Subject as a Probe

Akiko Kobayashi
Shimane University

1. RELATIVIZED AGREE

In this paper I propose what I call Relativized Agree theory, and show how well various syntactic facts are accounted for by the proposed theory. An idea of Relativized Agree is not a new one. Suppose that the derivation has reached the stage (1a), with the expletive *there* merging with T'.

(1) a. [$_{TP}$ **there** [$_{T'}$ T is a man there]]
    b. [$_{TP}$ T seems [$_{TP}$ **there** [$_{T'}$ to be a man there]]]

There and T have matching features (Match), but T cannot serve as a probe for *there* since it is not in T's c-command domain. In this structure it is *there*, D^0, that functions as a probe for T (cf. Chomsky (2004: 114)). On the other hand, when *there* is generated in an infinitival clause as in (1b), it is a goal since it is in the domain of T. The same item can thus be either a probe or a goal, depending on a structural relation with its match. This I call *Relativized Agree (RA)*.

RA is not a special case for expletive constructions, but a necessary consequence of recent minimalist assumptions. To illustrate this, let us consider how Agree (feature valuation) takes place in the sentence (2a).

(2) a. **The boy** will buy a book.
    b. [$_{TP}$ T [$_{v*P}$ **the boy** buy a book]]
    c. [$_{CP}$ C [$_{TP}$ **the boy** T [$_{v*P}$ t_{DP} buy a book]]]

Suppose that the derivation has reached the stage (2b). Match holds between T and *the boy*, but Agree does not take place immediately since "[t]hey [uninterpretable features] must … be valued at the stage in computation where they are transferred" (Chomsky (2008: 154)). Suppose then that the CP phase has been completed as in (2c). At this stage T searches for a goal again. But the search fails since *the boy* has been displaced and traces are invisible (cf. Chomsky (2008: 150)).

Therefore T must have its features valued *as a goal*. There is a candidate for the probe, i.e. *the boy* in SPEC-T. However, if "[a]pparent Spec-H relations are in reality head-head relations involving minimal search (local c-command)" (Chomsky (2004: 113)), Agree cannot be established between *the boy* and T since neither *the* (D) nor *boy* (N) c-commands T.

Thus we seem to get caught in a double bind: The subject must be the probe but no heads in the subject c-command T. But there is a way out of this dilemma:

(3) Transfer applies to DP when it moves to SPEC-T.[1]

By the application of Transfer, the internal structure of the DP is made invisible, but the label D must remain visible. It is necessary to conform to the No-Tampering Condition: "[O]perations do not tamper with the basic relations involving the label that projects: the relations provided by Merge and composition" (Chomsky (2000: 136)). If the whole subject were made invisible, the SPEC-Head relation established between the subject and T would be tampered with. Consequently, the remaining label D, which is identical with the head D (cf. Chomsky (2004: 109)), can work as a probe for T, as represented in (4). (To avoid confusion between a head and a label that works as a head after Transfer, I add a shadow to the latter.)

(4) [$_{CP}$ C [$_{TP}$ **D** T [$_{v*P}$ t_{DP} buy a book]]]

If this is correct, T and subject DP agree in the following way.

(5) a. Agree (D, T) if DP moves to SPEC-T.
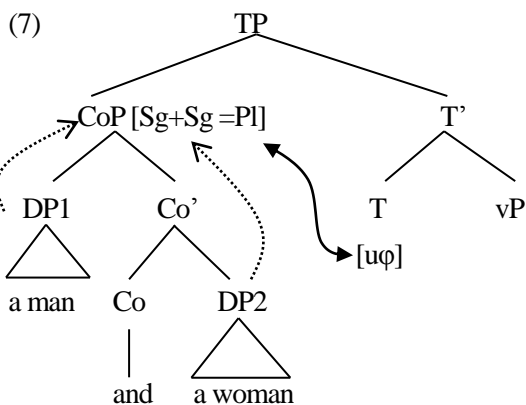
   b. Agree (T, D) if DP remains in v(*)P.

I will show how this accounts for a variety of syntactic facts.

