How Anaphors Recover Their References*

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Lee, Hyeran. 2001. **How Anaphors Recover Their References.** *Korean Journal of English Language and Linguistics* 1-4, 629-649. This paper aims to provide an account for the English anaphors under the framework of the recent development of minimalism (Chomsky 1999, 2001). I propose that the anaphor has the uninterpretable [a] feature. The Agree operation erases the [a] feature by feature match. Once the [a] is deleted, the derivation converges, providing a proper interpretation of the anaphor. When there is no matching phi-features, the [a] cannot be eliminated, inducing the derivation to crash. The Agree operation can account for not only the typical local binding cases in English but the apparent long-distance binding cases in the picture-DP and expletive constructions. Consequently, the traditional concept of the binding domain and dichotomy between local and long-distance types are abandoned in favor of the analysis under the framework of minimalism. The minimalist accounts thus maximally simplifies the binding principles, using the general operation Agree only.

1. Introduction

How anaphors recover their references has been problematic in the area of the binding theory. A solution has been sought for by the different binding conditions (Chomsky 1981), LF-movement theory (Chomsky 1986; Yang 1989; Battistella 1989; Cole, Hermon, and Sung 1990; Pica 1991; Cole and Wang 1996), theory based on semantic properties of predicates (Reinhart and Reuland 1993) and minimalist approach (Yang 1994, 1996; Lee

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1997; Kim 1999). Among the competing theories, the minimalist account can provide the most optimal solution with minimum assumptions. In this paper, I will provide evidence as to how the minimalist accounts can simplify the binding principles, focusing only on English anaphors.

2. Problems Posited

The English anaphors have been considered as locally bound anaphors, since they should be bound to an antecedent within the minimal clause as below.

(1) John$_i$ hates himself$_i$[1]
(2) *Tom$_i$ said that John$_j$ hates himself*$_{i/j}$

The picture NP (or DP) structure, however, shows an apparent long-distance binding against locality of the anaphor binding.

(3) They$_i$ said that pictures of themselves$_i$ are on sale.

To solve this problem, Chomsky (1981, 1986) proposed notions of the accessible SUBJECT, *i*-within-*i* condition, and BT-compatible indexing. These mechanisms developed into the LF-affix theory (Chomsky 1986, 1992) which assumes that the anaphors move at LF to be locally bound to an antecedent. The LF movement accounts seemed to provide a unified theory for both the long-distance anaphors and locally bound anaphors. Later in Chomsky (1995), the full category movement at LF was abandoned in favor of LF feature raising (Lee 1997). In any theories

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[1]Under the minimalist framework the inclusiveness condition disallows any introduction of indices, bar-levels and D-structure/S-structure, providing only what is necessary at the interface condition. The indices used here are for the convenience of reading.

developed, the sentence (3) above couldn't be accounted for without additional assumptions on movement or on DP structure (assuming PRO in the Spec of DP). I will demonstrate that under the minimalist accounts all these problems can be dispensed with.

3. Differences in Morphological Features

The apparent cross-linguistic differences in the binding phenomena do not come from differences in the binding principles but from differences in morphological features. I assume that anaphors are different from regular words such as *a book* in that the they have an [a] feature.[2] See below.

(4) a book   [person, number, gender]   phi-features
                                               Case feature

(5) a. himself [person, number, gender]   phi-features
               [a]   anaphoric feature
                                               Case feature

     b. caki   [person, number]   phi-features
               [a]   anaphoric feature
                                               Case feature

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[2]Binary features for the three types of NPs were proposed under the GB framework: anaphors [+anaphoric, -pronominal], pronouns [-anaphoric, +pronominal], and R-expressions [-anaphoric, -pronominal]. A reviewer asked how these features are different from the [a] feature proposed in this paper. Those features were posited (i) to show complementary distribution of the anaphors and the pronouns with respect to the binding domain, and (ii) to account for the property of R-expressions which belong neither to anaphors nor to pronouns. The [a] feature is posited not to show distribution of NPs with respect to the domain, but to say that anaphors are not interpretable by themselves, and thus they should undergo the Agree operation as other uninterpretable features such as Case and EPP feature. In other words, uninterpretability of anaphors requires positing of the uninterpretable [a] feature in our analysis.

