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# Anaphors in Magahi: A Binding Theoretic Treatment

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**Abstract**

This paper analyses anaphors in Magahi in Binding Theory. Magahi is a South Asian language of the Indo-Aryan family of languages. Anaphors in Magahi are consistent with the Principle-A of Binding Theory. Magahi anaphors display operator like properties as they depend on the nature of the clause they are embedded in. In a finite clause anaphor is subject oriented whereas in a non-finite clause anaphor is a PRO which in turn depends on the object of the main clause. The position of anaphors in non-finite clause is fixed. They can neither be moved nor can be scrambled. However, in finite clauses they can easily be scrambled.

**Keywords:** Anaphors, Binding theory, Operator, Scrambling

## 1. Introduction

Anaphors are one of the major aspects for understanding the syntax of a language. This paper aims at studying anaphors in Magahi, an Indo-Aryan language. It exclusively deals with Magahi anaphors such as *appan* (reflexives) and *ek dosara* (reciprocal). It deals anaphors in Magahi within the framework of Government and Binding Theory (GB Theory). Anaphors in Magahi show operator like properties as elaborated in Katada (1991). In Magahi, operators depend on the finite and non-finite nature of clause for their scope interpretation. Hence, anaphors in Magahi, for their interpretation depend on the finite and non-finite nature of the clause they are present in as well. This kind of work in Magahi language has potential for future research and researchers to go into details of anaphors and do a theoretical and typological work on anaphors across various underexplored as well as well known South Asian languages. Binding Theory, one of the six subsystems of core grammar (Reuland and Everaert 2003) of Principles and Parameter approach, deals with anaphors.

This paper gives a general discussion on anaphor first followed by implications of GB Theory for anaphors. While giving a general description of anaphors, this paper talks about the binding properties of anaphor in Magahi. It discusses the operator like properties of anaphor in Magahi.

## 2. Anaphors and Binding Theory

Anaphors are noun phrases (NP). NPs are distinguished mainly as three types. They are Anaphors, Pronouns and R-expressions (referential expression). Reflexives and reciprocals are anaphors. Subbarao (2012) defines anaphors as 'backward reference". Lust *et.al.* (2000) further defines anaphora as "relation between a form and a linguistic antecedent". Subbarao adds the "the interpretation of anaphor is in some way determined by the interpretation of its antecedent" (Lust 1986; Wasow 1986).

Anaphors are categorized as syntactic anaphora, discourse anaphora and pragmatic anaphora (Gardelle 2012). Binding Theory deals with syntactic anaphors. Discourse anaphors do not fall under grammatical principles; they are guided by discourse related factors. Gardelle gives following illustration to explain syntactic and discourse anaphors both.

(1) Bruce smiled to himself as he walked along Fourth Street.

In (1), *himself* is a syntactic anaphora and Principle A of Binding Theory governs it. But *he* is a discourse anaphora as it is completely dependent on the discourse factors. NP *he* may depend on Bruce or some other NP mentioned in the discourse for its interpretation. For Gardelle (2012) the term anaphora should be restricted to bound reflexive or reciprocals because only they follow binding constraints on NP.

Allan (2009) deals with pragmatic anaphors. There is a mental representation for anaphora and no antecedent is used in the text for such anaphors. The mental representation is achieved through situational context. In the following sentence (2), *He* illustrates pragmatic anaphora.

(2) (On catching sight of someone) He appears very upset.

While mentioning anaphors it will not be out of context to mention cataphors. Charaudeau and Maingueneau (2000) differentiate between anaphors and cataphors. In anaphora, antecedent precedes the anaphor while in cataphor antecedent follows it. Halliday and Hasan (1976) term them as "endophora" as they have antecedent "within the text". However the term cataphora is not widely used and it is more common to take anaphora to include both anaphora and cataphora (Gardelle 2012). Charaudeau and Maingueneau (2000) and Huddleston and Pullum (2002) use the terms "retrospective anaphor" for anaphor and "anticipatory anaphor" for cataphor.

