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Your article titled **TRACING THE ORIGIN OF 'CONTROL' OUT SIDE THE CONTROL THEORY** has been accepted for publication in **MAJOLLS** Volume VII.2005.

Please accept our congratulations.

Yours Sincerely,

Prof. Mairo Kidda Awak,
Editor.

TRACING THE ORIGIN OF 'CONTROL' OUTSIDE THE CONTROL THEORY

Issa O. Sanusi

ABSTRACT

In most cases, a new idea or concept or theory appears to be an offshoot of the existing ones. Thus, in linguistic science, there is always the need for one to know the features or peculiarities of some of the earlier theories of grammar in order to be able to comprehend the intricacies of the phenomena in the latest or contemporary theories of grammar. Otherwise, there will be a missing link. This paper observes the close interrelationship between the Control Theory — a sub-theory of Government and Binding (GB) theory (otherwise known as 'principles and parameters' theory); and some of the syntactic transformations under the transformational generative grammar (TG) like 'Equivalent Noun phrase – Deletion' (i.e. Equi-NP-Deletion) and 'Subject-to-Object Raising (simply called 'raising'). Unless one is quite familiar with these two transformations, it may be very difficult for one to understand how a 'control structure' is syntactically derived. It is such understanding that can make the operations of the control theory, within the GB framework, quite explicit. However, Noam Chomsky, the major proponent of both TG and GB, seems to hold the view that 'principles and parameters' theory is not in any way related to TG. For instance, he remarked that, the emergence of 'principles and parameters' theory represents a radical departure from the tradition of several thousand years of linguistic research. In a more specific way, Chomsky (2000:14) reiterates as follows: The principles and parameters approach was totally different. It assumed that there are no rules at all and there are no grammatical constructions at all. So there's nothing like rules for relative clauses in Japanese or rules for verb phrases in German, and so on... What there is, it seems, is just general principles which are properties of the language faculty as such and slight options of variation, which are called 'parameters'. Given this background, it is assumed in this paper that the new generation of syntacticians may be totally ignorant of the historical antecedents of some of the theoretical issues that paved the way for the new modules of grammar. Thus, the need, as shown in this paper, to trace the origin of 'Control Theory' to some earlier transformations, for a better understanding of how the theory operates.

1.0   INTRODUCTION

It is an assumption that knowledge of the past aids one's understanding of the present. Based on this assumption, Crystal (1971:40) makes the following observation about the theoretical developments in linguistic studies:

In my view it is particularly important for people to have some historical perspective in linguistics. It helps the researcher or teacher to avoid unreal generalizations or silly claims about modern developments and 'innovations'.

Expressing a similar view, Lyons (1968:3) observes that:

Linguistics, like any other science, builds on the past; and it does so, not only by challenging and refuting traditional doctrines but also by developing and reformulating them.

On this note, we intend to trace the origin of the 'control structure', through its derivational history, to some earlier syntactic transformations like 'Equi-NP-Deletion' rule, 'raising', and 'infinitive formation' which are transformations under TG. In a similar discussion, Landau (2001:110) reports that the syntax of control interacts with many transformations like 'extra position' — a transformation with a popular history.

1.1 CONTROL THEORY AS A SUB-THEORY OF GB THEORY

The 'principles and parameters' theory views knowledge of language in terms of an interlocking set of modules or sub-theories, consisting of principles and parameters. Thus, GB is technically defined as a modular deductive theory of grammar which posits multiple levels of representation (i.e., a multi-stratal theory) related by the transformational rule 'Move - α' (Move Alpha) (see Chomsky 1981, 1986, 1995, 2000) and Trask (1993:13). The application of 'Move-α' is constrained by the interaction of various principles that serve as checks and balances on the operations of the various sub-theories of GB theory. The interlocking set of 'modules of grammar', as developed in GB theory, include, (i) X-bar theory, (ii) Government theory, (iii) Binding theory, (iv) Case theory, (v) Theta theory, (vi) Bounding theory, and (vii) Control theory. However, our focus in this paper is on the derivational history of 'control structure'.

1.1.1 DEFINING CONTROL THEORY

Following Trask (1993:62), control theory can be defined as the module of grammar that deals with the phenomenon of a VP complement that has no overt subject, and consequently interpreted semantically as having some DP' appearing somewhere within the sentence or an arbitrary (unspecified) DP that functions as its 'Subject' or controller.

