

On Subject Aux Inversion*

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0. Introduction

Subject Aux Inversion (henceforth SAI) is a rule which inverts the order of subject and auxiliary. For example, it converts a sentence John would be happy into the corresponding interrogative Would John be happy? However, the application of SAI is not confined to the formation of interrogative sentences. When those phrases which Klima (1964) called "affective" phrases are preposed to the top of the sentence, SAI also applies to the sentence. Affective phrases are those which include negative expressions, as in the following sentences:

- (1) At no time was John present for the ceremonies.
 - (2) Never have I seen such a display of grandeur.
 - (3) Under no circumstances will the university change its ruling.
- (from Klima (1964))

The affective phrases also include such adverbs as only, seldom and scarcely, which are essentially negative in meaning (Cf. Quirk et al. (1972, p. 380)).

- (4) Only after he left did I notice that the money was missing.
 - (5) Scarcely ever has the British nation suffered so much obloquy.
- (from Quirk et al. (1972, p. 380))

Our purpose is, for one thing, to consider whether SAI is a stylistic rule or not in the current framework of transformational generative grammar and, further, to explore the factors which govern the application of SAI in the sentences including preposed affective phrases. However, we do not deal with the SAI which generates Yes-No question, exclamation, and conditional in the following discussion for an explanatory convenience.¹

1. "Affective" phrases

As we have just seen the affective phrase seem to bring about SAI in the sentences (1)-(5). If SAI does not apply to those sentences, the generated sentences are ungrammatical.

- (1') *At no time John was present for the ceremonies.
- (2') *Never I have seen such a display of grandeur.
- (3') *Under no circumstances the university will change its ruling.
- (4') *Only after he left I noticed that the money was missing.

On the other hand, when non-affective phrases are preposed to the top of the sentence, we cannot apply SAI to the sentence, as the following examples show.

- (6) a. *At one time did he digress from his topic.
- b. At one time he digressed from his topic.
- (7) a. *Not long ago did it rain.
- b. Not long ago it rained.

Note that although the phrase not long ago in (7) includes the negative expression not, SAI cannot apply to (7). Therefore

among the phrases including negative expressions there are not only the affective phrases but also the non-affective ones. Then, why cannot the phrase not long ago in (7) be counted as an affective phrase, unlike those in the sentences (1)-(5)?

2. Scope of negation

In this section we will explore the relation between the application of SAI and the scope of negation. Consider the following sentences which Klima (1964) discussed.

- (8) a. Not often does Jack attend parties and neither does Jill.
 b. *Not long ago Jack attended a party and neither did Jill.
- (9) a. Not often does Jack attend parties, { does he? }
 { *doesn't he? }
- b. Not long ago Jack attended a party, { *did he? }
 { didn't he? }
- (10) a. Not often does Jack attend any parties.
 b. *Not long ago Jack attended any parties.

These examples show the grammatical distinction between not often and not long ago. First, the neither-tag can be attached only to the sentence including not often, as the sentences in (8) indicate. Second, the phrase not often in (9a) does not allow the presence of not in the tag, and in contrast not long ago in (9b) does not allow the absence of it. Thus the phrase not often in the (a) sentences in (8)-(10) includes the negative expression whose scope is the whole sentence (sentence negation), which we will call the wide scope negation below. On the other hand, not in the phrase not long ago in (b)

sentences and also in (7) has only the phrase itself inside of its scope of negation (constituent negation), which we will call the narrow scope negation in what follows. As the examples show, we can apply SAI only to the (a) sentences with wide scope negation. Finally, in (10a) not can include any within its scope, but not in (10b) cannot, so that we must have some instead of any in (10b).

It follows from the foregoing considerations that when such phrases as not often with the wide scope reading of negation are preposed, we can apply SAI, but when such phrases as not long ago with the narrow scope negation are preposed, we cannot. The phrase not often has only the wide scope negation and not long ago has only the narrow scope. However, there are some cases in which the same phrase has both the wide and narrow scope reading of negation.

