

Binding Reconstruction and Head Binding*

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Kim, Jeong-Seok. 2003. Binding Reconstruction and Head Binding. *The Linguistic Association of Korea Journal*, 11(4), 19-38. The goal of this paper is to explore the phenomena of *binding reconstruction*. To achieve this goal, we first examine the previous accounts which are either derivational (Belletti & Rizzi, 1988; Boeckx, 2000, 2001) or representational (Lee, 1993). We then argue for a head binding account (Richards, 1994), which is essentially representational. To the extent that our analysis is successful, it provides evidence for Lasnik's (2001) view that language is both derivational and representational in fundamental respects.

Key words: Head Binding, Reconstruction, A-movement, Derivation, Representation, Multiple Spell-Out

1. Introduction

The investigation of reconstruction phenomena has played a significant role in several components of syntax. In this paper, we will examine Chomsky's (1993) claim that reconstruction does not occur (at all) with A-movement.

Chomsky's (1993) account of reconstruction is strongly representational in that it invokes traces/copies visible at the LF level. Specifically, Chomsky (1993) proposes that if the basic aspects of binding theory hold only at the LF interface, then we can develop a simple interpretive version of binding theory which directly maps structural properties into semantic ones. There is no syntactic filtering found in the three Binding conditions of Chomsky (1981).

* I would like to thank the two anonymous reviewers for their help and comments. The usual disclaimers apply.

An appealing alternative is a derivational approach to anaphoric relation. Jackendoff (1972), for instance, proposes a theory of anaphora that includes interpretive rules operating at the end of each syntactic cycle. Belletti and Rizzi (1988) argue that Condition A can be satisfied on-line at any point in the derivation. A more updated version of this approach is proposed by Epstein (1999) and Uriagereka (1999). They suggest that all interpretive information is provided on-line in the course of the syntactic derivation. Reminiscent of Chomsky (1955), there is no level of LF. Under this approach, any structural information relevant to semantics is available after each syntactic operation.

In this paper, we show that certain binding examples cannot be explained by a (strictly) derivational account which necessarily assumes the lack of *reconstruction with A-movement*. We argue that the problems with *binding reconstruction* can be solved if binding theory is reformulated in terms of the relation between features on heads. In particular, developing Richards' (1994) suggestion, we propose that NPs share referential features with heads to which they are related by Spec-head agreement or by θ -assignment, and that it is the relation between the heads that binding theory should control. We also show that a clause-bound movement does not leave a copy and that binding theory applies only at the LF interface. Consequently, we argue that a distinct LF component is required to explain binding phenomena which are representational in fundamental respects.

2. Reconstruction with A-movement

The copy theory of movement provides an account of interpreting syntactic objects in a position not occupied at the surface by invoking the activation of a copy of the moved element, and not by resorting to backward movement. Chomsky (1993) gives convincing evidence in favor of this interpretation of reconstruction for A'-movement, with complementary deletion in the operator-variable sequence. As for A-movement, Chomsky notes the absence of reconstruction effects in general, and suggests that the copy left by A-movement, unlike those

of A'-movement, is ignored by interpretive mechanisms.

For Chomsky (1993), reconstruction is restated as an interpretation of a copy other than the pronounced head of a movement chain. One of Chomsky's (1995) empirical arguments is based on (1):

- (1) *John₁ expected [him₁ to seem to me [_a t₁ to be intelligent]]

Chomsky (1995, p. 326) argues that "under the relevant interpretation [(1)] can only be understood as a Condition B violation, though under reconstruction the violation should be obviated, with *him* interpreted in the position of *t...*" Chomsky's other argument is based on scope interaction between a universal quantifier and clausal negation, as demonstrated by the following paradigm:

- (2) a. (It seems that) everyone isn't there yet [everyone $\supset \subset$ not]
 b. I expected [everyone not to be there yet] [everyone $\supset \subset$ not]
 c. Everyone seems [t not to be there yet] [everyone $\supset \emptyset$ not]

Clausal negation can have wide scope in both (2a) and (2b), but not in (2c), even though under reconstruction there is a possibility for *everyone* in (2c) to be interpreted in its trace position, similarly to (2b). On the basis of the absence of reconstruction in A-chains, Chomsky stipulates that reconstruction is an exclusive property of operator-variable chains resulting from A'-movement.