Haegeman (1994) discusses Binding Theory as "the module of grammar that regulates the referential properties of NPs is called Binding Theory. The Binding Theory provides an explicit formulation of the grammatical constraints on NP. The Binding Theory essentially examines the relation between the NPs in A-positions; it is a theory of A-binding." A-position are argument positions like specifier of the VP, where subject originates; specifier of IP, where subject moves to; complements of verbs and prepositions which are typical object position (Cook and Newson, 1996). As we saw above, there are three kinds of NPs. Chomsky (1981) has talked about three kinds of Principles, Principle A, B and C, together known as Binding Theory, to regulate and interpret each kind of NP. These principles are illustrated below:

(3) Binding Principles

Principle A: An anaphor must be bound in its governing category.

Principle B: A pronoun must be free in its governing category.

Principle C: An R-expression must be free everywhere.

As we have seen above, an anaphor is dependent on its antecedent for its interpretation. Anaphor and its antecedent must have same reference as indicated with co-indexation. The example in (4) shows this co-indexation between an anaphor and its antecedent. The ungrammaticality of (5) shows that the anaphor must agree with its antecedent with respect to nominal features of person, number and gender.

4) Piorot$_i$ hurt himself$_i$

5) *Miss Marple hurt himself. (Haegeman 1994: 206)

The gender feature of the antecedent does not match with that of the anaphor, subsequently (5) results into ungrammaticality.

Binding domain of an anaphor must follow c-command constraint along with principle of reflexive interpretation in the sense that the antecedent must c-command the reflexive. C-command works in the following way. A c-commands B, if and only if A does not dominate B and B does not dominate A. The first branching node dominating A also dominates B. A reflexive X must be bound in the minimal domain containing X, X's governor

and an accessible subject or SUBJECT where A is an accessible subject/SUBJECT for B if the coindexation of A and B does not violate any grammatical principles.

## 3. Anaphors in Magahi

Reflexive in Magahi is *appan* (and its various forms). Reciprocals are *ek dosara* (and its various form) and *apne meN*[1]. Unlike English, where the reflexive is specified for person, number and gender, the reflexive in Magahi is not specified for any of these features. The Magahi reflexive *appan* is just like Japanese reflexive *zibun* in possessing the agreement feature. Both reflexives *appan* and *zibun* lack agreement feature of person, number and gender marked on them. Japanese reflexive *zibun* is limited to [+ human] and Magahi reflexive has even wider context and is limited to [+ living] antecedents. Reciprocal *ek dosara* in Magahi does not have even the limitation of [± living] antecedents but has the limitation to plural antecedents, in other words it can be said that it has [+ number] antecedents. Following are the illustration of use of reflexives and reciprocals in Magahi.

Reflexive:

(6) ham appan kalamiyaa se lik$^{h}$aliai
I mine pen with wrote
'I wrote with my pen.'

Reciprocals:

(7) raajaa au raani ek dosaraa ke bare meN
raja and rani each other about
socte raha hai
think CONT is
'Rajaa and Rani keep on thinking about each other.'

(8) uu dunuu apne men baat kara hai
they two each other talk do is
'They talk to each other.'

### *3.1 Subject / Object Orientation*

In Magahi reflexive *appan* and reciprocal *ek dosara* (henceforth anaphors) can have subject as well as object orientation. But the orientation depends on the nature of clause it is present in. If the clause is finite, the anaphor have subject orientation. If the clause is non-finite the

[1] *Apne meN* is a reciprocal when the antecedent consist of two participants. When the antecedent is singular or plural with more than two participants then it means as reflexive *apne* followed by Case marker *meN* as illustrated in the following sentences:

(1) uu apne meN baat kar hai
he himself in talk do is
'He talks in himself.'

(2) uu sab apne meN baat kar hai
they themselves in talk do is
'They talk in themselves.'

anaphor have object orientation. Following are the illustrations for reflexive and reciprocal in finite and non-finite clauses.

Reflexive in finite clause:

(9) raam$_i$ mohan$_j$ ke apnaa$_i$ bare meN batailkai
ram mohan ACC himself about told
'Ram told Mohan about himself.'

Reflexive in non-finite clause:

(10)uu$_i$ raam$_j$ ke ciTT$^h$iaa apne$_j$ se lik$^h$e le kahalkai
he ram ACC letter himself to write INF said
'He told Ram to write a letter himself.'

