

Two Different C-Commands in Intra-Argument Structures and Inter-Argument Structures: Focus on Binding Principles B and A*

Keeseok Cho

[Abstract]

The purpose of this study is to investigate Chomsky's binding theory and show that its definition of C-Command in binding principles A, B and C is limited to the argument structures of a predicate, and does not work in different argument structures of different predicates. It will be shown that the notion of C-Command should be differentiated depending on whether lexical items that enter into binding relations are in the same argument structures of the same predicate or in different argument structures of different predicates. In the former case where lexical items, particularly proper nouns and pronouns, are in the same argument structures of the same predicate, referential expressions and pronouns enter into C-Command relations in terms of the maximal projections of their categories. The binding relations based on the M-Command work for the lexical items belonging to the same argument structure of the same predicate, but do not work for the lexical items belonging to the

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different argument structures of different predicates. Hence a new definition of C-Command should be put forth to explain the binding relations of the lexical items belonging to the different argument structures of different predicates. It will be proposed that the lexical items in the same argument structures of the same predicate need M-Command-based binding relations while the lexical items in different argument structures of different predicates need Command-based binding relations.

Key Words: Binding relations, C-Command, M-Command, Command, intra-argument binding relations, inter-argument binding relations

1. Introduction

The binding theory put forth in Noam Chomsky (1995: 96) divides nominals into three basic categories such as anaphors, pronominals, and referential expressions. Binding theory has one principle for each of these categories.

(1) Binding Theory

- a. An anaphor must be bound in a local domain.
- b. A pronoun must be free in a local domain.
- c. An r-expression must be free.

Binding theory (1a) is a binding principle A that deals with lexical anaphors such as reciprocals and reflexives. The lexical anaphors should have C-Commanding antecedents in their local domain. Assuming Chomsky (1981), the definition of local domain can be characterized as the minimal category NP or clause containing the anaphor and its case assigner. This minimal category will be designated as the

governing category.

Binding theory (1b) is a binding principle B that deals with pronominals such as nominative case pronouns and accusative pronouns. The pronominals should not have C-Commanding antecedents in their governing category. The pronominals can have non-C-Commanding antecedents in their governing category or can have C-Commanding or non-C-Commanding antecedents outside their governing category.

Binding theory (1c) is a binding principle C that deals with referential expressions such as proper nouns and common nouns. The referential expressions should not have C-Commanding antecedents outside and inside their governing category. The referential expressions can have non-C-Commanding antecedents inside or outside their governing category.

Binding principles A, B, and C all use the notion of C-Command in such a way that nominal expressions should have C-Commanding antecedents within the governing category or should not have C-Commanding antecedents within the governing category or outside the governing category.

We will see that binding principles A, B, and C all use the notion of C-Command in the sense of M-Command to explain the binding relations within the same argument structure of the same predicate. We will also see that M-Command-based binding relations are limited to the intra-argument structures, and Command-based binding relations are operating for the inter-argument structures.

(2) M-Command-based C-Command

α C-Commands β if and only if the first maximal projection that dominates α C-Commands β , and the first maximal projection that dominates α does not dominate β , nor does β dominate the first maximal projection that dominates α .

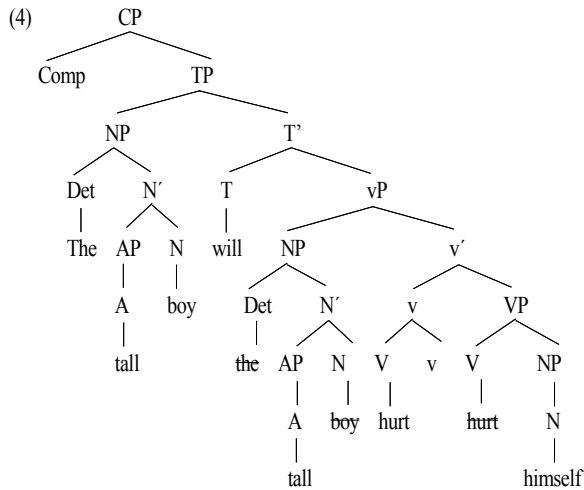
2. Binding Relations in Intra-Argument Structures

Binding principles A, B, and C all use the notion of C-Command in such a way that nominal expressions should have C-Commanding antecedents within the governing category or should not have C-Commanding antecedents within the governing category or outside the governing category.