Developing this line of reasoning further, Lasnik (1999) suggests an alternative to Chomsky's (1993) explanation of no-reconstruction phenomena. Lasnik proposes that Chomsky's no-reconstruction facts can be captured if A-movement does not leave a copy/trace behind at all. Sharing Chomsky's intuition that reconstruction is a property of operator-variable chains, Lasnik (1999) argues that the proposal that A-movement leaves no traces is conceptually preferable, since A-chains do not involve an operator-variable relation, unlike A'-chains, so that "... there are not two separate interpretive roles for an [A-]moved NP and its trace to fulfill."¹⁾

3. Derivation vs. Representation

3.1. Derivational Account

Contra Chomsky's (1993) observation on (1), Belletti and Rizzi (1988) observe that reconstruction with A-movement is possible:

- (3) a. [Pictures of himself]₁]₂ [worried t₂ John]₁
 b. [Replicas of themselves]₁]₂ seemed to the boys₁ [t₂ to be ugly]

Apparently, we have conflicting data. With respect to this problem, let us consider first a derivational account. Before doing so, to understand the derivational account, a note on the (strictly) derivational framework is in order.

A recent direction taken in exploring the minimalist enterprise was to question its implicit assumption that Spell-Out applies only once in a derivation. In particular, in the spirit of Bresnan (1971), Chomsky (2000, 2001) and Uriagereka (1999) proposed to eliminate this assumption and allow Spell-Out to apply iteratively, that is, to portions of the phrase marker as those are built in the course of a derivation. The portions of syntactic structure are thus delivered to the PF interface in a continuous manner, for evaluation by the performance systems relevant for phonology and pronunciation. This proposal entails elimination of PF as a linguistically significant level of representation, in light of the strictly derivational view of language. In addition, Epstein (1999) and Uriagereka (1999) extend the Multiple Spell-Out proposal on the LF side, arguing for elimination of the separate level of LF as well.

An important virtue of the Multiple Spell-Out system, which dispenses with levels of representation, is that various relations relevant for PF and LF must now be computed *on-line*, as the derivation

1) It has been discussed that the argument of no-reconstruction with A-movement based on a scope interaction is inconclusive (Boeckx, 2000, 2001; Kim, 2003). In this paper, we will focus on binding data bearing on A-movement reconstruction.

proceeds. This provides a natural way of capturing relations that hold at certain point(s) in the derivation but fail to hold later on as subsequent derivational steps wipe out the relevant formal environment.

To see one example of such a relation, consider (3) again. At some point in the derivation, each of the dislocated elements containing an anaphor in (3) was c-commanded by its antecedent, as shown below:

- (4) a. [e] worried [[pictures of himself₁] John₁]
 b. [e] seemed to the boys₁ [[replicas of themselves₁] to be ugly]

Under this view, the fact that the anaphors are not c-commanded by their antecedents at S-structure and LF does not cause a problem since Condition A has already been satisfied in this derivation. Under the Multiple Spell-Out hypothesis, Belletti and Rizzi's (1988) account can be translated into the minimalist framework even though the latter has no notions of D-Structure and S-Structure. If we assume that pieces of structure can be dynamically sent off to the LF interface as the derivation proceeds, the correct result can be derived. It thus seems that this derivational approach can easily accommodate the reconstruction phenomena, without appealing to the actual lowering process.

