An Analysis of Two Approaches about English Local Anaphora

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Oh, Myung Ha. 2012. An Analysis of Two Theories about English Local Anaphora. *SNU Working Papers in English Linguistics and Language X, XX-XX.* This paper aims to investigate two different approaches of anaphoric expressions, one with agreement based approach satisfying Phase Impenetrability Condition, the other with relevance approach to Anaphora pragmatics and semantic content. It begins with comparisons on these two views on Anaphoric Expressions of English, followed by comments and opinions about these two theories, and the way to make a compromise between two views to explain anaphoric expressions. **(Seoul National University)**

1. Introduction

Our life is unimaginable without languages and whatever language we speak contains meanings. What is very interesting in languages is that almost all words have their own inherited meanings and references, but some of them do not. Instead, they take meanings and references from other words in the same contexts, sentences or clauses they are in. These words are called anaphora.

Many assumptions and theories have tried to give the clear answer to this issue; on what condition anaphora gets its reference? HPSG uses the concept of Argument Structure on which arguments of a predicate appear, whereas TG argues that anaphora can be explained configurationally. There are many more approaches. In 'how Anaphora recovers their references', it is provided provide an account for the English anaphors under the framework of the recent development of minimalism. 'A study on the properties of anaphors' has a view that

lexical anaphors obey locality conditions and that the apparent long distance anaphors involve the local successive cyclic movement. There has been a study about local anaphor binding phenomenon results from matching/ agreement between the reference features of an anaphor and a nominal expression in DP structure. 'Discourse Binding of Anaphors' compares Chomsky`s binding theory with the HPSG binding theory, focusing on the scope of syntactic constraint and discourse binding. Studies mentioned here concern with morphological, semantical, pragmatical, and Syntactical approaches. Here, those two papers that I am about to present only concerns with the matter of Syntactic explanations about local anaphora.

This paper is organized as follows. Section Ⅱ presents two different theory about English local anaphoric expressions with examples and I will briefly show what they have in common, and what difference they have in approaching to anaphoric expressions. In Section Ⅲ, I will explain some of typical English anaphoric expressions from the point of views from two theories. Section Ⅳ summarizes.

2. Two different approaches to English local anaphora
2.1 Agree-Based Approach to English Anaphors
2.1.1 Issue and condition in Agree-Based Approach
In this Paper, it is argued that the English local anaphor can be licensed by its antecedent via AGREE at some point of derivation. This paper is basically following Chomsky's theory that the operation responsible for the deletion of uninterpretable features is Agree. However, this paper makes a slight modification of Chomsky's Agree-based domain. In addition, in this paper, the process of uninterpretable features getting its reference is described as a reference recovery, not deletion of uninterpretable features (which was Chomsky's term).

2.1.2 Related terms

Here are terms to know in order to understand what they claim in this paper.

(1) **Matching condition**

Matching is feature identity.

Match is a relation that holds of a probe P and a goal G. This matching condition should be satisfied to induce Agree in order for anaphor to get its reference from its antecedent.
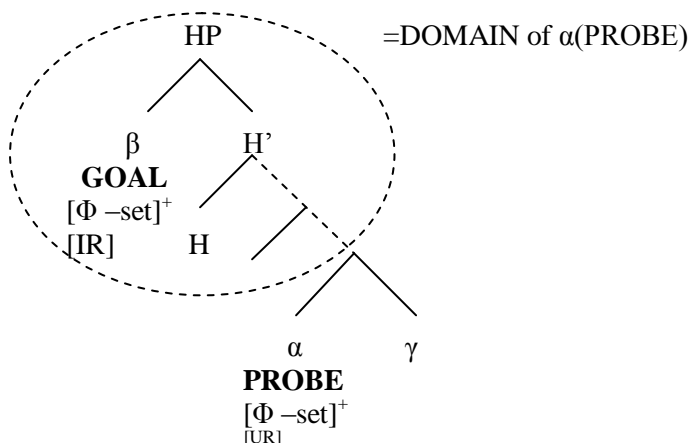
(2) a. **PROBE**: uninterpretable reference feature (UR) of an anaphor

b. **GOAL**:   interpretable reference feature (IR) of a nominal expression DP except an anaphor

(3) a. **The Domain of a Probe, P**

In the structure [HP β H ... α γ], where β c-commands α, the DOMAIN of α(i.e., PROBE, P) is HP minus α and γ. (**Upward Domain Condition**)

b. Locality reduces to "the closest c-commanded" (**Locality**

Condition)

Thus, the GOAL of P must be in the DOMAIN of P.

