Research on Adjunction (I)

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Introduction

Generally speaking, both substitutions and adjunctions satisfy the structure-preserving hypothesis suggested by Emonds.[1] Whether adjunction structures satisfy structure-preserving hypothesis or not seems to remain a big problem. Indeed, the structure of adjunction violates the $\bar{X}$-theory, $\bar{X}$-theory is the rule in D-structure, not a constraint of the output movement; namely, generated structures by adjunction are not corresponding to $\bar{X}$-theory.

Chomsky's recent theory in *Barrier*s,[2] in which nodes in a phrase marker across which government, proper government, and grammatical movement cannot take place. According to the theory of *barriers*, WH phrases may adjoin to VP in which they move. However, adjunction to CP or to IP can be considered; adjunction to a non-argument position($\bar{A}$-position).[3]

To exclude the illicit derivations, some modifications have to be made to the notions of c-command and of proper government, and so on.

In Section I, the recent definitions of phrase structures by Chomsky are manifested. In Section II, the general survey and problems of $\bar{A}$-adjunctions are manifested. In Section III, the features and problems of $\bar{A}$-adjunctions will be manifested within the recent T-model and the tentative analysis will be suggested. In Section IV, the features and problems of $\bar{A}$-adjunctions will be manifested within the recent LF-model and the tentative analysis will be suggested. In Section V, the tentative modifications of the recent theory of $\bar{A}$-adjunctions will be suggested by modifying the notion of c-command and that of proper government and so on.

[1]J. Emonds(1976). *A Transformational Approach to English Syntax.* New York: Academic Pr.

[2]N. Chomsky(1985). *Barrier*s. The Linguistic Inquiry Monograph Series, No.13. Cambridge, Mass. : MIT Pr.

[3]This definition of $\bar{A}$-position follows Chomsky's *Lectures on Government and Binding* (1981). Dordrecht: Foris Pub. p.47.

I. Recent Definitions of Phrase Structures

Recent definitions and conditions of phrase structures proposed by Chomsky are as follows:[4]

(1) Phrase Structure

$S = INFL^{MAX} = \bar{\bar{I}} = IP$

$\bar{S} = COMP^{MAX} = \bar{\bar{C}} = CP$

V, N, P, and A are lexical heads (lexical governors)

COMP and INFL are non-lexical heads.

[SPEC, CP] is a landing site for WH movement: COMP is not.

In an adjunction structure $[_Y\ W\ [_Y \cdots$ the entire set of nodes labelled Y is the category Y, and each member of this set is a segment.[5]

(2) Adjunction is only possible to a maximal projection which is a nonargument.[6]

In addition to the definition of phrase structures, Chomsky applies the notion of $\bar{I}$ system, and $\bar{C}$ system; $\bar{I}$ system is as follows:

(3) $\bar{I} = I \quad COMP$

$S = \bar{\bar{I}} = SPEC \quad \bar{I}$

The notion of $\bar{C}$ system is:

(4) $[\bar{\bar{x}}\ SPEC\ \bar{X}]$

$\bar{S} = \bar{\bar{C}} = SPEC \quad \bar{C}$

$\bar{S}$ means CP, which is not a defective category.

According to the theory of adjunction in (2), only the adjunction to VP is plausible. However, the adjunction to SPEC of $\bar{C}$, and the equivalent adjunction to COMP are also plausible in earlier framework as is shown in (5) below.

(5) $[_{cp}\ [_{NP}\ who_i]\ [_{IP}\ t_i\ likes\ what]]$

(6) $[_{cp}\ [_{NP}\ [_{NP}\ what_j]\ who_i]]\ [_{IP}\ t_i\ likes\ t_j]]$

(5) is S-structure, and (6) is LF-representation. This adjunction in LF does not violate condition (2) because WH is a non-argument ($\bar{A}$) after it is moved to SPEC.

To consider a double question, the LF representation involves the adjunction of WH phrase.

[4]The recent analysis by Chomsky follows the lecture at MIT in 1986 (fall term): *Linguistic Structure(A)*: Current work on topics in syntax and semantics.

[5]R. May. (1985). *Logical Form: Its Structure and Derivation.* The Linguistic Inquiry Monograph Series, No.12. Cambridge, Mass.: MIT Pr. pp. 81 - 83.

[6]N. Chomsky.(1985). *Barriers.* p. 6.