An interesting minimalist interpretation of Belletti and Rizzi's proposal has been implemented by Boeckx (2000, 2001). Since Boeckx' proposal is directly relevant to our proposal to be followed, we will discuss it below. The starting point for Boeckx' proposal is the distinction between A-traces (with [-Case]) and A'-traces (with [+Case]). A question is then why Case would be the relevant factor in allowing reconstruction. Boeckx argues that the oddity disappears when we take Chomsky's (1995) claim seriously that Case is an uninterpretable feature. His idea is that Case checking sends the element to the interface for interpretation. In other words, Case makes the element visible for interpretation in the sense of Chomsky's (1986) visibility condition, where Case checking makes an argument visible to the θ -criterion. Boeckx generalizes the visibility condition, and claims that Case checking marks an element as interpretable, not only for thematic

purposes but also for intensional notions like scope. If correct, Boeckx' claim explains why A-moved elements take scope in their surface, the Case checking position:

- (5) Everyone seems [t not to be there yet] [everyone $\supset \not\subset$ not]

Boeckx' proposal that connects scope interpretation with Case checking allows A-movement to look like A'-movement in terms of copy theory. Since A-movement leaves a full copy in this proposal, Case will prevent the interface from accessing members of the A-chain other than the head. As a result, apparently, Boeckx' analysis allows us not only to maintain copy theory in its simplest form (all movement leaves a full copy) contra Fox (2000), but also to make an interesting prediction. Although Case forces the head of the chain to be interpreted in the case of A-movement, it has no bearing on the pied-piped elements. Let us take the case of an *of* phrase:

- (6) a. Pictures of himself frighten John
 b. Pictures ~~of himself~~ frighten John ~~pictures~~ of himself

It is standardly assumed that *himself* in (6) checks its Case NP-internally before A-movement. This amounts to saying that *himself* is not frozen in the final position occupied by the A-moved element: it is rather accessible for interpretation upon merger. It is therefore expected to give rise to reconstruction effects, as in (6).

With the above discussion in mind, let us turn to a case of A-movement over experiencer:

- (7) a. John₁ seem to him₁ [t to like Mary]
 b. Pictures of John₁ seem to him₁ [t to like Mary]
 (8) Pictures of himself₁ seem to John₁ [t to be ugly]

Boeckx (2000, 2001) argues that the examples in (7) and (8) can be explained by his Case/Scope-freezing analysis. Recall that an element is

interpreted in its Case checking position and that an element inside an NP is interpretable in its merger site. In (8) *himself* is interpretable upon merger. The higher copy can delete. Crucially, though, deletion of copies is done after subject raising. This is forced because it is not natural that an element inside an NP is interpretable upon merger. The element inside an NP is certainly interpretable in its merging site, but not immediately upon merger. It is still inside an NP with an uninterpretable Case feature. It is only after subject raising and Case deletion that all the elements inside the NP are available for interpretation. Only at that point can the merging site for *himself* in (8) be used. This explains why *pictures of John* in (7b) does not feed a Condition C violation prior to raising. If the elements within NPs were interpreted upon merger, *John* in (7b) would be interpreted downstairs, and would trigger a Condition C effect. By contrast, Boeckx claims that "... if the elements inside an NP become available for deletion after the NP has checked its Case, then we can decide on which portion to delete, and the grammar chooses not to retain the lower copy of *John*, thereby avoiding a Condition C violation." In other words, his claim is that the difference between the elements inside NPs and NPs per se is not so much one of timing of interpretation, but of choice of copies to delete.

On conceptual grounds, however, it seems that nothing in Boeckx' analysis forces the grammar to choose the lower copy to be interpreted for reconstruction with A-movement when the construction contains an anaphor inside an A-moved NP. For instance, in (8), when the A-moved NP per se is interpreted in its surface position upon having its Case checked, it is more likely that *himself* is sent to the interpretive component in its surface position rather than its downstairs position. It is arbitrary, or uneconomical, to send the lower copy of *himself* to the interpretive component since the higher copy of the NP *pictures of himself* has been sent to the interpretive component. More precisely, even if more than one position is available for the elements inside NPs, a supplementary mechanism, such as Chomsky's (1993) complementary deletion in the operator-variable sequence (viz., Preference Principle) in

the case of reconstruction with A'-movement, is required to guarantee the interpretation of the lower copy.

3.2. Representational Account

Boeckx' (2000, 2001) derivational account was that A-movement does not generally entail reconstruction effects because the A-moved element has to wait until it reaches its final landing site to become available for interpretation.