Here, we can see every anaphor has phi-features set such as gender, number, person, but not reference. ([Φ-set]+ means interpretable set of phi-features like person, gender, number) Under phi-feature Agree, anaphor gets its reference from its GOAL, the antecedent in the DOMAIN of P.

(4) **Phase Impenetrability Condition (Ⅱ)**

Given [ZP β Z...[HP α [H YP]]] where HP and ZP are strong phases, the domain of H (YP) does not access β, but only operation at the edge of α and the head H of HP can access β.

(5) **Reference Assignment Condition on Anaphors**

Assign the [IR] of a GOAL, G, matching feature of a PROBE, to the [UR] of a PROBE, P, in the DOMAIN of P, satisfying PIC (Ⅱ) in order to establish the reference agreement.

2.1.3 Example

With these conditions and terms in the section 2.1.2 above, we can explain the English local anaphor getting its reference recovery from its antecedent via AGREE under the domain of P. For example, consider the following simple sentence.

(6) Bill likes himself.

```
                TP
              /    \
          Bill      T'
        [Φ–set]⁺   /  \
          [IR]    T    vP
                       / \
                      v'
                    /    \
                   v      VP
                  / \    /   \
               likes      himself
                        [Φ–set]⁺
                         [UR]
                          P
```
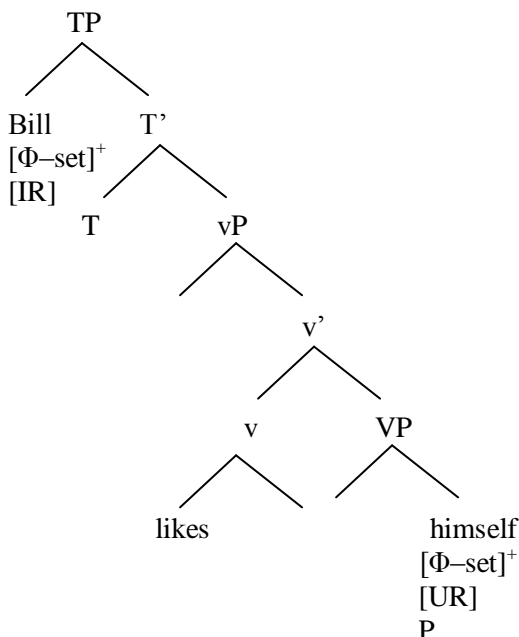
Here, the domain of P is TP minus DP, and the [UR] of himself as a PROBE locates a matching features named a GOAL. The [IR] of Bill matched with phi-feature set of himself functions as the GOAL. In other words, the [UR] of himself is assigned the reference from the [IR] of Bill in the c-commanded DOMAIN of P under AGREE.

2.2 A Predication Approach to the English Local Anaphor[1]
2.2.1 Issue and condition in Predication Approach

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[1] Some critics is that relevance theory provides no testable prediction, hence is unfalsifiable. The paper 'Experimental Pragmatics: Towards Testing Relevance-Based Predictions about Anaphoric Bridging Inferences by Tomoko Matsui 2001' attempts to identify some testable relevance-theoretic predictions about anaphoric bridging inferences.

This approach is basically related to some concepts of both HPSG and TG. This paper tries to explain the anaphoric expression in terms of coarguments' relations of a predicate (which is from HPSG) configurationally (which is from TG). In this paper, it says that English anaphors have phi-features such as person, number, gender, but they have no independent references. So, if anaphors do not get their references, they will violate Full Interpretation condition since they cannot be interpreted due to lack of references. R-expressions like John have both inherent phi-features and referential features, whereas an anaphor like himself has inherent phi-features but defective referential features. Thus, the defective referential feature of an anaphor must be specified by checking.

