

On LF Anaphor Movement*

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Lee, Jeong-Shik (1993). *On LF Anaphor Movement*. *Linguistics* Vol 1. This paper attempts to account for the following three kinds of reflexive anaphor binding in a unified way: (1) local binding in English type, (2) long distance binding across infinitives and subjunctives in Icelandic type, and (3) unlimited long distance binding in Korean type languages. This paper first suggests that only *self* moves at LF, and thus, in English type the noun head *self* moves, hence X_0 (head) movement, and in Icelandic and Korean type languages the NPs *sig*, *caki* move, hence XP movement. The difference between local binding in English type and long distance binding in Icelandic and Korean type languages will naturally follow from this suggestion, for X_0 (head) movement is in general local but XP movement can be non-local. The difference in long distance binding between Icelandic type and Korean type languages is attributed to the different properties of tense in these languages. This paper suggests that tense with a [+indicative] feature creates a locality barrier for anaphor movement, e.g., across indicative clauses in Icelandic, but that tense with no such feature does not create a barrier for anaphor movement, e.g., across infinitive and subjunctive clauses in Icelandic type and any clause in Korean type languages.

1. Introduction

Cross-linguistic reflexive anaphor binding has received much attention in recent years of comparative syntax. Binding theory within the government and binding framework is mainly motivated by the properties of anaphors from English (cf. Chomsky 1981, 1986a): An anaphor must be bound by its antecedent in a certain local domain, called governing category. In some languages like Icelandic, Korean (Japanese and Chinese), however, an anaphor can apparently be bound by an antecedent in a non-local domain, called

long distance anaphor binding. Thus, the properties of long distance anaphors led some authors to parameterize the governing category for anaphors language-specifically (Yang 1983, Manzini and Wexler 1987). But much has remained to be understood with this kind of analysis.

Recently, cross-linguistic anaphor binding has been investigated under a different path. One widespread approach in current literature is that all anaphors move at the level of LF representation, originally suggested in Lebeaux (1983) and subsequently adopted and developed in Chomsky (1986a), Pica (1987) and others.

The purpose in this paper is to offer one probable analysis to the facts of cross-linguistic anaphor binding, an analysis different from and more desirable than the existing ones. The approach is basically within the recent LF anaphor movement framework. I will try to reduce the difference between local anaphor binding in languages like English and long distance anaphor binding in languages like Icelandic and Korean to the independent systems of the grammar, and suggest an analysis that can further distinguish long distance anaphor binding facts between Icelandic type and Korean type languages.

2. Facts

In this section, I consider some basic facts of reflexive anaphor binding noted in some languages, e.g., English, Icelandic, Korean, and limit my attention to the occurrences of reflexive anaphors especially in the object position. Let us take the following examples from English as a starting point.

(1) a. Harry_i told John_j about himself_{i/j}

b. Harry_i said [that John_j hit himself_{i/j}]

In a simple clause as in (1a), the anaphor *himself* refers to either the subject *Harry* or the object *John*. In a complex clause as in (1b), however, the anaphor *himself* cannot refer to the matrix subject *Harry* but only to the local subject *John* in the embedded clause.

Thus, putting aside many possible occurrences of reflexive anaphors in other positions than the object (see Chomsky 1981,1986a) and considering only examples like (1a,b), I provide the following restriction on the occurrences of English reflexive anaphor in the object position for the present purpose.

- (2) In English an anaphor and its antecedent must cooccur within the same domain.

Here, I simply take the same domain to be the same clause, an adequate characterization of which remains to be extended (see Chomsky 1981,1986a). The condition in (2) correctly accounts for the coreference relation in (1a,b). In (1a) the anaphor and its two possible antecedents are within the same clause, and thus, the condition (2) is met. In (1b) the anaphor and the embedded subject are in the same clause, and thus, they are coreferential according to the condition (2). In (1b) the anaphor and the matrix subject, however, are not in the same clause, and thus, the coreference relation is blocked by the condition (2). In the subsequent discussion, I use the condition roughly stated in (2) for English reflexive anaphor binding.