2. NUMBER AGREEMENT ASYMMETRY

In many languages the verb exhibits whole conjunct agreement (WCA) when the conjoined subject precedes the verb, while the verb shows first conjunct agreement (FCA) with the postverbal conjoined subject. English is one of such languages:

(6) a. [A man and a woman] {**are**/*is} in the

   house.

   b. There {**is**/*are} [a man and a woman]

   in the house.   (Bošković (1997: 87))

FCA as in (6b) has been explained in terms of government (e.g. Munn (1999)) or feature lowering (Bošković (1997)). This may be restated in minimalist terms as follows: The probe T agrees only with the first conjunct (*a man*) since it is the closest goal. WCA in (6a), on the other hand, has been attributed to SPEC-Head agreement (e.g. Munn (1999), Harbert and Bahloul (2002)). To achieve WCA, we need to assume that number features of conjuncts are percolated up to the dominating label (CoP) and somehow added up (number feature percolation). Then CoP, bearing a Pl(ural)-feature, triggers WCA on T in a SPEC-Head relation, as illustrated in (7).

(7)

(According to Lieber (1989), feature percolation from a non-head is allowed when the head of the phrase is not specified for that feature.)

The above explanation, however, raises a question. The absence of WCA in (6b) indicates either (i) that number feature percolation does not occur when CoP is postverbal, or (ii) that T cannot see the percolated plural feature when CoP is postverbal. Why is it that a postverbal CoP cannot make use of number feature percolation? Munn (1999: 664) claims that "specifier-head agreement is looser than governed agreement and thus may be affected by other factors," but it remains unclear why the "looser" version of agreement is unavailable for a postverbal CoP.

The RA theory provides a simple account for the number agreement asymmetry. Let us first consider how FCA is obtained in (6b). A partial structure of (6b) is given in (8).

(8) $[_{TP}$ T $[_{vP}$ be $[_{CoP[Pl]}$ DP1 and DP2 …]]

   [uφ]   [Sg]   [Sg]

Co has no φ-features of its own, but the label of its projection, CoP, bears [Pl] as a result of number feature percolation. But the probe T cannot see CoP since probe-goal is a relation between *heads*. The closest goal for T is, therefore, D (*a*) of the first conjunct. FCA in (6b) is thus obtained.

Let us then consider WCA in (6a), a partial structure of which is given in (9).

(9) $[_{TP}$ Co   T $[_{vP}$ be t_{CoP} …]]

   [Pl]   [uφ]

CoP undergoes Transfer when it moves to SPEC-T. The label Co remains visible in syntax, and accordingly, so does [Pl] which is added to the label. In this structure Co, as a probe, assigns its [Pl]-value to T. WCA in (6a) is thus obtained.

To summarize, the RA theory provides a simple account for the number agreement asymmetry in sentences involving a conjoined subject phrase (CoP). CoP bears [Pl] as a result of number feature percolation. The feature is available for Agree if CoP moves to subject position and transferred. The verb thus exhibits WCA with the preverbal CoP. If CoP

remains in vP, on the other hand, the probe T agrees with the head of the first conjunct. [Pl] of CoP is invisible to T since the goal must be a head. FCA is thus obligatory when CoP is postverbal.

3. PERSON AGREEMENT ASYMMETRY

Let us then consider a different kind of agreement asymmetry:

(10) a. I {**am**/*is} here.

b. We **are** here.

(11) a. There {**is**/*am} only me.

b. There **are** only us.

(adapted from Chomsky (2000: 149, note 90))

According to Chomsky (2000), sentences as in (11a, b) are acceptable with a list reading, in response to a question like "Who's still here to do the work?" The verb forms in (11a, b) indicate that the verb agrees with a postverbal pronominal subject in number, but not in person.

Before an account of this asymmetry, two properties of pronouns should be articulated. First, "3rd person" is a non-person (cf. Benveniste (1966), Harbert and Bahloul (2002)). Namely, 3rd person pronouns are pronouns lacking a person feature, and so-called 3rd person inflection on a head is a default form when its [uφ] is not specified for person.