A non-overt subject - DP of the infinitival clause is technically represented, within the GB framework, by a distinct 'empty category' called - PRO.

According to Riemsdijk and Williams (1986:132), "The abbreviation PRO has been devised to stand for a phonetically null (i.e., "inaudible") pronoun that occupies the subject position of infinitives in control structures". Evidence of 'control' within the control

structure, as described by the control theory, can be exemplified with the English sentences in (1):

(1)   a. John promised Mary [PRO to go].

        (where PRO is controlled by the subject-DP 'John' (i.e., a case of subject control)).

        b. John persuaded Mary [PRO to go].

        (where PRO is controlled by the object-DP 'Mary' (i.e., a case of object control)[2].

        In each of the two sentences in (1), PRO appears as the subject of an infinitival clause; however, since PRO is phonetically null, it is the antecedent DP within the matrix clause that is interpreted as the subject of the non-finite VP in that control structure. This is because the DP is co-referential/co-indexed with PRO. Such antecedent DP, by virtue of its syntactic function, is referred to in the GB literature as **controller**.

2.0   INFINITIVE FORMATION AND THE DERIVATION OF CONTROL STRUCTURE

Considering the syntactic interrelationship between the 'control theory' and some earlier transformations under TG, it could be said that it is the 'infinitive formation' that paved the way for the derivation of control structure; while transformations like 'Equi NP Deletion' and 'raising' served as inputs for infinitive formation. It was on the basis of this claim that Stockwell (1977:193) makes the following remarks:

> Infinitives are introduced whenever, for any reason, there is no subject for the verb to agree with. There are two conditions under which this commonly occurs: it is deleted (as by Equi-NP-deletion or Indefinite-NP-deletion), or it is raised out of the sentence in which its own verb appears

For the purpose of illustrating the procedures involved in the derivation of 'control structure', we shall discuss the application of both 'Equi-NP-Deletion' and 'raising' transformations in sub-sections (2.1) and (2.2) respectively.

2.1 DERIVATION OF CONTROL STRUCTURE THROUGH EQUI NP-DELETION

Following McCawley (1974:75) and Stockwell (1977:193), Equi-NP-Deletion can be defined as a syntactic process that deletes the first DP of an embedded clause if the DP co-refers (i.e., shares the same referent) to a certain DP within the matrix clause containing the embedded clause.

The derivation of control structure through the application of Equi NP Deletion can be exemplified with the English sentences in (2a-c):
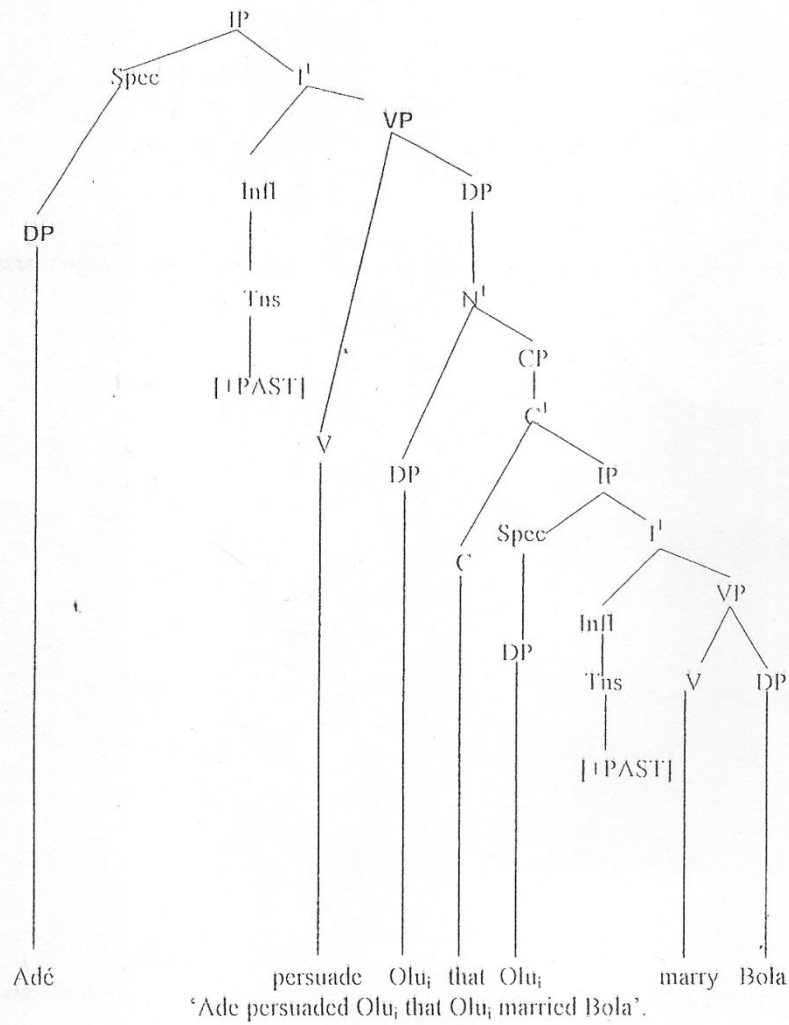
(2)   a. [$_{IP}$John$_i$ wants [$_{CP}$ that [$_{IP}$John$_i$ leave]]]