In this paper, it is argued that the functional category AGR checks off the defective referential features of anaphors because AGR is generally assumed to share all the features with an NP in SPEC of AGRP. Hence, an anaphor moves to AGR and adjoins to AGR, getting its defective referential feature checked off by AGR.

This paper raises a question about this matter. How anaphors move to AGR? They assume that an anaphor is an LF-affix, being affixed to a predicate which takes it as an argument, following the idea of Reinhart & Reuland that the syntactic arguments of the predicate P as the projection assigned theta-role or Case by P. So in the paper, an anaphor is assumed to affix to a predicate which assigns theta-role or Case to it. If an anaphor with [+LF-Affix] is not affixed to its predicate, it will violate Affix Filter which will be presented soon.

When an anaphor is affixed to its predicate, for example, V, the anaphor+V moves to AGRs getting tense and phi-features of V checked off. In this position, the anaphor gets its defective referential feature checked by AGRs, which shares a referential feature with an NP in SPEC of AGRsP. To understand this analysis, we need a few terms and conditions below.

(7) **Definition of an Anaphor**

An anaphor has a defective referential feature.

(8) **Affix Filter**

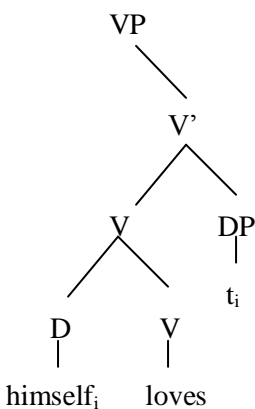An element with [+Affix] must be supported by an element with [-Affix]. (Yang 1994)

(9) **The Principle of Greed**[2]

(10) **Full Interpretation condition**[3]

2.2.2 Example

(11) John loves himself.

At LF, himself is affixed to loves which takes it as an argument as below.

```
          VP
            \
             V'
            /  \
           V    DP
          / \    |
         D   V   t_i
         |   |
    himself_i  loves
```

Then, himself+loves raises to AGRs for the verb's tense and phi-feature

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[2] Chomsky (1992) argues that movement conforms to Greed: items move only to satisfy their own requirements. Greed operates only for your benefits

[3] If α is an anaphor, interpret it as coreferential with a c-commanding phrase in D.

checking, and in that position, himself also gets its defective referential feature checked by AGRs. In addition, after himself is affixed to loves, the trace of himself raises to SPEC of AGRoP for CASE checking as shown below.
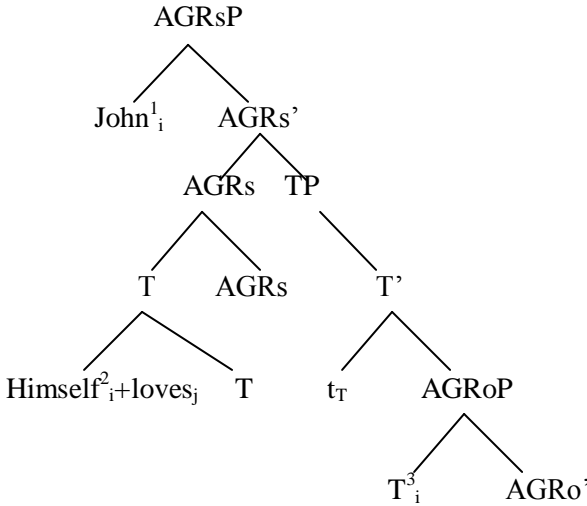
2.3 Comparison

So far, we have been examining two different approaches to English anaphor. These two are similar in a way, and different in another way. They both assume that anaphor gets its reference via AGREE of phi-features with another NP. However, there is a difference too. The former one needs the notion of domain of P, whereas the latter one does not, because the latter paper argues with the concept of coarguments of a predicate, not the domain of a configuration.