The anaphors in (5a) and (5b) have a Case feature and phi-features like a regular referential word *a book* in (4). The English anaphor *himself* has complete phi-features including person, number and gender, while the Korean anaphor *caki* has incomplete phi-features such as person and number, lacking in gender. In addition to the Case and phi-features, the anaphors have their unique [a] feature to recover their references.[3] My assumptions are summarized as below.

(6) Anaphors have an [a] feature which is uninterpretable.
    (The [a] always carries phi-features of the anaphor.)

(7) The uninterpretable [a] feature (Goal) is deleted by T (Probe) by feature match.[4]

(8) The English anaphors (*himself/herself/themselves*) have complete

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[3]A question raised by a reviewer was whether we could say that pronouns have the same [a] feature, because they also need references. I think that the proposed [a] feature shouldn't be assigned to pronouns, since anaphors are required to be bound to an antecedent within a sentence, while pronouns are not required to have an antecedent. The binding theory was concerned with relations of anaphors, pronouns, and R-expressions. All three types of NPs were explained jointedly by three conditions: Condition A, Condition B and C. Chomsky (1992:57), however, said that Condition A should be distinguished from Condition B and C, since Condition A of the binding theory does not force reconstruction, while Condition B and C do. When the anaphors were handled in terms of LF cliticization (Chomsky 1986, 1992) and LF movement, Condition A became separated out from Condition B and C. Webelhuth (1995:215) said that Condition C can be eliminated from the theory of grammar. For this reason, I think that anaphors can be accounted for independently, separated from pronouns and R-expressions that were other parts of the binding theory. And I assume that the [a] is the feature of anaphors and not that of pronouns. I will not expand my discussion to pronouns in this paper.

[4]Following MULTIPLE AGREE/MOVE (Hiraiwa 2000), the Probe T undergoes Agree with two goals: the subject NP and [a]. Case and EPP feature are eliminated by phi-feature match (φ (T) and $+\varphi$ (subject NP)). The [a] is also eliminated by phi-feature match (φ (T) and $+\varphi$ ([a])). See (11) for more detailed explanation.

phi-features having person, number and gender.

(9) Long-distance anaphors (*caki*) have incomplete phi-features, lacking at least in one of phi-features.

Based on Chomsky (1999, 2001),[5] the uninterpretable features are deleted by Agree[6] caused by the feature match between the activated Probe and Goal. Displacement takes place due to the need for deletion of the uninterpretable features.

4. Interpretation of English Anaphors

In case of anaphors, there is no visible dislocation, since the anaphors do not move overtly like *wh*-words or NPs. But the uninterpretable [a] feature in the anaphor should undergo Agree by match after TRANSFER to recover its references and thereby satisfy the Full Interpretation. See the following examples.
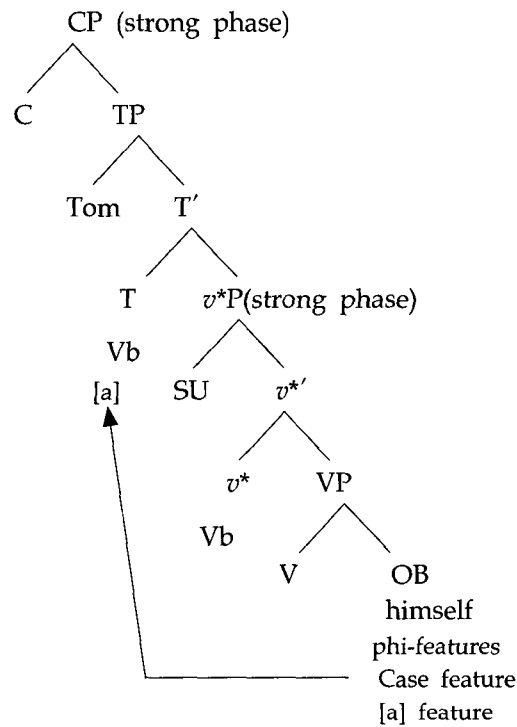
(10) Tom_i hates $himself_i$

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[5]The tree structure used in this paper follows Chomsky (1999) with [C (strong phase) T v^* (strong phase) V].