        Comp. Del.:   John$_i$ wants   Ø   John$_i$ leave

Equi.:   John wants   Ø   leave

Inf. Form: John wants   to   leave

Subject Control: [John wants [PRO to leave]].

b.   [IP Adé   persuaded Olú, [CP that [IP Olú, married Bola]]]

Comp. Del.:   Adé persuaded Olú, Ø Olú,   married Bola

Equi.:   Adé   persuaded Olú   Ø   married Bola

Inf. Form: Adé persuaded Olú   to marry Bola

Object Control: [Adé persuaded Olú [PRO to marry Bola]]

c.   [IP John, promised Mary [that [he, will see James]]

Comp. Del.: John, promised Mary   Ø   he, will see James

Equi.:   John promised Mary   Ø   will see James

Inf. Form: John promised Mary   to   see James

Subject control: [John promised Mary [PRO to see James]]

PRO – Empty category or Null pronominal representing the implied subject of the embedded clause that has been deleted by Equi-NP-Deletion   rule.

The application of Equi. –NP-Deletion to the D-structure of a given sentence and the derived S-structure, as exemplified in (2) above can be diagrammatically illustrated with the appropriate phrase-markers as shown in (3) below:

(3a) D-Structure

'Ade persuaded Olu₁ that Olu₁ married Bola'.

(3b) Equi-NP-Deletion

```
                    ⟹        IP
                         Spec      I'
                                      VP
                          Infl            DP
                     DP
                           Tns              N'
                                              CP
                          [+PAST]              C'
                                                IP
                            V              Spec      I'
                               DP                      VP
                            C                    Infl     V   DP
                                DP                [-finite]



  Adé          persuade  Olú   Ø   Ø           marry  Bola
```

(3c) S-Structure (after 'tree-pruning' and 'to-insertion' have applied)

```
                              IP
                         /         \
                     Spec           I'
                       |          /      \
                      DP        Infl        VP
                       |          |           |
                       |         Tns          V'
                       |          |        /   |   \
                       |        [+PAST]   V   DP    VP
                       |                  |    |    /  \
                       |                  |    |   V    DP
                       |                  |    |   |    |
                      Adé            persuade Olú to marry Bola
```

[Adé persuaded Olú [PRO to marry Bola]]
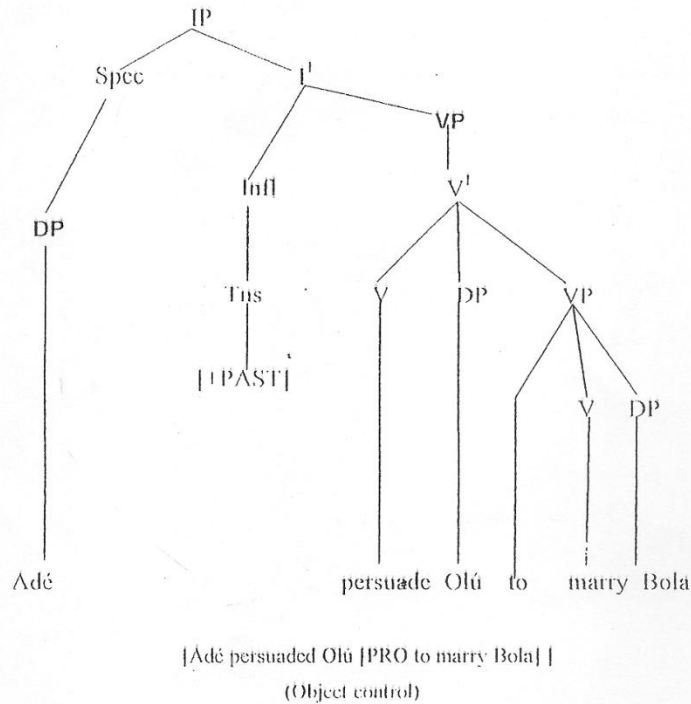
(Object control)