Second, pronouns have a complex structure (cf. Cardinaletti (1994), Chomsky (2013)). I posit the following three-layer structure for 1st and 2nd person pronouns in English, following Déchaine and Wiltschko (2002, D&W henceforth).[2]
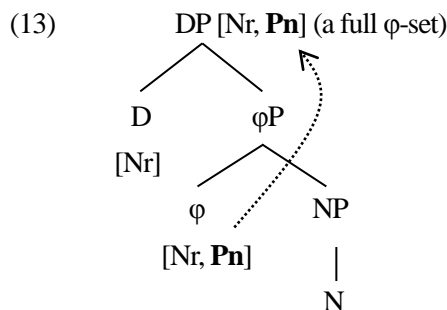
(12) [$_{DP}$ D [$_{φP}$ φ [$_{NP}$ N]]]   (D&W, p. 410)

N may have a gender feature since it is inherent and invariant in a language (cf. Ritter (1995)). φ is a head mediating the DP's φ-information, i.e. gender (Gr), number (Nr), and person (Pn). D is a determiner that exhibits definiteness.

Although D&W do not argue what φ-feature(s) D may have, I suggest that Ds may have [Nr] and [Gr] but not [Pn]. A piece of evidence comes from the

paradigm of independent (emphatic) pronouns in Halkomelem (a Central Coast Salish language), which is extensively discussed in D&W. Each pronoun is composed of a determiner and a person-number morpheme. The determiner for the 1st and 2nd person pronouns is invariant, which suggests that D does not carry a [Pn]-feature. Another piece of evidence comes from the paradigm of determiners in European languages like German and Spanish. Ds may inflect for gender and number (and/or case), but not for person. This is not at all surprising given that common nouns are uniformly 3rd person, i.e. non-person: Ds that occur with common nouns should not carry [Pn]. If Ds involving pronouns are the same in nature, they should not have [Pn] either.

Based on these observations, I suggest that Ds in English carry [Nr], but not [Pn]. (I do not consider the distribution of [Gr] since it has no morphological reflection in English.) The distribution of φ-features in 1st/2nd person pronouns will therefore be like (13).

(13)   DP [Nr, **Pn**] (a full φ-set)

      D   φP

      [Nr]

            φ   NP

      [Nr, **Pn**] |

                  N

φP bears a full set of φ-features. D carries [Nr], but not [Pn]. The projected label DP bears a full φ-set as a result of [Pn]-feature percolation from φ.

With this in mind, let us return to (10) and (11). Partial structures of (10) and (11) are shown in (14) and (15), respectively.

(14) [$_{TP}$ D   T   [$_{vP}$ be t_{DP} here]]

      [Nr, Pn] [uφ]

(15) [$_{TP}$ T [$_{vP}$ be [$_{DP}$ D [$_{φP}$ φ NP]]]]

      [uφ]   [Nr]

Transfer applies to the subject (*I/we*) in (10)/(14),

making only its label D visible in syntax. Since the label D bears a full φ-set, it assigns its full φ-values to T. Preverbal pronouns thus triggers full agreement. In (11)/(15), on the other hand, Transfer does not apply to the in-situ subject (*me/us*). T serves as a probe and finds the head D as its closest goal. Since D bears [Nr] but not [Pn], T is not assigned a person value. Therefore the verb agrees with the postverbal pronominal subject only in number.

Summarizing, person agreement requires a SPEC-Head relation between a pronoun and T because (i) the person feature of a pronoun is made visible by Transfer, and (ii) Transfer applies to a pronoun when it moves to SPEC-T.

4. SUBJECT ISLAND EFFECTS

4.1. English

Generally, PP-extraction from a subject DP is not allowed in English. But it is acceptable (i) when the subject is an internal argument ((16)) or (ii) when it undergoes successive-cyclic A-movement ((17)).

(16) It was the CAR (not the TRUCK) **of which**$_j$ [the driver t_j]$_i$ was found t_i.

(17) **Of which car**$_j$ is [the driver t_j]$_i$ likely [t_i to [t_i cause a scandal]]?
(adapted from Chomsky (2008: 147, 153))

Below I show how the presence/absence of subject island effects is accounted for under the RA theory.

Let us first consider how subject island effects are derived. Consider the following example:

(18) ***Of which car** did [the driver t] cause a scandal? (Chomsky (2008: 147))

I assume that derivation proceeds in a bottom-up fashion, in conformance with Chomsky's (1995) Extension Condition. When C is introduced, C cannot see into the subject DP since it has been transferred when it moves to SPEC-T. Subjects thus constitute islands.