[6]The Agree operation is stated in Chomsky (2001:4) as follows:

(i)   Matching of Probe-Goal induces Agree.
(ii) Probe and Goal must both be active for Agree to apply.
(iii) a must have a complete set of φ features to delete uninterpretable features of the paired matching element.
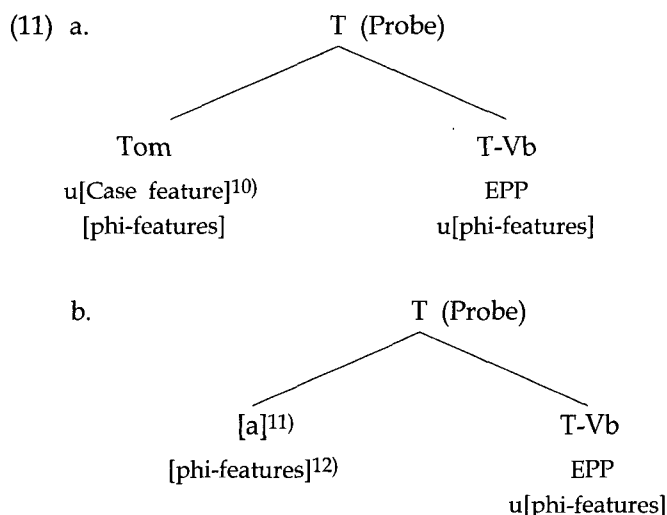
The Agree operation does not suppose a raising of features. It takes place in situ as long as the minimal search condition is satisfied. However, feature raising or movement is not totally excluded. For example, the strong EPP feature raises the subject NP. Raising or ECM constructions require Merge or Move. *Wh*-constructions also need raising of the [+wh] feature. Raising of the [a] feature for the Agree operation will be justified based on the other syntactic processes that require movement.

CP (strong phase)

C   TP

Tom   T'

T   v*P(strong phase)

Vb
[a]   SU   v*'

v*   VP

Vb
V   OB
himself
phi-features
Case feature
[a] feature

In the above structure proposed by Chomsky (1999), the probe Vb activates the matched goal *himself* to undergo Agree, which results in deletion of uninterpretable features (phi-features of Vb and the Case feature of *himself*). The uninterpretable feature [a] cannot be deleted at this point due to the lack of matched feature by a referential NP. The probe [T, Vb][7] undergoes Agree with the matched goal *Tom*, deleting phi-features and EPP feature of the probe and the Case feature of the goal. The probe [T, Vb] locates another goal, the [a] feature, which was not eliminated yet, and undergoes Agree with the feature.[8][9]

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[7]A reviewer commented that phi-features of Vb should not be available on T, if they underwent Agree on Vb and were eliminated. To avoid such a contradiction, I assume that the phi-features of Vb remain till they are sent to the phonological component.

[8]A question arises of how the Probe T locates the two goals. I follow

(11) a.   T (Probe)
                          /   \
                        /   \
              Tom   T-Vb
         u[Case feature][10]   EPP
         [phi-features]   u[phi-features]

     b.   T (Probe)
                            /   \
                          /   \
              [a][11]   T-Vb
         [phi-features][12]   EPP
                                      u[phi-features]

Hiraiwa (2001), where it is proposed that Multiple Agree/Move is possible.

MULTIPLE AGREE/MOVE (Hiraiwa 2000:3)
MULTIPLE AGREE (multiple feature checking) with a single probe is a single simultaneous syntactic operation; AGREE applies to all the matched goals at the same derivational point *derivationally simultaneously*.
MULTIPLE MOVE (movement of multiple goals into multiple specifiers of the same probe H) is also a single simultaneous syntactic operation that applies all the agreed goals.

[9]By raising on T, the [a] feature recovers its references by the Agree operation. How does this can take place? The Agree operation is underwent simultaneously between T and *Tom*, and T and *[a]*, so that the phi-feature match between T and *Tom*, and T and *[a]* is obtained simultaneously.

[10]'u' represents the uninterpretable feature.

[11]A reviewer asked why the [a] feature should be raised on T without staying in situ. The assumption was made to consistently account for the local binding and the binding across the clause boundary. For long-distance binding, if we don't assume such a raising, the distance between the Probe and Goal seems to be too long.

[12]These phi-features are the phi-features of *himself* in (10). *Himself* has phi-features of person, number and gender, though it lacks in references.