2.2   DERIVATION OF CONTROL STRUCTURE THROUGH RAISING

As earlier stated in section (1) above, 'raising' is another transformation, within the TG framework, through which the 'control structure' can be derived. For instance, 'Subject-to Object Raising' (SOR) involves the displacement of a DP from the subject position of a subordinate clause to the matrix clause object position. Consequently, the subordinate clause becomes a non-finite clause, thereby producing a control structure (see Mohanan (1982), Campbell (1998) and Aarts (2001)).

The derivation of control structure through 'raising' can be exemplified with the English sentence in (4):

(4) [IP John believes [CP that [IP she is a genius]]].

Comp. Del.: John believes   Ø   she   is   a genius
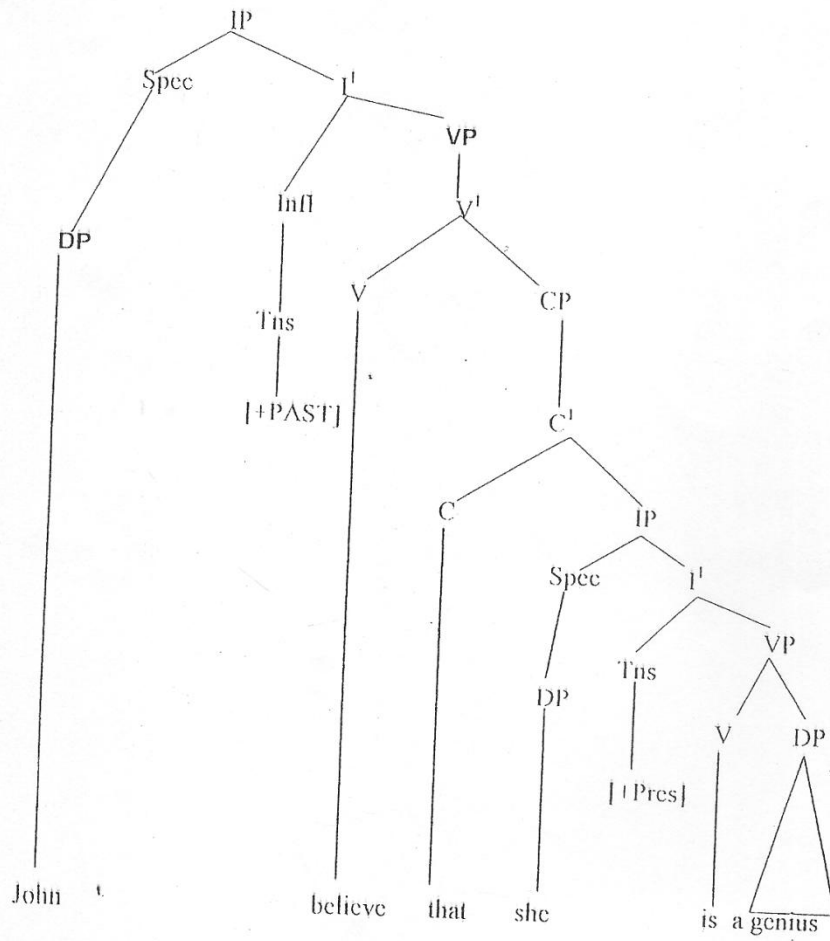
S-O-R:[3] John believes her is a genius

Inf. Form.: John believes her to be a genius

Object Control: [John believes her [PRO to be a genius]]

