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Research paper

Comparing the Binding Theory in the English and Mongolian languages

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A B S T R A C T

The research explores what the Binding Theory is in terms of the English language and the Mongolian language. After introducing what three different kinds of NP-R-expression, anaphor and pronoun are, the relationships of these three types of NP inside a sentence are to be discussed. One key concept of the structural relations-C-command has been analysed. Another key concept, co-indexed, has been introduced and discussed in different sentence structures with the three NP types in different kinds of sentence structures. The co-indexed concept decides whether C-command relations occurs or not in a sentence. The C-command concept plays an important role in the Binding Theory A, B, and C. The three Principles A, B, and C in Binding Theory are employed to investigate the Three types of NP in both English and Mongolian languages. The research also explores whether both English and Mongolian languages are subject to the Binding Principle in Principles A, B, and C. The result is that in both English and Mongolian languages, the Principle A, B, and C Binding Theory can hold.

Keywords: anaphors, antecedents, R-expression, co-indexed; coindexation, c-command, binding, binding domain, Principle A, B, and C

Comparing Binding Theory in the English and Mongolian languages

1. Introduction

The Binding Theory is a theory that deals with whether an expression in a sentence refers to the same entity or refers to other entities. This binding theory is basically concerned with the issue of how pronouns and other types of nouns relate to each other (Cook & Newson, 61-62; Tserenpil, 81). Binding theory considers whether different expressions in a sentence refer to the same entity (Tserenpil, 81).

In English, some noun phrases (NPs) derive their interpretation from the context of the sentence

they are in or the discourse around them (Carnie, 147). Can these features only be seen in the English language? How about some other languages? I am going to compare the English and Mongolian languages in terms of the Binding Theory.

2. Different types of Noun Phrases (NPs) in a sentence

Before we get into the relationships of pronominals and other types of nouns, we need to identify different types of nouns in English sentences or in other languages. In this research, I especially studied the case in Mongolian languages. Let us learn about the three notions in noun phrases in the English language, which are **R-expression**, **pronoun**, and

anaphors (Carnie, 148-149). Let us see the following data.

- (1) Felicia wrote a fine paper on Zapotec. (Carnie, 147)
- (2) Бат түүнийг буудсан (Tserenpil, 2011:81)
 Bat tuuniig buudsan
 Bat-NOM 3.ACC shot-PST
 Bat shot him.

In the above sentence (2), there is a real person whose name is 'Bat'. Since 'Bat/ Бар' refers to an entity in the world, 'Bat' can be called a Referring Expression or R-expression (Tserenpil, 81; Carnie, 148). Also, there is a word 'him/tuuniig' in the sentence, which refers to another person. The word 'him' is a **pronominal** in the English language. The sentence structural relationship shows that 'Bat' and 'him' do not refer to the same entity. Now let us see another sentence.

- (3) Бат өөрийгөө буудсан. (Tserenpil, 2011: 82)
 Bat uuriiguu buudsan.
 Bat-NOM 3SG-REF shot-PST
 Bat shot himself.

In the above sentence (3), the Mongolian word 'өөрийгөө/self' is called 'anaphor'. 'Bat' refers to someone outside the sentence because 'Bat' is an 'R-expression' and it does not need to get its meaning inside the sentence. A Mongolian speaker understands that when these two noun phrases Bat and өөрийгөө/uuriiguu are in the same sentence, these two noun phrases refer to the same entity (Tserenpil, 82-3).

3. Linguistic terms concerning Binding

3.1 Antecedent, indexes, and coindex

Before we go further, some terminologies we always use in Binding Theory should be defined. In a sentence, a Noun Phrase (an NP) gives its meaning to another NP in the same sentence; this NP is called the *antecedent* of the noun which it gives its meaning to. Such as in the above sentence, *Bat shot himself*; *Bat* is the antecedent of the noun *himself*. In another example, as in the following sentence.

- (4) *Heidi bopped herself on the head with a zucchini.* (Carnie, p. 150)

Heidi is the antecedent of the anaphor herself.

Another terminology is *co-index* (Carnie, 149;). The relationship of these two noun phrases, the antecedent and the anaphor, can be said as 'co-index' or they are to be co-indexed (Carnie, 149-150; Cook & Newson, 62). A special mechanism to indicate that these two NPs refer to the same entity, we can use a subscript letter 'i' to express the relationship between these two NPs in the sentence in both Mongolian and English versions or other languages (Tserenpil, 82; Carnie, 150-1; Cook & Newson, 62).