In (11a), the Case feature, phi-features, and EPP feature of T are erased by feature match. The uninterpretable [a] feature undergoes Agree with phi-features of T. How can the [a] feature enter the Agree relation with the Probe T? I assume that the [a] always carry phi-features of the anaphor as mentioned in (6) so that the [a] recovers its reference by feature match between its own phi-features and those of T.[13)14)] This mechanism explains why the following sentences crash.

(12) *Tom$_i$ hates herself$_{*i}$

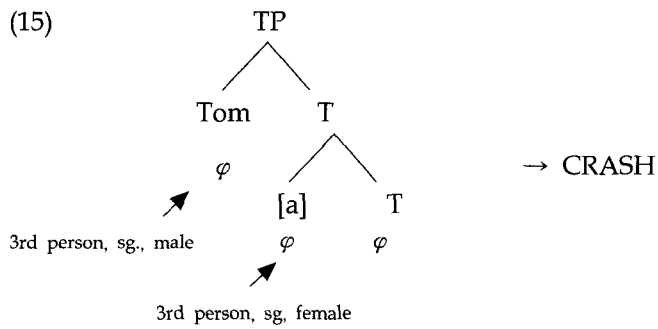(13) *Tom$_i$ hates themselves$_{*i}$

(14) *I$_i$ hate himself$_{*i}$/herself$_{*i}$

In (12), the [a] cannot be erased by feature match with *Tom*, since phi-features of the anaphor do not match with phi-features of Tom.[15)] The feature mismatch takes place in gender.

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[13]This assumption is not unnatural, since the Case feature is also erased by phi-feature match between the Probe and the Goal. The Case feature does not need an exactly matching Case feature to undergo Agree. The same is true of the [a] feature. Though there is no matching [a] on T, the feature is eliminated by phi-feature match.

[14]A reviewer asked why the [a] raising is assumed instead of the *self* raising as in Chomsky (1995). The covert *self* raising was proposed not only by Chomsky (1995) but also by many authors adopting the LF movement hypothesis. It actually traces back to Lebeaux (1983). The *self* raising hypothesis is criticized in the following points: (i) The hypothesis needed the XP and X^0 dichotomy to differentiate locally bound anaphors from long-distance bound anaphors (Pica 1991; Katada 1991 and others). But such a dichotomy cannot explain long-distance binding of non-monomorphemic anaphors and the local binding of monomorphemic anaphors. (ii) The XP/X^0 distinction for a lexical item is not natural, since such distinction is eliminated in minimalism seeking for the bare essentials (Chomsky 1994, 2001). (iii) Raising of the categories like *self* costs much more than raising of features in terms of minimalism (Chomsky 1995).

[15]More precisely it should be said that the phi-features of *Tom* do not match with the phi-features of T. For the convenience of understanding,

(15)

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                 TP
               /    \
            Tom      T
             φ     /    \
            ↗    [a]      T
3rd person, sg., male   φ    φ      → CRASH
                        ↗
              3rd person, sg, female
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(13) crashes due to feature mismatch in number, and (14) also crashes due to feature mismatch in gender.

(16) below shows the typical local binding nature of the English anaphors.

(16) John$_i$ thinks that Tom$_j$ hates himself$_{*i/j}$

The [a] feature on *himself* moves to Probe [T, Vb], where it undergoes Agree by match, deleting the [a] feature. Further access to the higher T is not permitted, since the uninterpretable [a] feature is already eliminated on the lower T. This explanation may correctly produce the examples in the next section which apparently show the long-distance binding phenomena.