Observe that in (4) above, the subject of the embedded clause — she is governed by a tensed Infl. node and consequently received *Nominative* Case in that context. However, after raising has applied, the subject-DP loses its subjecthood and becomes the direct object of the matrix verb — *believe*. Consequently, the complement clause — 'that she is a genius', as in (4) above, which forms an S-bar, lost its grammatical status as an embedded sentence when its complementizer — 'that' was deleted and its subj-DP 'she' was also raised to the object position of the matrix verb — 'believe'. The resultant structure after the 'S-bar' has been deleted is shown in (5c) below. In other words, it was 'raising' from **Subject** to **Object** position that changed the grammatical relation of the subject — DP from she to her, as reflected in the control structure:
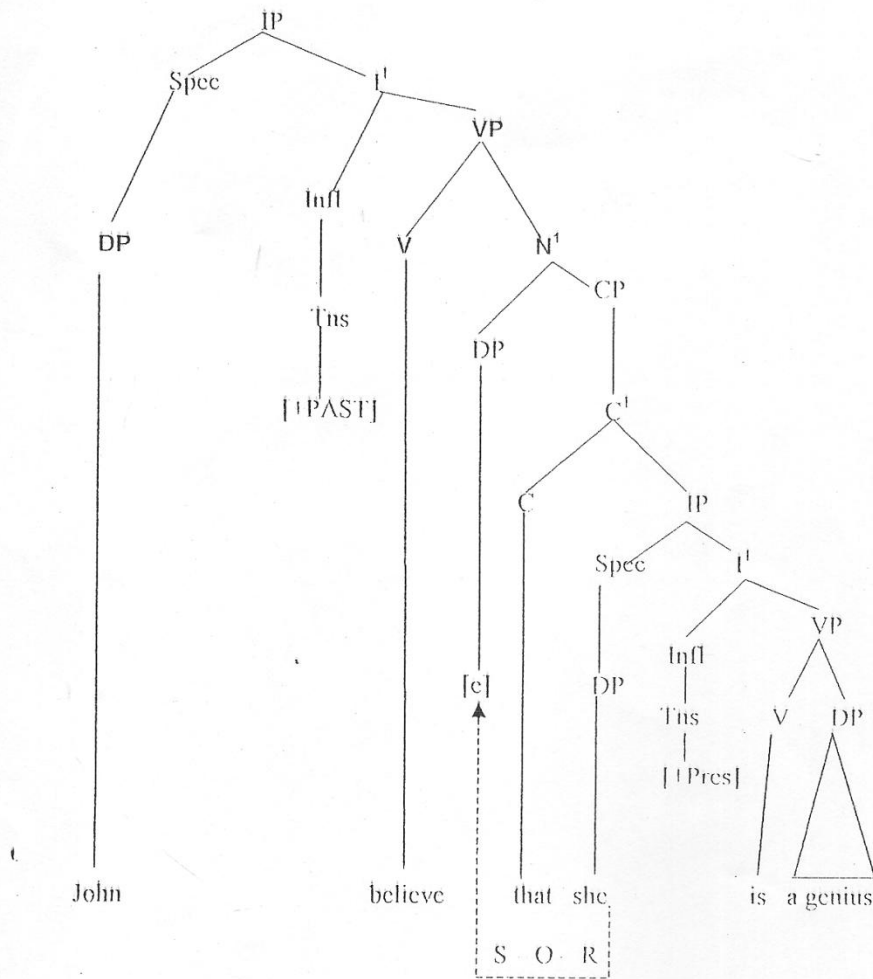
[John believes her [PRO to be a genius]].