Next, let us consider the Icelandic reflexive anaphor binding facts (I mainly refer to Anderson 1982, Maling 1984, Sigurjonsdottir, Hyams and Chien 1988). Icelandic shows the same binding relation in a sentence corresponding to English (1a):

- (3) Jon_i syndi Harald_j foet a sig_{i/j}
 showed clothes for self
 'John showed Harold clothes for self'

In (3) the reflexive anaphor *sig* can refer to either the subject or the object, as in English (1a). Icelandic, however, presents somewhat different properties of reflexive anaphor binding -- reflexive anaphor can have a long distance antecedent across the subjunctive and infinitive clauses as in (4a,b), but it cannot across indicative clauses as in (4c).

- (4) a. Jon_i segir [adh Bill_j elski(Subj) sig_{i/j}]
 says Comp loves self
 'John says that Bill loves self'
- b. Jon_i skipadhi mer [adh raka(Inf) sig_i]
 ordered me Comp shave self
 'John ordered me to shave self'
- c. Kermit_i ser [adh Jon_j gefur(Ind) ser_{i/j} flautu]
 sees Comp gives self a whistle
 'Kermit sees that John gives self a whistle'

This long distance binding is possible in a more complex sentence with multi-embedded subjunctive clauses as in (5).

- (5) Jon_i segir [adh Haraldur_j viti [adh Siggak elski sig_{i/j/k}]]
 says that knows that invites self
 'John says that Harold knew that Sigg invited self'

It is further observed that long distance binding in Icelandic is strictly subject-oriented, as illustrated in (6).

- (6) a. *Eg sagdhi Jon_i [adh Maria hefðhi(Subj) bodhidh ser_i]
 I told Comp had invited self
 'I told John that Mary had invited self'
- b. *Eg lofadhi Harald_i [adh raka(Inf) sig_i]
 I promised Comp shave self
 'I promised Harold to shave self'

In addition to the morphologically simple reflexive anaphor *sig/ser*, there is another morphologically complex form of reflexive anaphor in Icelandic, i.e., *sjalfan sig* 'self self.' Unlike the simple form *sig/ser*, this complex anaphor can have only local antecedent:

- (7) Jon_i segir [adh Fetur_j elski(Subj) sjalfan sig_{i/j}]
 says that loves self self
 'John says that Peter loves self'

As seen in (7), *sjalfan sig* can have only the local subject as its antecedent, though the embedded clause is subjunctive. From the above properties of Icelandic reflexive anaphors, the following may be said.<1>

- (8) a. The simple reflexive anaphor *sig/ser* in Icelandic can be long distance bound across subjunctives and infinitives but not across indicative clauses with subject orientation, and can have a local antecedent, subject or object.
- b. The complex reflexive anaphor *sjálfan sig* in Icelandic can only be locally bound.

Finally, let us turn to the properties of Korean reflexive anaphor binding. Korean allows reflexive anaphor *caki* to have as its antecedent only the local subject, as illustrated in (9).<2>

- (9) a. John_i-un Bill_i-eykey *caki*_{i/j}-uy chayk-ul cwu-ess-ta
 -Top -Dat self-Gen book-Acc gave
 'John gave Bill his book'
- b. John_i-un Mary_j-lul *caki*_{i/j}-uy cip-ulo taylieo-ess-ta
 -Top -Acc self-Gen home-to brought
 'John brought Mary to self's home'

Thus, unlike in English and Icelandic, Korean shows subject orientation with respect to local binding. Korean also allows long distance binding:

- (10) a. John_i-un [Mary_j-ka *caki*_{i/j}-lul kwasophyungkaha-
 -Top -Nom self-Acc underestimate
 -ess-ta-ko] sayngkakha-ess-ta
 -Past-Comp thought
 'John thought that Mary underestimated self'
- b. Tom_i-un [John_j-i [Mary_k-ka *caki*_{i/j/k}-lul kwasophyungkaha-
 -Top -Nom -Nom self-Acc underestimate
 -ess-ta-ko] sayngkakha-ess-ta-ko] malha-ess-ta
 -Past-Comp thought-Comp said
 'Tom said that John thought that Mary underestimated self'

Although the embedded clauses in (10a,b) are not subjunctive /infinitive, long distance binding is possible without any limit, unlike in Icelandic. But as in Icelandic, long distance binding in Korean also exhibits strict subject orientation, as illustrated in (11).