- (5) Бат өөрийгөө буудсан.
 Bat uuriiguu buudsan.
 Bat-NOM 3SG-REF shot-PST
 Bat_i shot himself_i.

We can see the index from the above example (4). in Binding Theory, if two indexes are the same, then we can say they these two phrases are set to be '**bound**'. Therefore, in the above sentence, 'Bat' and the anaphor 'himself' are **co-indexed**. On the other hand, if the different NPs refer to different entities, these two NPs get different letters. Conventionally, the indexes or indices start with the letter *i* and work way down the alphabet. The subscript letters are called indices or indexes in plural; index in singular (Carnie, 150), which can be seen from the following data (Cook & Newson, 64; Carnie, 150)

- (6) McCabe_i shot him_j. (Cook & Newson, 62)

McCabe and *him* in the above sentence are labelled with different indexes *i* and *j* because they refer to different person respectively.

- (7) McCabe_i shot himself_i. (Cook & Newson, 62)

McCabe and himself are labelled with the **same** index *i* because they refer to the same entity.

- (8) Jane_i sponsored her_j. (Cook & Newson, 62)

Jane and *her* in the above sentence are labelled with different index *i* and *j* because they refer to different persons respectively.

(9) Jane_i sponsored herself_j. (Cook & Newson, 62)

In (9) *Jane* and herself are labelled with the **same** index *i* because they refer to the same entity.

Apart from the data about the different entities referred to different people, some sentences have data of different people and other inanimate items as NPs. The example shown below illustrates three NPs, two people, Colin and Andrea, with an article (a basketball), in a sentence. There are three NPs which refer to different entities in the world, therefore three indices *i*, *j*, *k* are used to label the different entities respectively.

(10)) Colin_i gave Andrea_j a basketball_k. (Carnie, 150)

In some cases, the same pronominal can refer to either the same entity or different entities. We call this kind of sentence an **ambiguous** sentence. The pronominal can refer to either the same entity or another entity in the world. An example of this kind can be seen as follows.

(11) Art said that he played basketball in the dark. (Carnie, 150)

In (11) *Art said that he played basketball in the dark* the NP he can be interpreted in two possible ways (Carnie, 150).

Case 1: Art_i said that he_j played basketball_k in the dark_i.

In case 1, Art said that another person (with index_j) played basketball in the dark. In this case, Art and *he* are **not coindexed**.

Case 2: Art_i said that he_i played basketball_k in the dark_i.

In case 2, Art said that he himself played basketball in the dark. In this case, Art and *he* are **coindexed**. When two NPs are coindexed with each other, they are said to **corefer**, i.e., they refer to the same entity in the world. The noun form of corefer is coreference.

Now let us see some data In Mongolian language.

(12) Бат_i өөрийгөө_i буудсан.
Bat uuriiguu buudsan.
Bat-NOM 3SG-REF shot-PST
Bat_i shot himself_i.

Бат and өөрийгөө in (10) are both labeled by the English subscript letter 'i', it indicates that these two NPs (Бат and өөрийгөө) refer to the same entity in the world. *Bat* (Bat) is the **antecedent** of the word *өөрүйгөө* (self). We can say that in Mongolian language, we can also see two NPs, **Bat** and **өөрүйгөө**, are **coindex**..

Now, let us see another data in Mongolian language as the follows.

(13) Дулмаа_i түүнийг_j ивээн тэтгэсэн.
(Tserenpil, 83)
Dulmaa-NOM 3SG-ACC sponsor-PST
Dulmaa_i sponsored him_j.

In Дулмаа_i түүнийг_j ивээн тэтгэсэн (Dulmaa sponsored him), Дулмаа_i and түүнийг_j are labeled by different indexes (i, j), and this indicates that they are **not coindexed**.

On the other hand, in the sentence as follows.

(14) Дулмаа_i өөрийгөө_i ивээн тэтгэсэн.
(Tserenpil, 83)
Dulmaa_i uuriiguu_i iveen
ttgtseen.
Dulmaa-NOM 3SG-REF sponsor-PST
Dulmaa_i sponsored herself_i.

In this above sentence (14), Dulmaa and herself refer to the same entity and the same letter *i* is used to label them, so they are **coindexed**.

