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ON MOVEMENT CONSTRAINTS

Choon-Kyu Oh

Abstract: This is an attempt to explain and justify some transformational constraints that are more often than not treated as syntactic conditions. There is a whole range of data that is not accounted for by Ross' original formulation of the constraints. Much of it has been discussed in the bulk of literature dealing with the topic. Generally the approaches taken represent rather isolated and partial treatments. Using Montague's idea of 'main verb', we attempt to present a general treatment which is psychologically better justifiable than conventional treatments.

In recent linguistic literature, several transformational constraints such as Postal's Cross-Over Constraint (1971), G. Lakoff's derivational constraints (1971) and Ross' movement constraints (1967) have been proposed in order to exclude those ill-formed sentences which are otherwise allowed. In addition to more familiar sort of data discussed in the papers just mentioned, the ungrammaticality/strangeness of the following sentences need to be explained.

(1a) The girl who John asked me whether Tom was bothering was Mary.
(1b) Who did John ask you whether Tom was bothering?
(1c) Mary John asked me whether Tom was bothering.

(2a) The man that John asked me what was bothering is my brother.
(2b) Who did John ask you what was bothering?
(2c) Tom John asked me what was bothering.

(3a) This is the medicine which John did not die although he took against doctors' warning.
(3b) Which medicine did John not die although he took against doctors' warning?
(3c) This medicine John did not die although he took against doctors' warning.

The purpose of this paper is to present an alternative formulation of the constraint that blocks the derivation of the above sentences, a semantically oriented account in the spirit of a suggestion made in a footnote on movement transformations (1974:200, fn. 13). Montague's suggestion is that the first occurrence of the variable (within a relative clause) to be replaced by the relative pronoun must be an argument to the main verb of that relative clause. Thus, in 1a, the relative clause has the form 'John asked me if Tom was bothering x' and 'x' is not an argument of the main verb 'asked'. In 2a, the two constituent sentences are 'a man is my brother' and 'John asked me what was bothering a man'. Notice that in the second sentence, which becomes the relative clause, the co-

referential NP is not an argument of the main verb 'asked'. In the same way, in 3a, the relative pronoun is not an argument of the main verb 'die' but of the embedded 'took'. This way, once Montague's condition is generalised to all movement transformations, it accounts for the ungrammaticality of all the sentences above.

The generalised version of the condition reads as the following:

Only those NP's which are arguments of the main verbs can be moved by such transformations as Relativization, Question Formation, and Topicalization.

Definitely the concept of 'main verb' plays a crucial role here. As it stands, however, the concept is much too vague. The questions that have to be answered include on what level is this verb supposed to be the main verb, that is, on the deep structural level in some sense of the word, on an intermediate level, or on the surface level? Should we consider only a simple verb as the main verb or sometimes even more complex verbs also, and if the latter, under what conditions is a complex verb considered as the main verb?

In view of the following sentences, it is clear that the main verb cannot be defined on an unmodified surface level:

(4a) The hat which I believed that Otto was wearing was red.
(4b) The teacher who it was expected that the principal would fire is a crusty old battleax.
(4c) The book which Tom strongly suggested that I should by all means read was Chomsky's Aspects.
(4d) The man who it is fortunate for our family that Mary likes is Irish.

The relative pronouns in these sentences are not arguments of the superficially main verb within the relative clauses. Nevertheless, the movements of the relative pronouns from their original positions do not render the sentences ungrammatical. It seems that such modal indicators as 'x believes that!', 'x expects that!', and 'x tells y that!', and propositional attitude expressions as 'it is fortunate that' and 'I am sure that', which expressions could be construed to be modifiers of the main sentences rather than themselves being the main sentences, are to be ignored in determining the main verb of the sentence.

So what are we saying with regard to the questions raised concerning the concept of main verb? One thing that we should not be saying is that the main verb should be determined on the deep structure level, not at least in any of the familiar sort, not even in the so-called logical structure. In order to see why, let us examine the following sentences:
(5) The book which John asked me to buy
        i) promised me to buy
        ii) expected me to buy
        iv) forced me to buy
        v) persuaded me to buy

was Principia Mathematica.

One might argue that the predicates 'asked', 'promised', and 'expected' in 1-iii above are some sort of modal indicators, but one can hardly argue the same for iv and v. The verb 'force' is what Karttunen (1977) calls an if-verb. The sentence 'x forced y to do z' implies that 'y did z'. Sentence v in at least one of the readings has the implication that John actually did buy the book. The main verbs of the relative clauses in iv and v are more than just the modal indicators.

The predicate constructions in 5 are those to which Equi-NP Deletion or Subject raising has applied. Both of these rules can be considered as sentence-collapsing. In other words, the relative clauses in 5 are dominated by one S node without having any other S node under it. The only possible objection to considering the rules as sentence collapsing that I can imagine is that Reflexivisation does not apply between the subject of the sentence and the object of the infinitive construction (except, of course, in ii), thus suggesting that the infinitive still has some sort of sentential status. However, there is an alternative formulation of Reflexivisation that avoids this problem. Reflexivisation can be construed as applying between the arguments of the same predicate rather than between the coreferential NP's within the same simplex sentence.

Under the suggested analysis, we have the option of considering either the first verb in the predicate construction alone or the whole construction Y NP to Y as the main predicate. This means that the notion of 'main verb' must be defined at a highly superficial level. This characteristic of the main verb needs some qualifications as the considerations involving the sentences in 4 have indicated. The main verb is determined on the surface or shallow level without considering the propositional attitude contexts or the modal indicators. This leads us to the second question, namely, what the structural requirement of a main verb is. In view of the data of the sort given in 5 iv and v above, it is clear that 'the main verb' is not always simple.