Reciprocal in finite clause:

(11)uu dunuu$_i$ ek dosraa$_i$ le kitaab kinalkai
they each other for book purchased
'They purchased book for each other.'

Reciprocal in non-finite clause:

(12)ham$_i$ uu dunuu$_j$ ke ek dosaraa$_j$ ke kitaab debe le kahaliai
I they ACC each other to book give INF said
'I told them to give book to each other.'

Sentences (9) and (11) are finite sentences. In these sentences, anaphors refer to subject of the finite sentence. In sentences (9) and (11) the referred subject is *raam* and *uu dunuu* respectively. Sentences (10) and (12) are sentences with non-finite clause embedded in them. The anaphor in these sentences refer to the object of the main clause. In sentences (10) and (12) the referred object is *raam* and *uu dunuu* respectively. The co-reference is being denoted by co-indexation.

In Magahi, anaphors *appan* and *ek dosaraa* is dependent on the finiteness of the clause it is embedded in just like operators, which also depend on the nature of clause for their scope interpretation. Thus, it can be said that these anaphors and operators in Magahi shares some common feature. This goes on well with the classification of anaphors as operator and non-operator anaphors done by Katada (1991). Katada claims this classification to be universal in nature.

*3.2 Anaphors and Binding Theory in Magahi*

Anaphors *appan* and *ek dosaraa* are always bound in local domains. When they are in a finite clause, they are bound to subjects. When they are in non-finite clauses, they are bound to PRO which acts as subject of the non-finite clause. The PRO is object controlled in the non-finite clause. Thus, the object of the main clause is the antecedent for anaphor *appan* and *ek dosaraa* used in non-finite clause. The object control of PRO is an obligatory control. In

obligatory control the controller must c-command the controlled element (Haegeman 1994). This implies that object of the main clause c-commands PRO which in turn binds the anaphor. PRO c-commands the anaphor as binding requires c-command constraint. C-command is a transitive phenomenon in the sense that object of the main clause c-commands the PRO, which in turn c-commands the anaphor of non-finite clause. Thus, object c-commands the anaphor present in the non-finite clause. Antecedent selection constraint condition of Binding Theory implies that antecedent must precede the anaphor. Magahi anaphors follow both locality as well as antecedent selection constraints. In other words, it can be said that anaphor in Magahi follow Principle-A of Binding Theory which implies that an anaphor must be governed in its local domain.

3.2.1 Finite Clause and Reflexive Appan

(13)raam$_i$ mohan$_j$ ke apnaa$_i$ bare meN batailkai

ram mohan ACC himself about told

'Ram told Mohan about himself.'

