

ON THE CATEGORY STATUS OF AUXILIARIES
AND THE TRANSFORMATION TEST

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1. Introduction

Generative literature abounds with papers in which arguments are adduced for or against base category-membership of a specific class of constituents.¹⁾

A prominent aspect of these "category-arguments" is that conflicting conclusions are reached. Ross (1969), for example, concludes on the basis of certain similarities between auxiliaries and verbs that auxiliaries should be represented on underlying syntactic level as verbs. Chomsky (1965), however, maintains that auxiliaries and verbs are two separate base categories.

The situation in this (non-isolated) case can be summarized as follows:

- (i) Ross, as a linguist apparently working in the general framework of transformational-generative grammar (TG) concludes that AUX is not a base category, but a surface realization of another base category "verb".
- (ii) Chomsky, also working within the general framework of TG, concludes that AUX itself is in fact a base category.

A first question which poses itself to the methodologically interested linguist, is:

- (1) Which factors are responsible for this type of problematic situation?

To answer (1) one would have to look for the answer to another, more specific question:

- (2) What are the functions and characteristics of a base category?

It is possible that the situation sketched above could have developed because the different linguists gave different answers to (2).

An answer to questions (1) and (2) above, professing to be anywhere near exhaustive, can only be given after an extensive study of a number of category-arguments in which the following two questions are clarified:

- (3) (i) Which criteria should a category satisfy to qualify as a base category?
 (ii) On which considerations are category-arguments based?

The aim of this paper is much more modest. I wish to consider only a single paper, "Auxiliaries as main verbs" by J.R. Ross.²⁾ By means of a methodological analysis I shall try to (i) determine which criteria Ross, as a so-called "working grammarian", uses in the definition of the base category-status of auxiliaries; (ii) evaluate critically his argumentation; and (iii) evaluate critically the criticism of some TG-linguists of Ross's paper.

2. "Auxiliaries as Main Verbs"

In the introductory paragraph to his paper Ross claims:

- (4) "In §1 I present ten arguments that indicate that auxiliaries and verbs are really both members of the same lexical category, verb."³⁾
 (5) "In §2 I present two arguments which indicate that they must be main verbs."⁴⁾

For purposes of this paper I will refer to (4) as the "verb-hypothesis", and to (5) as the "main verb-hypothesis".

2.1 The Verb-Hypothesis

The verb-hypothesis implies that all the so-called auxiliaries (i.e. modal auxiliaries, the copula be, the auxiliaries be -ing and have -en, and the passive auxiliary be) are represented in underlying syntactic

structure as $\begin{bmatrix} + V \\ + AUX \end{bmatrix}$.⁵⁾ The main verb-hypothesis implies that an auxiliary, besides being $\begin{bmatrix} + V \\ + AUX \end{bmatrix}$, directly dominated by VP, is the

head of a VP.⁶⁾ The verb-hypothesis is presented explicitly as alternative to the hypothesis proposed by Chomsky in Aspects of the Theory of Syntax.⁷⁾ In the standard Aspects-theory the node AUX rewrites to:

(6) Tns $\begin{bmatrix} M \\ \underline{\text{have}} \\ \underline{\text{be}} \end{bmatrix}$

In §1.1 Ross claims that his verb-hypothesis is more acceptable than the Aspects-hypothesis. Three apparently unrelated transformations, Subject-Verb Inversion, Neg-Placement and VP Deletion mention the term (6) in their structural description (SD). The Aspects-analysis provides no explanation as to why precisely these items function together, since they (i) do not form a constituent and (ii) apparently share no features that would predispose them to function together. According to Ross, the term $\begin{bmatrix} + V \\ + AUX \end{bmatrix}$, on the other hand, is "natural", since it (i) is a constituent and (ii) refers to all those items sharing the syntactic features $\begin{bmatrix} + V \end{bmatrix}$ and $\begin{bmatrix} + AUX \end{bmatrix}$, i.e. all the auxiliaries.

Ross presents eight arguments for the verb-hypothesis (4).⁸⁾ Owing to lack of space, only the major premiss for each of these arguments is reconstructed.