Interestingly enough, Lee (1993) proposed a representational account of the anaphora, which is empirically quite similar to Boeckx' (2000, 2001) account. According to Lee, reconstruction in A-chains is allowed only up to a point that the process does not empty the A-position. Consider the following:

- (9) a. *Anyone didn't show up
 b. Pictures of any artists appear to no critics t to be revealing

Given her analysis, an NPI in the subject position is not licensed when it is the subject itself, while it is licensed when it is part of a subject. Returning to (1), *him* is a single word. As in (9a), Lee's proposal predicts that reconstruction of *him* is not allowed because it will vacate the A-checking position. In addition, Lee's analysis correctly rules in the following example where the A-moved element contains an anaphor inside:

- (10) John expected pictures of myself₁ to seem to me₁ [t to be intelligent]

Recall that Boeckx' account correctly rules in (10), too, since the anaphor, which is not Case-frozen in its final landing site, is allowed to reconstruct.

Consider, however, the following examples, which are pointed out by Sohn (1999), where the anaphors inside A-moved elements are replaced

by pronouns:

- (11) a. ?*John₁ believes pictures of him₁ to seem t to be on sale
 b. ?*John₁ thinks pictures of him₁ to seem t to have disappeared
 c. ?*John₁ expected pictures of him₁ to seem to me t to be intelligent

Under Boeckx' and Lee's analyses, (11) is incorrectly ruled in, obviating a Condition B violation, since *him* can be reconstructed: *him* is not Case-frozen in its final landing site (under Boeckx' analysis) and its reconstruction does not vacate the A-checking position (under Lee's analysis). A certain mechanism is therefore required to prevent the pronouns inside A-moved elements from undergoing reconstruction. Otherwise, both Lee and Boeckx are forced to admit that reconstruction is simply optional.²⁾

3.3. Returning to a Derivational Account

At this point, the temptation may be to disregard a representational

2) As an alternative to Lee's (1993) analysis (not to Boeckx' (2000, 2001) analysis which Sohn does not discuss), Sohn (1999) argues that "... [R]econstruction of an A-moved item can happen only when there is some driving force. In the case of simple quantifier, there is no need for it to undergo reconstruction and therefore it must not move. Unlike quantifiers, anaphors have to be licensed through feature checking, and therefore their reconstruction is motivated. [In (1)] *him* does not have any motivation for movement since Condition B is only a negative condition, just like Condition C. As there is no driving force, *him* just stays in its surface position and eventually it causes a Condition B violation."

See, however, Fox (2000) who proposes the Scope Economy Principle: "An operation OP can apply if and only if it effects semantic interpretation (i.e., only if inverse scope and surface scope are semantically distinct)." Given Fox' proposal, Sohn's (intuitive) claim against quantifier lowering might be reconsidered. The implication of *reconstruction with quantifier movement* will not be explored here. See Boeckx (2000, 2001).

Due to the space limitation, we will not explore Sohn's (1999) analysis of anaphor licensing, either.

account, and return to Belletti and Rizzi's (1988) original derivational account. Recall that Belletti and Rizzi's explanation was that Condition A can be satisfied at any point of the derivation. This return to the original derivational account, along with no-reconstruction with A-movement, would handle the following paradigm:

- (12) a. ?*John₁ expected pictures of him₁ to seem to me t to be intelligent
 b. *John₁ expected him₁ to seem to me [t to be intelligent]
- (13) a. John expected pictures of myself₁ to seem to me₁ [t to be intelligent]
 b. John₁ expected pictures of himself₁ to seem to me [t to be intelligent]
 c. John₁ expected himself₁ to seem to me [t to be intelligent]

Given that there is no reconstruction with A-movement, the pronouns in (12) stay put in their surface positions, violating Condition B. The paradigm in (13) is not problematic any more since the anaphor in (13a) is licensed before raising, and those in (13b) and (13c) after raising.