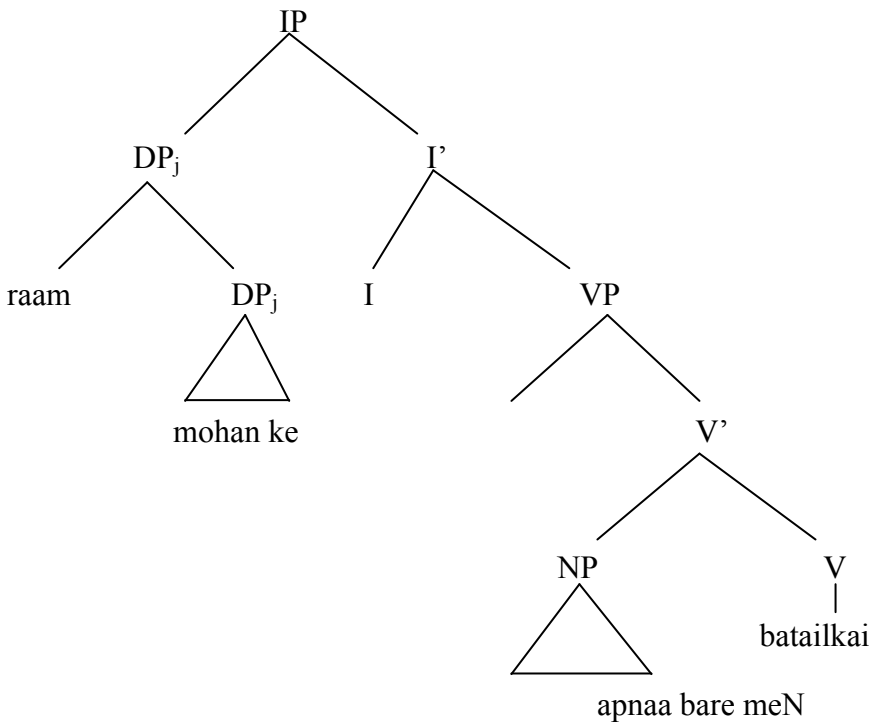


Figure (1)

The above figure (1) is a structure for sentence (13). From this figure we find that the subject *raam* c-commands the reflexive *apnaa*, thus acts as a proper antecedent for the reflexive. The reflexive thus follows the Principle-A of Binding Theory as is locally bound to the antecedent *raam*.

3.2.2 Finite Clause and Reciprocal Ek Dosara

(14)uu dunuu$_i$ ek dosraa$_i$ le kitaab kinalkai

they each other for book purchased

'They purchased book for each other.'

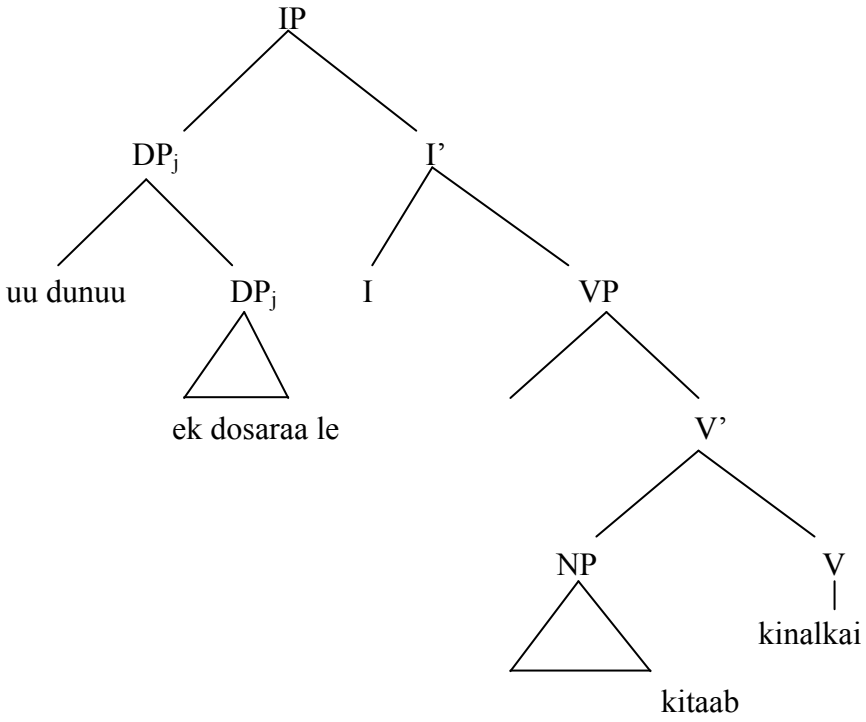


Figure (2)

The above figure in (2) is a structure for sentence (14). From the above tree structure we find that the subject *uu dunuu* acts as an antecedent for reciprocal *ek dosaraa*. It can also be seen that the antecedent c-commands the reciprocal. Thus the reciprocal *ek dosaraa*, like reflexive *appan*, follows the Principle A of Binding Theory.

3.2.3 Non-Finite Clause and Reflexive Appan

(15)uu$_i$ raam$_j$ ke ciTT$^h$iaa [PRO$_j$ apne$_j$ se lik$^h$e le] kahalkai

he ram ACC letter himself to write INF said

'He told Ram to write a letter himself.'

The verb *kah-* (say/tell) is an object control verb. Thus PRO in non-finite clause refers to object *raam* present in the main clause which in turn is co-indexed with reflexive *apne*. Thus *apne* is controlled by object *raam* and is bound to PRO. In case of object control, as mentioned above, PRO is c-commanded by the object *raam*. The phenomenon of c-command and coindexation is transitive. Thus, reflexive *apne* is c-commanded and is co-indexed with object *raam*, following Principle A of Binding Theory.