3. Wide scope and narrow scope

To begin with, consider the following sentence which Liberman (1974) first discussed.

(11) John would be happy with no job.

This sentence is ambiguous in that it allows the following two readings:

(12) a. There is no job such that John would be happy with it.

b. John would be happy if he had no job.

Reading (12a) is the wide scope reading of no in with no job in (11) and (12b) is the narrow scope reading of it, that is to say, the scope of no is within the phrase with no job.

Next, consider the following sentences in which the prepositional phrase with no job is preposed to the top of the sentence.

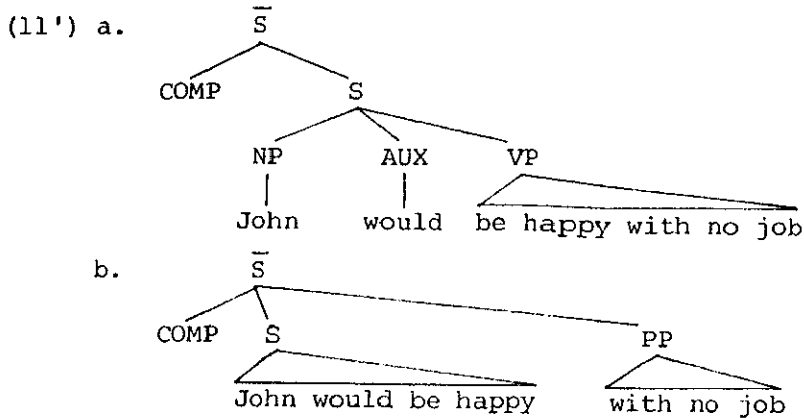
- (13) a. With no job would John be happy.
 b. With no job, John would be happy.

Sentence (13a) has only the wide scope reading, that is, reading (12a). On the other hand, only the narrow scope reading, that is, (12b), is possible in (13b).

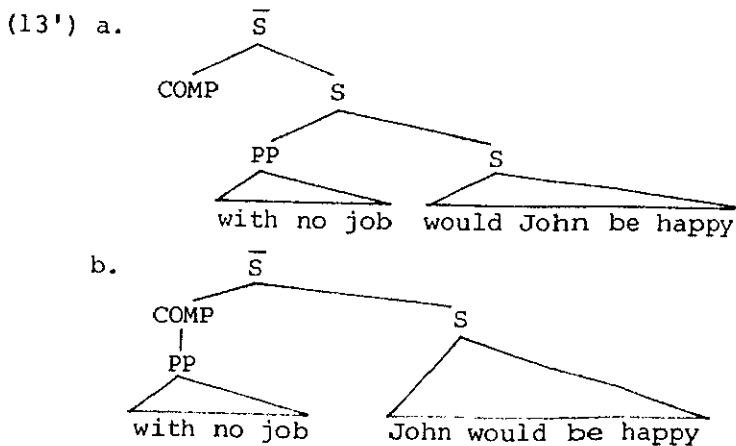
At this point we will consider the problem whether SAI is a stylistic rule. If we do not count the comma in (13b), the difference between (13a) and (13b) lies entirely in the application of SAI. In other words, if SAI applies to sentence (11), we will get (13a), but if not, we will get (13b). However, as we have just seen, the meanings of (13a) and (13b) are different. Therefore, it follows that the application of SAI affects the meaning of a sentence in those cases. Note here that stylistic rules, by definition, do not change the meaning of a sentence in general. Thus we can conclude that SAI is not a stylistic rule. Furthermore, as we have seen in (1')-(4') of section 1, the application of SAI in those sentences is obligatory. The fact that stylistic rules are optional in general leads us to the same conclusion.

Returning to the discussion of (13), we will consider in the pursuing discussion how the difference of reading between (13a) and (13b) is described in syntax, along the lines of Rochemont (1978).

