One-Fell Swoop Principle in A-Agree*

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Hong, Sun-Ho. 2004. One-Fell Swoop Principle in A-Agree. *The Linguistic Association of Korea Journal, 12*(1), 101-120. This paper treats two main issues: (i) the nature of probes and goals, and (ii) the way of their working in the computational system. Based on conceptual and empirical backgrounds, I argue that probes and goals are sets containing identical features rather than individual features or functional items and lexical items. Furthermore, I argue that those elements are working by the One-Fell Swoop Principle.

Key words: Probe, Goal, Match, Agree, and One-Fell Swoop Principle

1. Introduction

I will consider the following two main issues in this paper: (i) What is the nature of probes and goals? and (ii) how do probes and goals work in the computational system? I will explore these issues, treating A-Agree and its related movement. Based on conceptual and empirical backgrounds, I will argue that probes and goals are sets containing identical features. As for the operation of elements in the computational system, Chomsky (1998, 1999) assumes that α must have a complete set of φ-features to delete and value uninterpretable and unvalued features of the paired matching element β in A-Agree. If A-bar Agree is

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analogous to A-Agree, we can assume the following Generalised One-Fell Swoop Principle (GOFSP):

(1) Only a complete set can delete and value the uninterpretable and unvalued features of the paired matching (in)complete sets by a one-fell swoop operation.

However, in this paper, I will mainly consider the operations which are related to A-Agree.[1)]

2. The Main Theoretical Assumptions in the Minimalist Program

In Chomsky (1998, 1999, 2001), there are three computational operations in the grammar: Merge, Agree, and Move. Merge is considered as an operation to select two syntactic objects (SO) and form a new syntactic object. This is to build the base structure for thematic relations. The second operation Agree is to delete uninterpretable features and to value unvalued features. Thus, it has two functions, which are related to both LF and PF. The third operation is Move. It is treated as a composite operation of Agree and Merge. The phenomena that were previously described in terms of covert movement are accounted for by the operation Agree in Chomsky (1998, 1999).[2)] In order to apply the operation Agree to two syntactic objects, in Chomsky (1998), Match is introduced as a necessary pre-condition for Agree. According to Chomsky (1999, p.4), Match is feature identity.

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1) See Hong (2002, 2003) for more related things about the Generalised One Fell Swoop Principle in A-bar Agree.

2) In Chomsky (2001), as in earlier versions of the Minimalist Program, two independent cycles seem to be assumed in syntax. However, it is not clear how covert movement can be applied after Spell-Out in narrow syntax, since after Spell-Out there does not remain any syntactic element anymore in narrow syntax. See Nissenbaum (2000) and Pesetsky (2000) in more detail discussion of covert movement.

In other words, it can be understood as identity of the choice of feature, but not value.[3] In Chomsky (1998, pp.37-38), he distinguishes Match from Agree more clearly. Match is considered as a relation between a probe P and a goal G, while Agree is an operation, which is applied to matching probes and goals in a given local domain.

(2) Match: a relation
  i. Matching is feature identity
  ii. Domain of P (probe) is sister of P.
  iii. Locality reduces to closest c-command
(Chomsky, 1998, pp.37-38)

(3) Agree: an operation
  i. α and β match
  ii. β is in the domain of (= is c-commanded by) α
  iii. both α and β are active
  iv. no goal intervenes between α and β

According to his view, not all matching pairs induce Agree. In order to do so, a goal must be in domain of a matching probe and satisfy locality conditions.

3. Probe and Goal

One of the fundamental issues that we should consider at this point: what is the nature of probes and goals. There are three possible ways

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3) A feature has two components: an attribute and a value. The attributes of features can be interpretable or uninterpretable, and their value also can be valued or unvalued. Chomsky (1998, 1999, 2001) seems to imply that: two constituents match (in a given respect of some feature F), if
(i) they have the same attribute
(ii) one of them is unvalued and uninterpretable
Chomsky (1999, p.4) takes uninterpretable features to be unvalued, receiving their values only under Agree. For this reason, he (1999,p.4) argues that Match is not strictly speaking identity but nondistinctness: same feature, independently of value.

of defining the nature of probes and goals namely in terms of: (a) individual identical features (b) sets containing identical features (c) functional items and lexical items containing identical features. The first possibility cannot be accepted for the following reason:

(4) Probe and goal must both be active for Agree to apply
Chomsky (1999,p.4)

According to Chomsky (1999), uninterpretable features render both probes and goals active. If we accept this idea, given the first possibility, all the relevant features entering into Agree should always be uninterpretable and unvalued features, since according to Chomsky (1998, 1999), all uninterpretable features are initially unvalued when they enter the derivation. Any feature which is interpretable is inactive, so cannot enter into Agree. Another problem is that if both matching features are uninterpretable and unvalued, how the operation Agree works between two uninterpretable and unvalued features. Especially, it is not clear how one unvalued feature values the other corresponding identical unvalued one under the operation Agree. For these reasons, both a probe and a goal should be at least a set or more than a set.

The second possibility assumes that the features carried by items are not an unstructured list, but rather are grouped into subsets. For example, as for φ-features which are related to A-Agree, person, number, and gender features can comprise a set. We have referred to this full member set as a complete φ-set. This set can be a probe or a goal in A-Agree in the computational system. Based on this assumption, in general, we can have the following probes and goals in A-Agree:[4]

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4) As for the Case assignment by A-Agree under the second possibility, like TP and *v*P it can also be achieved in possessive DPs or PPs by A-Agree. This means that D and P should have a complete φ-set in order to assign a proper Case to an NP. Adger (2003) assumes that DP contains a little *n*, which is responsible for the Case assignment of any Theme in the DP, while D containing Genitive Case feature enters into Agree with the Agent and triggers the Agent to move to spec D. In the case of PP, Radford (p.c) suggests the possibility that

(5) Probes[5)]
  a. A complete φ-set of T
  b. An incomplete φ-set of T
  c. A complete φ-set of *v*
  d. An incomplete φ-set of *v*

(6) Goals
  a. A complete φ-set of lexical items
  b. An incomplete φ-set of lexical items

Thus, under the second possibility, these φ-sets participate in A-Agree as probes or goals in the computational system. On the other hand, in A′-Agree, like the φ-set, the related features seem to comprise a separate set. If this is true, in the case of wh-arguments such as *who* and *what*, they have both a φ-set and an A-bar related set as goals. If they have two goals, one is related to A-Agree and the other is related to A′-Agree.

Finally, in the third possibility, both functional items and lexical items have an unstructured set comprising a list of features. The choice of these possibilities will be considered in the following section.

4. The Generalised One-Fell Swoop Principle

Under the Agree system, a probe α should seek a goal β, that is, matching features of the corresponding categories that establish the agreement relation. Through the satisfaction of Match between α and β, the operation Agree removes the uninterpretable features belonging

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there can be an abstract light preposition above PP. If it is true, this light preposition may have a φ-set to assign a Case feature to the corresponding matched NP. Thus, we can generalise the Case marking of NPs in functional items. The following functional items, T, D, *v*, *n*, and *p* can have φ-sets, which are related to the Case assignment. This is a broad topic to treat here, so I will not deal with it in this paper. I will just consider the core functional items, T and *v* among them in A-Agree.

5) According to Chomsky (1998, 1999), the incomplete φ-set of expletive *there* can be both a probe and a goal, but I will not discuss this further here.

to them from the narrow syntax, allowing derivations to converge at LF while valuing the unvalued features for the phonological component. However, according to Chomsky's (1998, 1999) reasoning, every matching pair does not seem to induce the operation Agree.

(7) We take deletion to be a 'one fell swoop' operation, dealing with the φ-set as a unit. Its features cannot selectively delete: either all or none. Chomsky (1998, p.40)

More specifically, the following Split Agree is not allowed:[6)]

(8) Split Agree

Probe {P, N, G} Goal 1{ ..P.. } Goal 2 {..N..} Goal 3 { G }

(P = Person, N = Number, G = Gender, {P, N, G} is a complete set)

In the above structure in (8), although the individual features of the probe enter into the relation Match with identical features on the different goals, the operation Agree cannot be applied to the individual features separately. If probes and goals are individual features, this Split Agree can be possible. But, we already considered the problems of this

6) Pesetsky and Torrego's (2001) feature system is different from Chomsky's (1998, 1999, and 2001). In their feature system, Split Agree is allowed. For example, C has {*u*T, *u*Wh} and Nominative Case is *u*T on D. According to their account of the application of Agree, the deletion of *u*T is allowed by T-to C movement or subject movement, and the deletion of *u*Wh is allowed by wh-movement. In the T-to C movement case, unlike Chomsky's feature system, we should allow the following Split Agree:

C	T	WP
{*u*T, *u*Wh}	{*u*T}	{*u*Wh}

Thus, in the above representation, the unintepretable T feature of C is deleted by the uninterpretable T feature of T and the uninterpretable Wh-feature of C is by the uninterpretable Wh-feature of WP.

possibility in section 3. According to Chomsky (1998, 1999), (7) does not allow this kind of selective feature deletion. Based on this, he assumes the following condition:

(9) α must have a complete set of φ-features to delete uninterpretable features of the paired matching element β
Chomsky (1999, p.4)

Under the above condition, we can assume the following feature set Agree in A-Agree:

(10) Distributed Set Agree

a. Probe {P, N, G} Goal 1 {P} Goal 2 {P, N, G}

b. Probe {P, N, G} Goal 1 {P, N, G} Goal 2 {P}

c. Probe {P, N, G} Goal 1 {P, N, G} Goal 2 {P, N, G}

Under the second possibility, probes and goals should be sets that contain identical features. We assume that, in the case of A-Agree, person, number, and gender features comprise a complete φ-set in general.[7] So, in (10a), the Probe has a complete φ-set, and the Goal 1

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7) Chomsky (1999, p.4) argues that structural Case is not a feature of the probes (T, v). So, the Case feature itself is not matched, but deletes under Match and Agree of φ-features between probes and goals. For this reason, I do not consider the Case feature in the Match and Agree system in (10) for the time being. However, there is no doubt that the role of the Case feature is crucial in Match and Agree between probes and goals in A-Agree, since NPs are activated by the Case feature.

has an incomplete φ-set. Although the complete φ-set of the Probe can delete and value the uninterpretable and unvalued features of the incomplete φ-set of the Goal 1, the incomplete φ-set of the Goal 1 cannot delete and value the unintepretable and unvalued features of the complete φ-set of the Probe, since the condition (9) does not allow this. Thus, the complete φ-set of the Probe also enters into Match and Agree with that of the Goal 2. In this situation, the Goal 1 does not intervene to block Agree between the Probe and the Goal 2. Chomsky (1999, p.13) describes this situation like (11):

(11) The intervention effect is nullified unless intervention blocks remote matching of all features

Chomsky (1999, p.13)

Owing to (11), the incomplete φ-set of the Goal 1 cannot block Match and Agree between the Probe and the Goal 2. Dealing with the φ-set as a unit in the Agree system in (10a), I will call this Distributed Set Agree (DSA). However, DSA in structures like (10b) and (10c) is not allowed. The Goal 1 intervenes to block Match and Agree between the Probe and the Goal 2, since the Goal 1 has a complete φ-set fully matched with that of the Probe. Owing to this intervention effect, the structures of (10b) and (10c) are not allowed.[8)]

Through A-Agree, we can assume that Agree is governed by the following condition:

(12) Only a complete φ-set can apply the operation Agree to the features of the corresponding matching sets by a one-fell swoop

8) Hiraiwa (2000) suggests the possibility that the operation Agree can be applied to more than two goals simultaneously. In (10c), the probe enters into Match and Agree with two goals separately, but this is not allowed. However, if a probe enters into Match and Agree with more than one goal simultaneously in the derivation, Multiple Agree with more than two goals can be allowed. This can explain the double Nominative subject construction, the double Accusative object construction, and multiple wh-questions. This issue will not be treated further here. See Hiraiwa (2000) for more discussion.

operation.

Thus, if we accept this one-fell swoop operation in (12), we need a complete φ-set in order to apply the operation Agree. In the computational system, the uninterpretable and unvalued features which are related to A-Agree are deleted and valued by the features of T and *υ*, while the features which are related to A′-Agree are deleted and valued by the features of C and *υ*.[9] Under the second possibility of the nature of probes and goals, like the φ-set, the related features of A′-Agree can comprise its own complete set. Thus, if A′-Agree is analogous to A-Agree, we can assume the following Generalised One-Fell Swoop Principle (GOFSP):

(13) Only a complete set can delete and value the uninterpretable and unvalued features of the paired matching (in)complete sets by a one-fell swoop operation.