- (11) John_i-un Tom_j-eykey [Mary_k-ka *caki*_{i/j/k}-lul
 -Top -Dat -Nom self-Acc
 pipanha-ess-ta-ko] malha-ess-ta
 criticized told
 'John told Tom that Mary criticized self'

Korean also has the morphologically complex form of reflexive anaphor, e.g., *caki casin* 'self self' / *ku casin* 'he self.' As in Icelandic, this complex anaphor is only locally bound:

- (12) John_i-un [Bill]_j-i caki-casin_{i/1}/ku-casin_{i/1}-ul
 -Top -Nom self-self/he-self-Acc
 nemwu nayseywu-ess-ta-ko] sayngkakha-n-ta
 too much showed off thinks
 'John thinks that Bill showed off himself too much'

Thus, the following empirical generalization can be made:<3>

- (13) a. The simple reflexive anaphor *caki* in Korean can be long distance bound without limit with subject orientation, and it has only subject as its local antecedent.
 b. Complex reflexive anaphors like *caki casin/ku casin* can only be locally bound.

Considering each generalization made in (2,8,13) for English, Icelandic and Korean, the following cross-linguistic generalization can be made that holds through these languages. (In (14a) below *X-self* represents such complex forms as *himself* in English, *sjalfan sig* in Icelandic, *caki casin/ku casin* in Korean, and *self* represents simple forms such as *sig/ser* in Icelandic, *caki* in Korean.)

- (14) a. While *X-self* form is clause-bound, *self* form can be long distance bound.
 b. Indicative tense in Icelandic plays a certain role in blocking long distance binding, whereas Icelandic subjunctive/infinitive tense and Korean tense in general do not.

3. Previous Analyses

To account for the generalization in (14a,b), a number of works under the LF anaphor movement hypothesis (Lebeaux 1983, Chomsky 1986a) have been made, e.g., Pica 1987, Yang 1989, Battistella 1989, Cole, Hermon and Sung 1990, Cole and Sung 1991. In these works anaphor movement applies successive cyclically at LF. In Pica (1987) simple anaphors such as *sig/ser*, *caki*, which Pica

called *X_o* anaphors, undergo *X_o* movement, while anaphors such as *himself*, *kucasin*, which Pica called *XP* anaphors, undergo *XP* movement. Thus, these two types of anaphor movement are subject to the Head Movement Constraint (HMC) (Travis 1984) and the Adjunction Condition (Chomsky 1986b), respectively.<4>

Assuming that simple *X_o* anaphors move to INFL through Comp at LF under the HMC, Pica (1987) and others attempt to account for the fact that simple anaphors can be long distance bound only by subjects. Assuming that complex *XP* anaphors are allowed to adjoin to non-argument *XPs* under the Adjunction Condition, they also attempt to account for the fact that complex anaphors can be locally bound by the non-subject as well. The following examples, repeated from (9a,11,1a), will show how this analysis works((1b)is added)

(9a) John_i-un Bill_j-eykey cak_i_v_j-uy chayk-ul cwu-ess-ta
 -Top -Dat self-Gen book-Acc gave
 'John gave Bill his book'

(11) John_i-un Tom_j-eykey [Mary_k-ka cak_i_v_j_k-lul
 -Top -Dat -Nom self-Acc
 piphanha-ess-ta-ko] malha-ess-ta
 criticized told
 'John told Tom that Mary criticized self'

(1a) Harry_i told John_j about himself_v_j

(1b) Harry_i said [that John_j hit himself_v_j]

In (9a) the simple anaphor *cak_i* is not bound by the object *Bill*, but only by the subject *John*. This fact would follow if *cak_i* undergoes *X_o* movement to INFL, where it can be interpreted as bound by the subject *John* but not by the object *Bill*. The subject orientation of long distance binding in (11) would also follow if *cak_i* undergoes *X_o* movement to INFL through Comp successive cyclically. In (1a) the complex anaphor *himself* in English can be bound by the subject *Harry* and the object *John* as well. The latter non-subject binding would follow if *himself* undergoes *XP* movement -- *himself* adjoins to VP, non-argument, to be bound by the object *John*. The fact that *himself* cannot be bound by the matrix subject *Harry* in (1b),

however, implies that *himself* cannot undergo long XP movement somehow.