The processes involved in the derivation of the control structure in (4) above, can be diagrammatically represented by the phrase-markers in (5) below:
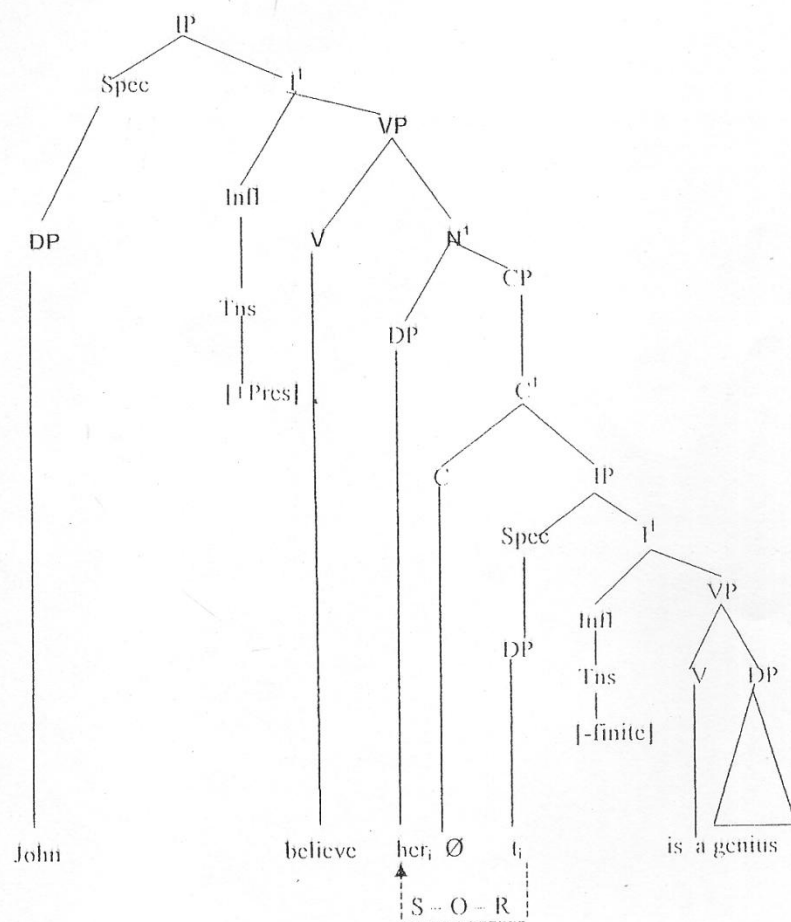
(5a) **D-Structure**

```
                              IP
                      ┌───────┴───────┐
                    Spec              I'
                      │          ┌─────┴─────┐
                     DP        Infl          VP
                      │          │            │
                      │         Tns           V'
                      │          │        ┌────┴────┐
                      │       [+PAST]      V        CP
                      │                    │         │
                      │                    │         C'
                      │                    │    ┌─────┴─────┐
                      │                    │    C          IP
                      │                    │    │      ┌────┴────┐
                      │                    │    │    Spec        I'
                      │                    │    │     │      ┌────┴────┐
                      │                    │    │    DP      Tns       VP
                      │                    │    │     │       │     ┌───┴───┐
                      │                    │    │     │    [+Pres]   V     DP
                      │                    │    │     │       │      │      △
                    John              believe that  she           is   a genius
```
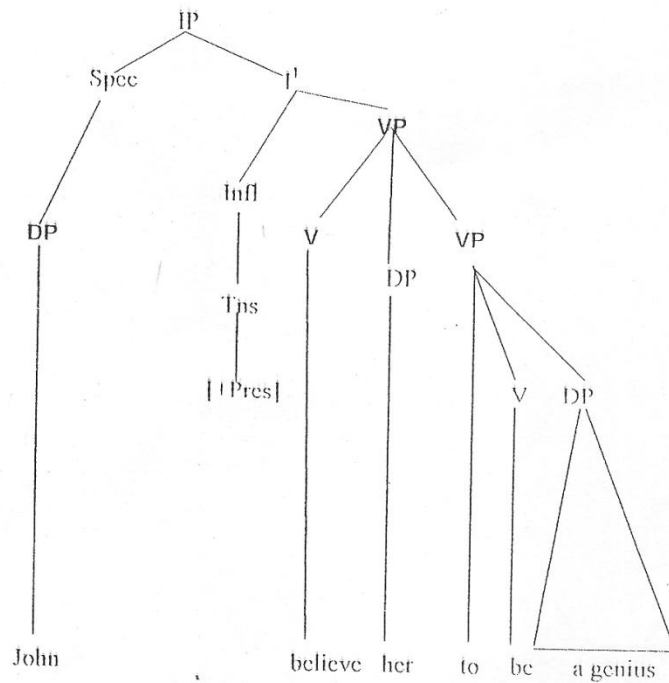
'John believes that she is a genius'.

(5b) Subject-to-Object Raising

IP
Spec
I'
VP
Infl
V
N'
DP
CP
C'
C
IP
Tns
[+PAST]
DP
Spec
I'
[e]
DP
Infl
VP
Tns
V
DP
[+Pres]

John   believe   that she   is   a genius

S   O   R

(5c) S-Structure (before 'tree-pruning' and 'to-insertion' applied)

(5d) S-Structure (after 'tree-pruning' and 'to-insertion' have applied)

[John believes her [PRO to be a genius]]

2.3 'TREE-PRUNING' AND 'TO-INSERTION' IN CLASSICAL TG ANALYSIS

To derive the surface grammatical forms of the control structures in (3c) and (5d) above, both 'tree-pruning' and 'to-insertion' must apply to the output of both 'Equi-NP-Deletion' and 'raising' transformations, shown in (3b) and (5c) respectively. Both 'tree-pruning' and 'to-insertion' are necessary syntactic processes under the TG framework.