3.2 C-command

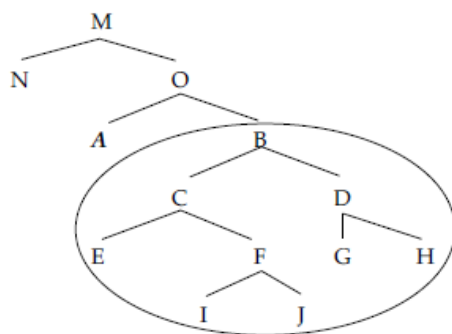
The notions of coindexation, coreference, and antecedence are held in terms of their structural positions as NPs in sentences (Carnie, 151). Firstly, we need to notify what structural relations hold in binding theory. The most important of the structural relations hold in binding theory is **c-command**. We see the c-command relation between two NPs in a syntactic tree. In a syntactic tree, a node c-commands its sisters and all the daughters of its

sisters, including granddaughters and great-granddaughters of its sisters.

Let us look at the following tree. The node A c-commands all the nodes surrounded by the circle. That is, A c-commands its sister B and all its descendants all the way down. We can see that A commands its sister B and all the descendants of B (C, D, E, F, G, H, I, J).

(15)

C-command is a relation that holds among sisters, among aunts and their nieces, and also the descendants of their nieces in a syntactic tree structure (ibid).



(Carnie, 128)

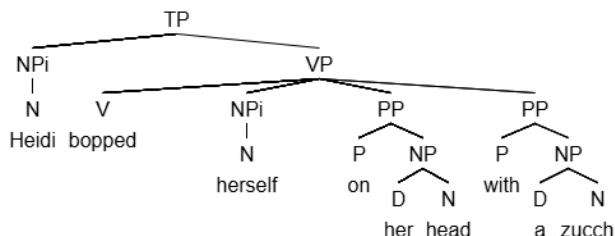
Binding

IV. Binding Theory

4.1 Distribution of anaphors and Binding Principle A

Now we can apply the concept of coindexation and c-command in explaining the two conditions in the Binding Theory.

Binding is a specific kind of coindexation, which take places when one of the two NPs c-commands the other. We need to notice that coindexation alone cannot constitute binding. Binding needs both coindexation and c-command. Let us see the following sentence (Carnie, 152).



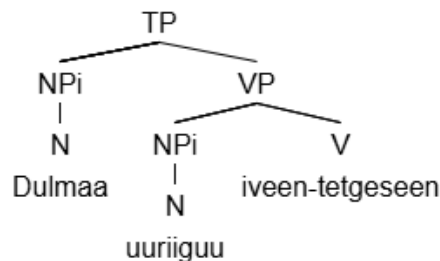
We can see that the NP of the TP (Heidi) and the NP (herself) are labeled by the index i, i.e. they

are **co-indexed**. The NP_i (Heidi) is the sister of VP, the other NP_i is the daughter of the VP. By the definition of c-command stated above, NP_i (Heidi) **c-commands** the other NP_i (herself). In this sentence, we have the knowledge that Heidi is the antecedent of the anaphor *herself* in this sentence. The binder or antecedent (Heidi) must do the c-commanding of the bindee (anaphor or pronoun) but not the reverse (Carnie, 153). The two conditions of binding have been fulfilled and the binding relation here can be established. From this sentence, we can get the generalization of the distribution of anaphors (Carnie, 153) which is called **Binding Principle A**: An anaphor must be bound by its antecedent in the same clause (Ibid).

Now, let us see the distribution of an anaphor in the Mongolian language.

(16) Дулмаа_i өөрийгөө_i ивээн тэтгэсэн.
(Tserenpil, 83)

Dulmaa_i uuriiguu iveen tetgeseen_i.
Dulmaa-NOM 3SG-REF sponsor-PST
Dulmaa_i sponsored herself_i.



From the above tree diagram, we can see that both noun (Dulmaa) and the anaphor (uuriiguu) are **coindexed**, and NP_i Dulmaa **c-commands** uuriiguu. Dulmaa is a R-expression, and uuriiguu in Mongolian language belongs to the anaphors' type. The binding relation constitutes. We can also make the generalization here: in Mongolian language, we can also see the antecedent is the binder and the anaphor is a one to be bound in a sentence as a bindee. Therefore, **Binding Principle A** holds in Mongolian simple sentences.

Let us look at the following sentence (17) especially pay attention to the distribution of the anaphor.