The Pica (1987) type analysis introduced above briefly, however, has left us much to be answered. First of all, the claim that *Xo* anaphors can undergo successive cyclic long head movement but *XP* anaphors cannot undergo long XP movement is inconsistent with the general fact that *Xo* movement is quite local or clause-bound (cf. Travis 1984, Li 1990) and *XP* movement can undergo long movement successive cyclically.

Second, it is not obvious what blocks long distance *XP* movement of *X-self* in examples like (1b,7,12). In order to block long distance binding, the anaphors in these examples (all in the object position) must not move beyond the embedded clauses. The following examples, however, show that an *XP* element in the object position can undergo long distance movement in both overt syntax as in English (15a) and in LF as in Korean (15c) (which is an LF representation of (15b)).

(15) a. [Who_i [do you think [that [John saw t_i]]]]

b. ne-nun [John-i nuwkwu-lul po-ass-ta-ko] sayngkakha-ni
 you-Top -Nom who-Acc see-Past-Comp think-Q

c. [nuwkwu_i-lul [ne-nun [John-i t_i po-ass-ta-ko] sayngkakha-ni]]
 who-acc you-Top -Nom see-Past-Comp think-Q
 'Who_i do you think that John saw t_i'

In Pica's (1987) analysis developed within the 'barriers' framework (Chomsky 1986b), long distance anaphor binding of *X-self* anaphors can only be blocked if *X-self* anaphors are not adjoined to IP (adjunction to CP here is blocked by the Adjunction Condition) (cf. Cole and Sung 1991). But the following kind of contrast (due to Lasnik) casts some doubt on this possibility.

(16) a. *Who thinks that who, I like t?

b. Bill thinks that John, I like t

The contrast between (16a) and (16b), where *who/John* are assumed to be adjoined to IP, provided one motivation for Chomsky (1986b)

to suggest that [+wh] element cannot be adjoined to IP. Considering that anaphors are [-wh], it is not clear why they are not adjoined to IP. Further, the following kinds of examples show that complex anaphors like *himself* can in fact adjoin to IP.

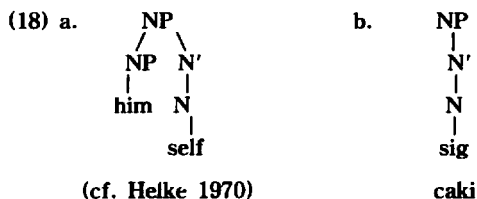
- (17) a. *caki/ku casin_i-ul, John_i-un t_i cohaha-n-ta* (Korean)
 self/he self-Acc -Top likes
- b. *Himself_i, John_i likes t_i*
- c. *John_i knows that pictures of himself_i, Bill likes t_i*
- d. *Pictures of himself_i, John_i knows that Bill likes t_i*

Technically, adjunction to IP will make CP unable to inherit barrierhood from IP within 'barriers' system, thereby allowing unwanted long distance binding in examples like (1b,7,12). Now, if *X-self* form may undergo long distance XP movement via VP-adjunction necessary for local object binding, it is unclear what will block long distance object binding. Note also that in the case of local object binding in examples like (1a) in English, the definition of c-command involving first branching, necessary for binding (cf. Chomsky 1986b), cannot be used, since the anaphor now adjoined to VP is outside the first branching node VP that immediately dominates the object.<5>

Finally, Pica (1987) type movement analysis was not further elaborated to account for the difference in long distance binding between Icelandic type and Korean type languages.

4. Proposals

In the preceding section, we have seen some possible problems for a certain type of previous approach to anaphor binding. In this section, as an alternative, I propose that only *self* [+refl] (used here as a cover term) undergoes movement at LF. More specifically, in English only *self* from, for example, *himself* undergoes LF movement, while Icelandic *sig/ser* and Korean *caki*, which consist of only *self*, undergo LF movement. I assume the following structures for the subsequent discussion.