The notion of C-Command used in the binding principles is actually M-Command. Consider the following sentences.

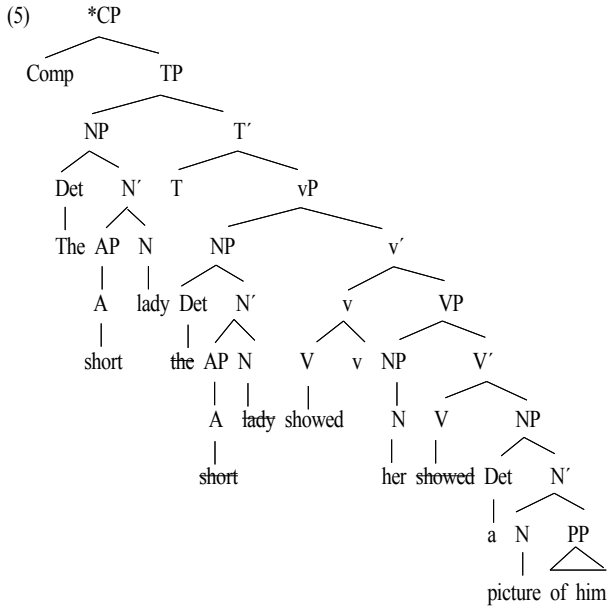
- (3) a. The tall boy_i will hurt himself.
b.*The short lady_i showed her_i a picture of him.
c.*The matronly woman_i believes that we hate Jin_i.

In sentence (3a), the governing category for the anaphor *himself* is the whole sentence *The tall boy will hurt himself*. The antecedent *boy* C-Commands the anaphor *himself* in such a way that the categorial maximal projection of the former C-Commands the categorial maximal projection of the latter. Consider the following structure.



In syntactic structure (4), the governing category of the anaphor *himself* is the whole sentence *The tall boy will hurt himself*, which contains the anaphor *himself* and its case assigner *will*. The anaphor *himself* has the C-Commanding antecedent *boy* within the governing category. The antecedent *boy* C-Commands the anaphor *himself* in such a way that the categorial maximal projection of the former, which is NP, C-Commands the categorial maximal projection of the latter, which is also NP. This satisfies the binding principle A. If we define the notion of C-Command in terms of the first branching node instead of the first maximal projection, the antecedent *boy*, which is N', will fail to C-Command the anaphor *himself*. Hence sentence (3a) will be wrongly judged to be ill-formed. The notion of C-Command is used in the sense of M-Command.

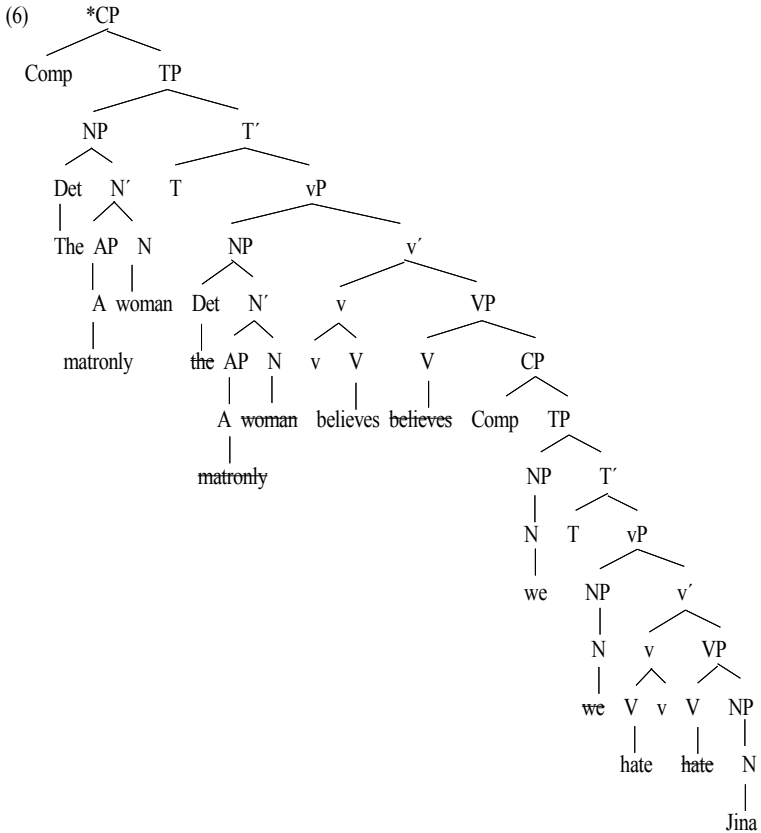
The same is true of binding principle B, exemplified in sentence (3b). Consider the following syntactic structure of (3b).