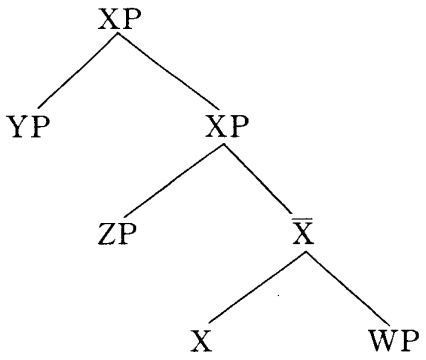
(7) $[_{\bar{S}}\ [_{COMP}\ who]_i\ [_S\ t_i\ [_{VP}\ bought\ what]]]$

(8) $[_{\bar{S}}\ [what_j\ [who]_i\ ]_i\ \ [_S\ t_i\ [_{VP}\ bought\ t_j]]]$

Chomsky applies May's theory[7] to exclude the illicit derivations on adjunction. Chomsky shows two theories on adjunction; adjunct forms a category with segments, and adjunct can adjoin to VP. However, the latter formation is not necessary by setting the formulation as follows: No adjunction to argument, and adjunction must be free.[8]

According to May's theory, all adjunction structures are three dimensional. May points out that $\bar{X}$-theory has to be a one-to-one relation between heads and maximal projections, but adjunction structures have a different relation, for adjunction structures have the two tokens of the XP projection. Then, adjunction structures as (9) seem to be in violation of $\bar{X}$-theory.

(9)



Considering the different peculiarities of adjunction structures, the notion of adjunction and projection are completely different from each other. May proposes the definition of projection as follows:[9]

> Let us reject this interpretation and assume instead that such nodes do not constitute distinct categorial projections, now understanding the occurrence of a *projection* (at a given bar level) to be made up of a set of occurrences of nodes that are featurely nondistinct (that is, identical with respect to syntactic features, bar level, index, etc.). It is these nodes, taken collectively, that constitute the membership of a projection. In effect, this characterization claims that the structural effect of (Chomsky)-adjunction is to create multimembered projections. This retains the central idea that there is a one-to-one relation

[7]R. May. *Logical Form: Its Structure and Derivation.* pp. 81 - 83.

[8]This modification follows Chomsky's lecture at MIT.

[9]R. May. *Logical Form: Its Structure and Derivation.* p. 57.

between heads and maximal projections, although the latter may be complex, in the sense of containing a number of constituent nodes.

Thus, the adjunction structure (9), which contains the two tokens of XP, can be considered to have a single projection of the same node.

In addition to the modification shown above by May, adjunctions share the same peculiarities with substitution; head to head movement, and the movement of maximal projection. As for the claim that adjunction constructions are three-dimensional, we have to find Across-the-Board effects in non-coordinate.

Concerning the LF representation, we have to look into the peculiarities more in detail in Section IV, which seems to be a suitable analysis to consider adjunction structures.

II. General Survey and Problems of Ā-adjunctions

One of the big problems in considering the peculiarities of Ā-adjunctions is whether traces of movement to all Ā-positions can be analyzed in the same way as the traces of WH movement, or not. The traces of adjunctions should contain one part of traces of WH movement; the adjunction to COMP.

We can find a class non-structure-preserving movement that adjoins a constituent to non-argument positions; e.g., right-moved NP's, parenthetical formation, negated constituent formation and so on.

In general, adjunctions have to be based upon the structure-preserving hypothesis by Emonds, but adjunctions to S, or adjunctions to COMP (namely, Ā-adjunctions) cannot be considered to satisfy the structure-preserving hypothesis. Therefore, we cannot set up only one definition on adjunction structures; namely, adjunctions to VP or adjunctions to AP seem to have different peculiarities from adjunctions to S, or adjunctions to COMP.

To manifest these important peculiarities, we have to look into the structure-preserving hypothesis by Emonds more in detail. Emonds hypothesizes a structure-preserving constraint which requires that all movement rules be local, structure-preserving, or root. One of the local transformations is a partial shift as follows:

(10) I let the cat *out*.

(11) I let *out* the cat.

In (10) and (11), the particle *out* and the NP *the cat* can exchange positions. These constituents are adjacent, and *out* is not a phrasal constituent. Then local trans-

formations are not subsumed under the structure-preserving constraint. All transformational rules except local transformations fall under the principle that all transformational rules must preserve structure, unless they are root transformations. According to Emonds, all transformations can be divided into two; structure-preserving, or root. Then, we have to show the difference between structure-preservation and root. Structure-preserving transformations move a constituent from a node A of a certain type to a node B of the same type, they substitute a node for a similar node.

Passive is the typical structure-preserving transformation as follows:

(12) $[_{NP}$ e] was visited $[_{NP}$ John]

(13) $[_{NP}$ John] was visited t_i

The structure that exists cannot be different after the rule application in case of structure-preserving movements.

On the other hand, root transformations create derived structures that could not have been generated in the base. Emonds claims that root transformations may occur only in matrix clauses after the movement as follows:

(14) Joan promised that she would write the letter and she did *write the letter*.

(15) Joan promised that she would write the letter and *write the letter* she did.