In the next section, we can see how two approaches explain representative English anaphor. And I will be making comments on each theory's upsides and downsides.

3. Example sentences with each approach
3.1 The Specified Subject Condition.

The idea of SSC is that an anaphor should be bound by the nearest subject. We will see how each approach explains this condition.
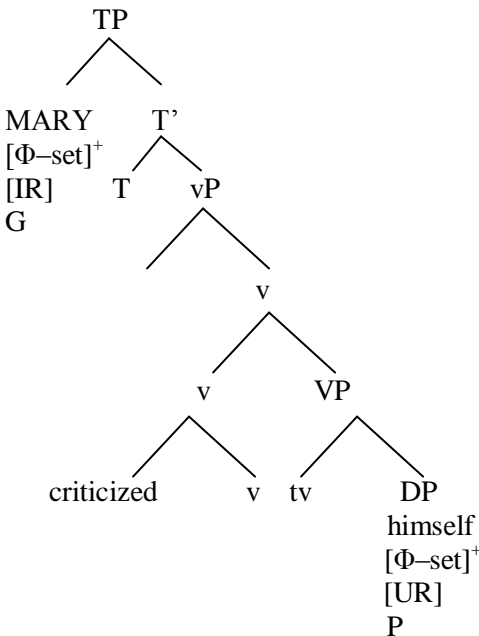
3.1.1 Analysis 1

(11) John thinks that Mary loves himself.

First, let's consider the former approach, AGREE-based one. Under its assumption, the derivation of the sentence is as follow.

(12) [Bill thinks [cp that[tp Mary T[vp t [v' loves-v [vp t
himself]]]]

One of the strong phase TP[Mary loves himself]is shown configurationally below.

```
                TP
               /  \
        MARY       T'
        [Φ–set]⁺  / \
        [IR]    T   vP
        G            \
                      v
                     / \
                   v     VP
                  / \    / \
          criticized  v tv   DP
                            himself
                            [Φ–set]⁺
                            [UR]
                            P
```

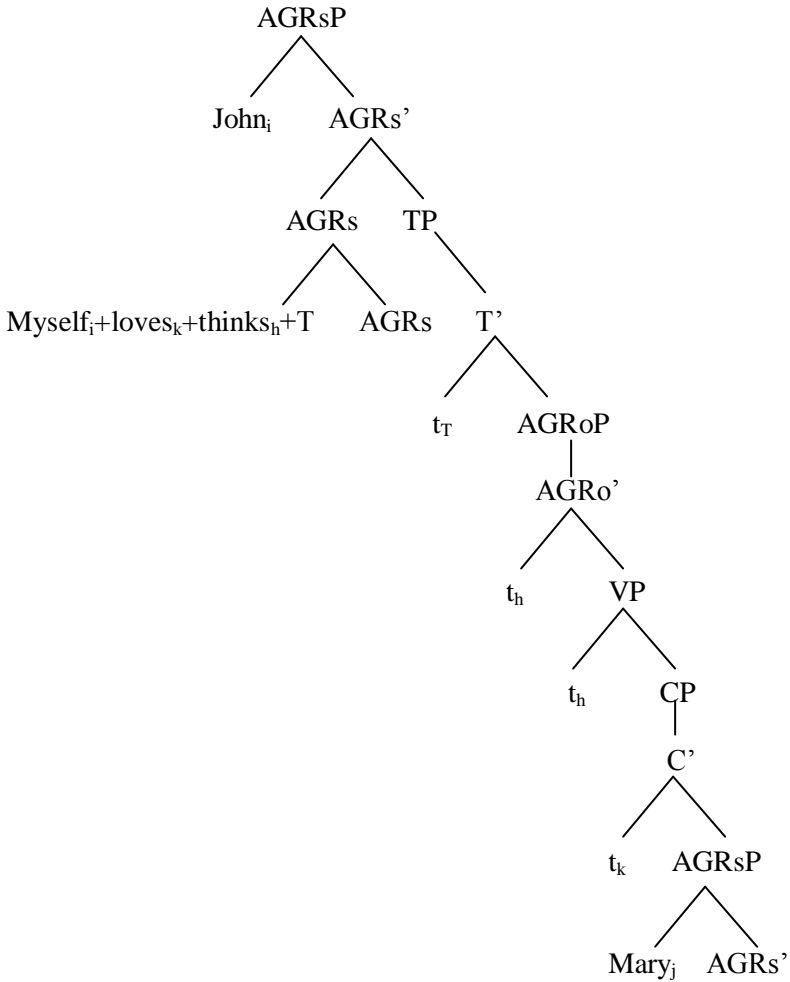Before the reference-agreement between P and G in the DOMAIN of P