Consider, however, the case of rightward movement with binding, discussed by Sohn (1999). In (14) *until yesterday* is a matrix adjunct:

- (14) a. John wanted to talk to Mary [about pictures of the mysterious man] until yesterday
 b. ?John wanted to talk to Mary t until yesterday [about pictures of the mysterious man]

Let us now compare (14) with the following:

- (15) a. John wanted to talk to Mary [about pictures of herself] until yesterday
 b. *John wanted to talk to Mary₁ t₂ until yesterday [about pictures of herself₁]₂

Under Belletti and Rizzi's derivational account, the ungrammaticality of (15b) remains mysterious. Since *herself* is licensed by *Mary* before raising as in (15a), there seems no way to rule out (15b). Note that under the standard derivational assumption, the on-line determination of grammaticality cannot be altered later by a subsequent operation.³⁾

3.4. Leaning toward a Representational Account

In what follows, we articulate a head binding account of *binding reconstruction*, first proposed by Richards (1994).

3.4.1. Richards' (1994) Motivation for Head Binding

Under the standard assumption since Chomsky (1981), binding theory has been understood as a set of restrictions on structural relations between NPs. As we have seen so far, this view of binding theory is not quite successful with respect to reconstruction. If binding theory is formulated in terms of structural relations between NPs, it is expected that the structural relations be changed in certain ways when they are altered by movement. We are therefore forced to incorporate some mechanism of reconstruction (e.g., actual lowering or copy theory) into grammatical theory.

In this light, Richards (1994) tries to deal with binding relations from a different angle. In almost all conceivable versions of binding theory, heads with certain properties have played an important role in binding relations, e.g., binding domains. A question is then why the contents of heads have any bearing on binding domains. Although it is not so clear why certain features of heads should become involved in relations between phrases, there is substantial evidence that this is the case.

3) See, however, Epstein and Seely (1999) who propose that the syntactic object is sent out to the interface levels where it is evaluated. According to them, if the syntactic object violates some principle in some of the intermediate Spell-Outs, this violation is not fatal because it can be fixed at a later point in the derivation. However, if intermediate representations can be disregarded, it is not clear why they exist in the first place.

First of all, it is well known that some languages allow long-distance binding of reflexives into clauses with certain tenses or moods. For instance, in Icelandic, Russian and Italian, we see instances of long-distance binding into infinitival clauses and subjunctive clauses. Indicative clauses, on the other hand, generally bar long-distance binding in these languages. Hence, locality for binding appears to be largely determined by features of head. Second, in many languages reflexives are unable to appear in positions coindexed with Agr. This is the so-called NIC effects:

(16) *Mary₁ thinks that sheself₁/herself₁ Agr₁ is pretty

This phenomenon is absent in languages with morphologically null Agr such as Korean (and Japanese).

(17) Mary₁-nun caki₁-ka yepputako saynkakhanta
 Mary-Top self-Nom pretty-is-Comp thinks
 'Mary thinks that she is pretty'

In sum, we conclude that the various features on heads play a crucial role in determining the range of possible binding relations, although they never participate directly in traditional Chomskyan binding theory in any other way. Below, we argue, however, that the features on heads may participate directly in binding relations.

3.4.2. A Head Binding Account of Binding Reconstruction

Following Richards (1994), suppose that NPs may share referential features and θ -features; heads which share features with anaphors must have their features more fully specified by other heads. Then, Condition A can be regarded as a case of the bare output conditions (Chomsky, 1995), as defined below:

(18) Condition A: There can be no head with unbound defective

features at LF.

Let us briefly examine Richards' head binding analysis. Consider first an instance of binding without reconstruction:⁴⁾

- (19) a. John₁ likes himself₁
 b. John T_{John} V_{John} likes_{himself} himself

(19b) represents the structure of (19a) which is relevant for binding theory. The object NP *himself* shares features with its θ -assigner, the verb *likes*. Similarly, the subject NP *John* shares referential features with T by Spec-head agreement and with its θ -assigner, *v*. The features on the verb are bound by the features on *T* or on *v*. As a result, *John* and *himself* are interpreted as coreferential. Note that under this account, the syntactic relations which binding theory regulates are those among *T*, *v*, and *V*; *T* and *V*, and *v* and *V*.