2.3.1 TREE-PRUNING

It was a practice under TG model that whenever transformations apply to delete or move certain constituent from a particular syntactic position to another, all the nodes that are left vacant (i.e., nodes that are no longer dominating overt constituents) are automatically pruned out or removed from the tree. Such pruning always necessitates a

regrouping of the remnant nodes to form a grammatical structure. It is that process of removing some redundant nodes from the tree or phrase-marker that is technically referred to as 'tree-pruning'.

However, there is an assumption under 'Trace Theory' that traces, according to the notion of structure — preservation constraint, do semantically enrich the S-Structure of a given sentence (see Ross (1966)). Therefore, following the concept of Empty Category Principle (ECP), as conceived in GB theory, the idea of 'tree-pruning' has become totally irrelevant at the S-Structure level of a given derived sentence.

2.3.2 TO-INSERTION

'To-insertion' is obligatory in an infinitive formation process. The infinitival to in English is always inserted before an infinitive verb whenever the subject-DP of an embedded clause is deleted (as in Equi-NP-Deletion), see (3c) above. Also, when a subject-DP of an embedded clause is raised to a higher syntactic position (as in subject-to-object raising), 'to' is also inserted before the infinitive verb of the embedded VP, as exemplified in (5d) above.

The infinitive particle 'to' in English is so called because the only kind of complement it allows is one containing a verb in the infinitive form (see Radford 2004:49). A major syntactic difference between 'prepositional to' and 'infinitival to' is the fact that, prepositional to, like other prepositions, can have a noun expression (i.e., a DP) as its complement, whereas infinitival to requires a verbal complement. For an authoritative distinction between infinitival to and prepositional to in English, see Radford (2004:50) as quoted under endnote 4 below.

3.0 IMPLICATION FOR SECOND LANGUAGE LEARNING

The implication of the major theoretical issue raised in this paper, directly or indirectly, has to do with the issue of learnability. In other words, given the fact that one of the main driving forces behind the development of GB theory is the issue of 'learnability', one would therefore expect the control theory to incorporate into its analytical procedure how a second language learner can differentiate between sentences with 'control structure' as in (1), (2) and (4) above; and the basic forms of such sentences, from which the surface forms are derived.

An awareness of such derivational processes will no doubt enhance a better understanding of the syntactic structure of such sentences, as well as the way and manner in which the control theory operates within the GB theory.

4.0 CONCLUSION

This paper expresses the view that, in theoretical developments, a new theory may be an offshoot of the existing ones. In other words, it is possible for a new theory to borrow

and incorporate into its tenets some of the features of the earlier theories. Based on this assumption, this writer tends to differ from the opinion expressed by Noam Chomsky that the 'principles and parameters' theory is radically different from the tradition of several thousand years of linguistic research; and that there is nothing, like grammatical rules and constructions at all in his principles and parameters theory (see Chomsky 2000: 14).

In our attempt to revisit Chomsky's claim, we have shown in this paper, using English examples, how the 'control structure' is syntactically derived from earlier transformations like 'Equi -NP-Deletion' and 'raising', which are popular grammatical transformations under the TG model. Given such empirical evidence, this paper argued that if 'principles and parameters' theory has nothing to do with grammatical rules and constructions, the control theory should not have taken its source from grammatical rule like 'Equi-NP-Deletion' or 'raising'. Therefore, for its derivational source(s), we can consider the case of 'Control Theory', among other sub-theories of GB theory, as a case of "old wine in a new bottle". This, of course, invalidates Chomsky's overgeneralization of total independence of the principles and parameters theory.

