pruning becomes (26c):

(26) a.  
\[
\begin{array}{c}
\text{S} \\
\text{P} \\
\text{S} \\
\text{S} \\
\text{S} \\
\text{P} \\
\text{X} \\
\text{V}
\end{array}
\]  
\[
\begin{array}{c}
\text{S} \\
\text{S} \\
\text{S} \\
\text{S} \\
\text{S} \\
\text{S} \\
\text{X} \\
\text{V}
\end{array}
\]  
\[
\begin{array}{c}
\text{S} \\
\text{S} \\
\text{S} \\
\text{S} \\
\text{S} \\
\text{S} \\
\text{X} \\
\text{V}
\end{array}
\]

The structure given in (24b) includes one environment for the rule of Prep-shift as formulated in (25), at S₂, and another at S₁. If Prep-shift applies first on yä of S₂, we get (24c) which via tree-pruning becomes (24d). (24d) still has an environment for Prep-shift at S₁ which applies to yield (24e). Again tree-pruning applies resulting in (24f), from which yä is deleted by rule (14).
It may seem that there is a problem in structures like (24b) where there are two environments requiring Prep-shift, and a necessity that they apply in a cyclic (lower environment first) manner. Counter-cyclic intrinsic order is necessary in order for Prep-attachment in the highest cycle to provide an input for Prep-shift in the $S_1$ cycle (as in (24b)) from (24a)). But if these rules apply simultaneously, this difficulty need never arise, and, regardless of how deeply embedded configurations like (24) are, the two rules of Prep-attachment and Prep-shift will apply
simultaneously and persistently, resulting in an intrinsically ordered sequence giving the right output. No statements about cyclic or non-cyclic application are required; the rules apply wherever and whenever their environments are met as the result of either the phrase structure rules or previous transformations.

With this formulation of the two rules determining the position of the prepositions, we achieve a grammar of Amharic with fully concrete SOV ordered deep structures which is surely quite as efficient as that with VSO ordered deep structures. Both have a simple, straightforward rule of Prep-attachment, and a straightforward rule of movement: the VSO grammar moves a verb, and the SOV grammar a preposition. Thus the SOV grammar duplicates the VSO grammar in every significant detail except for the linear order of main constituents in deep structure. The VSO analysis could now be rejected on the simple grounds of naturalness, since it posits a deep order of constituents which never occurs in surface structures, and for no gain in any other part of the grammar.

The VSO grammar is also slightly inferior in generality to the SOV analysis, as measured by conditions necessary on the application of its transformations. The SOV grammar's rules of Prep-attachment and Prep-shift are ordered only intrinsically with respect to one another, and there is no necessity to speak of last-cyclic rules or their cyclic application. Intrinsic ordering, and persistent rules, such as have been found to express the complex embedding of Amharic prepositions in the grammar with SOV ordered deep structures, are certainly more general, hence more highly valued than extrinsic ordering, and cyclic/last-cyclic application of rules.

Intrinsically ordered syntactic rules are perhaps uncommon enough to require further illustration of how they work in this case. In a configuration like (27a), which underlies the phrase yohannes bā-allāw be† 'at the house that John has', we have environments both for Prep-attachment and Prep-shift, for Prep-attachment directly under PP, and for Prep-shift under S₁. Thus, if the rules are unordered extrinsically, either can apply, or both. Prep-attachment will apply to give (27b), and Prep-shift to give (27c). Simultaneous application results in (27d). (27d) has a
derived input for a second application of Prep-shift under $S_1$, the output of which is (27e). Prep-deletion then applies to give the final output (27f):