In syntactic structure (5), the governing category of the accusative case pronoun *her* is the whole sentence *The short lady showed her a picture of him*, containing the accusative case pronoun *her* and its case assigner *showed*. The accusative case pronoun *her* has a C-Commanding antecedent *lady* within the governing category. The antecedent *lady* C-Commands the pronoun *her* in such a way that the categorial maximal projection of the former, which is NP, C-Commands the categorial maximal projection of the latter, which is another NP. Hence the pronoun *her* is bound in its governing category, and this violates the binding principle B, explaining why sentence (3b) is ill-formed. If we use the notion of C-Command in terms of the first branching node instead of the first maximal projection, the antecedent *lady*, which is N', will fail to C-Command the accusative case pronoun *her*. Hence sentence (3b) will be wrongly judged to be well-formed.

The notion of C-Command used in sentences (3a) and (3b) are actually M-Command. These M-Command-based binding principles are dealing with the binding relations of lexical items or arguments in the same argument structure of a predicate. In sentence (3a), the lexical items *boy* and *himself*, which are respectively external and internal arguments of the two-place predicate *hurt*, are in the same argument structure of the same predicate. In sentence (3b), the lexical items *lady* and *her*, which are respectively external and internal arguments of the three-place predicate *showed*, are also in the same argument structure of the same predicate.

In sentence (3c), the main clause predicate *believes* is a two-place predicate that takes the subject *woman* as its external argument and the embedded clause *that we hate Jina* as its internal argument. In the embedded clause *that we hate Jina*, the arguments *we* and *Jina* are external and internal arguments of the two-place predicate *hate*, respectively. The argument *Jina* is part of the internal clausal argument of *believes*, which takes *woman* as its external argument. Then *woman* and *Jina* are indirectly in the same argument structure of the same predicate *believes*. The notion of C-Command used in sentence (3c) is also M-Command. Consider the following syntactic structure.



In syntactic structure (6), the governing category of the referential expression *Jina* is the embedded clause *that we hate Jina*. The referential expression *Jina* has a C-Commanding antecedent *woman* outside the governing category. The antecedent *woman* C-Commands the referential expression *Jina* in such a way that the categorial maximal projection of the former, which is NP, C-Commands the categorial maximal projection of the latter, which is another NP. This violates binding principle C, accounting for the ungrammaticality of (3c). Application of C-Command in terms of the first branching node of the argument will not enable the antecedent *woman*,

which is N' , to C-Command the r-expression *Jina*. Hence sentence (3c) will be wrongly judged to be well-formed.

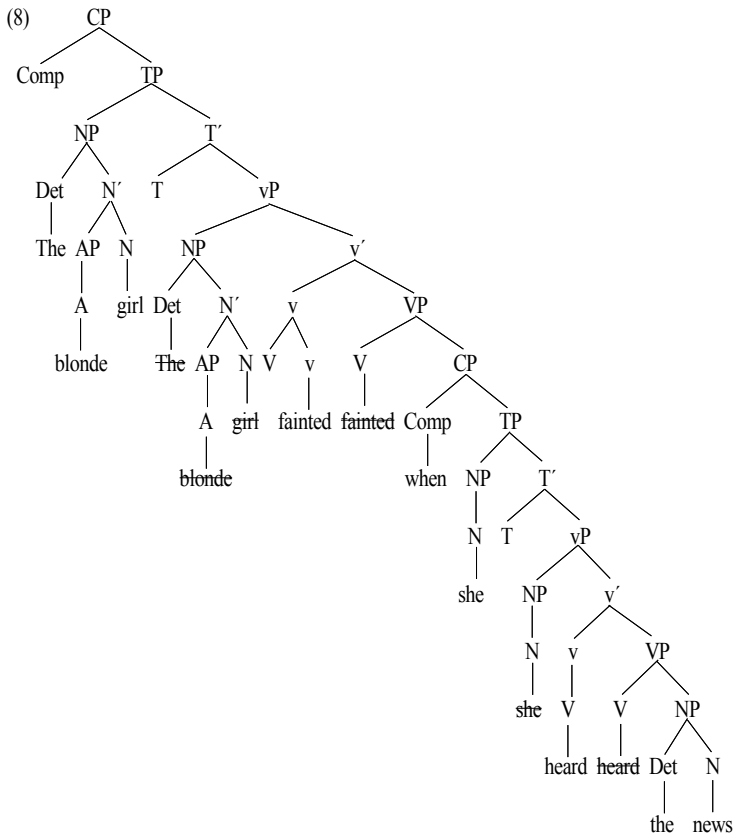
We have seen that binding principles A, B, and C all use the notion of M-Command for the binding relations within the same argument structure of the same predicate. In the next section, we will see that M-Command-based C-Command does not work in inter-argument structures, where two lexical items or arguments that enter into binding relations belong to two different argument structures. Instead, the Command-based notion of C-Command will be shown to be working for the inter-argument structure binding relations.