5. Apparent Long-Distance Binding Cases: Picture-DP Constructions
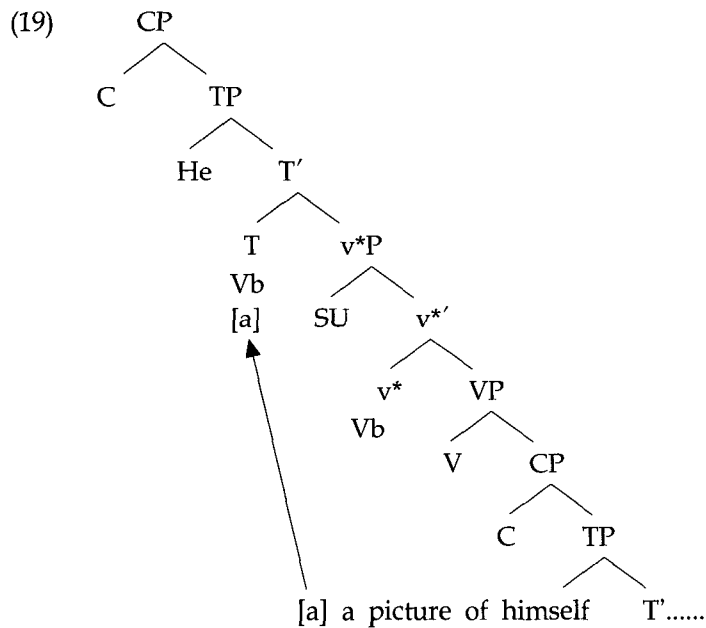
The picture-DP constructions have been exceptionally treated as a long-distance binding case within the local anaphors of English.

(17) He$_i$ said that a picture of himself$_i$ is on sale.

I will keep using "the phi-features of the antecedent NP" to actually indicate the phi-features of T, since the actual valuation is made by the phi-features of the antecedent NP.

(18) They[i] said that pictures of themselves[i] are on sale.

Additional assumptions such as an *i-within-i* condition had been made to account for (17) and (18) in the binding theory (Chomsky 1981). If we assume that there is an uninterpretable feature [a] on *himself*, the feature should undergo Agree on the higher T by match to be deleted. No other assumptions are needed.[16]

(19)   CP
             / \
            C   TP
                / \
              He   T′
                   / \
                  T   v*P
                 Vb   / \
                 [a] SU   v*′
                         / \
                        v*   VP
                        Vb / \
                           V   CP
                               / \
                              C   TP
                                  / \
               [a] a picture of himself   T′......

The Agree relation is formed as follows.

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[16]It was noted by a reviewer that the sentence (**He said that himself is* ....) is not well-formed, while the picture NP involved long-distance binding (17-19) is correct. Phi-features of the matrix subject and those of the anaphor exactly match together, but the sentence is not ok. In this case, I think, the sentence is ruled out not by the feature mismatch but by the accusative Case lexicalized inside the NP, *himself*. Korean *casin/caki*, Chinese *ziji*, and Japanese *zibun* that can be placed in the subject position do not have any morphological form of Case inside the anaphor.

(20)   TP
             / \
          He   T
           φ   / \
             [a]   T
              φ   φ
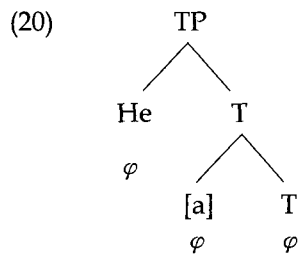
As a result the [a] recovers its reference by matching with *He* in (19) and (20) (Again, more precisely the multiple Agree takes place between T and *He*; T and [a]). More picture DP constructions are given below.
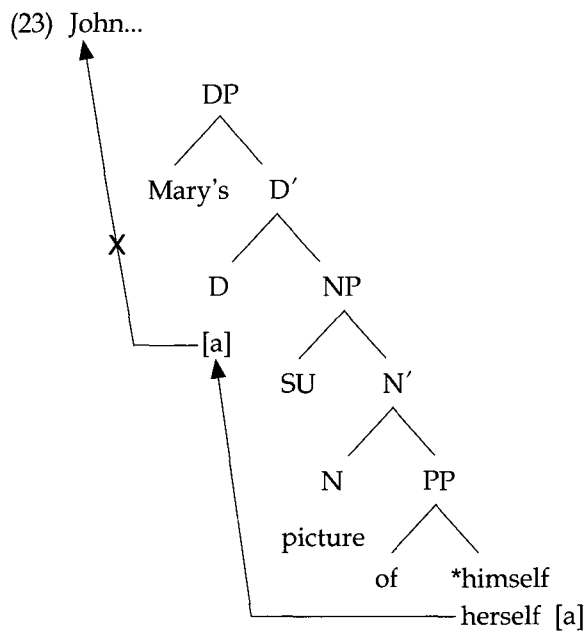
(21) John[i] sold a picture of himself[i]

(22) John[i] took Mary[j]'s picture of himself*[i]/herself[j]