ARGUMENT 1

In §1.2 Ross concludes that the "so-called copula be" should really be analyzed as a true verb,⁹⁾ for

- (7) "in languages whose basic order is SVO, the order in copular sentences is S be O; in SOV languages the order is SO be."¹⁰⁾

The major premiss of the argument in (7) can be reconstructed as (8):

- (8) If the so-called copula be is a true verb, then be should occupy the same position in basic word order as true verbs.

The criterion for base category-membership implicit in (8) can be reconstructed as (9):

- (9) Members of a base category should occupy the same position in basic word-order.

ARGUMENT 2

Ross bases his second argument on the fact that be undergoes the rule of Gapping as is the case with true verbs.¹¹⁾

- (10) If be is a true verb, then be should undergo the same transformations as true verbs.

The criterion that can be deduced from (10), may be reconstructed as (11):

- (11) Members of a base category should undergo the same transformations.

Criterion (11) is concerned with (non-)similarity in behaviour with respect to transformations. I will henceforth refer to (11) as the "transformation test". This test is used quite frequently by linguists in this context. In the section on argument 3 I will return to the transformation test and to criticisms levelled at it.

ARGUMENT 3

Ross's third argument relies directly on the above two arguments, (8) and (10) respectively. On the basis of the conclusion that be is a true verb, Ross argues for the verb-status of the other auxiliaries. The rule of Q-Hopping moves quantifiers over be, and over auxiliaries.¹²⁾ The major premiss of this argument can be reconstructed as (12):

- (12) If auxiliaries are true verbs, then they should undergo the same transformations as true verbs.

The criterion in this case is the same as (11), i.e. the transformation test.

The relation between arguments (8) and (10) on the one hand and argument (12) on the other hand is supplementary: on the basis of the conclusion in (8) and (10), namely that be is a true verb, Ross argues for the true verb-status of other auxiliaries (in (14)). The implication of a supplementary relation is clear: the measure of support for (12) co-varies with the measure of support for (8) and (10) respectively. It is not clear from Ross's presentation in §1.2 how strong the support for (8) and (10) actually is.¹³⁾ For example, Ross justifies (8) only by means of the vague statement (7). In other words, he offers no direct empirical evidence. In the case of (10) he gives a single illustrative sentence to justify his hypothesis. In the case of Q-Hopping Ross specifically states that, with auxiliaries, the rule is subject to certain conditions.¹⁴⁾ However, he does not say whether these conditions are also applicable in the case of be. If these conditions are not general and the class of (other) auxiliaries still has to be excluded, the "gain" of Ross's analysis would be small.

With reference to the three arguments given above Lightfoot (1974:117-118) points out a contradiction when the transformation test is applied rigorously. On the grounds that be, like true verbs, is involved in the rule of Gapping, Ross concludes that be is a true verb. The fact that be is involved in Q-Hopping like other auxiliaries, however, does not lead him to conclude that be is an auxiliary, but instead that the other auxiliaries

are true verbs. It therefore seems as if his conclusion coincides in each case with the theoretical position from which the empirical data are viewed. Lightfoot (1974:118) points out that

- (13) "It is true that the main verb be and the auxiliary be share certain properties, (e.g. both undergo Subject-Aux Inversion) but it seems curious to call the main verb be an auxiliary in order to capture these similarities."

In other words, in (13) Lightfoot questions the validity of the transformation test. (Still, he does call be a main verb — cf. (10).)

Bresnan (1977:264-265) levels penetrating methodological criticism at the transformation test, which she characterizes as follows:

- (14) "In the GS [i.e. Generative Semantics — A.O.] program of category reduction, if two categories A and B behaved alike with respect to several transformations this was often taken as syntactic evidence that A's are really B's in underlying structure (or vice versa). The syntactic differences between A's and B's were then regarded as superficial irregularities. It was still necessary to account for these differences, and for this the 'exception feature' was used: A's differ from B's only in that the A-type lexical items are exceptionally marked [+ rule i] or [- rule j] for each rule i or j that distinguishes them from B's."

She then points out a methodological flaw in this type of argumentation: transformations can no longer be used as deciding evidence in category-arguments. The extensive use of exception features has undermined the fundamental property of transformations, namely their structure-dependence. This criticism of the transformation test also applies to arguments 6, 7, 8, 9 and 10 below, which are all based on the transformation test.