3.2.4 Non-Finite Clause and Reciprocal Ek Dosraa

(16)ham$_i$ uu dunuu$_j$ ke [ PRO$_j$ ek dosaraa$_j$ ke kitaab debe le] kahaliai

i they ACC each other to book give INF said

'I told them to give book to each other.'

As it is the case with reflexive in sentence (15), so it is the case with reciprocal *ek dosaraa* in sentence (16). Thus the reciprocal *ek dosaraa* also follows the Principle A of Binding Theory.

*3.3 Anaphors and Their Position inside the Clause*

Anaphors for their interpretation depend on their position inside the clause. The position of anaphors inside the non-finite clause is fixed. They cannot be moved out of non-finite clause and cannot even be scrambled. At the same time they can be scrambled inside the finite clause.

The position of anaphor inside the non-finite clause is fixed. This can be explained with the help of Weak Cross Over phenomenon (WCO) and Empty Category Principle (ECP). As per WCO, trace cannot be c-commanded by a pronoun on its left (May 1985). When an anaphora is moved from infinitival clause to main clause leftwards, it will create a trace inside infinitival clause. This will lead to anaphor c-commanding its trace, resulting into violation of WCO. Violation of WCO is illustrated in following sentence (17), where antecedent *apnaa* is on the left of its trace t created due to [move α].

(17) *uu raam ke apnaa$_i$ ke [ t$_i$ samb$^h$aare le ] kahalkai

he ram to himself care INF told

'He told Ram to take care of himself.'

(18) *uu raam ke [ t$_i$ samb$^h$aare le] apnaa$_i$ ke kahalkai

he ram to care INF himself told

'He told Ram to take care of himself.'

From sentence (17), it can be seen that antecedent of trace *t* is moving rightwards into the main clause. The sentence is ungrammatical as it is the violation of ECP, which states that every trace must be properly governed. The phenomenon of government on the other hand requires c-command strategy, which in turn requires the antecedent to precede the trace. The antecedent is not preceding the trace in sentence (17). Thus trace remains ungoverned, resulting into violation of ECP. Thus the anaphor cannot move from a non-finite clause to the main clause either leftwards or rightwards. However, when anaphor is in the main clause it refers to subject and can be scrambled as illustrated in (19) and (20).

(19)uu apnaa ke [raam ke samb$^h$aare le] kahalkai

he himself to ram ACC care for said

'He said to himself to take care of Ram.'

(20)uu [raam ke samb$^{h}$aare le] apnaa ke kahalkai

he ram ACC care for himself to said

'He said to himself to take care of Ram.'

In (19), anaphor *apnaa* is immediately after the subject *uu*. The anaphor is scrambled in the main clause and is placed after the embedded non-finite clause as illustrated in (20).

*3.4 Anaphor as an Operator*

There is a universal dichotomy on anaphors as operator and non-operator (Katada 1991). This is motivated by distinctive agreement properties of anaphors. The anaphor *appan* and *ek dosara* in Magahi can be categorized as operator anaphors. Operator anaphor, according to Katada, has lexically unmarked agreement features and thus possesses a "semantic range". This property of possessing "semantic range" distinguishes operator anaphor and non-operator anaphor. The distinctive agreement features which constitute semantic range are of person, number and gender. Like Japanese anaphor *zibun*, the Magahi anaphor *appan* is unmarked for person, number and gender. It could only be distinguished on the basis of [±living]. The Magahi anaphor *ek dosara* is only marked for [±number] and is common for both living and non living antecedent.

## 4. Conclusions

This paper examines anaphors in Magahi within the principles of Binding Theory outlined in Chomsky (1981). While doing so we found that anaphors in Magahi follow Principle-A of Binding Theory. Anaphors in Magahi possess operator like properties. They depend on the finite or non-finite nature of clause they are present in. This goes on with the dichotomy of anaphors into operator and non-operator anaphors outlined in Katada (1991).

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