Let us now turn to legitimate PP-extraction in (16). Given the above discussion, the PP must be extracted

before the DP moves to SPEC-T. The extraction must be adjunction since there is no phase head that triggers movement to the edge before C is introduced. What is the adjunction site, then? The answer can be found from the following examples involving rightward PP-extraposition out of DP:

(19) a. John drove [a car t_i] in Boston **with a sunroof**$_i$. (Takami (1995: 154))

b. They desired that [pictures t_i] be painted **of each other**$_i$. (Chomsky (1986: 41))

(20) a. *[A man t_i] hit Mary **with hostility toward her**$_i$.

b. *[A new book t_i] has attracted people **about the origin of human language**$_i$.
(Nakajima (1995: 21))

PP-extraposition is legitimate from an internal argument DP, but not from an external argument DP. The contrast can be explained by assuming that PPs can adjoin to VP, but not to v*P. If this is correct, the PP-extraction in (16) is explained as follows. The subject DP is generated within VP, and the PP inside is extraposed to a VP-adjoined position. Then the DP is moved to SPEC-T and transferred. When C is introduced, it can see and attract the PP in the VP-adjoined position. PP-extraction is therefore allowed when the subject is an internal argument.

Let us then consider the derivation of (17). The subject DP is generated in SPEC-v*. The PP inside cannot be extraposed in the v*P phase since there is not a legitimate adjunction site. Suppose that the derivation proceeds to the next higher phase and infinitival T is merged with the v*P. The DP moves to its SPEC to satisfy the T's EPP. The DP need not be transferred until it moves to SPEC of the matrix T, i.e. its final landing site. If Transfer does not apply, the following structure will be obtained when matrix V is introduced:

(21) [$_{VP}$ be likely [$_{TP}$ [$_{DP}$ the driver [$_{PP}$ of which car]] to [$_{v*P}$ t_{DP} …]]

At this stage, the PP can be extraposed and adjoined

to the VP. Later in the derivation, T is merged and the DP involving the PP-trace is raised to SPEC-T. When C is introduced, it can access and attract the extraposed PP to its SPEC. Subject island effects are therefore absent when the subject undergoes successive cyclic A-movement.

Summarizing, subject island effects emerge when the subject moves directly from SPEC-v* to SPEC-T: C cannot search into the DP since it has been transferred. On the other hand, subject island effects do not arise if there is a stage in the derivation where the subject DP is dominated by VP locally. The PP inside can be extraposed to a VP-adjoined position and then raised to SPEC-C.

4.2. Spanish

In the previous section we have seen that subject island effects are absent (i) when the subject is an internal argument and (ii) when the subject undergoes successive cyclic A-movement. Spanish data tell us that there is another way to avoid island violations; (iii) when the subject is postverbal. Compare the ill-formed (22) involving PP-extraction from the preverbal subject with the well-formed (23) involving PP-extraction from the postverbal subject.

(22) * Esta es la autora **de la que**$_i$ [varias
         this is the author by the whom several
         traducciones t_i] han ganado premios
         translations   have won   awards
         internacionales.
         international
         (Lit.) 'This is the author by whom several
         translations have won international
         awards.'   (Chomsky (1986: 26))

(23) **De qué equipo**$_i$ dices que   han bailado
      of what team   say   that   have danced
      [cuatro participantes t_i]?
       four   participants
      (Lit.) 'Which team do you say that four
      members of have danced?'

(Jiménez-Fernández (2009: 101))

The acceptability of (23) is accounted for under the RA theory as follows. It is well known that Spanish is a pro-drop language: EPP of T may be satisfied by a null pronoun (pro). Hence an overt subject argument need not move to SPEC-T. There is an independent requirement, however, that something must evacuate v*P (cf. Alexiadou and Anagnostopoulou (2001), Chomsky (2008)). Let us suppose, then, that the subject in (23) has been extraposed to satisfy this requirement, yielding the following structure:

(24)   C [$_{TP}$ pro T [$_{v*P}$ t_i v*-dance [V(P)]]
        [$_{DP}$ four participants [$_{PP}$ **of what team**]]$_i$

Transfer need not apply to the extraposed subject since T's φ-features will be valued by *pro*. C can therefore search into the DP and attract the PP inside. PP is thus extractable from the postverbal subject.