3. Binding Relations in Inter-Argument Structures

The binding relations in the intra-argument structures use the notion of M-Command-based C-Command. This M-Command-based C-Command is limited to the binding relations of the lexical items or arguments that belong to the same argument structure of the same predicate. The Command-based C-Command will be shown to be operating for the inter-argument structure binding relations. Consider the following sentences.

- (7) a. The blonde girl_i fainted when she_i heard the news.
b. *She_i fainted when the blonde girl_j heard the news.
c. *He_i has arrived, and John_i will visit you.
d. John_i has arrived, and he_i will visit you.
e. *John_i thinks she_i is good, and Tom_j thinks Mary_j is not good.
f. *He_i sat down after John_i entered the room.
g. After he_i entered the room, John_i sat down.

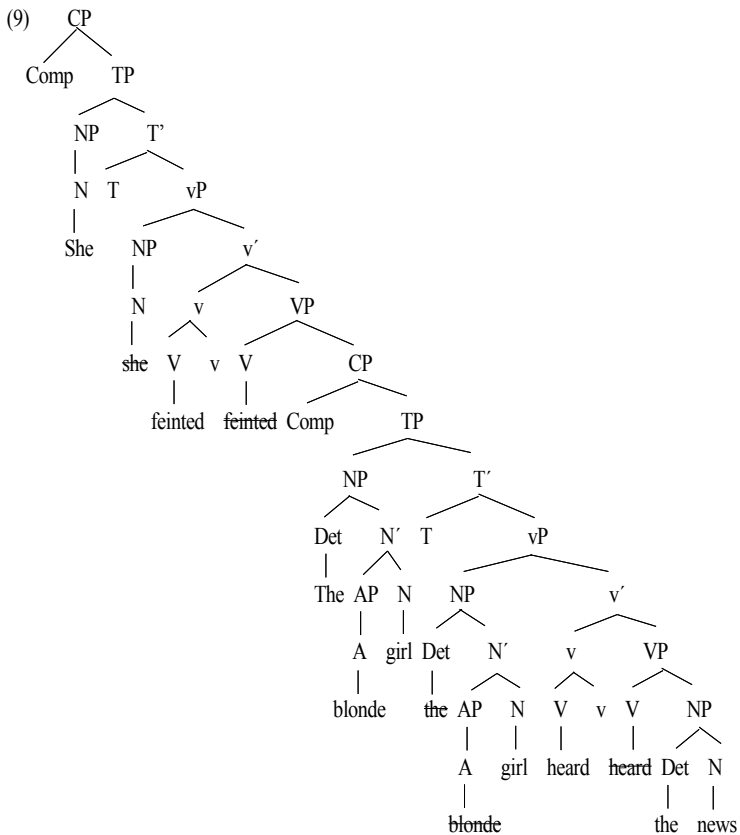
In sentence (7a), the verb predicate *fainted* is a one-place predicate that takes *the blonde girl* as its mono-argument. The embedded clause *when she heard the news* is a clausal adjunct of the one-place predicate *fainted*. Since the embedded clause *when she heard the news* is a clausal adjunct of the one-place predicate *fainted*, which takes *the blonde girl* as its mono-argument, the argument *the blonde girl* and the adjunct *when she heard the news* are in the same argument structure of the same predicate. Since the pronoun subject *she* in the embedded clause is part of the clausal adjunct of the predicate *fainted*, which takes *the blonde girl* as its sole argument, it automatically follows that *the blonde girl* and *she* are also in the same argument structure of the same predicate. Hence the M-Command-based C-Command will be used for the binding relations between the r-expression subject *the blonde girl* in the main clause and the pronoun subject *she* in the embedded clause. Let us consider the following syntactic structure.