takes place, phi-features between P and G are not matched. Hence, the anaphor himself cannot be licensed by its antecedent 'Mary.' On the other hand, when Bill is introduced to the derivation, himself within TP of the complement of CP cannot access Bill by PIC(Ⅱ). Theretofore, there is not any coreferential interpretation given to himself, and the sentence is ungrammatical.

This approach is very convenient in the sense that it does not need to consider anything except the domain of P, and the phi-features of P and G in the domain. If there is a feature matching between G and P in the appropriate domain, an anaphor gets reference, if not, an anaphor does not get reference. It is very simple.

3.1.2 Analysis 2
Next, let's see how it is done with a predication approach.

In (11), himself is affixed to loves and himself+loves raises to the embedded AGRs to get its features checked off. However, the anaphor's defective referential feature is not checked off since the phi-features of the antecedent are not compatible with those of the anaphor. So this paper supposes that himself+loves moves to the matrix AGRs to get the anaphor's defective referential feature checked, as below.

```
                        AGRsP
                       /     \
                  Johnᵢ      AGRs'
                            /     \
                        AGRs       TP
                       /    \        \
  Myselfᵢ+lovesₖ+thinksₕ+T   AGRs    T'
                                    /   \
                                  t_T   AGRoP
                                         |
                                       AGRo'
                                      /     \
                                    tₕ      VP
                                           /   \
                                         tₕ    CP
                                                |
                                               C'
                                              /   \
                                            tₖ    AGRsP
                                                 /     \
                                              Maryⱼ   AGRs'
```

Here, the anaphor gets its defective referential feature checked by the matrix AGRs. However, this derivation violates the Principle of Greed since all the features of the verb are already checked off in the embedded AGRs and hence the verb, loves, does not need to move any longer. This is how its ungrammaticality is explained in a predication approach.

This approach has two upsides. First, it does not have to make any

theory of binding, even not domain. All they need to explain this phenomenon is the relation between a predicate and its arguments. There is no domain in this theory, but only the concept of predicates and arguments of them. Second, by assuming that a predicate to which an anaphor is affixed carries the anaphor to AGRP, the process of the verb getting case and phi-features and of the anaphor getting reference can be explained at once, whereas under Lasnik's analysis, anaphors separately move to AGRs irrespective of V-toAGRs movement. This analysis is more economical because of these two reasons.

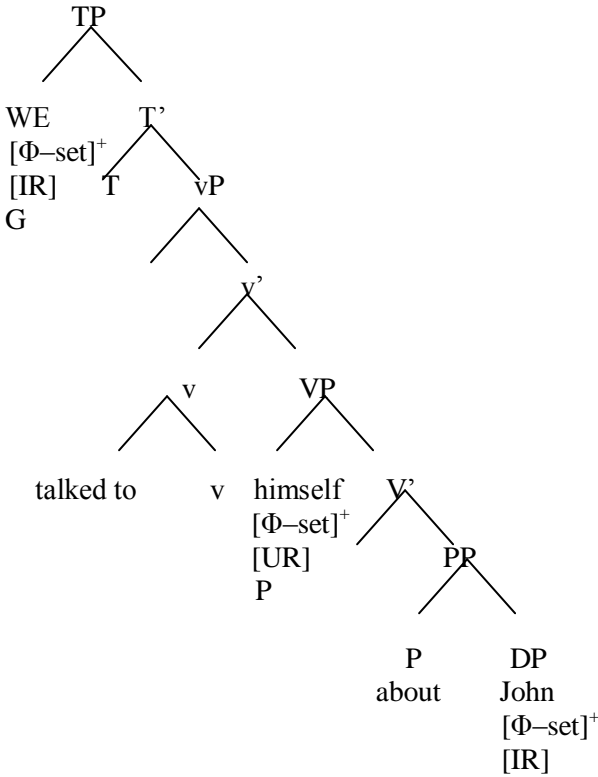## 3.2 Heavy PP Shift Constructions
3.2.1 Analysis 3
We will start with Agree-based approach.