ARGUMENT 4

In §1.3 Ross argues for the true verb-status of the modal auxiliary may on the basis that may can undergo the rule of Flip, subject to the same constraints as true verbs.¹⁵⁾ The major premiss of this argument

may be reconstructed as (15):

- (15) If the modal auxiliary may is a true verb then may should be able to undergo the same transformations --- subject to the same constraints --- as true verbs.

The criterion implicit in (15) is a somewhat modified version of the transformation test:

- (16) Members of a base category should undergo the same transformations, subject to the same constraints.

Lightfoot (1974:118) raises two points of criticism against Ross's argumentation in §1.3. Firstly, the constraint on the rule of Flip is not well-founded. Secondly, he questions the validity of the transformation test when he says:

- (17) "Ross concludes that the rule of Flip applies only to verbs --- hence the fact that it must apply to may argues that this modal is also a verb. The illogic of that needs no comment."

Ross himself calls the evidence he presents for (14) "some evidence",¹⁶⁾ i.e. presumably he does not consider it to furnish strong support for his verb-hypothesis. The empirical evidence cited by Ross is problematic in two respects:

- (i) The judgement on which Ross bases his argument, viz. that sentence 8.b. in his §1.3 is ungrammatical, is only made by some speakers of English.
- (ii) The constraint in terms of which the ungrammaticality of sentence 8.b. is explained, is in Ross's own words "of a very mysterious sort."¹⁷⁾

Unless the nature of the constraint, and, in fact, the existence of the constraint, is justified more thoroughly, this evidence cannot in any way give strong support to the verb-hypothesis.

ARGUMENT 5

In §1.4 Ross points out that auxiliaries like have and be, the passive auxiliary be and the copula be can occur in the complement of a verb like seem. Seem requires a [+ stative] verb in its complement. However, this set of auxiliaries cannot occur in the complement of a verb like force, requiring a [- stative] verb in its complement.¹⁸⁾ Ross explains the above data by assuming that this set of auxiliaries has the features

[+ V
+ AUX
+ Stative]

. The major premiss of the relevant argument can be reconstructed as (18):

- (18) If auxiliaries are true verbs, then they should display the same type of subcategorisation feature as true verbs.

The criterion that can be deduced from (18) can be reconstructed as (19):

- (19) Members of a base category should display similarities with regard to subcategorisation features.

Lightfoot (1974:119) questions the empirical basis of argument (18). He claims that the facts are more complex than is apparent from Ross's presentation: under specific circumstances [- stative] verbs can occur in the complement of seem, and [+ stative] verbs in the complement of force.

ARGUMENT 6 AND 7

Ross's sixth and seventh arguments (presented in §1.5 and §1.6 respectively) can be reconstructed as a single argument (22). Both these argu-

ments are at the same time arguments for the main verb analysis (4). In §1.5 Ross assumes the antecedent of so to be an S and concludes on the basis of a sentence like (20) that auxiliaries, like true verbs, can undergo the rule of so-replacement.

- (20) They said that Tom might have been singing and so he might (have (been)).¹⁹⁾

In §1.6 Ross assumes that which and that replace NP and concludes on the basis of a sentence like (21) that auxiliaries, like true verbs, can undergo the rules of which- and that-replacement.

- (21) They said that Tom might have been sleeping, { which he
might (have (been)).²⁰⁾ and that he
might (have (been)).

The major premiss of his argument can be reconstructed as follows:

- (22) If auxiliaries are true verbs, then they should undergo the same transformations as true verbs.

The criterion implicit in (22) is the same as (10)/(15), namely the transformation test. The general objections to the transformation test mentioned above also apply in these cases. Lightfoot (1974:121), moreover, indicates a specific objection to the arguments in §1.5 and §1.6: Ross's assumption that the antecedent of a pronoun must be a constituent is not necessarily true.

Ross regards his analysis in §1.5 and §1.6 in particular as strong criticism of Chomsky's Aspects-analysis because the phrase might (have (been)) is (i) not a constituent (and there are therefore no obvious reasons for replacing been sleeping, etc. by so/which/that); (ii) neither an S nor an NP.