(27)  
\[
\begin{align*}
\text{a.} & \quad \text{PP} \\
& \quad \text{NP} \\
& \quad \text{b.} \\
& \quad \text{PP} \\
\left( \begin{array}{c}
\text{bä} \\
\text{S}_1 \\
\text{N} \\
\text{yä} \\
\text{NP} \\
\text{VP} \\
\text{yohannës} \\
\text{allow}
\end{array} \right) \\
\Rightarrow \quad \left( \begin{array}{c}
\text{S}_1 \\
\text{bet} \\
\text{yä} \\
\text{NP} \\
\text{VP} \\
\text{yohannës} \\
\text{allow}
\end{array} \right) \\
\text{c.} \\
\text{d.} \\
\left( \begin{array}{c}
\text{bä} \\
\text{S}_1 \\
\text{N} \\
\text{NP} \\
\text{VP} \\
\text{yohannës} \\
\text{P} \\
\text{V} \\
\text{yä} \\
\text{allow}
\end{array} \right) \\
\Rightarrow \quad \left( \begin{array}{c}
\text{S}_1 \\
\text{bet} \\
\text{yä} \\
\text{NP} \\
\text{VP} \\
\text{yohannës} \\
\text{P} \\
\text{V} \\
\text{yä} \\
\text{allow}
\end{array} \right) \\
\text{e.} \\
\text{f.} \\
\left( \begin{array}{c}
\text{S}_1 \\
\text{NP} \\
\text{VP} \\
\text{bet} \\
\text{yohannës} \\
\text{P} \\
\text{V} \\
\text{bä} \\
\text{allow}
\end{array} \right) \\
\Rightarrow \quad \left( \begin{array}{c}
\text{S}_1 \\
\text{NP} \\
\text{VP} \\
\text{bet} \\
\text{yohannës} \\
\text{P} \\
\text{V} \\
\text{bä} \\
\text{allow}
\end{array} \right)
\end{align*}
\]
There remains one small difficulty. Note that Prep-shift applying in (27d) must not fail to adjoin bā at the higher of the two V's which fulfill the environment of Prep-shift, the lower of which dominates only allāw. If bā were adjoined to the lower V, we would get the sub-tree (28), which would not undergo Prep-deletion, besides being logically wrong:

(28)

There are a couple of obvious ways to prevent this, the best of which is, for now, to assume the convention that a Chomsky-adjointed sequence including a bound morpheme cannot be separated, a convention historically supported by -- and reflective of -- the long recognized tendency of such units to metamorphose, and in time to become unrecognizable as consisting of separate units.

4. Conclusion: On the non-linearity of deep structure

The VSO analysis of Amharic has now been shown to be inferior on two counts: (i) it is unnecessarily abstract, positing a deep order of elements which is never realized in the surface structures of Amharic; and (ii) it is slightly less general in terms of number of conditions required on application of transformations. There are no longer grounds for considering Amharic to be a VSO language -- at any level. There seem to be in fact no grounds for considering Amharic to be anything but an SOV language at surface and deep levels. No one would question that Amharic is an SOV language at the level of surface structure. But what are the grounds for considering Amharic to be an SOV language at the level of deep structure? I am not so sure that there are any. None have been presented in this paper. We have simply rejected the VSO analysis (and, by extension, the semi-concrete analysis with postpositions and postposed relative clauses).
But the basis of the argument presented in rejection of the VSO analysis is not really concerned with the linear order of constituents in deep structure. The generalization about Amharic grammar that renders the VSO analysis pointless is that in linear deep structure a preposition (always a leftmost element relative to its sister), in a configuration with a sentence as sister, is prefixed to the rightmost element in that sentence — a verb; while a preposition in a configuration with a noun phrase as sister, is prefixed to the element to the preposition's immediate right in that NP, regardless of what that element is. But the terms 'right' and 'left' in this statement are not necessary.

Among the three treatments of Amharic deep linear order considered in this paper (including the semi-concrete alternative), there is agreement about the hierarchical or logical structures which underlie the Amharic surface structures under discussion, in particular prepositional phrases with embedded sentences such as that which underlies the phrase yohannos bə-alləw bet 'at the house (that) John has'. The SOV analysis has (29a), the VSO analysis (29b), and the semi-concrete analysis (29c).

(29) a. PP
    \hspace{0.5cm} P   NP
    \hspace{0.5cm} bə  S   N  \hspace{0.5cm} yə  N  \hspace{0.5cm} V \hspace{0.5cm} alləw
    \hspace{0.5cm} P   S   bet
    \hspace{0.5cm} yohannos

b. PP
    \hspace{0.5cm} P   NP
    \hspace{0.5cm} bə  S   N  \hspace{0.5cm} yə  V  N \hspace{0.5cm} alləw  yohannos
    \hspace{0.5cm} P   S   bet

    \hspace{0.5cm} P   NP
    \hspace{0.5cm} N   S   bə
    \hspace{0.5cm} bet
    \hspace{0.5cm} S   P
    \hspace{0.5cm} N   V  yə
    \hspace{0.5cm} yohannos  alləw
Except for linearity, these trees are the same. Through the use of labeled brackets, all three can therefore be represented as the non-linear string (30), where the commas indicate that no linear relationship is specified between the items they separate:

\[(30) \quad [ \text{bā}, [ [ \text{yā}, [ \text{yohannès}, \text{allāw} ] ], \text{beṭ} ] ]\]

Now if deep structure is non-linear, as has been claimed by Gerald Sanders [1970], Wallace Chafe [1970] and others, we would require rules to specify the linear order of elements at the level of surface structure (linearization rules), and these rules would apply post-transformationally to the non-linear configuration derived by the transformations from the non-linear, base-derived configuration (30). The configuration (31) represents the archi-structure for (29a), (29b) and (29c), i.e., with linearity abstracted. Such a grammar claims that hierarchical structure without linearity is sufficient for specifying the input and output of all operations other than those which state the linear sequence of elements in surface structure; and these last rules take non-linear, archi-structures as input, and give linear structures as output.

