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## MERGE AND MOVE ALPHA OPERATIONS IN THE MINIMALIST THEORY: AN ANALYSIS OF ENGLISH SENTENCES

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**Abstract:** An analysis of 'merge' and 'move alpha' operations in the minimalist theory basing on the four English sentences has revealed that one binary tree can better describe the four sentences. The empty slots have served as the landing sites of the moved constituents and leaving traces where they have been extracted.

Key words: move alpha, merge, binary tree, trace, landing site

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**Résumé :** L'analyse des opérations 'fusionner' et 'déplacer alpha' dans la théorie minimaliste de quatre phrases anglaises nous révèle qu'un seul arbre binaire décrit mieux les quatre phrases. Les catégories vides servent comme les sites d'atterrissage pour les constituants déplacés en laissant des traces.

Mots clés: déplacer alpha, fusionner, arbre binaire, trace, site d'atterrissage

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### Introduction

In the minimalist theory, the merge operation combines the constituents to form the phrase and a sequence of phrases are combined to form a clause and the clause are combined other components to form a sentence. He keeps on stating that there is a good relation between merge and move-alpha since merge could be changeable according to the case itself. This operation leads to a new start we want (Zwart 1998)

The operation move is an instance of Merge, also known as internal merge. It moves an element in the syntactic structure from one position to another. It is

motivated by the fact that syntactic constituents are interpreted in different positions from the ones where they are pronounced (Chomsky 1995)

The goal of this study is to account for the merge and move alpha operations in the following four English sentences.

- a. Bobo helps Lola
- b. Does Bobo help Lola?
- c. Who helps Lola
- d. Who does Bobo help?

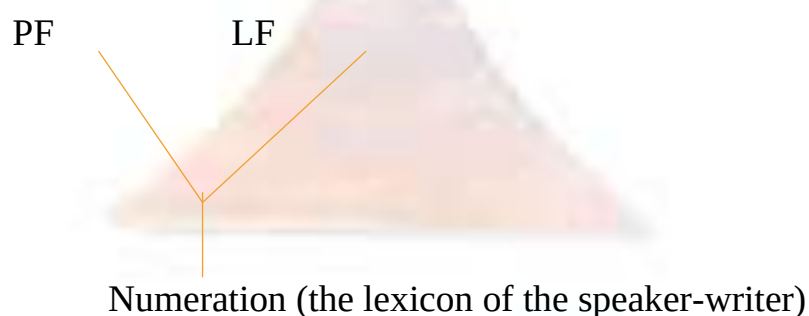
The specific objective is to show how the transformed sentences (b,c,d) can be the results of merge and move alpha operations from (a).

It was hypothesized that the sentences labelled (b,c and d) are the results of merge and move alpha operations from (a).

Qualitative method and its documentary technique helped to read different books and journals on minimalist theory in order to get relevant data. These data were taken into account in this study.

### **I. On Minimalist Program Theory**

This section presents different views of few scholars on the minimalist program theory. Chomsky is a starter. Chomsky (1999) argued that human beings have the computational system in the minds, which has the central part of the biological language faculty. It also aims at providing the properties of economy, simplicity and efficiency. They referred to the following figure to identify the interface used in the minimalist program:



This interface is the mixing of both PF and LF. The latter shows the interaction between the syntactic structures with the semantic one while the former is represented by the spell out implying what has been uttered from (LF). The PF is the phonological system. The numeration is the lexicon of the speaker-writer.

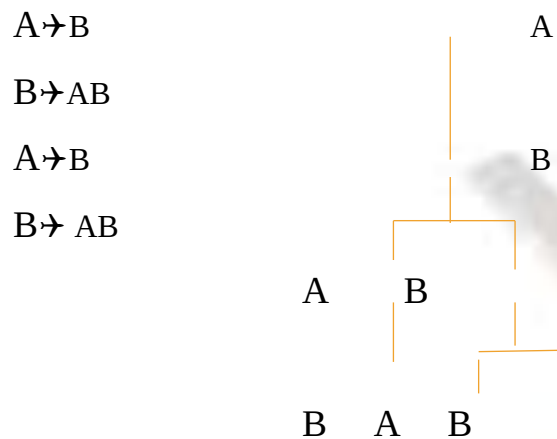
Howard Lasnik (1999) said that in minimalist theory, movement must be driven by feature checking. He developed the theory of EPP (Extended Projection Principle). This principle requires a subject for every clause. For example the sentence: (is reading) is not grammatical unless personal pronouns or any noun fills the subject. In minimalist theory, it also implies that every sentence must have a specifier TP position filled.