In addition to our discussion of English examples, evidence of Serial Verbal Constructions (SVC) in Standard Yorùbá (a Kwa language) has shown that the importance of grammatical rules like 'Equi-NP-Deletion' cannot be overemphasized. For instance, 'Equi-NP-Deletion' must apply before SVC can occur in Yorùbá. In other words, a complex sentence with serial verbs in Yorùbá is normally derived from simple basic sentences through the application of 'Equi-NP-Deletion, as in the following example:
(a) Bólá ra isu.   'Bólá bought yam'.
(b) Bólá se isu.   'Bólá cooked yam'.
(c) Bólá je isu.   'Bólá ate yam'.

To derive a complex sentence with serial verbs from the above simple sentences in Yorùbá, 'Equi-NP-Deletion' must apply to delete the second and third occurrences of the subject-DP, as shown below:
/Bólá$_i$ ra isu, Bólá$_i$ se isu, Bólá$_i$ je isu/ ➔ [Bólá ra isu sè je] (i.e$^?$ 'Bólá bought,
                  cooked and ate yam').

where the subject-DP-Bólá in sentence (a) is coreferential/coindexed with the subjects of sentences (b) and (c). Thus, the need to delete such repeated subject-DP's to avoid unnecessary repetition.

In conclusion, based on our discussion and the empirical evidence provided in this paper, we are of the view that in linguistic theorizing, a unified approach that can draw from various existing theories of grammar would be much more beneficial and acceptable than a new model that is completely based on abstraction.

NOTES

[1] Following Abney (1987), the concept of Determiner Phrase (DP) is syntactically equivalent to its earlier version-NP. Therefore, we have used DP to represent NP in our analyses in this paper.

[2] Both the subject and object control are described in the literature as **obligatory control**, as opposed to **arbitrary control** (see Trask (1993:62)).

[3] As used in this paper, S-O-R implies Subject-to-Object Raising. That is, the constituent that is involved in the raising transformation moved from its original subject position to the direct-object position of the matrix verb like 'believe'.

[4] According to Radford (2004:50),

> Whereas prepositional to is a contentive with intrinsic lexical semantic content (e.g. it means something like 'as far as'), infinitival to seems to be a functor with no lexical semantic content.

REFERENCES

Aarts, B. (2001) *English Syntax and Argumentation*. Second edition. New York: Palgrave.

Abney, S. (1987) "The English Noun Phrase in Its Sentential Aspect". Unpublished Ph.D dissertation. MIT.

Campbell, R. (1998) "A Note on Subject Clitics in Akan". *Studies in African Linguistics*. Vol. 27, No. 1, pp.49-66.

Chomsky, N. (1981) *Lectures on Government and Binding*. Dordrecht: Foris.

Chomsky, N. (1982) *Some Concepts and Consequences of the Theory of Government and Binding*. Cambridge, Mass.: The MIT Press.

Chomsky, N. (1986a) *Barriers*. Cambridge, Mass.: The MIT Press.

Chomsky, N. (1986b) *Knowledge of Language*. New York: Praeger.

Chomsky, N. (1995) *The Minimalist Program*. Cambridge, Mass.: The MIT Press.

Chomsky, N. (2000) *The Architecture of Language*. Oxford, New York: Oxford University Press.

Crystal, D. (1971) *Linguistics*. New York: Penguin Books Ltd.

Landau, I. (2001) "Control and Extraposition: The Case of Super-Equi". *Natural Language and Linguistic Theory*. Vol. 19, No.1, pp.109-152.

Lyons, J. (1968) *Introduction to Theoretical Linguistics*. London: Cambridge University Press.

McCawley, J.D. (1974) "English as a VSO Language". In Pieter A.M. Seuren (ed.) *Semantic Syntax*. London: Oxford University Press.

Mohanan, K.P. (1982) "Infinitival Subjects, Government, and Abstract Case". *Linguistic Inquiry*. Vol. 13, No.2, pp.323-327.

Radford, A. (2004) *Minimalist Syntax: Exploring the Structure of English*. Cambridge: Cambridge University Press.

Riemsdijk, H. Van and E. Williams (1986) *Introduction to the Theory of Grammar*. Mass.: The MIT Press.

Ross, J.R. (1966) "A Proposed Rule of Tree-Pruning". *Mathematical Linguistics and Automatic Translation Report No. NSF-17 to the National Science Foundation*, Harvard University Computation Laboratory.

Stockwell, R.P. (1977) *Foundations of Syntactic Theories*. New Jersey: Englewood Cliffs Inc.

Trask, R.L. (1993) *A Dictionary of Grammatical Terms in Linguistics*. London, New York: Routledge.