ARGUMENTS 8 AND 9

The next two arguments belong to substantively the same type of argument in that they are based on similarity in behaviour with respect to transformations. He concludes that auxiliaries are true verbs because

- (i) the copula be in English and the modal auxiliaries, like müssen, sollen, können, in German can undergo the rule of S-deletion, as can true verbs;²¹⁾
 (ii) the modal auxiliary may in English (in its intransitive sense), like other intransitive verbs, can occur in the SD of there-insertion.²²⁾

The main premiss of this argument resembles (9)/(11) above, except that the formulation "should undergo the same transformations" should be refined to "should occur as a term in the SD of the same transformations" to include (ii) above:

- (23) If auxiliaries are true verbs, then they should occur as a term in the SD of the same transformations --- subject to the same constraints --- as true verbs.

The criterion is a modified version of the transformation test.

- (24) Members of a base category should occur as a term in the structural description (SD) of the same transformations, subject to the same constraints.

Referring to the S-Deletion-argument in §1.7 Lightfoot (1974:121) notes:

- (25) "It is difficult to see what bearing these arguments have on the analysis of auxiliaries in modern English. It is entirely likely that in certain languages English modals will be translated by truly verbal forms, but one cannot argue that on universal grounds this shows that English modals are true verbs."

In (25) Lightfoot questions the qualitative relevance of data on German for a language-specific English hypothesis. (Chomsky (1972a) levels the same type of criticism at Ross's argument 10 below.) Referring to the

there-insertion argument, Lightfoot (1974:121) mentions Ross's own admission that under his present theory the ungrammatical sentence (26) must be generated as well:

(26) *There may gladly be windows broken by rioters

In §1.10 of his paper Ross claims that his verb-hypothesis provides a better explanation of the relationship between sentences (27a) and (27b) than does the Aspects-hypothesis.

- (27) a. Ella doesn't need to go.
 b. Ella need not go.

According to Ross the two sentences would be derived from totally different deep structures in Aspects, whereas, under his verb-analysis, they would be derived from the same underlying structure.²³⁾ He concludes that his verb-hypothesis should be preferred because it captures a linguistically significant generalization which the Aspects-hypothesis cannot express.

Lightfoot (1974:123), however, points out that Ross's analysis of the sentences (27a) and (27b) has the disadvantage that it (i) requires an extra transformation

(28) $\left\{ \begin{array}{c} \text{dare} \\ \text{need} \end{array} \right\} \xrightarrow{\text{OPT.}} \left[\begin{array}{c} + \text{AUX} \\ + \text{Modal} \end{array} \right] / \text{negative contexts;}$

(ii) necessitates a new type of marking convention; and (iii) requires that the item $\left[\begin{array}{c} \text{need} \\ + \text{AUX} \end{array} \right]$ be assigned a special plus rule feature for the rule of to-deletion. Lightfoot (1974:23) argues as follows:

- (29) "It is scarecely clear that this constitutes an improvement in the theory, but, given that there are two needs and that they behave differently syntactically, it is not unreasonable for the standard theory to assign them different deep structures. The standard theory was concerned only with syntactic behaviour. If one wants to argue that 24. and 25. [sentences (27a) and (27b) above --- A.O.] are synonymous and therefore should come from the same source, one has changed the criteria for positing underlying structures."

In (29) Lightfoot explicitly indicates a standard theory criterion for (non-)similarity in underlying syntactic structure (and by implication for categorisation), namely (non-)similarity in syntactic behaviour. In standard theory, therefore, the transformation test does constitute a valid criterion for base categorisation.

A problem now arises. Suppose linguist A claims on the basis of similarities in syntactic behaviour of a class of items that they belong to the same base category, and linguist B claims on the basis of differences in syntactic behaviour of the same class of items that they belong to different base categories. Which of these two considerations is the more valid: the differences or the similarities? It seems as if no non-ad hoc-basis exists for such a decision, at least not in an isolated fragment of the grammar. This fact is no doubt responsible for many of the contradictory conclusions on categorisation in generative literature. The only way to make a less ad hoc choice between the two alternative hypotheses sketched above would of course be to embed each hypothesis separately into a larger fragment of grammar. A choice between the alternative (embedded) hypotheses can then be made on the basis of their implications for this larger fragment of grammar.