Now, it follows from the above proposed LF *self* movement that English reflexive anaphor undergoes Xo movement -- *self* undergoes Xo (head) movement, and that Icelandic and Korean reflexive anaphors *sig/caki* can undergo XP movement via adjunction to non-argument maximal projections. It is thus noticed that this proposed analysis is opposite to that of Pica (1987). But it will be shown that the present analysis can overcome the problems noted in Pica type analysis in the preceding section.

Since English reflexive anaphor undergoes Xo movement under the present analysis, the fact that it can have a non-subject local antecedent as in (1a) and cannot have a long distance antecedent as in (1b) now receives a natural account.

- (1) a. Harry_i told John_j about himself_{i/j}
 b. Harry_i said [that John_j hit himself_{i/j}]

In (1a) the head N *self* adjoins to V, where it can be bound by the object *John*, and then to INFL, where it can be bound by the subject *Harry*. Notice now that this naturally accounts for the object binding as well as subject binding in English simple clauses without raising any problems that arise within Pica (1987) type XP movement analysis with respect to c-command. The impossibility of long distance binding in (1b) can also be attributed to an independent reason. Li (1990) regarded the functional/lexical category as A'/A position, respectively. Under this view, the impossibility of long head movement is reduced to an improper movement. In (1b) *self*, under the present analysis, will Xo move to V and then to INFL and finally up to the matrix INFL via Comp in the embedded clause. Given Li's theory, this movement will inevitably yield an improper movement, since functional categories INFL and Comp in the

embedded clause are an A'-position and a lexical category V is an A-position. The same account directly extends to the impossibility of long distance binding in examples like (7) in Icelandic and those like (12) in Korean, where *X-self* form cannot be long distance bound.<6>

But Icelandic and Korean reflexive anaphors *sig/caki* can undergo XP movement under the present analysis, and thus, they can have long distance antecedents as in (4a,b;10a,b) -- *sig/caki* undergo XP movement via IP adjunction, which makes CP unable to inherit a barrierhood from IP under the 'barriers' system (cf. also Huang and Tang 1989 for IP adjunction analysis). In this manner, long distance binding becomes possible. I assume that *sig/caki* are bound by the subject when they are VP-adjoined. When they are VP-adjoined, they are not c-commanded by the objects. This thus offers us a natural account for the strict subject orientation with respect to long distance binding.<7> Thus, it is now noticed that the proposed analysis straightforwardly accounts for the local binding in English and long distance binding in Icelandic and Korean type languages without facing any problems noted in Pica (1987) type analysis.

What remains to be accounted for is the difference in long distance binding between Icelandic examples like (4c) on the one hand and Icelandic examples like (4a) and Korean examples like (10a) on the other hand.

(4c) Kermit_i ser [adh Jon_j gefur(Ind) ser-_{i/j} flautu]
 sees Comp gives self a whistle
 'Kermit sees that John gives self a whistle'

(4a) Jon_i segir [adh Bill_j elski(Subj) sig-_{i/j}]
 says Comp loves self
 'John says that Bill loves self'

(10a) John_i-un [Mary_j-ka caki_{i/j}-lul kwasophyungkaha-
 -Top -Nom self-Acc underestimate
 -ess-ta-ko] sayngkakha-ess-ta
 -Past-Comp thought
 'John thought that Mary underestimated self'

As described in the generalization (14b), it seems obvious that

indicative tense in Icelandic blocks long distance binding as in (4c), whereas Icelandic subjunctive/infinitive tense and Korean tense in general do not block it as in (4a,10a). Anderson (1982) said that Icelandic subjunctive has no independent tense but copies tense from the higher indicative clause that has an independent tense. Borer (1989) said that Korean type languages have an anaphoric tense. Given this characterization of tenses, it can be said that independent tense in Icelandic indicative clause plays a certain role in blocking LF anaphor movement, but that other tenses, Icelandic subjunctive /infinitive tense and Korean anaphoric tense, do not. To implement this, let us first assume that at LF INFL raises to Comp (Stowell 1981, Lasnik and Saito 1984). Technically, it can then be suggested that Comp with [+indicative] feature creates a minimality barrier C' for LF anaphor movement. The question of what principle this follow from is open to further investigation. We might turn to Case Minimality, the guiding idea of which is that a Case-bearer creates a local domain for syntactic processes (Lee 1992). If tense feature is considered as a Case feature (Stowell 1981), here only [+indicative] feature for reasons unclear at present, the creation of minimality barrier C' could follow from Case Minimality.