Rochemont (1978, p. 76) supposes that the underlying structures of (11) are (11'a) and (11'b).



Tree structures (11'a) and (11'b) correspond to (12a) with the wide scope negation and to (12b) with the narrow scope negation, respectively. That is to say, no in (11'a) has the VP as its scope of negation, and no in (11'b), the PP. How are (13a) and (13b) generated in the framework of Rochemont? In his theory all syntactic transformations apply freely and SAI need not be conditioned by other factors like (the presence of) "affective" phrases (cf. Rochemont (1978, p. 75)). Consider the following structures in (13'):



Tree structure (13'a) corresponding to (13a) is derived from the underlying structure (11'a) by Topicalization of with no

job and SAI. On the other hand, (13'b) corresponding to (13b) is derived from (11'b) by what Rochemont calls Sentential Adjunct Preposing (henceforth SAP), which has preposed with no job. Note here that Rochemont assumes two preposing rules of PP: Topicalization and SAP. As in (13'a), the PP dominated by VP is Chomsky-adjoined to the top of S by the application of Topicalization and at the same time subject and auxiliary are inverted by SAI. In contrast, SAP preposes the PP in sister with S to the COMP position, as in (13'b). We must indicate here that sentences are generated by free application of rules in Rochemont's framework and ungrammatical sentences are ruled out by some interpretive rules.

As a piece of evidence in support of the two distinct preposing rules, Rochemont points out the following fact:

- (14) a. With no job would John be happy. (= (13a))
 - b. No job would John be happy with.
- (15) a. With no job, John would be happy. (= (13b))
 - b. *No job, John would be happy with.

In the case of Topicalization in (14) there is optionality of Pied Piping: we can prepose either with no job or no job which has stranded with. But in the SAP in (16) we must prepose the whole PP with no job: in SAP we do not have the optionality of Pied Piping. The difference of grammaticality between (14) and (15) is a motivation to assume these two preposing rules.

We can stipulate from the foregoing claim by Rochemont (1978) that the constituent with wide scope negation is Chomsky-adjoined to S by Topicalization and the constituent with narrow scope negation is preposed to the COMP position by SAP. We can also say here that we are able to account for

the difference between wide and narrow scope negation in terms of the difference of position which the negative expression occupies in the phrase structure.

However, we have not yet dealt with the question of why SAI is applied when the prepositional phrase including the negative expression in VP is preposed. As we have seen, SAI is freely applied and ill-formed structures are ruled out by interpretive rules in Rochemont's framework. But he did not give any answer to why the application of SAI is allowed in (13a).

We will consider next this natural question by analyzing preposed phrases from a semantic point of view.

IV. Two classes of preposed phrases

In this section we will consider what the essential features that govern the operation of SAI are. As many scholars have pointed out, it is not easy to clarify diverse factors governing this inversion phenomenon. But it is safe to say that the application of SAI is obviously correlated with the scope of the preposed phrases; when the preposed phrases have wide scope, SAI applies, and when not, SAI does not apply. Then our problem of explaining the application and non-application of SAI is reducible to a theory of the distinction between such two classes of phrases.

There are some phrases which invariably take wide scope and some which invariably take narrow scope. (16) is a partial list of these two classes of phrases:

(16) Group A	Group B
not often	not long ago
not always	not long after
not many times	not long before
on not many occasions	not far from here
not until ...	not far away
not even then	not infrequently
not because	not unexpectedly
not (in order) to ...	not unnaturally
not for any reason	not unreasonably
not under any conditions	not uncommonly
not under any circumstances	not surprisingly
only twice	only yesterday
(never, seldom, rarely,...)	in no time (at all)
in no way	
under no circumstances	
at no time	
in none of these years	

It should be recalled that some, if not all, PPs can belong to either of these two classes. For example, with no job, in no clothes, in not many years, etc., can have either wide or narrow scope:

- (17) a. In no clothes does Mary look attractive.
(wide scope)
- b. In no clothes, Mary looks attractive.
(narrow scope)
- (18) a. In not many years will Christmas fall on Saturday. (wide scope)
- b. In not many years Christman will fall on Saturday. (narrow scope)

It is interesting to note that such kind of phrases as may belong to either class are confined to PPs.