2.3 The Main Verb-hypothesis

In §2 Ross presents two arguments for the main verb-hypothesis.

ARGUMENT 10

In §2.1 he adduces evidence from German which, in Ross's own words,

- (30) "provides evidence of the strongest kind that there is no category difference between German auxiliaries and other verbs and that each auxiliary must be immediately dominated by VP."²⁴)

Referring to sentences such as (31)

- (31) Gwendolyn muss von Kasimir gesehen worden sein.²⁵)

Ross claims that:

- (32) "the rule of Verb final must produce order alternations with the main verb sehen "see", with the passive auxiliary werden "become", with the past tense verb sein "be", and with the modal auxiliary müssen "must".²⁶)

The major premiss of the argument which Ross bases on the above data has the general form (23). The criterion for base categorisation is, once more, the transformation test (24).

Chomsky (1972b:122) says of this argument:

- (33) "Arguments concerning the German auxiliary bear on English only if one is willing to make some general assumptions about translatability of rules that seem to me unwarranted."

The remark (29) by Lightfoot is also relevant here. In both instances the qualitative relevance of German data for a hypothesis on the structure of English is questioned.

ARGUMENT 11

In his second and final argument for the main verb-hypothesis Ross refers to Greenberg's typological classification of languages on the strength of their basic word-order. Greenberg indicates that, in languages with a basic SOV-word order, the auxiliary follows the verb, whereas in languages

with SVO-word order the auxiliary precedes the verb.²⁷⁾ The major premiss of the argument which Ross bases on this data can be reconstructed as (34):

- (34) If auxiliaries are main verbs, then auxiliaries should occupy the same relative position in basic word-order as main verbs.

The criterion implicit in (34) is the same as (8) above.

Both Chomsky (1972b) and Lightfoot (1974) have serious doubts about Ross's argument (34). Lightfoot (1974:124) raises the following objection:

- (35) "Presumably Ross is re-interpreting Greenberg's universal as a fact about deep structure, in which case it will be a problem for him that several of his 'auxiliaries' are intransitive verbs in deep structure and only after the operation of Subject-Raising and Extraposition do they end up to the left of their object. If, on the other hand, he interprets the universal as a fact about surface structure then it has only the status of a statistical tendency and it is hard to interpret his claim that treating auxiliaries as main verbs 'explains' the universal."

Chomsky (1972b:122), on the other hand, objects on the basis of a general methodological principle when he says:

- (36) "Evidently the force of the explanation will depend on the independent evidence for the assumption. In this paper, at least, little is presented."

The methodological principle in question is that the merit a hypothesis has as explanation of a problematic state of affairs co-varies with the measure of independent justification for the hypothesis. According to Chomsky, Ross's analysis does not comply with this requirement.

3. Conclusion

In §1 the following question was asked: which criteria must a category satisfy to qualify as a base category? The answer that Ross as a "working grammarian" proposes to this question can be summarized as follows:

- (37) a. Members of a base category should occupy the same position in basic word order. (= (9) above)
- b. Members of a base category should display similarities in subcategorisation features. (= (19) above)
- c. Members of a base category should occur as a term in the SD of the same transformations, subject to the same constraints. (= (24) above)

Criterion (37b) is problematic in certain respects. Chomsky (1972a:34-35) states:

- (38) "... the logic of this argument is unclear ... From the fact that a feature $[+F]$ is distinctive in the categories X, Y, it does not follow that there is a feature G such that $X = [+G]$ and $Y = [-G]$, and a category $Z = [+G]$."

On the basis of similarity in subcategorisation (and transformational) behaviour one of two approaches can thus be taken:

- (i) The similarity can be taken as the basis for the argument that two categories in fact belong to the same single category — the approach Ross takes in his paper.
- (ii) The similarity can be regarded as a similarity of all individual lexical categories — the approach Chomsky takes in the lexicalist hypothesis.