Chomsky (2001) stated that language is an optimal solution to legibility conditions. He created minimalist program, principle of economy, merge operation and concepts of checking features. Concerning checking features, Boskovic (2002) contradicted Chomsky (2001) stating that wh-movement are not moved to check on C. They move to be the focus.

Andrew Radford (2004) argued that structure building is minimal and driven only by the need to satisfy grammatical features. The current study will propose one interface satisfying the grammatical features of the sampled sentences.

Hornstein, Jairo Nunes and Kleanthes Grohmann (2005) contributed with copy theory of movement. They replaced Trace theory with copy theory which implies when move, you leave a copy not a trace.

Hornstein (2005) described the minimalist program that has taken its main issues from projection theory. He pointed that the simplicity, tasteful in its style of representing the projections occurring naturally as a set of recursion. He used the variables A and B standing as constituents:



The above of hierarchal projection illustrated by Hornstein (2005) is helpful for the establishment of the binary tree.

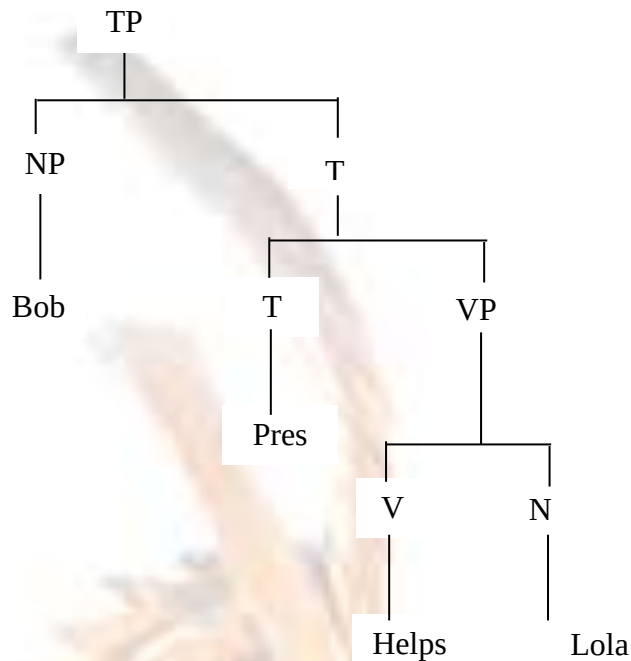
Chomsky (2006) argued that the tree diagram used in the minimalist program is hierarchical. This tree eliminates ambiguity by showing the related merge to each component. This tree is not linear but hierarchical for the sake of clarity, Graffi (2015) mentioned some pillars of the minimalist program. He starts with multivalued feature. It consists of attribute and value. The attribute is presented by using a set of pieces of grammatical information. This information constitutes alternative to each other such as / masculine/, /feminine/or / neuter/. The value is related to the individual case of each constitute. The second type of is the binary feature using attribute and value for examples /masculine: +/ or/masculine: -/. The privative feature eliminates the value. The lexicon features also make part of the pillar of the minimalist program. Those features can be category, number, person, gender and case.

## II. Analysis of Merge and Move Alpha Operations

As mentioned above, the analysis employed four English sentences. The binary tree of each sentence was presented before focusing on what were merged and moved.