   (13) a. We talked to John about himself.2

       b. *We talked to himself about John.

In terms of a structural configuration, neither himself in PP about-phrase nor himself in PP to-phrase in (13) is c-commanded by its antecedent John. So, in this paper, they adopt the reanalysis which incorporates the proposition to into the main verb talked.

   In (13b), P to is incorporated to verb talked and We is introduced to the derivation like below.

TP
WE [Φ–set]⁺ [IR] G   T'
T   vP
v'
v   VP
talked to   v   himself [Φ–set]⁺ [UR] P   V'
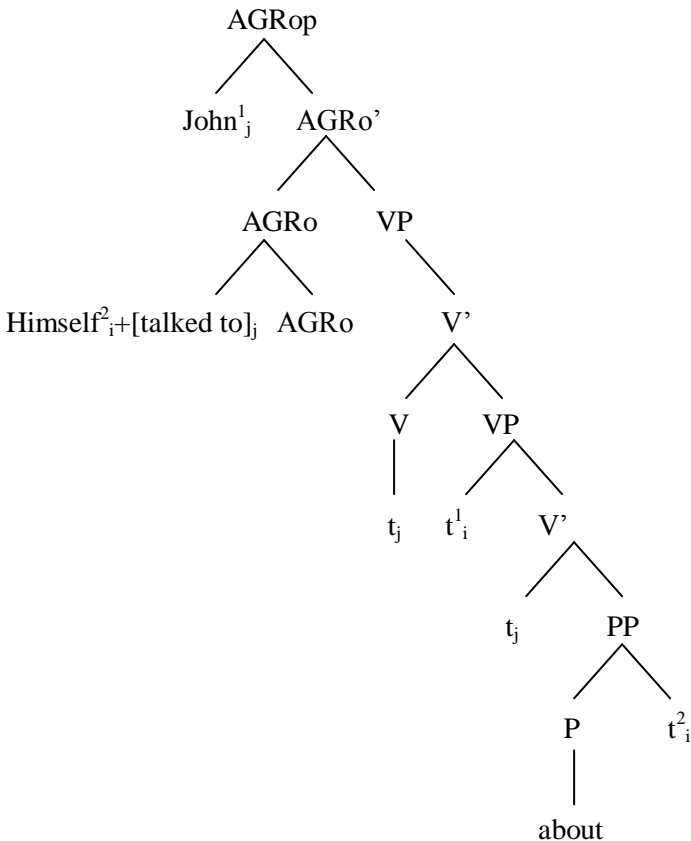PP
P about   DP John [Φ–set]⁺ [IR]

Here, the [IR] of the subject we with interpretable phi-features cannot assign the reference to the [UR] of himself in the DOMAIN of P, TP minus VP and PP, since phi-features between himself and we are not matched. And even though the phi-features of John are matched with those of himself, the [IR] of John with interpretable phi-features cannot become a matching feature of the [UR] since it is not in the DOMAIN of the [UR] of himself. Therefore the sentence in (13b) is ungrammatical.

Next, consider (13a). When John is introduced to the derivation, the [UR] of himself is interpretable with phi-features as a PROBE looks for the matching feature, the [IR] of John in order to satisfy the reference agreement in the DOMAIN of P, TP minus DP. Hence, the [UR] of

himself gets the reference and is valued, and himself is fully interpreted as John.