However, if we accept the third possibility that lexical items and functional items themselves are probes and goals, they will carry a number of different characteristic features within their feature-sets. So, if the A- and A-bar features are composed of one set altogether, the application of the GOFSP in (13) to probes and goals in the third possibility should be different from that in the second possibility. Furthermore, the question that arises here is whether the GOFSP really exists in the computational system. Actually, we have considered the necessity of the φ-complete set through the first possibility in section 3. However, under the third possibility, we do not have such an A-agreement feature set. Consider the following sentence:

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9) An important theoretical issue here is whether the light-verb serves as both an A-head and an A-bar head. Roberts (1994) argues that UG does not allow a given head to have a dual status. However, under the second possibility, we assume that *υ* has two separate subsets which are related to A-Agree and A-bar Agree. Thus, if we accept the second possibility, unlike Roberts (1994) *υ* can have a dual status. See Hong (2003) for more detail discussion.

(14) What do you think that John likes?

If movement is derived by both the feature agreement and the EPP feature, A-movement is triggered by the EPP feature when the probe has φ-features, while A-bar movement is done when the probe has P(eripheral)-features which are related to the force, topic, and focus etc. Suppose all functional items, C, T, and *υ* in (14) are probes. In the first stage of the derivation of the sentence in (15), we will have the following structure: (*u* = uninterpretable feature)

(15) [$_{\upsilon P1}$ John [*υ*1] [$_{VP}$ likes what]]
{φ-features, *u*Case} {*u*φ-features} {φ-features, *u*Case, uP-features}

John is merged in spec *υ*P, but Agree is not applied to both *John* and *υ*. Although both *John* and *υ*1 have matching features, when a goal c-commands a probe, Agree is not applied to them. Thus, normally, Agree cannot be applied to Merge. The first Agree is applied to both *what* and *υ*1. Under the third possibility, although the φ-features of *υ*1 are fully matched with the φ-features of *what,* the features of *what* are not fully matched with those of *υ*1, since *what* has more features including P-features for A′-Agree. So the uninterpretable and unvalued features of *υ*1 are deleted and valued by Agree, while those of *what* cannot. However, in the structure in (15) at least the φ-features of *what* should enter into Agree with those of *υ*1 and its relevant Case feature should be deleted and valued at this stage. If the Case feature of *what* is not deleted and valued by Agree with *υ*1, there is no chance anymore to delete the Case feature of *what*:

(16) [$_{CP}$ C [$_{TP}$ T [$_{\upsilon P}$ John *υ*1
{*u*P-features} {*u*φ-features} {φ-features, *u*Case} {*u*φ-features}
[$_{VP}$ likes what]]]]
{φ-features, *u*Case, uP-features}

Of cause, T also has φ-features, but they are related to the Nominative

Case assignment for the subject *John*. Another candidate probe can be *υ*2 in the matrix clause, since *υ*2 also has φ-features involved in Accusative Case/ A-Agree:

(17) [$_{CP}$ C [$_{TP}$ do [$_{\upsilon P}$ you *υ*2
{*u*P-features} {*u*φ-features} {φ-features,*u*Case}{*u*φ-features,*u*P-features}
[$_{VP}$ think [$_{CP}$ that [$_{TP}$ . . . [$_{VP}$ what]]]]]]]
{*u*P-features} {φ-features, *u*Case, *u*P-features}

However, Chomsky (1998, p.24) argues that before movement of *what* to spec-*υ*2 the φ-features of *υ*2 should be deleted. If the φ-features of *υ*2 are not deleted before the movement of *what,* and if this movement is related to φ-features rather than P-features, this can be an improper movement.[10] In the above movement, we can realise that the wh-expression *what* needs at least more than one subset for A-or A-bar Agree within its set. Thus, the third possibility that probes and goals are lexical items and functional items themselves containing all features as one set should at least be revised or rejected for this reason. Thus, if the computational system works under the second possibility, we need the Generalised One-Fell Swoop Principle in order to apply the separate A-and A-bar Agree to probes and goals. We will accept the second possibility in this paper.