The frequency with which (37c), the so-called transformation test, appears in Ross's argumentation (the criterion is used in eight arguments) can be regarded as an indication of the importance Ross attaches to this criterion. Ross himself calls the similarity in the behaviour of (German) auxiliaries and true verbs with respect to the rule of Verb Final "evidence

of the strongest kind that there is no category difference between (German) auxiliaries and other verbs".²⁸⁾ Lightfoot, in (29) above, does not deny the validity of the transformation test in the general framework of the standard theory when he indicates that the standard theory does use differences in syntactic behaviour as a basis for differences in deep structure (and therefore also in base categorisation). However, the application of the transformation test is problematic in various respects.

The first problem concerns the nature of the criterion itself within the standard theory. The criterion is used to classify constituents behaving alike with respect to a certain transformation as belonging to the same base category, and to classify constituents behaving differently as belonging to different base categories. It is conceivable, however, that a class of constituents may behave similarly with regard to one transformation but differently with regard to another. The transformation test has no "built-in evaluation measure" to determine whether the similarities or the differences, taken as basis of classification, yield the more acceptable result. Ross gives no indication as to whether the transformation test is a sufficient or a necessary condition for base categorisation. He also does not indicate the number of transformation tests any one category must satisfy in order to qualify as a base category.

Another problem inherent to the transformation test is that it does not specify which of two or more categories should be dominant. Suppose, for instance, that auxiliaries and true verbs behave alike with respect to a certain transformation. On which basis does the linguist decide to choose the category "verb" as the supercategory?

In (13) above Bresnan indicated a serious methodological flaw in the use of the transformation test. The extensive use of exception features with lexical items has undermined the fundamental property of transformations, namely their structure dependence.

Although the transformation test is used quite often in generative literature, and plays a major role in Ross's argumentation, the results of this criterion cannot be accepted unconditionally pending satisfactory answers to the abovementioned objections. With these objections in mind, Ross's hypotheses remain, for the moment, inconclusive.

In a critical evaluation of Ross's argumentation one must also point out the following negative aspects:

- (i) The empirical evidence Ross adduces is not always above suspicion.
- (ii) Ross does not always give sufficient justification for his hypotheses.
- (iii) His formulation and exposition is not always maximally explicit.
- (iv) He often fails to acknowledge the language-specific nature of his (main) verb-hypothesis.

The current category-controversy is not conducted within the framework of a well-defined and exhaustive theory of base categories. Such a framework should provide explicit answers to the following questions:

- (i) Which criteria must a category satisfy in order to qualify as a base category; in other words, what is the function and nature of a base category?
- (ii) Are these criteria necessary and/or sufficient?
- (iii) What number of criteria must be satisfied by a category in order to qualify as a base category?
- (iv) What counts as evidence for hypotheses on category status?

FOOTNOTES

1. Cf. Bach 1968, Becker and Arms 1969, Jackendoff 1973, Lakoff 1970 and Postal 1966.
2. This paper is based on part of an M.A.-thesis in which a more detailed analysis of these, and similar, questions is attempted.
3. Ross 1969:1.
4. Ross 1969:1.
5. Ross 1969:1-2.
6. Ross 1969:1 and 18.
7. Chomsky 1965.
8. Although Ross indicates in (3) that he will present ten arguments (apparently one in each sub-paragraph of §1) his proposal in §1.1 is no real "argument" but a suggestion for a new labelling convention (cf. Lightfoot 1974:116). In §1.10 he prefers his verb-hypothesis to the Aspects-hypothesis on the strength of a standard of acceptability based on the concept of "success in the capturing of linguistically significant generalization".
9. Ross uses the term "true verb" to refer to an item which is [+ V].
10. Ross, p.2.
11. Ross, p.2.
12. Ross, pp.2-3.

13. For "strong" in this context read: "supported by many different types of evidence".
14. Ross 1969:3.
15. Ross 1969:4.
16. Ross 1969:3.
17. Ross 1969:3.
18. Ross 1969:4-5.
19. Ross 1969:6.
20. Ross 1969:8.
21. Ross 1969:8-10.
22. Ross 1969:11-13.
23. Ross 1969:14-17.
24. Ross 1969:23.
25. Ross 1969:20.
26. Ross 1969:22.
27. Ross 1969:23-24.
28. Ross 1969:23.

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