3.2.2 Analysis 4

Now, let's see how it works for the predication approach. In (13a), the P to incorporates into the verb, talked, forming [talked to] like the former approach. John moves to SPEc of AGRoP for CASE checking. Himself is affixed to the reanalyzed predicate, talked to and himself+talked to raises to AGRo. At this position, the anaphor gets its defective referential feature checked. Then himself+talked to moves to AGRs getting the verb's tense and phi-features checked off, as shown below.

AGRop

John^1_j AGRo'

AGRo   VP

Himself^2_i+[talked to]$_j$ AGRo   V'

V   VP

t_j t^1_i V'

t_j PP

P t^2_i

about

In my opinion, in this sentence, this approach is a little bit awkward because at the level of AGRo, himself already gets its defect referential feature checked. Then why does himself move to AGRs with the verb talked to? The anaphor himself already has its meaning, and then it should stop moving in the tree according to this approach with the respect to the Principle of Greed. It is obviously violation to the Principle of Greed. The anaphor affixed to a predicate moving to AGRP together for the economical reason undermines the idea of economical description in this case.

In case of (13b), himself raises to the verb [talked to] and it raises to AGRs to check off its features as below.
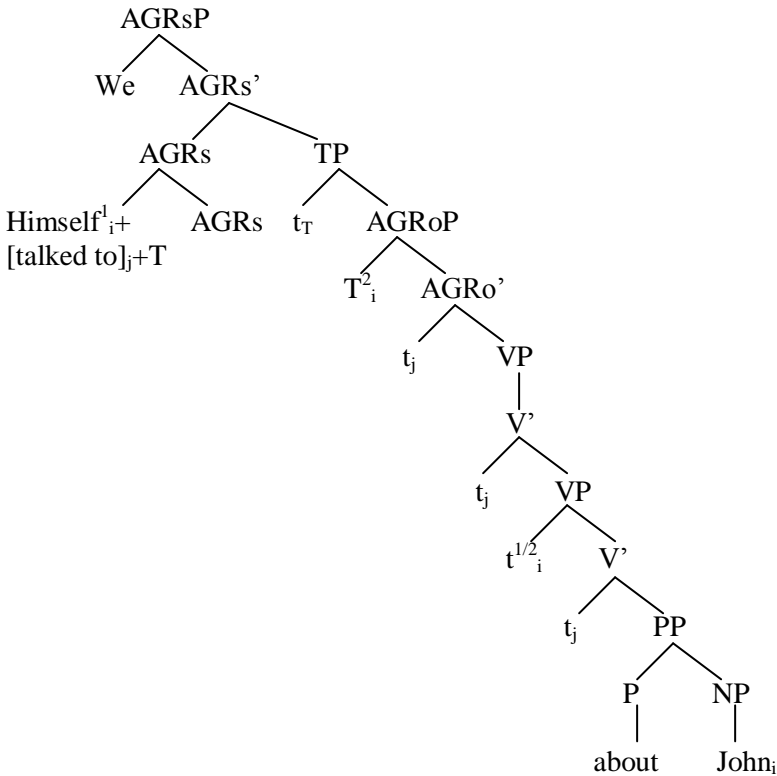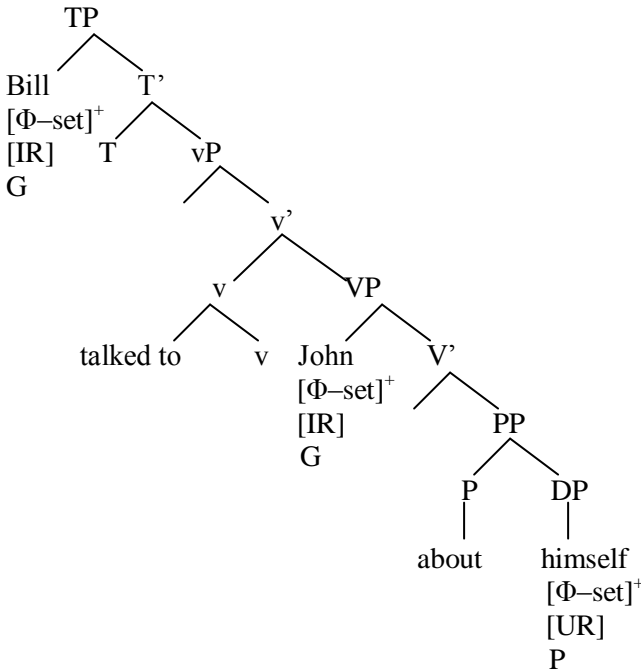
But himself fails to have its defective referential feature checked since the phi-features of the anaphor and AGRs are conflicting.