The final versions of the rules of Prep-attachment and Prep-shift may themselves be written in non-linear form. The rules apply to phrases with P as one sister. There are two possibilities: one in which the other sister is a noun phrase, and the other in which it is a sentence. (P cannot be termed 'preposition', since it is a deep category which

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6J. F. Staal [1967] concluded that the non-linear base was necessary for describing the free word order phenomenon in Sanskrit, and was also correct on intuitive grounds for universal grammar. Two recent arguments for non-linear deep structure are papers by Peterson [1971] and Anderson [1971].

Chomsky [1965:123-127] mentioned previous proposals for the non-linear base and dismissed them for reasons which are unclear to me from present perspective, but which were seemingly based on a belief that the structural indexes of transformations are necessarily too complex to be expressed without linearization, a function which had therefore just as well be accomplished by the base rules.
includes what are in other languages linearized as post-positions. The possibility remains that at a higher level of analysis 'P' is simply a sort of predicate, the subject of which may be a noun phrase, or a sentence.\(^7\)

\[(31)\] Prep-attachment\(_1\)

\[
\begin{array}{cccc}
 PP - NP - & & & \\
 1 & 2 & 3 & 4 & 5 & 1 & 3 & 2-4 & 5 \text{ where } X \text{ may be } \emptyset
\end{array}
\]

\[(32)\] Prep-attachment\(_2\) (formerly Prep-shift)

\[
\begin{array}{cccc}
 PP - S - & & & \\
 1 & 2 & 3 & 4 & 5 & 1 & 3 & 2-4 & 5
\end{array}
\]

These rules are oblivious to linear order of input, and would as easily accept the VSO or SOV ordered deep structures, or any other possible linear combination which preserves hierarchical structure. The linearization rules for Amharic will then establish such facts as that P in Amharic is a preposition (rather than a post-position), and that the verb is the last element in its clause, etc.\(^8\)

\[^7\] That Amharic 'genitive' yä must be derived in the base as other than the relative clause conjunction (a position that has been accepted in this paper for convenience), is shown by the fact that it is used to express a great variety of expressions which might be termed 'partitive', such as yä-wärq sä'ä† 'watch of gold', and yä-sä'ä† wärq 'gold for a watch', phrases which have no unitary relative clause paraphrase. For discussion of these and many other examples see Hailu [1964]. Cf. Chomsky's comment: "it seems to me to make good sense to regard [a phrase of this type as] a determiner-noun-complement construction which constitutes a simple base noun phrase" [1970:196].

\[^8\] Full illustration of the manner of derivation of phrases such as have figured in this paper, in a grammar employing linearization rules, is given in another paper: 'Is deep structure linear?'. Elsewhere (a paper on 'The relative clause in Amharic') I have also attempted to show how the complex embedding of prepositions in Amharic relative clauses has come about historically, without there ever having been a stage of Pre-Amharic with a rule of verb-movement, or VSO main constituent order.
By discovering the generalizations about the syntax of Amharic prepositions which correctly represent their logical function, and fully describe their surface distribution, we have actually failed to show the SOV analysis of the deep order of Amharic main constituents to be correct. Rather we find that the accounting for of these facts does not make reference to 'deep linear order'. This conclusion should not be surprising, since such a conclusion is merely a function of the fact that except for the case of structures derived through conjunction reduction, there are never two sister constituents of the same type. Thus transformational rules may as easily make reference by label to the elements of a phrase-marker which they affect, as to their linear position.

Bach's argument that Amharic is at the level of deep structure a VSO language is the best argument I know that crucially depends on deep linear order in order to express a seeming generalization about a language. If that argument fails it is difficult to imagine what sort of direct (non-metatheoretical) evidence could be brought in support of selection of one or another linear order of elements in deep structure. By (i) refuting the argument that Amharic is a VSO language, and by (ii) showing that the correct generalization is simply unconcerned with the linearity of deep structure, I hope to have suggested in a rather forceful way why (iii) the burden of proof that deep structure is linear rests on the shoulders of those who believe it is.

REFERENCES