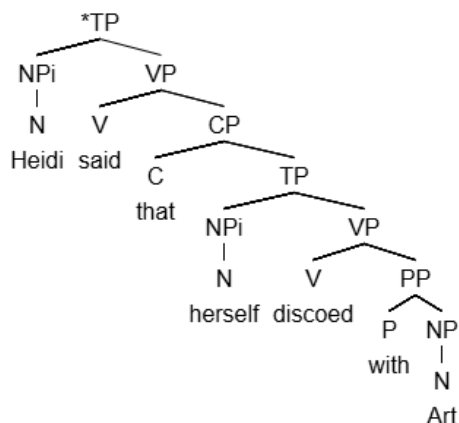
(17) Heidi said that herself discoed with Art. (Carnie, 153)

Locality constraint

When each of the NPs in the sentence is

labelled in the following way.

- (18) Heidi_i said that herself_i discoed with Art_j.
(Carnie, 153)



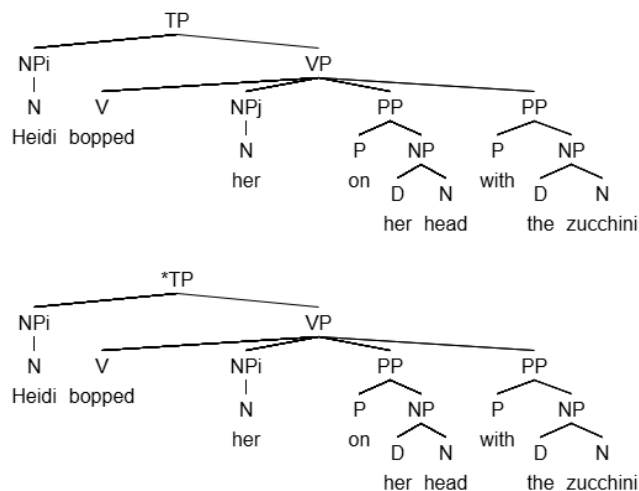
Heidi and herself are coindexed; NP_i (Heidi) c-commands NP_i (herself). Therefore Heidi and herself hold the binding. However, this sentence is ungrammatical to English native speakers. The point is that NP_i (herself) is located in an embedded clause, which is called a **locality constraint**. That means that an anaphor's antecedent must locate at the same clause of the anaphor, otherwise it is ungrammatical. The syntactic domain that an anaphor must locate its antecedent is called a **binding domain** or **local domain**. The idea of binding domain can be extend to the clause which contains the various types of NP (R-expression, anaphor, pronoun) (Carnie, 154; Cook, 65; Tserenpil, 87).

4.2 The distribution of pronouns and Binding Principle B

Anaphors are not the only type of NP which to be restricted where they should be on their syntactic position. Pronouns can also be restricted where they should appear in English sentences.

- (19) a) Heidi_i bopped her_j on the head with the zucchini.

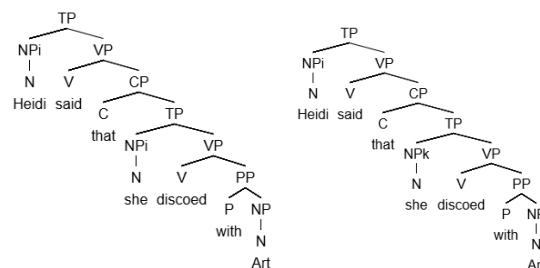
b) *Heidi_i bopped her_i on the head with the zucchini. (Carnie, 155)



In the above examples, we can see that the pronoun *her* in the sentences may or may not be bound depending on whether it refers to *her* or to someone else other than *Heidi*. However, when *her* refers to the same person Heidi, the sentence is unacceptable.

See the difference when the pronoun is used in an embedded clause in the following two sentences.

- (20) a) Heidi said [_{CP} that she_i discoed with Art].
b) Heidi said [_{CP} that she_k discoed with Art].



When we see the two sentences with their syntactic tree, a pronoun may be or may not be bound by its antecedent. When *she* refers to Heidi, the same person, the pronoun *she* is bound; when *she* refers to another person, the pronoun is not bound. No matter whether the pronoun is or is not bound by its antecedent, the pronoun cannot be bound by an antecedent that is in the same clause (Carnie, p.155). In the case that a pronoun in an embedded clause, the pronoun is bound by its antecedent in another clause, as we can see in (20). In other words, a pronoun cannot be bound by an antecedent that is its clause mate. The restriction that pronouns have a limitation on where they cannot be bound is called **Principle B** (Carnie, 155). The **Binding Principle B**: A pronoun must be free in its binding domain, free means not to

be bound (Carnie, 155; Cook, 69).

Now let us see an example in **Mongolian language** to see whether the **Binding Principle B** can hold or not.