3.2.3 Analysis 5

Now, let's see the sentence (14) and how the two approaches explain it.

   (14) Bill talked to John about himself.

The former approach's configuration looks like below.

```
              TP
            /    \
        Bill      T'
      [Φ–set]⁺   /  \
        [IR]    T    vP
         G          /  \
                   v'
                 /    \
                v      VP
              /  \    /   \
         talked to  v  John    V'
                    [Φ–set]⁺  /  \
                      [IR]   PP
                       G    /  \
                           P    DP
                           |    |
                        about  himself
                              [Φ–set]⁺
                               [UR]
                                P
```

The possible matching G are two in these cases, which makes the anaphor to be able to be understood in both ways, since both GOALs are in the DOMAIN of P. Hence, himself can be interpreted as coreferential with John or Bill, and this is true in real world. In real world conversation, without contextual information, himself can be either one.

What about the latter approach? The anaphor is affixed to the predicate talked to, and then it moves to AGRs to get the defective referential feature from the NP Bill. This is the only possible way because the verb talked to is supposed to get the phi-features and tense from the AGRP of NP Bill, which means the anaphor must be according to this approach. If the anaphor is not affixed to a predicate [talked to], then it will violate Affix Filter condition. On the other hand, if the anaphor is affixed to P about (on condition that it can be a predicate), then about has no reason to move to AGRs, since about does not have to get tense or phi-features. Consequently, the anaphor does not move either. There is no way, therefore, to explain why in (14), himself can be understood as Bill or John with this approach.

4. Conclusion

So far, I introduced two approaches to the English local anaphor and binding with their antecedents. The First one was Agree-based approach. In this approach, based on the matching condition of the PROBE and the GOAL, it is provided how the uninterpretable reference feature of the PROBE recovers the reference in the DOMAIN of PROBE.

The Second one was the predication approach. They assumed that anaphors have defective referential features to be checked off since anaphors have no independent references. These defective referential features of anaphors are checked off by AGRs which share all the features with NPS in SPEC of AGRP. They also made assumptions that anaphors are LF-affixes, being affixed to predicates which take them as their arguments.

The first one and the second one share the idea of anaphors getting reference via feature AGREE such as gender, number, and person. And both use the configurations and in the flow of Minimalist Framework.

In addition, two of them are economical in explaining the local anaphoric binding phenomena in the sense that with a few condition and terms, many tricky phenomena is explained.

There are many differences, too. First, they differ when it comes to the matter of DOMAIN. The concept of DOMAIN is crucial to the first approach. On the other hand, the second one does not need the concept of DOMAIN.

The first one, it concerns only reference recovery, whereas the second one concerns with Case of the anaphor, the tense and phi-features of the predicate too.

Basically, I think both of these approaches are amazingly simple and clear. But, in the First approach, they assume that the anaphor gets its reference from its antecedents via AGREE of features such as number and person. Then I am wondering why they supposed the existence of these features only. Shouldn't they make an assumption of the existence of other features too like CASE, TENSE, and so forth? In this sense, the second approach is better.

However, there is a crucial defect in this approach. The second approach was too concerned with being economical without the concept of DOMAIN nor the anaphor moving to AGRs separately. Because of this, it fails to explain (14) in 3.2.3 properly.

Both have upsides and downsides. So I think if Agree-based approach and the predication approach are combined in the best way, it will give us a crucial key to explain the English anaphor, not just local, but even long distance with a little help from Pragmatics' area.

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