In syntactic structure (8), the governing category of the pronoun subject *she* in the embedded clause is the embedded clause *when she heard the news*, which contains the pronoun subject *she* and its case assigner tense. The pronoun subject *she* has a C-Commanding antecedent *the blonde girl* outside the governing category. The antecedent *the blonde girl* in the main clause C-Commands the pronoun subject *she* in the embedded clause in such a way that the categorial maximal projection of the former, which is NP, C-Commands the categorial maximal projection of the latter, which is another NP. The pronoun is bound outside the governing category. This

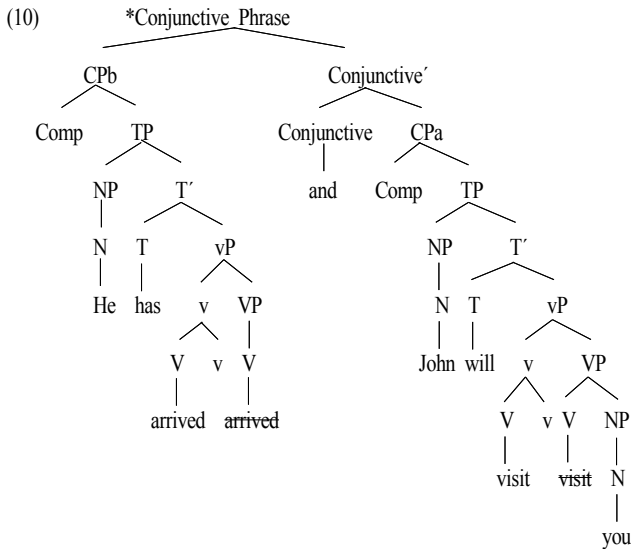
does not violate binding principle B.

Sentence (7b), which is also comprised of the main clause and embedded clause, is the opposite of (7a) in that the main clause subject and embedded clause subject have been switched. The M-Command-based C-Command will also be true of sentence (7b). Let us consider the following syntactic structure of (7b).



In syntactic structure (9), the governing category of the referential expression *the blonde girl* is the embedded clause *when the blonde girl heard the news*. The

referential expression *the blonde girl* has an M-Commanding antecedent *she* outside the governing category. This violates binding principle B. The M-Command-based binding relations work well for the intra-argument binding relations such as (7a) and (7b). Consider the following structure of sentence (7c).



In syntactic structure (10), which is a conjunctive phrase headed by the conjunctive *and*, which takes the second conjunct as its complement and the first conjunct as its specifier, the governing category of the referential expression *John* is the second conjunct *John will visit you*, which is CPa. The referential expression *John* is free in its governing category. It is also free outside the governing category since the pronoun subject *he* in the first conjunct does not M-Command the referential expression *John*. However, the sentence is not grammatical. The current M-Command-based binding principle cannot account for why sentence (7c) is not acceptable.

We can approach this issue in terms of the argument structures to which the two lexical items belong to. Sentence (7c) is different from other sentences such as (7a) and (7b) in that the two arguments that enter into binding relations are in two different argument structures of different predicates. The referential expression *John* is part of the argument structure of the predicate *visit*, and the pronoun *he* is part of the argument structure of the predicate *arrived*. For the binding relations of the lexical items that belong to two different argument structures conjoined by the conjunctive phrase, the following notion of Command-based C-Command can be used.