In (21) the [a] feature on *himself* undergoes Agree on T by feature match with *John* to be deleted. In (22), the [a] feature on *herself* undergoes Agree on D by feature match to be deleted. I propose that the Agree operation takes place on D as it does on T.[17] The [a] feature on *himself* cannot be eliminated on D due to the feature mismatch, which induces the sentence to crash. The [a] on *herself* can be eliminated on D by the feature match between *Mary* and *herself*, providing the correct binding. Further binding by *John* is not possible, since the [a] feature on *herself* was eliminated on D.[18]

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[17]Abney (1987) argued that the DP structure is parallel to the sentence structure in that it has a subject and an object. If this applies in minimalism, D would be as good a place for the Agree operation as T is. I leave this issue to be revisited upon further study, since further elaboration would be another big topic.

[18]The case where *Mary* in (22) is replaced with *this* and *every* was noted by a reviewer. The sentence (*John took this picture of himself*) is ruled out, while (21) is acceptable. When the DP has the definiteness effects, the anaphor cannot be bound to the possible antecedent. Such

(23) John...

DP
/ \
Mary's   D'
         / \
        D   NP
       [a] / \
          SU   N'
              / \
             N   PP
          picture / \
                of *himself
                    herself [a]

In (23), the [a] of *herself* is erased by matching with the phi-features of *Mary*, and further access to *John* is not possible. The [a] of *himself* cannot be eliminated by matching with the phi-features of *Mary* due to the gender mismatch. In this case, the whole sentence crashes. The sentence is more embedded as below.

(24) Tom$_i$ said that John$_j$ took Mary$_k$'s picture of himself*$_{i/*j}$/herself$_k$

Once the [a] is erased on D by matching with the referential NP *Mary*, the feature cannot enter the Agree relation with *John* and *Tom*.[19] Thus elimination of the [a] feature is essential for

definiteness effects seem to cause a lot of problems not only for the binding phenomena but for *there*-constructions (*There is the child*). I leave this issue for further research.

[19]If an uninterpretable feature undergoes Agree and eliminated after being valued, the feature is not available for further operations. That is why the [a] cannot undergo Agree with *John* and *Tom* after being

the anaphor to recover its reference to satisfy the Full Interpretation.

6. The Copying Theory and Feature Match

The copying theory (Chomsky 1995) also works for our binding analysis using the Agree operation.

(25) John$_i$ wondered which picture of himself$_{i/*j}$ Mary$_j$ liked.
(26) John wondered [which picture of himself] Mary liked [which picture of himself].

The wh-phrase leaves its copy as in (26), when it moves to check its WH-feature and Q-feature. The binding operation applies to (26), producing a proper interpretation as in (25).

(27)   TP
         /   \
      Mary   T
       φ   / \
            [a]   T
             φ   φ
                    ......
                     which picture of himself
                              —[a]
            TP
          /   \
       John   T
        φ   / \
             [a]   T
              φ   φ
                     ......
                      which picture of himself
                               —[a]
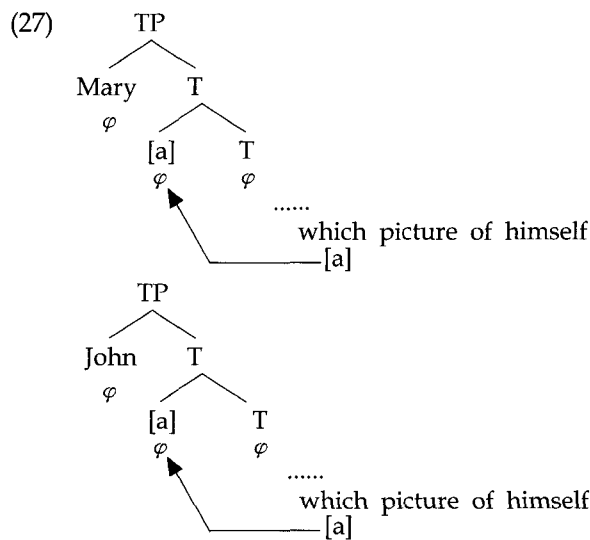
On the simplified structure in (27), the [a] undergoes Agree by matching with *Mary* on T, but this Agree operation crashes due

valued by *Mary*.

to the feature mismatch between *himself* and *Mary*. On the other
hand, the [a] that undergoes Agree with John on the higher T
can produce a proper interpretation as shown in (25) above. If
we have *Bill* instead of having *Mary* as an embedded subject,
both readings are possible as in (28) below.