This approach has great potential for dealing with the problem of reconstruction phenomena:

- (20) a. Himself₁, John₁ likes t₁
 b. Himself John T_{John} V_{John} like_{himself}

Suppose that binding relations are exclusively decided at the LF interface and that there is no reconstruction in general with respect to binding, along the main line of Chomsky (1993). In order to rule in example (20) under a head binding account, we propose that the heads with anaphoric features are licensed at LF by the (c-commanding) antecedent head with full features via feature communication (i.e., Agree in the sense of Chomsky 2000, 2001). More precisely, in binding theory in which binding relations are established between heads, the overt position of NPs becomes inconsequential since the important relations in

4) Richards (1994) uses *Agr* and *Pred* in his analysis. Following a more recent version of Chomsky's (2000, 2001) minimalism, however, we will use *T* for *Agr* and *v* for *Pred*.

(20) are among T , v , and V . The fact that the NP *himself* has been topicalized is irrelevant to binding theory.

Consider next a case in which movement of NPs changes binding relations; N's of *picture*-noun phrases assign θ -roles to anaphors, thereby receiving anaphoric features, as in (21):

- (21) a. John₁ wonders which pictures of himself₁ Mary likes t
 b. John T_{John} v_{John} wonders which pictures_{himself} of himself Mary likes

Here the features on T_{John} and v_{John} bind the features on *pictures*_{himself}.

Let us turn to Belletti and Rizzi's baseline data:

- (22) a. [Pictures of himself₁]₂ [worried t_2 John₁]
 Pictures of himself v_{John} worried_{himself} John
 b. [Replicas of themselves₁]₂ seemed to the boys₁ [t_2 to be ugly]
 Replicas of themselves seemed to_{boys} the boys to $v_{themselves}$ be ugly

In (22a), before the logical subject moves rightward, it agrees with the θ -assigning head v , leaving behind the referential feature on v . The surface subject also agrees with the thematic verb *worried*, leaving anaphoric defective feature behind. At LF, v_{John} binds *worried*_{himself}. In (22b) *the boys* agrees with the thematic head *to*, and *replicas of themselves* agrees with the thematic head v in its underlying position. Since *to*_{boys} successfully binds $v_{themselves}$ via agreement (or whatever mechanism), (22b) is ok.

Let us get back to Chomsky's baseline data:

- (23) *John₁ expected [him₁ to seem to me [t_1 to be intelligent]]
 *John T_{John} v_{John} expected_{him} him to seem to me to be intelligent

(23) has been ruled out as a Condition B violation. Under a head binding approach, we suggest the following definition of traditional

Condition B:

- (24) Condition B: There can be no head which locally binds a non-distinct head with pronominal defective features at LF.

In (23) the head with a pronominal defective feature, *expected_{him}*, is locally bound by the non-distinct head with a fully specified feature, *v_{John}*, violating Condition B.

Let us compare (23) with the following:

- (25) a. John₁ seem to him₁ [t to like Mary]
 John T_{John} seem to_{him} him to like Mary
 b. Pictures of John₁ seem to him₁ [t to like Mary]
 Pictures of John T_{John} seem to_{him} him to like Mary

In (25) the head with defective feature, *to_{him}*, is locally bound by the head with a referential feature, *T_{John}*. But this time, the two heads (P vs. T) are distinct, obviating Condition B.

Consider now the following:

- (26) Pictures of himself₁ seem to John₁ [t to be ugly]
 Pictures of himself seem to_{John} John to v_{himself} be ugly

The surface subject leaves its defective feature to the thematic head before overt movement. That feature is successfully bound by a higher head with a referential feature.

Consider next the following ECM constructions:

- (27) a. ?*John₁ believes pictures of him₁ to seem t to be on sale
 ?*John T_{John} v_{John} believes_{him} pictures of him to seem to be on sale
 b. ?*John₁ thinks pictures of him₁ to seem t to have disappeared
 ?*John T_{John} v_{John} thinks_{him} pictures of him to seem to have disappeared

- c. ?*John₁ expected pictures of him₁ to seem to me t to be intelligent
 ?*John T_{John} v_{John} expected_{him} pictures of him to seem to me to be intelligent

In (27) the ECM verbs have the pronominal feature of their objects, and the light verbs the referential feature of the surface subjects, via Spec-head Agreement. Since the light verbs and the ECM verbs are non-distinct and agree with each other, the examples in (27) result in a Condition B violation. Compare (27) with the following minimal variant:

- (28) *John₁ expected [him₁ to seem to me [t₁ to be intelligent]]
 *John T_{John} v_{John} expected_{him} him to seem to me to be intelligent

In (28) the embedded subject has been replaced by a single pronoun, all else being equal. Since the referential head *v_{John}* locally binds the non-distinct pronominal defective head *expected_{him}*, (28) violates Condition B.