(11) Command-based C-Command

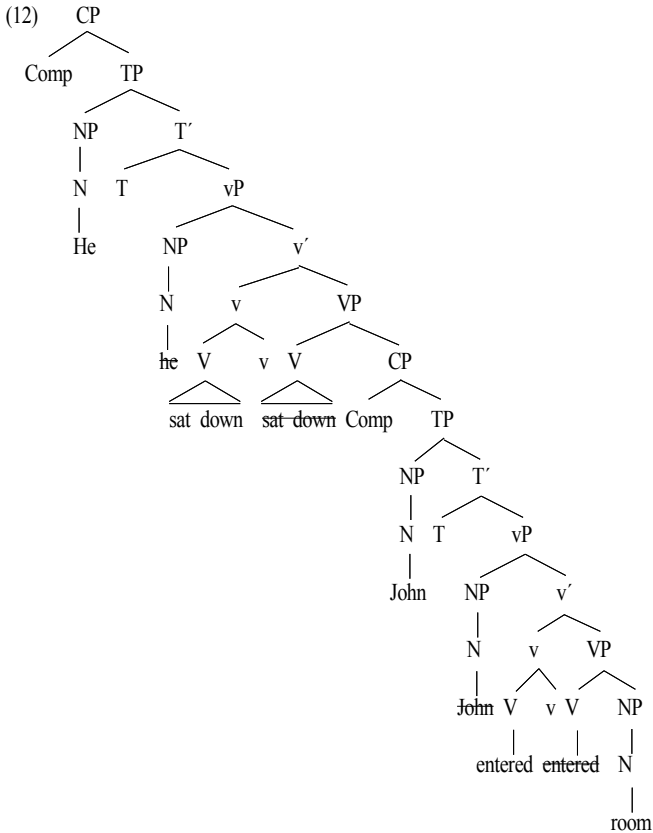
α C-Commands β if and only if the first sentence that dominates α C-Commands β , and the first sentence that dominates α does not dominate β , nor does β dominate the first sentence that dominates α .

Under the Command-based C-Command in (11), in syntactic structure (10) the pronoun subject *he* of the first conjunct C-Commands the referential expression *John* in the second conjunct because CPb C-Commands CPa. Hence the referential expression *John* is bound outside the governing category, and this violates binding principle C. The Command-based C-Command can account for otherwise unexplained binding relations between two different argument structures conjoined by the conjunctive phrase.

The Command-based C-Command can also explain why sentence (7d) is grammatical and (7e) is not grammatical. Under the Command-based Command, the pronoun subject *he* in the second conjunct of (7d) is C-Commanded by the r-expression subject *John* in the first conjunct. Since the pronoun subject *he* is bound outside the governing category, sentence (7d) is rightfully judged to be well-formed.

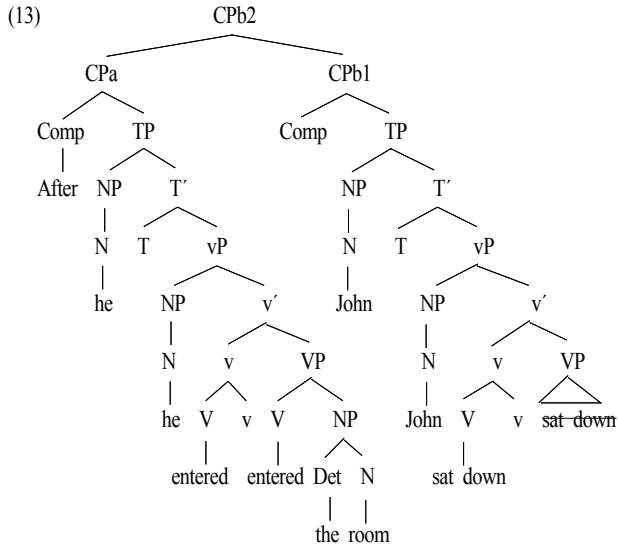
In the Command-based C-command, sentence (7e) is a conjunctive phrase that hosts the first conjunct as its specifier and the second conjunct as its complement. The pronoun subject *she* in the first conjunct C-Commands the r-expression *Mary* in the second conjunct because the sentence that contains *she*, which is the first conjunct, C-Command the sentence that contains *Mary*, which is the second conjunct. This leads to the violation of binding principle C because the r-expression *Mary* is bound outside the governing category. Therefore the Command-based C-Command should be adopted for the binding relations between two different argument structures conjoined by the conjunctive phrase.

Consider sentences (7f) and (7g). Sentence (7f) has the same intra-argument structure binding relations as sentences (7a) and (7b). Sentence (7f) has the one argument structure formed by the one-place predicate *sat down*, which takes the main clause pronoun subject *he* as its sole argument and takes the embedded clause *John entered the room* as its adjunct. Hence M-Command-based C-Command is used. The main clause pronoun subject *he* M-Commands the embedded clause r-expression subject *John*. The the embedded clause r-expression subject *John* is accordingly bound outside the governing category. This leads to the violation of binding principle C, as shown in the following syntactic structure.