5. Distributed Set Agree in A-Movement

We have hitherto assumed that the set of φ-features are composed of {Person, Number, Gender}. Thus, we have assumed that a complete φ-set in English also contains {Person, Number, Gender}. However, unlike some other languages such as German and French, φ-sets in English do not exhibit a gender agreement in morphology. So, we can

10) In the long distance wh-movement, French data support the absence of agreement in φ-features between *υ*2 and wh-expressions, but Chamorro and Passamaquiddy data show the agreement. See Bruening (2001), Reintges, C. H., P. LeSourd, and S. Chung (2002), and Hong (2003) for more detail discussion.

consider this in two different views. One is that, like other languages containing a gender agreement reflection, a complete φ-set in English also contains {Person, Number, Gender}, but a gender distinction is considered to be completely syncretised. The other is that we just simply assume that a complete φ-set in English is composed of {Person, Number} without a gender feature. This is possible, if we accept the idea that the selection of a set of features [F] from the universal features {F} is different depending on languages. Radford (p.c) suggests that a certain subset of F must be present in all languages and the choice of the rest be parameterised. It seems to be plausible. For example, the tense feature does not appear morphologically in Chinese verbs, but we assume that there is a tense feature in Chinese, since it is interpreted at LF in all languages. Unlike the tense feature, the gender feature on nouns is not always interpreted at LF in all languages. Thus, the selection of a gender feature from the universal features {F} is parameterised depending on languages. Along the lines with Chomsky (1998), Atkinson (2003), and Radford (2004), I accept this relativity in the selection of a certain set of features from the universal features {F}, and assume that a complete φ-set in English is composed of {Person, Number} without a gender feature.

Under the second possibility, consider the derivation of the expletive sentence in (18):

(18) there is likely to arrive a man

At the first stage of the derivation, we will have the following structure:

(19) $[_{TP}$ to $[_{vP}$ v $[_{VP}$ arrive a man]]][11)]

According to Chomsky (1998, 1999), the infinitive T of raising predicates is defective, so it has an incomplete φ-set. He assumes that

11) The light v here is not a transitive v, so it does not have a φ-set.

it has only a person feature. On the other hand, the goal of the lexical item *a man* has a complete φ-set. Thus, the structure of (19) will be as follows: (*u* = uninterpretable feature, *incomp* = incomplete, *comp* = complete)

(20) [$_{TP}$ to [$_{vP}$ *v* [$_{VP}$ arrive a man]]]
{~~*u**incomp* φ-set~~, *u*EPP} {*comp* φ-set, *u*Case}

In the above stage, since the goal has a complete φ-set, it can delete the feature of the incomplete φ-set of the probe by Agree under the One-Fell Swoop Principle. However, the features of the complete φ-set of the goal are not fully matched to those of the probe, so the Case feature of the goal cannot be deleted. According to Chomsky (1998, p.40), only a probe with a full complement of φ-features is capable of deleting the feature that activates the matched goal. Thus, the goal, the φ-set of *a man,* still remains active. At this stage, we can either merge the expletive *there* or raise the associate *a man* to spec T. If the initial sublexical array contains the expletive *there*, Merge of the expletive *there* can be applied at this stage under the preference for Merge over Move, but if it does not, the associate *a man* can be raised to spec T by Move. Since the sentence in (18) contains the expletive *there*, the initial lexical array includes it. Thus, in the next stage, we have the following structure:

(21) [$_{TP}$ there to [$_{vP}$ *v* [$_{VP}$ arrive a man]]]
{*u**incompl* φ-set} {~~*u**incompl* φset~~, ~~*u*EPP~~} {*compl* φ-set, *u*Case}

According to Chomsky (1998, p44), expletive *there* is an X head and it has only an uninterpretable and unvalued person feature. Therefore, it can probe its domain T′, locating the φ-set of T as the closest goal. Based on this assumption, the uninterpretable person feature makes the φ-set of the expletive *there* active in the computational system. By the operation Merge, the expletive *there* can satisfy the EPP feature of the infinitive T. The incomplete φ-set of the expletive *there* enters into

Match with the incomplete φ-set of the infinitive T, but neither of them is a complete set. So Agree cannot be applied to either of them. The person feature of the expletive *there* remains undeleted, and still active. It can probe the matching feature set again. It seems to be able to match with the person feature of the complete set of the lexical item *a man*. Under Match and Agree, its uninterpretable and unvalued feature is deleted and valued in (22).[12)]

(22) [$_{TP}$ there to [$_{\upsilon P}$ υ [$_{VP}$ arrive a man]]]
{~~*uincompl* φ-set~~} {~~*uincompl* φset~~, ~~uEPP~~} {*compl* φ-set, *u*Case}