Let us move on to other ECM constructions with embedded anaphoric subjects:

- (29) a. John expected pictures of myself₁ to seem to me₁ [t to be intelligent]
 John T_{John} v_{John} expected_{myself} pictures of myself to seem to_{me} me to v_{myself} be intelligent
 b. John expected pictures of himself₁ to seem to me₁ [t to be intelligent]
 John T_{John} v_{John} expected_{himself} pictures of himself to seem to_{me} me to v_{himself} be intelligent
 c. John₁ expected himself₁ to seem to me [t₁ to be intelligent]
 John T_{John} v_{John} expected_{himself} himself to seem to_{me} me to v_{himself} be intelligent

In (29a) the relevant binding relation is established between the

referential head *to_{me}* and the anaphoric head *v_{myself}* before the overt movement of the *picture*-noun phrase, *picture of myself*. On the other hand, in (29b) the binding relation is established between the antecedent head *T_{John}/v_{John}* and the anaphoric head *expected_{himself}* after the overt movement of the *picture*-noun phrase. In (29c) the binding relation is also created after the overt movement of a reflexive pronoun.

Finally, let us examine the case of rightward movement containing an anaphor, repeated here as (30), under a head binding account.

- (30) a. John wanted to talk to Mary [about pictures of herself] until
yesterday
John wanted to talk to_{Mary} Mary about pictures_{herself} of herself
until yesterday
- b. *John wanted to talk to Mary₁ t₂ until yesterday [about
pictures of herself]₁₂
*John wanted to talk to_{Mary} Mary until yesterday about
pictures_{herself} of herself

Aforementioned, it is not obvious how the derivational account (plus no-reconstruction) can provide a clue for the deterioration of (30b). The explanation is easily available under a head binding account. Suppose that clause-internal movement does not leave a copy, extending Chomsky's observation that A-movement does not leave a copy.⁵⁾ In (30b) the rightward moved anaphoric phrase does not leave a copy since this movement is clause-bound (cf. Right Roof Constraint). In addition, the moved chunk involves the head with the defective anaphoric feature *herself*. This time, since the anaphoric head is higher than the referential head, (30b) is correctly ruled out as a Condition A violation.

5) I admit that independent evidence should be found. Note, however, that clause-boundness counts as a decisive factor in other phenomena such as QR and root transformation.

4. Conclusion

Thus far, we have examined the claim, made in Chomsky (1995) and strengthened in Lasnik (1998, 1999), that A-movement does not reconstruct in general. Specifically, we evaluated both the previous derivational (Belletti & Rizzi, 1988; Boeckx, 2000, 2001) and representational accounts (Lee, 1993; Richards, 1994) of binding reconstruction. As a result, we concluded that binding reconstruction is better explained by a head binding account (plus no copy for clause-internal movement) in the representational framework.

Chomsky (2000, 2001) has explicitly endeavored to collapse the syntactic and the phonological cycles into one cycle. At various points, however, he appeals to the necessity of allowing post-cyclic operations such as head movement on the PF side, and QR-like operations on the LF side. That is, Chomsky's attempt to unify syntactic, phonological, and interpretive cycles into one cycle is not quite successful. In this light, we argued for a distinct LF component, reformulating Chomsky's (1981, 1993) binding theories.

Lasnik (2001) argues that the strictly derivational approach is not consistent with the phenomenon of the Subjacency-lessening effect in Sluicing since the account crucially relies on a later representation, disguising properties present earlier in the derivation. To the extent that it is successful, our analysis supports Lasnik's (2001) view that language is fundamentally both derivational and representational.

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Received: 6 October, 2003

Revised: 8 November, 2003

Accepted: 19 November, 2003