Our problem is to distinguish these two classes on a principled basis, that is, to find out some distinguishing

features between the adverbials in Group A and those in Group B. Rudanko (1982) offers semantic generalizations about each of these groups. He says, following Lasnik (1972), that Group A consists of adverbials with an overt or inherent quantifiers (and motivational adverbs), as is obvious in their paraphrases: often = 'on many occasions,' always = 'at all times,' until = 'at all times before,' and so forth. This seems basically a correct characterization, which we will elaborate a bit later. As for Group B, Rudanko gives a criterion to the effect that when their near synonyms or paraphrases include no negation, then they are members of Group B. Thus, examples in Group B can be paraphrased into the forms which include no negation, as in (19):

- (19) not long ago = a short time ago
 not long after = a short time later
 not long before = a short time before
 not far from here = near here

Rudanko assumes that these two criteria successfully distinguish the adverbials in Group A and those in Group B. But Rudanko's assumption is not without any problem. It has at least two inadequacies. First, these two criteria might describe the phenomena but never explain why the fact is as it is. Secondly, PPs with (explicit) quantifiers can belong to either group, as we have already seen. Therefore, Lasnik's criterion does not work successfully for these cases, since it assigns those cases only to Group A. We have to seek a more detailed criterion.

Note here that according to Milsark (1977), there are two

usages of quantifier: 'strong' and 'weak.' NPs with such 'strong' quantifiers as all, every, some, many, and free-choice any, are expressions of quantification and can be considered to be specific, while the ones with such 'weak' quantifiers as sm, mny, and perhaps polarity any are non-quantificational and can be considered to be neutral to specificity. They can be distinguished in that weak quantifiers, but not strong ones, can appear in Existential Sentences and in that only strong ones can be used in predication sentences:

- (20) a. *There was everyone in the room.
- b. Everyone was intelligent.
- (21) a. *There were all viewpoints considered.
- b. All people are happy.
- (22) a. *There is anything John would do for you.
- (strong)
- (cf. There may be any number of people who
would be willing to do the job. (weak))
- b. Anything John would do for you would have to be trivial.
- (23) a. There are sm people in the bedroom. (weak)
- b. Some people are jackasses. (strong)
- (24) a. There are mny unicorns. (weak)
- b. Many unicorns are sneaky. (strong)

In connection with the present concern, an obvious generalization is that quantifiers included in the phrases of Group A are strong ones, and those phrases which may belong to either group, e.g., in not many years, with no job, in no clothes, etc. have quantifiers which can be used as either strong or weak, assuming with Klima (1964) and others that no

has the quantifier any as its component. PPs of Group A type allow such forms as in that way, under those circumstances, at that time, with demonstratives in place of no, whereas Group B type is not; such forms as *in that time do not exist. Since demonstratives have the same distribution as strong quantifiers, we might be able to conclude that quantifiers in the phrases of Group B, if any, are weak ones. On this assumption, we can conclude that SAI applies when the phrases with negation + strong quantifiers are preposed to the top of the sentences.

Now we can suggest the explanation of why the Group A/B distinction in the preposed phrases corresponds to the wide/narrow one on the scope interpretations. Each phrase in Group A contains a strong quantifier, which fills the role of logical operator in LF, so it is impossible to negate the quantifier itself and the scope of the negation should be the whole sentence (wide scope). On the other hand, phrases in Group B may contain a weak quantifier, which is not a logical operator in LF but something like a modifying predicate and negation in logic can apply only to propositions and sets, so it is possible to negate the predicate itself, as the creation of the complementary set (narrow scope). Thus, the applicability of SAI depends on the interaction of logical categories.