(28) John$_i$ wondered which picture of himself$_{i/j}$ Bill$_j$ saw.

(29) John$_i$ wondered [which picture of himself] Bill saw [which
picture of himself].

Next, the distance is more apart between the anaphor and its
antecedent.

(30) Which picture of himself$_{i/*j}$ did John$_i$ say Mary$_j$ saw?

(31) Which picture of himself did John say [Which picture of
himself] Mary saw [Which picture of himself]?

The copying theory says that the trace left is a copy of the
moved element (Chomsky 1995:202). In (31), copies are left in
the two places. The lowest one cannot produce interpretation
due to feature mismatch with *Mary*, while the intermediate one
is able to produce a proper interpretation by matching with *John*.
More embedded sentence is shown below.

(32) Which picture of himself$_{i/*j/*k}$ did [John$_i$ say [c3 [Mary$_j$
thinks [c2 [they$_k$ liked c1]]]]]?

In (32), the [a] cannot obtain interpretation in c1 and c2, since
feature mismatch takes place in number and in gender
respectively. In c3, the [a] recovers its reference by matching
with *John*, producing a correct reading. Thus we know that
sentences converge if the [a] feature undergoes the Agree
operation at least once during derivation. However, sentences

crash, if the [a] cannot be eliminated at the first cycle.

(33) *John$_i$ said that Mary$_j$ saw pictures of himself$_{*i/*j}$

In (33), the [a] undergoes Agree by matching with *Mary* on the embedded T, but it cannot recover its reference due to feature mismatch. It seems that the [a] cannot enter the Agree relation with *John*, so that the sentence crashes in the first cycle. (33) does not meet the requirement that all uninterpretable features should be eliminated for a sentence to converge. This result gives evidence that the [a] feature strictly observes the locality condition, though the apparent long-distance binding is prevalent in the English anaphors as shown in the picture-DP constructions.

7. *There*-Constructions

There-constructions show long-distance binding phenomena too. Chomsky (1995) argues that the formal features of associates (FF(associate)) raise to *there* to check agreement with the verb.

(34) *There*-FF(man) is a man in the room.
(35) *There*-FF(men) are men in the room.

Chomsky (1995) also claims that the associate can bind and control as if it were in the surface subject position (Chomsky 1995:288). The sentence below shows the anaphor is bound to the associate NP, *three men*.

(36) There arrived three men$_i$ without identifying themselves$_i$

If we embed the *there*-construction within a matrix clause, we have the following sentence (37). The sentence (37) shows the

long-distance binding as in the picture-DP constructions. How
does this take place?

(37) They$_i$ think that there are pictures of each other$_i$ hanging
in the room

(38) They$_i$ think that there-FF(associate) are [pictures of each
other$_i$] hanging in the room

In (38), I assume that the [a] feature raises to *there* along with
FF(associate), where it cannot be eliminated by a referential NP,
since the expletive *there* lacks in phi-features.[20] The [a] now
undergoes Agree by matching with the matrix subject *They*. The
phi-features of *each other* well match with the phi-features of
They, thereby the [a] feature is now erased, inducing the
sentence to converge.

I propose that mismatch in phi-features makes the sentence
crash as in (33), while non-match saves the sentence for the
survived uninterpretable [a] feature to undergo Agree with a
higher referential NP.[21] See below.

(39) They$_i$ think that there are expensive pictures hanging in
each other$_i$'s room

(40) They$_i$ think that there-FF(associate) are [expensive pictures]
hanging in each other$_i$'s room

(39) shows that the anaphor is long-distance bound to the
matrix subject. If we look at (40), the FF (associate) raises to the

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[20]Chomsky (1995) argues that the expletive *there* has the [D] feature
only, and Chomsky (1999) claims that *there* has the [person] feature.
Anyhow, the expletive *there* is not phi-complete, making valuation of the
[a] feature impossible.

[21]Chomsky (1995) says that mismatch of features cancels the
derivation, while nonmatch of features does not cancel the derivation,
since there is no feature conflicts in nonmatch.

expletive *there*. And then the [a] feature undergoes Agree on the lower T. When the Agree relation is formed, the phi-features of the anaphor makes a non-match case with the phi-features of non-human NP (the associate, *expensive pictures*): the associate NP, *expensive pictures*, is not a human-NP so that its phi-features cannot value the phi-features of the anaphor.