In (15), the sequence (*write the letter*) VP NP AUX is not a string that can be generated in the base. Besides, the second VP in (15) cannot be substituted under a base-generated node. Thus, root transformations disturb sentence structure significantly.

On government-binding theory outlined in Chomsky, the structure-preserving constraint may not be relevant, in which we can find a single movement rule "Move α." However, the proper conception of the structure-preserving constraint is not as a condition on rule application, but rather as a constraint on output. In the government-binding theory, in which the rule "Move α" applies freely, we have to argue that the structures derived by this movement must obey the structure-preserving hypothesis.

Emonds points out the revised structure-preservation to include the WH movement, for WH movement cannot be structure-preserving by the fact that WH movement is a root transformation. The revised structure-preservation by Emonds is as follows:[10]

[10] J. Emonds. *A Transformational Approach to English Syntax*. p. 182.

(16) If A_j is a rightmost or leftmost constituent of an S, a transformational operation that substitutes B for A_j is structure-preserving if B dominates A_i, provided that there is no S such that B = X [$_s$ Y A_i Z_s] W

We can find that the complex NP shift has the same movement as WH movement as follows:

(17) John sold *a car that he drove for ten years* to his neighbor.

(18) John sold to his neighbor *a car that he drove for ten years*.

In (17) and (18), the complex NP shift results in a configuration that could not have been generated in the base, V PP NP. Emonds applies the revised definition of structure-preservation to complex NP shift. According to the explanation by Emonds, complex NP shift contains a PP or an S, and they move to the position under the VP where a PP or an S may appear. An NP is dominating a PP or S, so substitution of this NP for PP or S is weakly structure-preserving. Emonds classifies WH movement and complex NP shift, distinct from both strictly structure-preserving rules and root transformations. Even though WH movement and complex NP shift are not root transformations, these movements should not be structure-preserving as mentioned in Whitney.[11]

The crucial point in deciding whether the movement is structure-preserving or not is not whether the movement is a root transformation, but whether it moves a constituent to an argument position. If an operation moves a constituent to an Ā-position, then it cannot be strictly structure-preserving. Thus, WH movement and complex NP shift cannot be defined as structure-preserving, though these movements are not root. They have to be called non-structure-preserving Ā-adjunctions. Such an opposite view as these movements are non-structure preserving needs lots of evidence, so that some evidences to support this hypothesis will be shown in a later section. However, we can easily find different points from structure-preserving movements in Ā-adjunction: non structure-preserving movement, in which, as mentioned before, we can find a little different feature between adjunction to VP and adjunction to COMP. Indeed, Ā-adjunctions have to contain these adjunctions, for VP cannot get theta role; the position of VP cannot be the theta position: Ā-position.

Generally speaking, we can find various types of sentences which contain traditional Ā-adjunctions.

[11]R. Whitney. (1982). "The Syntactic Unity of Complex NP Shift and WH Movement." *Linguistic Analysis*. 10. No. 4. New York: Elsevier.

(19) *Who* did you talk to yesterday?

(20) *Jerry*, I really like.

(21) It's *Jerry*, I really like.

(22) *Not even in Seattle* does it rain constantly.

(23) *Out the door* zipped *the cat*.

(24) *Among her friends* is a *famous contralto*.

(25) Paula gave to Joanie *a book about linguistics*.

(26) Mary feels, I think, *that she is the best candidate*.

All sentences shown above clearly contain Ā-adjunctions. In case of WH movement as (19), we can find the adjunction of a WH phrase to COMP. In case of topicalization as (20), we can find adjunction of a topicalized NP to S. In case of clefting as (21), we can find the attachment of a constituent in an embedded clause to the right of a matrix *be*. In case of negated constituent preposing as (22), we can find adjunction of a negated constituent to COMP. In case of directional PP preposing as (22), we can find leftward adjunction to a directional PP to S, triggering subject-simple verb inversion. In case of preposing around *be* as (24), we can find leftward adjunction to S of a PP, comparative AP, or particle, triggering rightward subject movement. In case of complex NP shift as (25), we can find rightward movement and adjunction to S of an NP containing a PP or S. In case of parenthetical formation as (26), we can find adjunction under an unembeddable node of a constituent moved from the first of two conjoined sentences.

All the sentences shown above are Ā-adjunctions, rather than substitutions. All the movement of Ā-adjunctions have to share the same peculiarities as WH movements. These movements are non-structure-preserving. In addition to this, we have to admit that traces of Ā-adjunctions are the same as traces of WH movements: these traces are variable.

To manifest the peculiarities and differentiate some adjunctions from other adjunctions, we have to apply the recent theory on c-command, government, domination relation and so on. The tentative analysis will be manifested to differentiate some adjunctions from the other in a later section.

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