However, unlike other core functional categories such as C, T, and υ, expletive *there* is not a functional category. A question that arises here is whether there exists an actual agreement between the expletive *there* and the lexical item *a man* in (21). If there is an agreement between them, and if the uninterpretable person feature of the expletive *there* is deleted, how can the expletive *there* still be active without any uninterpretable feature in (21) and (22)? One way to posit that Agree does not delete uninterpretable features immediately but rather marks for deletion, and that deletion does not apply until the derivation arrives at a certain stage.[13)] However, this assumption seems to be a stipulation to me. Furthermore, an agreement between the expletive *there* and the lexical item *a man* wrongly allows the derivation of the following

12) In Frampton, Gutmann, Legateand Yang (2000), they argue that the uninterpretable person feature of the expletive *there* is not deleted in (22). The deletion of the person feature in the expletive *there* is considered as one of problems in the expletive constructions. According to their suggestion, if there is some principle of transitivity of φ-agreement, the problem is overcome. But, this seems to be just a stipulation. In this paper, we will consider it with Radford's assumption that the uninterpretable person feature of expletive *there* is initially valued as a third person when it enters the derivation.

13) Chomsky (1998) introduces a new syntactic domain, phase, in order to reduce the computational burden. In his phase-based theory, a phase allows the marked features for deletion to be still active in its active memory at any given time. This idea is not new. It actually comes from the distinction between deletion and erasure in Chomsky (1995).

sentence:

(23) a. * A man is likely there to arrive.
b.* It is likely there to arrive a man.

Without this 'marked for deletion' story, since the uninterpretable person feature of the expletive *there* is not active anymore after Agree with the φ-set of the lexical item *a man,* the expletive *there* cannot move to spec T in the finite clause. So, there are two ways to satisfy the EPP feature of the matrix T. One is movement of the lexical item *a man* to spec T in the finite clause, and the other is Merge of the expletive *it*. However, both derivations lead to the wrong results as you see the examples in (23a,b). For these reasons, the 'marked for deletion' story and the agreement between the expletive *there* and the lexical item *a man* seem to have problems. Alternatively, unlike Chomsky (1998,1999,2001), Radford (2004) suggests that the uninterpretable person feature of expletive *there* is initially valued as a third person when it enters the derivation. This assumption comes from the fact that a number of other words begin with *th-* are third person (e.g. *this*, *that*, *these*, *those*, *the*, *then* and *there*) and the counterpart of expletive *there* in many languages is morphologically a third person pronoun (e.g. French *il*). If we accept Radford's assumption (2004), the structure in (22) can be replaced with the following structure: ([ ] = valuation)

(24) [$_{TP}$ there to [$_{\upsilon P}$ υ [$_{VP}$ arrive a man]]]
{*uincompl* φ-set[3]} {~~*uincompl* φset~~, ~~*u*EPP~~} {*compl* φ-set, uCase}

In the above structure, neither the infinitive T nor the lexical item *a man* enters into Agree with the expletive *there*. However, the uninterpretable person features of the incomplete φ-sets between the infinitive T and the expletive *there* seem to be matched, although Agree cannot be applied to them. Since neither of them is a complete set, Agree cannot be applied to either of them. If this is true, the satisfaction of the EPP feature seems to be related to Match rather than

Agree between a probe and a goal under Radford's assumption. By the operation Merge, the expletive *there* can satisfy the EPP feature of the infinitive T.[14] The uninterpretable and valued third person feature of the expletive *there* remains undeleted, and still active. In the next stage, we have the following structure:

(25) [$_{TP}$ is likely [$_{TP}$ there to
{~~*ucompl* φ-set~~, *u*EPP} {~~*uincompl* φ-set~~[3]} {~~*uincompl* φset~~, ~~*u*EPP~~}
arrive a man]]
{*compl* φ-set, ~~*u*Case~~}

The complete φ-set of the matrix T as a probe matches with the φ-sets of the expletive *there*, infinitive T, and the lexical item *a man*. The deletion of uninterpretable features and the valuation of unvalued features among them are applied successfully by Distributed Set Agree. Finally, the complete φ-set of the matrix T assigns Nominative Case value to the lexical item *a man* under Agree of the complete φ-sets between the matrix T and the lexical item *a man*.[15] The EPP feature of the matrix T is satisfied by the movement of the closest lexical item *there* containing the closest matching φ-set:

(26) [$_{TP}$ there is likely [$_{TP}$ there
{*uincompl* φ-set[3]} {*ucompl* φ-set, *u*EPP} {*uincompl* φ-set[3]}

14) The nature of the EPP feature is more or less mysterious. As far as the EPP feature of T is concerned, it was considered as a selectional feature that requires an overt element with D-feature in T in Chomsky (1995). However, in Chomsky (1998,1999), he seems to equate it with the person feature of the φ-set. See Epstein and Seely (1999), Manzini and Rousso (2000), and Boskovic (2002) etc. for more discussion about the nature of the EPP feature.

15) Adger (2003) argues that T and *v* contain their own independent Case features. Thus, in his feature framework, Case features also enter into Match and Agree. Unlike Chomsky's Case analysis, under his analysis, Case valuation is also considered as an agreement rather than an assignment. See Adger (2003), Hong (2003) for more detail discussion about this issue.

to arrive a man]]
{*uincompl* φset, *u*EPP} {*compl* φ-set, *u*Case}

Without the problems in the 'marked for deletion' story and in the agreement between the expletive *there* and the lexical item *a man,* the sentence in (18) is successfully derived under Radford's assumption.

6. One-Fell Swoop Principle in A-Movement

Now, consider the successive cyclicity in A-movement:

(27) John is likely to be elected

The above sentence has the following structure in the first stage:

(28) [$_{TP}$ to [$_{vP}$ [$_{VP}$ elected [$_{DP}$ John]]]]
{*uincompl* φ-set, *u*EPP} {*compl* φ-set, *u*Case}

The infinitive T of raising predicates is defective, so it has an incomplete φ-set containing only a person feature. On the other hand, the goal of *John* has a complete φ-set, so it can delete the feature of the incomplete φ-set of the probe by Agree under the One-Fell Swoop Principle. However, the features of the complete φ-set of the goal are not fully matched, so the Case feature cannot be deleted. The goal, the φ-set of *John,* is still active, so it can enter into Match and Agree with the next probe after moving to spec T in order to satisfy the EPP feature in the infinitive clause:

(29) [$_{TP}$ is lilkely [$_{TP}$ John to be elected John]]
{*ucompl* φ-set, *u*EPP} {*compl* φ-set, *u*Case} {*uincompl* φ-set, *u*EPP}

In the above stage, the finite T has a complete φ-set, so this complete φ-set enters into an agreement relation with the complete φ-set of the goal. Both the probe and the goal are fully matched with each other.

Their uninterpretable features are deleted by Agree under the One-Fell Swoop Principle. The Case feature of the goal is also deleted, since all the features of the complete φ-set of the goal are fully matched. Finally, *John* is merged in spec T to satisfy the EPP feature of T:

(30) [$_{TP}$ John is lilkely [$_{TP}$ John to be elected John]]
{*ucompl* φ-set, *u*EPP} {*compl* φ-set, *u*Case}

In the above derivation, when the intermediate T has an incomplete φ-set and the lexical item has a complete φ-set, Agree is applied asymmetrically. The following situation leads to the further Agree and movement:

(31) When a probe is an incomplete φ-set and a goal is a complete φ-set, there is further Agree and movement.

As we already see in *there* constructions, Agree cannot be applied between an infinitive T and expletive *there*. So the situation for further Agree and movement can be extended:

(32) When a probe is an incomplete φ-set and a goal is an (in)complete φ-set, there is further Agree and movement.

On the other hand, when a finite T has a complete φ-set and a lexical item has a complete φ-set, Agree is applied symmetrically. Thus, movement is finished.

(33) When a probe is a complete φ-set and a goal is a φ-complete set, Agree and movement are finished

7. Conclusion

I considered the two main issues: (i) the nature of probes and goals, and (ii) the way of their working in the computational system. We considered three possible ways of defining the nature of probes and goals: (a) each individual identical features, (b) sets containing identical features, (c) functional items and lexical items containing identical features. Based on conceptual and empirical evidence, we selected (b) as a definition of nature of probes and goals. Furthermore, I argued that the operation Agree works to those elements by the One-Fell Swoop Principle.

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