APPENDIX

We can point out two tests which we believe are relevant to the nature of the SAI phenomenon. The two tests are Post-nominal Modifier Test and Independence Test.

Postnominal Modifier Test is to see whether the adverbials in question can be used as a postmodifier of nominals. By this test are distinguished two types of adverbial phrases; those which can modify nominals postnominally and those which cannot. Thus, (not) long ago can modify nominals from the right, while (not) often cannot:

(26) The war (not) long ago was terrible.

(27) *The visit (not) often is a nuisance.

Note that not long ago is a member of Group B and not often is one of Group A. This leads us to expect that the members of Group B pass this test, and that those of Group A do not. This prediction is borne out:

(28) a. The war not long after will be terrible.

b. The war (not) long before was terrible.

c. The station not far away is under attack.

d. The party (only) yesterday was terrible.

(29) a. *The picnics (not) always are happy.

b. *The visit (not) many times is a nuisance.

c. *Interruptions on (not) many occasions are a nuisance.

d. *The visit (only) twice is easy.

This test is not sufficient for our purpose, however, because it is not applicable to -ly adverbs in Group B:

(30) *The war (not) infrequently was terrible.

Therefore, we must stipulate that -ly adverbs are included in Group B.

Another test which may serve to distinguish the two groups in question is Independence Test. This test reveals

whether the phrase is dependent on the main clause or not. If dependent, it is a member of Group B. In (31)-(35), (a) sentences are cleft constructions whose focus element is the phrase under consideration, and (b) sentences are related to (a) sentences in that they reverse the order of the main clause and the subordinate clause and omit that. If (b) version is acceptable, we can conclude that the clefted element is independent of the remainder of the sentence.

- (31) a. It was (not) often that I went there.
b. *I went there; it was (not) often.
- (32) a. It was not until he left that I went there.
b. *I went there; it was not until he left.
- (33) a. It was (only) twice that I went there.
b. *I went there; it was (only) twice.
- (34) a. It was not long ago that I went there.
b. I went there; it was not long ago.
- (35) a. It was only yesterday that I went there.
b. I went there; it was only yesterday.

(34) and (35) show that not long ago and only yesterday are independent of the remainder of the sentence, which means that they are members of Group B. Thus, this test correctly predict that not long ago and only yesterday are members of Group B, while (not) often, not until, and only twice are those of Group A.

Again, this test is not effective in the case of -ly adverbs:

- (36) a. It was not infrequently that I went there.
b. *I went there; it was not infrequently.

- (37) a. *It was not surprinsingly that I went there.
 b. *I went there; it was not surprisingly.

Used in concert, however, theses two tests serve to distinguish the two groups fairly well.

NOTES

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¹ There is a good reason to distinguish the SAI which generates these sentences from the one which applies in the sentences with preposed affective phrases.

REFERENCES

- Bolinger, D. 1972. That's that. The Hague: Mouton.
- Klima, E.S. 1964. "Negation in English," in J. Fodor and J. Katz (eds.) The structure of language: Readings in the philosophy of language. 246-323. Englewood Cliffs, N.J.: Prentice-Hall.
- Lasnik, H. 1974. Analyses of negation in English. Ph. D. dissertation, MIT.
- Liberman, M. 1974. "On conditioning the rule of subj.-aux. inversion," NELS 5, 77-91.
- Milsark, G.L. 1977. "Toward an explanation of certain peculiarities of the existential construction in English," Linguistic Analysis 3, 1-30.
- Quirk, R. et al. 1972. A grammar of contemporary English. London: Longman.

Rochemont, M.S. 1978. A theory of stylistic rules in English.

Ph. D. dissertation, U/Mass.

Rudanko, J. 1982. "Towards a description of negatively conditioned subject operator inversion in English," English Studies 63. 348-59.