The proposed analysis now offers an explanation of the generalizations made in (14a,b) and also enables us to maintain the simple Binding theory A: An anaphor is bound in a local domain, the domain of the closest c-commanding SUBJECT (cf. Yang 1983).

5. More Discussion

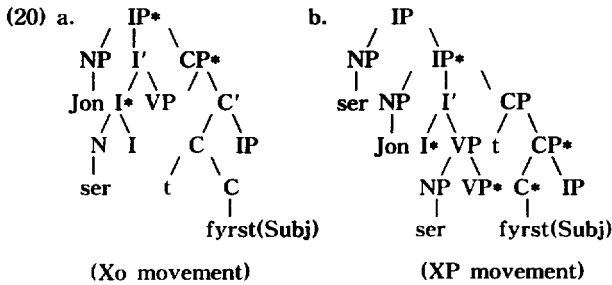
Icelandic presents another interesting long distance anaphor binding, illustrated by the following example (Maling 1984).

(19) Haraldur_i segir [adh Jon_j komi(Subj) [fyrst
says Comp comes since

Sigga_k bjodhi(Subj) ser_{i-/j/k}]]
invites self

'Harold says [that John comes [because Sigga invited self]]'

In (19) the possible antecedents of *ser* are the main clause subject *Haraldur* and the adverbial clause subject *Sigga*, not the intermediate subject *Jon*.<8> Under Pica (1987) type analysis, *ser* undergoes Xo movement, whereas under the present analysis it undergoes XP movement. Let us consider the following relevant structures under each analysis for the purpose of comparison.



Here, the issue is how to block long distance binding between the intermediate subject *Jon* and *ser* in the adverbial clause. Pica (1987) relies on the Proper Binding Condition (Fiengo 1977) -- traces must be bound -- to exclude the binding relation in question. Under Xo movement displayed in (20a), the trace of *ser* is not bound by *ser* adjoined to I* in the intermediate clause, resulting in violation of the Proper Binding Condition, and thus, *ser* cannot be coreferential with *Jon*. But the trouble emerges in other part. In order for *ser* to be bound by the main clause subject, it has to Xo move up to the matrix INFL across IP* (and CP*), which constitute(s) barrier(s) within 'barriers' system. Thus, *ser* cannot refer to the main clause subject *Haraldur* under Pica type Xo movement analysis, a wrong prediction.

Under the present XP movement displayed in (20b), however, *ser* can move up to the matrix VP to be bound by the subject *Haraldur*. Since this movement proceeds via adjunction to non-argument adverbial clause CP*, IP* will not inherit barrierhood from it.<9> C* with no [+indicative] feature will not form a minimality barrier, either. On the other hand, *ser* adjoined to the intermediate IP* cannot refer to the intermediate subject *Jon* because of the lack of

c-command relation. If *ser* adjoins to the intermediate VP*, it will be bound by the intermediate subject *Jon*. But the trace will not be bound by the VP-adjoined *ser*, hence in violation of the Proper Binding Condition. As a result, the binding relation between *ser* and *Jon* will not hold.<10> The present analysis thus turned out to be a step forward to proper understanding of the behavior of long distance anaphor.