### III.1 BOBO HELPS LOLA

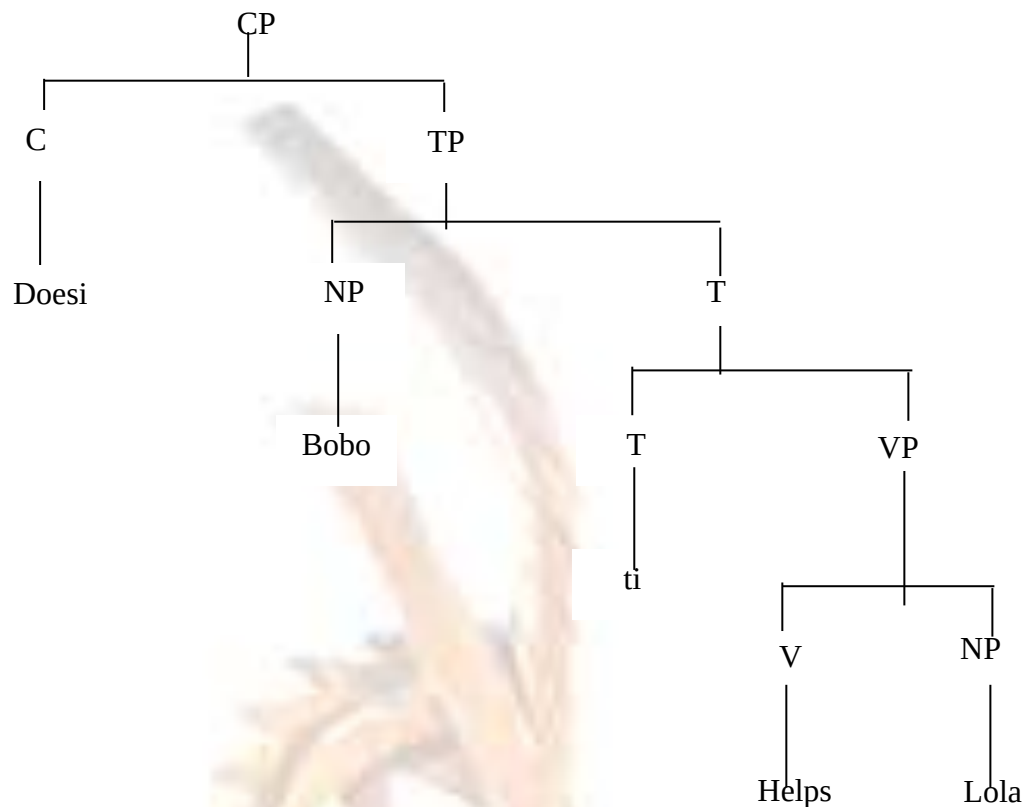
While analyzing the sentence (Bobo helps Lola), it is observed that there is no move alpha operation since the sentence is in affirmative form. The diagram below gives illustration:



The binary tree starts from the bottom and moving to the up of the tree with the merging of the constituent under specified constraints: The NP (Lola) merges with the verb help to form VP, and the VP merges with T of the sentence represent the simple present tense form T. This tense (T) merges with NP (Bobo) to form TP. This last merging is used to check the Case following (Chomsky 2001). After checking, then T gives a nominative case to 'Bobo'.

### III.1.2. DOES BOBO HELP LOLA?

Observing both the sentence (a) and (b), it is just the affirmative form that is converted into question. The merge is changed according the case itself as shown in the diagram below:



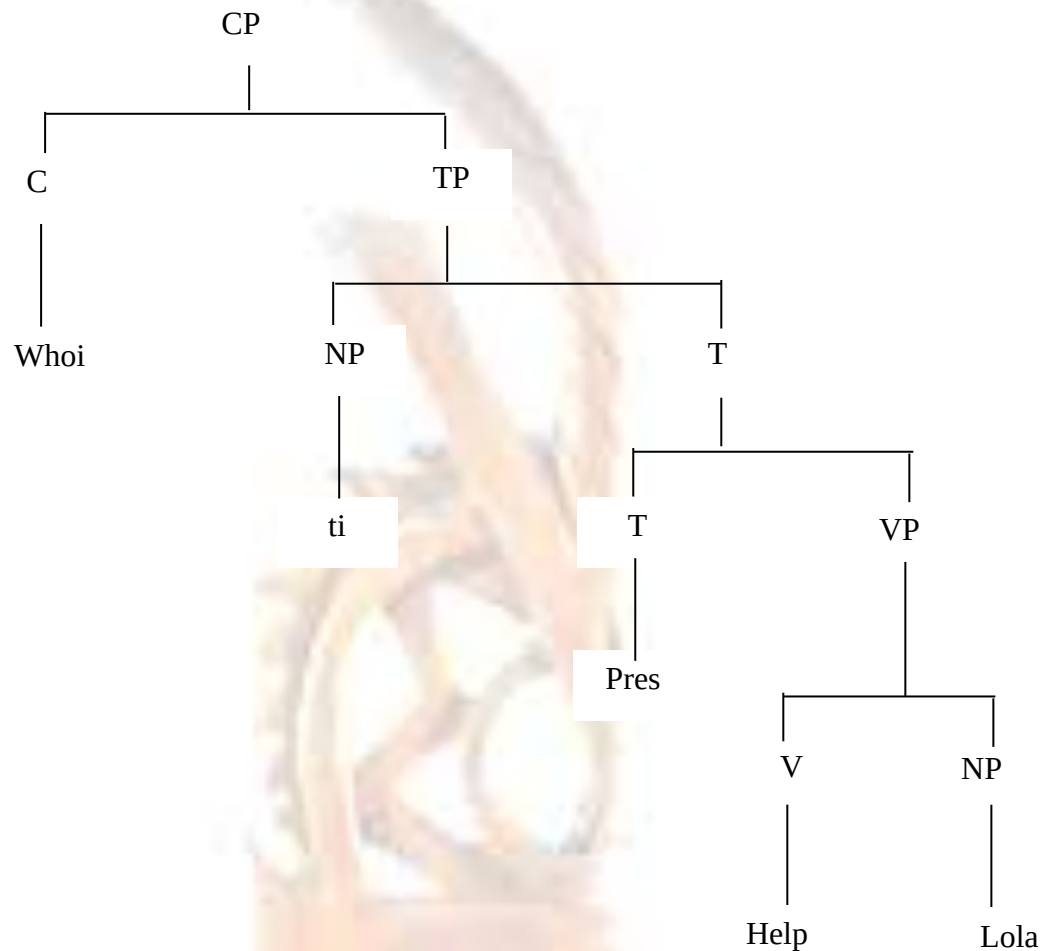
To account for the merging of constituents, NP (Lola) merges with the verb to form VP, VP merges with T trace, which moved to C to form T, T merges with Bobo to form a TP, assigning it a nominative case, the latter merges with the C (does) to form a CP. There is a move alpha relation. It is the tense (T) which is the present, moved to C thanks to do support. In the binary tree, this movement the trace (ti) and the moved alpha (Doesi).

The merges have changed as VP merges with trace T and TP merges with a C, which serves as the landing site of the move alpha (Pres).

Here. Horstein, Jairo Nunes and Kleanthes Grohmann's (2005) copy theory of movement may be applied. The (ti) a copy not a trace. The structure may be written ( Does Bobo does helps Lola?).

### III.1.3 WHO HELPS LOLA?

With this sentence, a NP subject moved to the complementizer. The following tree provides illustration:

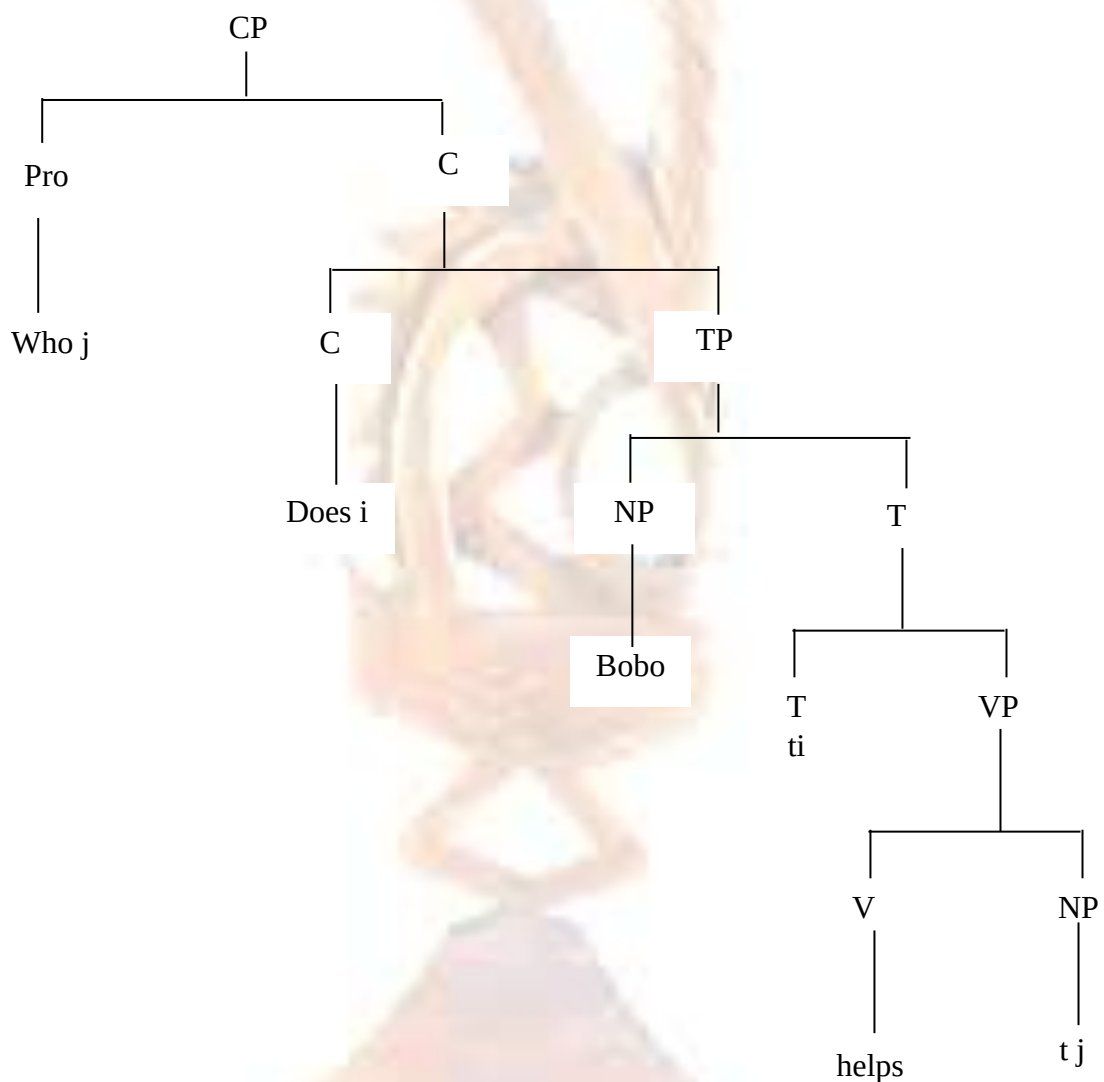


To account for the merging operation of the sentence, V merges with NP to form VP the latter merges with T to form T, the latter merges with the NP trace which moved to C to check the Q case, EPP features as 'Who'. It checks EPP by passing through TP; it checks the nominative case with T. However, Boskovic (2002) contradicted Chomsky (2001) stating that wh-movement are not moved to check features on C. They are moved to be the focus.

This time the T has not moved, NP subject has moved to C leaving trace. The latter merges with T to form TP. In the preceding sentence, NP itself has merged with T not a trace.

### III.1.4 WHO DOES BOBO HELP?

As mentioned early, the difference between this sentence and the preceding ones is at that level of merging and move alpha operations. The binary diagram runs as follows:

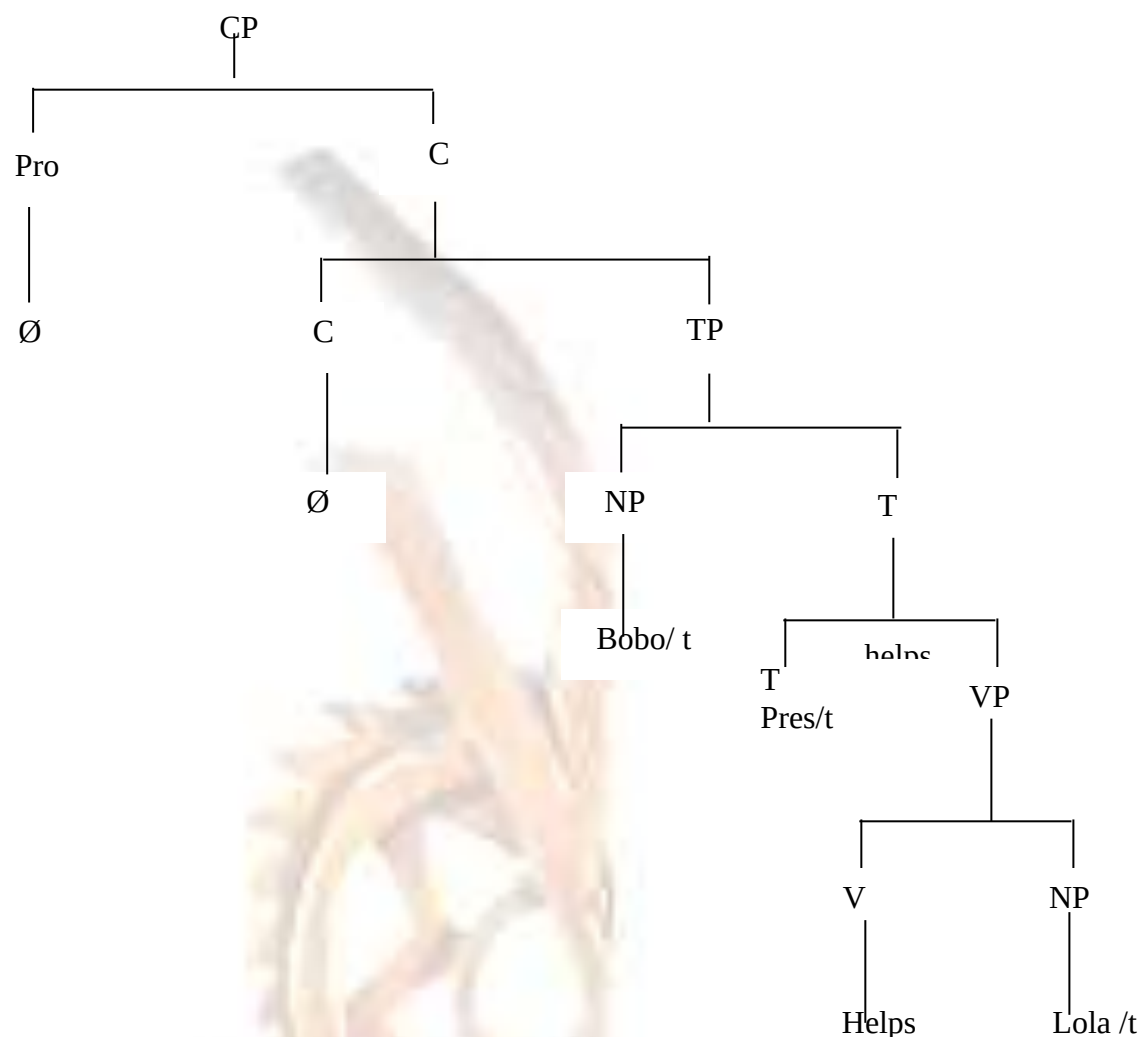


The merge and move alpha operations can be accounted for as follows: V merges with NP (trace) to form VP. The latter merges with T (trace) to form T. The latter merges with NP to form TP. The latter merges with C, where the T landed as do support (does), to form another C. Finally, the latter merges with the NP trace which moved as (who).

## CONCLUSION

This study analyzed the merge and move alpha operations basing on the four English sentences mentioned above. It has been found that apart from the affirmative sentence, where only the merge operation has been applied, the remaining employed both merge and move alpha operations. In (Does Bobo help Lola), the T was moves to C. In (Who helps Lola?), the NP subject was moved to C and finally in (Who does Bobo help?), both the NP object and T are moved respectively to C and Pro. This confirms the statement from Zwart (1998) qualifying the merge and move alpha as ongoing operations in the minimalist theory.

Following Andrew Radford (2004) who argued that structure building is minimal and driven only by the need to satisfy grammatical features. The study proposes the following one interface, which satisfies the grammatical features of the four English sentences. It runs as follows:



It is interesting to notice that all the traces mentioned and the empty categories are the landing sites of those traces. This fact can be corroborated by (Chomsky 1995) who thought of minimalism as an attempt to see how far to reduce UG to perfect design. One interface can represent the analysis of the four analyzed English sentences.

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