The ill-formedness of (22) is accounted for in the same manner as the English example (18). The preverbal subject DP has been transferred when C is merged with TP. Therefore C cannot search into the DP and extract the PP inside.

The analysis can be extended to the case mentioned by Chomsky (1986): The subject ceases to be an island when it undergoes wh-movement. Compare the ill-formed (22) with the example below:

(25) **De que autora**$_i$ no sabes [qué traducciones
      by what author Neg know what translations
      t_i]   han   ganado permios internacionales?
            have won   awards   international
      (Lit.) 'By what author don't you know what
      translations have won international awards?'
                         (Chomsky (1986: 26))

The acceptability is explained under the present analysis as follows. Suppose that the subject wh-phrase has been extraposed to a postverbal position when the embedded C is introduced:

(26)   C [$_{TP}$ pro T [$_{v*P}$ t_i v*-V [V(P)]] [$_{DP}$ what

translations [$_{PP}$ **of what author**]]$_i$

Transfer need not apply to the subject at this stage. C can search into the DP and attract the PP inside to its edge position. C then induces wh-movement of the remnant DP *[what translations of t$_{PP}$]*. Multiple attraction of this kind is possible since the edge feature (EF) is "undeletable" (Chomsky (2007: 11)). The resulting structure will then be like (27).

(27) [$_{CP}$ [$_{DP}$ what translations t_j]$_i$ [$_{PP}$ **of what author**]$_j$ C [$_{TP}$ pro T [$_{v*P}$ t_i v*-V [V(P)] t_i]]

Later in the derivation the PP undergoes further movement to SPEC of matrix C, yielding (25). In sum, PP-extraction from the subject wh-phrase is allowed since the subject can move to SPEC-C via an extraposed position, from which C can attract the PP inside.

To recapitulate, extraposition from the postverbal subject is legitimate since C can search into the extraposed DP. The analysis can be extended to sentences with wh-subjects. Since the subject can move to SPEC-C via an extraposed position, EF of intermediate C can search into the extraposed subject and extract the PP inside. Extraction is thus possible when the subject is a wh-phrase.

5. CONCLUSION

Probe-goal is a c-command relation between heads. DP in SPEC-T must be transferred so that the label D can serve as a probe for T. If a DP remains in v(*)P, T serves as a probe for the head D. I have shown that various syntactic facts follow naturally from this Relativized Agree (RA) theory.

Among them is the number agreement asymmetry. When the subject remains in vP, T serves as a probe, and agrees with the closest head D. This accounts for first conjunct agreement in sentences involving postverbal conjoined subjects (section 2). Although the label of a conjoined subject phrase carries a plural feature, it is invisible unless the phrase is raised to SPEC-T and transferred. Plural agreement

is therefore observed when the conjoined subject phrase appears preverbally.

The other agreement asymmetry has been discussed in section 3. When a pronoun subject appears postverbally, the verb agrees with the subject in number, but not in person. Partial agreement of this type is obtained because T agrees with the head D, which bears only [Number]. [Person] is held by a lower head φ and percolated up to the label D. Since [Person] in the label D is made visible by Transfer, person agreement is observed only when the pronoun occupies SPEC-T.

In section 4 I have accounted for the presence and absence of subject island effects. Since DP is transferred when it moves to SPEC-T, nothing can be extracted from subject position. Subjects thus constitute islands. On the other hand, subject island effects are obviated either (i) when it is generated as an internal argument, (ii) when it undergoes successive cyclic A-movement, or (iii) when it is extraposed. In each case there is a stage in the derivation in which a phase head can access PP generated within the subject.

NOTES

[1] Transfer can apply to DPs since they can constitute strong phases (cf. Heck et al. (2009)). Transfer of a whole phase is a legitimate option since otherwise "root clauses would never be spelled out" (Chomsky (2004: 108)). I take it that a whole phase is transferred when necessary.

[2] I do not discuss the internal structure of 3rd person

pronouns since it has no relevance to the present discussion.

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