Instead of movement approach for the long distance anaphor binding, Progovac (1992) recently offered a non-movement approach -- An Xo reflexives (e.g., *sig*, *caki*) must be bound to Agr, the only SUBJECT for Xo reflexives. But there are some cases which seem to motivate the movement of reflexive anaphors (see Katada 1991, Abe 1992 for related discussion):

- (21) a. ?*John_i-un [caki_i-ka ku_i-uy emeni-lul
 -Top self-Nom he-Gen mom-Acc
 pinanha-ess-ta-ko] malha-ess-ta
 blamed said
 'John said that self blamed his mother'
- b. ?*John_i-un [Mary-ka ku_i-eykey caki_i-uy chayk-ul
 -Top -Nom he-Dat self-Gen book-Acc
 cwu-ess-ta-ko] malha-ess-ta
 gave said
 'John said that Mary gave him self's book'

Under the movement approach, the ungrammaticality of (21a) can be easily attributed to the much discussed restriction on pronouns: A pronoun must be A'-free or a pronoun must not be bound by formal variables (cf. Hong 1985, Montalbetti 1984). Under the same movement approach, the ungrammaticality of (21b) can be assimilated to that resulting from Crossover. Without anaphor movement, however, it is not obvious how (21a,b) can be handled.

6. Closing Remarks

The major proposal in this paper is that only *self* [+refl] moves at LF. Thus, English complex reflexive anaphor *X-self* is made to undergo Xo (head) movement. Long head movement then results in

an improper movement (Li 1990). This thus derives the fact that English anaphors (in the object position) are only locally bound by the object as well as the subject. On the other hand, Icelandic /Korean simple reflexive anaphors *sig/caki* can undergo XP movement via adjunction, thus yielding long distance binding with only subject orientation. The difference in long distance binding between Icelandic type and Korean type languages is captured by the proposal that the [+indicative] tense, not the other tenses such as Icelandic subjunctive /infinitive and Korean anaphoric, creates a minimality barrier for LF anaphor movement. This thus derives the fact that long distance anaphor binding is observed across any clause in Korean and only across subjunctive/infinitive clauses in Icelandic. Although much remains to be discussed, the proposed analysis seems to offer a unified analysis for the three kinds of cross-linguistic reflexive anaphor binding, which were not amenable to the existing analyses.

NOTES

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1. In some cases, English also allows long distance binding with only subject orientation. In this paper, I will not be concerned with this case.

2. There are also some speakers who allow *caki* to have *Bill* and *Mary* as its antecedent in (9a,b). But there seems to be somewhat strong tendency for subject orientation. Here I take the judgment appeared in (9).

3. This generalization seems to hold of Japanese and Chinese, too.

4. a. Head Movement Constraint (HMC) (Travis 1984):

X_o may only move into the Y_o which properly governs it.

b. Adjunction Condition (Chomsky 1986b):

XP category may not adjoin to argument XPs: CP or NP.

5. Assuming that anaphors undergo X_o movement, Cole, et. al. (1990) attempt to account for the contrast between local binding in English examples like (1b) and long distance binding in Chinese examples corresponding to (10a) by claiming that VP is a barrier for anaphor movement in English, but it is not in Chinese (type languages), due to

different properties of INFL in these languages. But if VP is a barrier for *X_o* movement in English, they will undesirably disallow NP-movement similar to *X_o* movement in its nature in that traces left by both movement are subject to antecedent government requirement.

6. One might wonder why *sjálfan/kaki* 'self,' which are in SPEC of *sjálfan sig/kaki casin* (see the relevant structure (18a)), cannot undergo XP movement. If this movement is permitted, unwanted long distance binding in examples like (7,12) is predicted. Since what undergoes movement is *self* with a [+refl] feature, to block the movement in question, I temporarily suggest that in a structure like (18a) what bears this [+refl] feature is the head, not the SPEC.

7. In Icelandic, *sig* can have the object as its local antecedent as in (3), which is not apparently predicted under the present XP movement analysis of *sig*. Notice, however, that our analysis does not exclude the possibility of allowing *sig* to *X_o* move (see the relevant structure (18b)). If *sig* undergoes *X_o* movement, local object binding in question can be predicted. The same analysis may extend to corresponding Korean examples like (9), where some speakers allow local object binding of *kaki*.

8. The same fact is reported to appear in such languages as Italian, Japanese, to my knowledge.

9. Since extraction of Wh-adjunct phrase out of an adverbial clause is bad, adjunction to non-argument CP may have to be restricted to only anaphors.

10. One may wonder why *ser* in the trace position in (20b) is not bound by *Jon*. This may be because the Agr (in I*), the SUBJECT, does not c-command the trace position.

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