(21) a) [тэр эмэгтэйг түүнтэй_i уулзахыг] Чимгээ_i хүссэн.

b) [тэр эмэгтэйг түүнтэй_j уулзахыг] Чимгээ_i хүссэн.

Тэр эмэгтэйг түүнтэй_i уулзахыг] Чимгээ_i хүссэн.

ter emegteig tuuntei_i uulzakhig Chimgee_i khussen.

That-COM woman-ACC her-COM meet-ACC Chimgee desire-PST.

‘Chimgee_i desired that woman to meet her_i.’

[тэр эмэгтэйг түүнтэй_j уулзахыг] Чимгээ_i хүссэн.

ter emegteig tuuntei_j uulzakhig Chimgee_i khussen.

That-COM woman-ACC her-COM meet-ACC Chimgee desire-PST.

‘Chimgee_i desired that woman to meet her_j.’

In the above two Mongolian embedded sentences (21) a) and b), Chimgee desired that woman to meet herself or another person. Either one the NP Chimgee c-commands tuuntei but the two NPs are in different clauses. That means the pronoun ‘tuuntei’ is free in both case. We can say that **Binding Principle B** can hold in Mongolian languages.

4.3 The distribution of R-expressions and Binding Principle C

R-expression is a kind of NPs that get its meaning by referring to an entity in the real world. That means, R-expressions do not need any antecedent inside the same clause, local domain or binding domain, to get its meaning through binding. They do not need any have coindexation. They are always free and never be bound, which is **Binding Principle C** (Carnie, 156; Cook, 69; Tserenpil, 84).

(22) a) *Heidi_i kissed Miriam_i.

b) *Art_i kissed Geoff_i.

c) *She_i kissed Heidi_i.

b) *She_i said that Heidi_i was a disco queen. (Carnie, 156)

All the sentences above are unacceptable. Each R-expression refers to an entity in the real world outside the sentence. In a) Heidi and Miriam refer to two different entities; b) shows the same situation, two R-expressions. c) violates the Binding Principle B because a pronoun must be free in its local domain. In d), the R-expression *Heidi* in the embedded clause refers to a real entity in the world, it does not need an antecedent to give it a meaning outside the clause.

Tserenpil mentioned that Noam Chomsky did not view **Principle C** to be necessary to consider in detail in his work *Knowledge of Language* (Tserenpil, 85). Tserenpil provides Mongolian data we can observe as the follows.

(23) [нөгөө охиныг өөртөө итгэхийг] Цэцэгээ зөвлөсөн.

Nuguu okhnig uurtuu itgekhiig Tsetsegee zuvlusun.

The other girl-ACC her-REF trust-ACC Tsetsegee advice-PST

‘Tsetsegee advised the other girl to trust herself.’ (Tserenpil, 85)

From the above sentence, according to **Principle A**, we can see that the anaphor *өөртөө* (herself) finds its antecedent *нөгөө охиныг* (the other girl) in the immediate clause; while the **R-expression** *Tsetsegee* is located outside the subordinate clause. Tsetsegee is an R-expression, it does not need any antecedent, so Tsetsegee is free. Principle C in this sentence holds.

(24) [тэр эмэгтэйг түүнтэй уулзахыг] Чимгээ хүссэн.

ter emegteig tuuntei uulzakhig Chimgee khussen.

That-COM woman-ACC her-COM meet-ACC Chimgee desire-PST.

‘Chimgee desired that woman to meet her.’

According to **Principle C**, the R-expression ‘Chimgee’ is outside the subordinate clause and get its own meaning by referring an entity outside the clause. Chimgee is free.

After we check out the above Mongolian examples, we can see that the Mongolian language

also complies with the Binding Theory.

The Binding Theory shows that UG is not concerned with a specific language, English. The Binding Principles A, B, and C can be applied to Chinese, Arabic, and Russian language although the actual languages may be very different (Cook, 67; Tserenpil, 89).

5. Conclusion

The Binding Theory deals with the structural relationship of the three NP types in sentences in terms of their syntactic positions. The three NPs are anaphors, pronounminals, and R-expressions. The three principles in the Binding Theory are Principles A, B, and C that decide the distribution of these three types of noun phrases. Principles A, B, and C are supposed to be the same across different languages. Through collecting data, comparing the data and sentence structures with NP of R-expressions, anaphors, and pronouns, Principles A, B and C can be proved to be valid in Principle A, B and C in both English and Mongolian. We can say that the same truth can be held validly in Mongolian same as English.

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