In case that the sentence does not involve the *there*-constructions as in (41), the non-human NP[22] constitutes the non-match case[23], allowing the anaphor to be bound to the matrix subject.

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(41) They$_i$ think that expensive pictures are hanging in each other$_i$'s rooms.

The [a] cannot be erased on the lower T by Agree due to nonmatch. The nonmatch case does not cancel the derivation, so

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[22]A question was raised by a reviewer: will we have the same binding phenomenon, if the non-human NP, *expensive pictures*, is replaced with *they*?

(i) They think that they are hanging in each other's rooms.

I think that the anaphor binding seems to be sensitive to the types of NPs: human NPs and non-human NPs. In the above case, if *they* is a personal NP, the anaphor will be bound to *they*, and if, an impersonal NP, the binding will not be possible. Without an appropriate context, the anaphor will be bound to the embedded subject *they*, since derivations seek for sufficient diversity at SEM (Chomsky 2001:15).

[23]The following sentence was noted by a reviewer as a counter-example for nonmatch cases.

(i) *John criticized the magazine's description of himself.

If the nonhuman NP can allow the anaphor to be bound across the clause boundary, the above sentence should be well-formed, since *the magazine's* is a non-human NP. The sentence is incorrect against our expectation. I have no solution for this case yet, leaving it for future study.

the [a] undergoes Agree on the higher T by matching with the phi-features of *They*, producing a proper interpretation.

8. *It*-Constructions

Now let us consider the expletive *it*-constructions. I assume the associate CP raises to *it* at LF as in (43).

(42) They$_i$ think that it is likely that pictures of each other$_i$ are on sale.

(43) They$_i$ think that it-[that pictures of each other$_i$ are on sale] is likely.

Like the non-human NP expensive pictures in (39) and (41), *it* also constitutes a nonmatch case, though it is phi-complete. The [a] feature cannot be erased in the lower clause so that it undergoes Agree by matching with *They* in the matrix clause. The more embedded sentence is given below.

(44) We$_i$ said that they$_j$ think that it is likely that pictures of each other*$_{i/j}$ are on sale.

(45) We$_i$ said that they$_j$ think that it-[that pictures of each other*$_{i/j}$ are on sale] is likely.

Once the [a] undergoes Agree by matching with a referential NP such as *They* in (45), the feature is deleted. Further access to *We* is not possible, since the feature is eliminated against *They*. Now let us take a look at the case where the derivation does not converge.

(46) *They$_i$ think that it surprised each other*$_{i/*j}$ [that Bill$_j$ won] (Lasnik and Uriagereka 1988)

(47) *They$_i$ think that it-[that Bill$_j$ won] surprised each other*$_{i/*j}$

In (46), the structure seems to allow the anaphor to be bound to the matrix subject *They*, since the expletive *it* that constitutes a nonmatch case stands between the anaphor and the matrix subject. However, this is not the case. In (47) where the associate CP is moved to the expletive, the [a] feature undergoes Agree on the lower T. The feature mismatch takes place on the lower T and the [a] cannot be erased, inducing the sentence to crash. (47) is analogous to (33).

9. Concluding Remarks

The anaphor analysis by Agree provides significant consequences. First, the traditional concept of the binding domain disappears. The binding domain is always local whether the anaphor is locally bound or long-distance bound. The strict locality condition is observed, which is desirable in minimalism. Second, the traditional contrast between local binding and long-distance binding or XP anaphors and X^0 anaphors is abandoned. This contrast is not valid any more, since local and long-distance binding coexists even within a single language like English. Third, there is no need for a unique operation which works only for the binding phenomena, since the general operation Agree can handle the uninterpretable [a] feature. Forth, it is conceptually natural that the anaphor recovers its reference by phi-feature match. Fifth, the Agree operation by feature match correctly cancels the derivation where the [a] feature has no way to be eliminated, while the same operation "allows sufficient diversity of legible expressions" at the interface (Chomsky 2001). Put it differently, the Agree operation maximize the convergent derivations using the concept of match and nonmatch, correctly excluding the nonconvergent derivations.

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