Now we will turn to the typical sentence for which Ross' constraints are motivated and see if the hypothesis under consideration can account for them.

(6) Complex NP Constraint
(a) The hat which I believed the claim that Otto was wearing was red.
(b) The man who I read a statement which was about is sick.
(7) Coordinate Structure Constraint
(a) The boy who John acted as a translator between and his teacher was from Japan.
(b) The boy who and my niece danced was handsome.
(c) The man who and my niece the committee recommended as the most suitable couple did not like the job.

(8) Sentential Subject Constraint
(a) The teacher who that the principal would fire was expected by the reporters is a crusty old battleax.

For the sentences in 6, the explanation for the ungrammaticality is straightforward. The moved relative pronoun (those underlined) obviously are not the arguments to the main predicate in the same characterized in the present work. The same explanation goes for the first sentence in 7. The rest of the sentences in 7, however, are more problematic. First of all, if we adopt Ross' explanation (cf. section 4.2.4.2 of Ross 1967), utilizing the notion of Chomsky-adjunction to justify the postulation of a movement in the second sentence, the application of our hypothesis will remain as simple; what we move and Chomsky-adjoin is simply not an argument to the main predicate but only a part of an argument. However, I am not sure how the Chomsky-adjunction will work for the third sentence in 7. If the whole constituent that is moved by Relativization is to be Chomsky-adjointed, the whole conjunction, not just the relative pronoun, must be Chomsky-adjointed. But then there is no violation of the Coordinate Structure Constraint.

One might postulate some sort of identity condition between the antecedent of a relative pronoun and the moved constituent within the relative clause. The simple formulation of the condition would be just to require the two to be identical, coreferential, etc. This will, of course, take care of the latter two sentences in 7. In 7b, the antecedent (= 'the boy') and the moved constituent as an argument of the main predicate (= 'who and my niece') are not strictly coreferential. The same applies to 7c. One immediate problem is that this identity condition cannot account for the obviously related oddness of the following sentences:

(9a) Who and your niece do you think will get married?
(9b) Who and your niece do you want to get married?

Both relative clauses and interrogative sentences can be constructed as involving property definitions. The defined property is used in a relative clause to narrow down the scope of reference of the antecedent, and in an interrogative sentence to locate the object that satisfies it. One could consider this in terms of the lambda operation (Montague 1974:257 and Partee 1975:240). One restriction is that the variable for which the property is defined should be an argument to the main predicate in the sentence that is used to define the property. Thus, in 9a, the property in question is the property of x such that x and your niece will get married in the bearer's
belief world. Notice that x is not a main argument in that property
definition, which fact explains why the sentences in 9 are odd. This
c Conditional needs further qualification as shown by the following sentences:

(10a) I don't like books the cover of which is red.
(10b) Those families at least one member of which is enrolled for
the Army are qualified for rations.

Although we will not go into the exact formulation of the solution
here, it seems that the condition is related to the problem involving
possessive cases (cf. 11). Thus if the antecedent is not coreferential
with the moved constituent, the relative pronoun seems to be in some
possessive-related form.

(11) Orphans are children whose parents are dead.

The sentence 8 is different from 4b in that the sentential subject
within the relative clause is asserted to have been expected rather than
being asserted to have been the case in a certain modal context, i.e. in
the set of possible worlds characterized by the shared expectations of a
group of reporters.

While the definition of 'main verb' is much too vague as it stands,
the present paper offers something to measure the degrees of grammaticality.
In Ross' approach, if a sentence violates a constraint in its derivation,
the sentence will be ungrammatical. The matter of degree of grammaticality
cannot be directly dealt with in the formulation of the constraints. Most
speakers I checked with judged the sentences below to be somewhat better
than the sentences in 6-8:

(12a) I met a girl who there is not a single person in the whole
world who can compare in beauty (with).
(12b) Burt's History of the Arts is one book that I have never
met anybody who really enjoyed reading.

Many of those speakers felt that the following sentences, although admit-
tedly ungrammatical, are somehow better than those in 1-3:

(13a) The book which John asked me whether I read was his latest
novel.
(13b) Which book did John ask you whether you read?
(13c) His latest novel John asked me if I read.

(14a) The difficulties which my chief concern has been to point
out are in the area of syntax.
(14b) What has your chief concern been to point out?
(14c) These difficulties my chief concern has been to point out.
(15a) The book I would rather take a nap than read is Burt's History of the Arts.
(15b) What book would you rather take a nap than read?
(15c) Burt's History of the Arts John would rather take a nap than read.

If the reader finds any of these sentences just as bad, he simply has that much more data that argue for the necessity of something of the sort of the present approach. If he agrees with most of my informants, the grammaticality difference has to be explained. We have yet to discover the principle that governs the formation of idioms and the degree of idiomaticity, but whatever principle answers the questions of what makes idioms idioms and what determines the degree of idiomaticity seems to be closely related to the definition of main predicate.

In other words, in the present approach the question of why the sentences above are viewed better can be asked in terms of what determines the main verb or what type of information or construction may more likely be viewed as a single main predicate. Obviously this does not answer the question but at least we do not misrepresent the situation by claiming the same degree of grammaticality as in the purely syntactically oriented works.

REFERENCES