Sentence (7g) is a revised structure of (7f) in that the main clause subject and embedded clause subject have been switched. Since the embedded clause *after he entered the room* does not belong to a different argument structure than the argument structure of the predicate *sat down*, the pronoun subject *he* in the embedded clause and the r-expression subject *John* in the main clause belong to the same argument structure. Hence the pronoun subject *he* and the r-expression subject *John* will enter into binding relation in terms of M-Command-based C-Command. Consider the following syntactic structure of (7g), where the embedded clause *after he entered the*

room is left adjoined to the main clause *John sat down*.



In (13), the pronoun subject *he* in the embedded clause fails to C-Command the r-expression subject *John* in the main clause because the categorial maximal projection of the former, which is NP, cannot C-Command the categorial maximal projection of the latter, which is also NP. Hence r-expression subject *John* is free inside the governing category and outside the governing category. This satisfies the binding relation C, and it follows that sentence (7g) is a grammatical sentence.

4. Conclusion

This study investigated Chomsky's binding theory (1995) and showed that its

definition of C-Command in binding principles, particularly its definition of C-Command in binding principles B and C, is limited to the intra-argument structures of a predicate, and does not work in different argument structures of different predicates. It was shown that the notion of C-Command should be differentiated depending on whether lexical items that enter into binding relations are in the same argument structures of the same predicate or in different argument structures of different predicates. In the former case, where lexical items, particularly proper nouns and pronouns, are in the same argument structures of the same predicate, referential expressions and pronouns enter into C-Command relations in terms of M-Command. In the latter case, where lexical items, particularly proper nouns and pronouns, are in different argument structures of different predicates, referential expressions and pronouns enter into C-Command relations in terms of Command. The conclusion of this article can be summarized as follows.

(14) The Notion of C-Command in Binding Principles

(i) Binding principles use M-Command-based C-Command for the intra-argument structures, where the lexical items entering into binding relations are in the same argument structure of the same predicate.

(ii) In M-Command-based C-Command, α C-Commands β if and only if the first maximal categorial projection that dominates α C-Commands β , and the maximal categorial projection that dominates α does not dominate β , nor does β dominate the first maximal categorial projection that dominates α .

(iii) Binding principles use Command-based C-Command for the inter-argument structures, where the lexical items entering into binding relations are in different argument structure of different predicates.

(iv) In Command-based C-Command, α C-Commands β if and only if the first sentence that dominates α C-Commands β , and the first sentence that dominates α does not dominate β , nor does β dominate the first sentence that dominates α .

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국문초록

논항구조 내부의 성분통어와 논항구조 간의 성분통의 차이: 결속이론 B와 C를 중심으로

조 기 석 (사이버한국외대)

본 연구는 Chomsky에서 제시된 결속이론의 문제점을 논의하고 대안을 제시한다. 결속이론 A, B, 그리고 C에서 사용되는 성분통어의 개념은 실제로 최대통어의 개념으로서 사용되고 있으며, 이 최대통어는 하나의 논항구조 내에서 발생하는 논항과 논항의 결속관계를 설명할 수 있다. 하지만 등위구조와 같은 서로 다른 논항구조에 속해있는 논항들 간의 결속관계를 설명할 수 없는 한계점을 가지고 있다. 이러한 문제점을 해결하기 위해서 본 연구에서는 하나의 논항구조 내의 결속관계에 사용되는 성분통어의 개념과 서로 다른 두 논항구조 간에 사용되는 성분통어를 구별하고, 두 경우에 서로 다른 성분통어의 개념이 사용되어야 함을 제시한다. 하나의 논항구조에 속해있는 논항들 사이에 발생하는 결속관계에서는 최대통어에 입각한 성분통어의 개념이 필요하며, 서로 다른 두 논항구조에 속해있는 논항들 사이에 발생하는 결속관계에는 통에 입각한 성분통어의 개념이 필요함을 제시한다. 이러한 두 가지 성분통어의 개념을 받아들이면 하나의 논항구조 내에서 일어나는 결속현상과 서로 다른 두 논항구조 간에 발생하는 결속현상을 모두 설명할 수 있는 장점이 있다.

주제어: 결속관계, 성분통어, 최대통어, 통어, 논항구조 내의 결속관계, 논항구조 간의 결속관계

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이름: 조기석 (교수)

소속: 사이버한국외국어대학교

이메일: d9501001@hanmail.net