[ARTICLE]

INDETERMINATE PRONOUN BINDING AND BOUND PRONOUNS IN JAPANESE RAISING-TO-OBJECT CONSTRUCTION: AGREE-BASED CONSTRUAL

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Japanese has a counterpart of the English Exceptional Case-marking (ECM) construction: Raising-to-Object construction (RTO). Over the years various analyses and proposals have been presented for this construction, reflecting the theoretical frameworks of the times. But there still remain some un-solved/challenging phenomena, which may serve as tests for the principles of UG. Especially when coupled with Indeterminate Pronoun Binding and bound pronoun interpretation, RTO shows peculiar behavior which has challenged previous analyses. The aim of this paper is to show that these pe-culiarities can be straightforwardly explained, given Reuland's (2001, 2011) Agree-based Construal, under the assumption that φ-feature agreement is involved in Japanese Case licensing.*

Keywords: Raising-to-Object construction, Indeterminate Pronoun Binding, bound pronouns, Agree-based Construal

1. Introduction

Since the monumental work of Postal (1974), the relation between (1a) and (1b) has been widely discussed in the generative tradition.

(1) a. John believes Lucy to be faithful.
     b. John believes that Lucy is faithful.

In Postal's (1974) analysis, *Lucy* in (1a) is raised from the subject position in the embedded clause to object position in the matrix clause, with case

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alternation, (1a) thereby being derived from (1b) by the Raising-to-Object transformation. Kuno (1976) argues that the same case alternation can be found in Japanese, such as in (2a, b) below:

(2) a. Taro-ga Jiro-o tensai-da to omot-ta.[1]
      Taro-Nom Jiro-Acc genius-Cop Comp think-Past
      'Taro thought Jiro to be a genius.'

   b. Taro-ga Jiro-ga tensai-da to omot-ta.
      Taro-Nom Jiro-Nom genius-Cop Comp think-Past
      'Taro thought that Jiro is a genius.'

Kuno claims that (2a, b) can be related by the Raising-to-Object transformation, which raises the subject of the embedded clause to the object position of the matrix clause. In this paper we will refer to sentences/constructions like (1a) and (2a) as 'RTO,' to distinguish them from the transformational rule.

In the theoretical development of generative syntax, much research has tried to pin down the peculiar properties of English RTO, without recourse to transformational analysis, and alternative analyses have been proposed for the derivation of RTO. The situation was the same for the Japanese RTO. Those who are opposed to Kuno's transformational analysis of RTO have proposed the involvement of other mechanisms in (2a). For example, in the GB era, Kaneko (1988) suggests a variant of Exceptional Case-marking (ECM) could be applied in Japanese. Saito (1983) claims that the DP in question is base-generated in some position of the matrix clause, and a null pronominal is assumed to be in the subject position in the embedded clause (Takano (2003) refers to this as the prolepsis analysis). Sells (1990) and Hiraiwa (2001) propose that the DP is still in the embedded clause, and that case is checked within the lower clause. (For these non-raising analyses, see the cited works.) In the following sections of this paper, without further scrutinizing the non-raising analyses, the view of the raising analyses is assumed: an accusative-marked DP is originally base-generated in the embedded finite clause, and is displaced from its original position.[2] A breakthrough in RTO research in the minimalist era can be found

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[1] Some of the previously published sentences cited in this paper may contain slight changes, in order to avoid possibly insulting or politically incorrect expressions like *baka* 'a fool.' Of course, I have made sure these changes do not alter the grammaticality of the sentences.

[2] We do not discuss the control analysis for RTO in this paper. The most convincing reason for not adopting the control analysis, as pointed out in Hiraiwa (2005: 106), is the

in Sakai (1998), which argues that Indeterminate Pronoun Binding helps make it clear that the raised DP is originally located within the embedded CP. Hiraiwa (2005) and Ogawa (2007) also present very intriguing explanations for the data contained in Sakai (1998).

The purpose of the present research is twofold: one is to claim that Reuland's (2011) Agree-based Construal, together with Hiraiwa's (2005) analysis, can explain the data in which RTO interacts with bound pronouns that is discussed in Ogawa (2007); the other is to show that the case-licensed position of the accusative DP raised from within the lower TP may be Spec-FocP. Hiraiwa (2005) argues that the DP is raised to the CP-periphery, but did not show any specific position. In these respects, our research pushes Hiraiwa's insightful analysis a step forward.

This paper is organized as follows. In Section 2, after reviewing the properties of RTO and Indeterminate Pronoun Binding, we will discuss a paradoxical situation which arises from the interaction of these two phenomena. In Section 3, we will review two previous studies which present intriguing mechanisms for solving the paradox: Hiraiwa (2005) and Ogawa (2007), and then some problematic cases concerning those approaches will be introduced. Section 4 will discuss how the data can be explained straightforwardly if we adopt the Agree-based Construal proposed in Reuland (2001, 2011). In the following section we will argue that the core property of a phase-head in the CP-zone lies in the Focus-head. Section 6 will discuss some implications of this study. The last section is a summary of this paper.

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evidence from Proper Binding Condition effects. RTO shows PBC effects, but genuine control constructions do not, as illustrated below:

   (i) Taro- wa Hanako-ni [PRO Boston-e iku koto]-o meiji-ta
        Taro- Top Hanako-Dat   Boston-to go C-Acc order-Past
        'Taro ordered Hanako to go to Boston.'

   (ii) [PRO Boston-e iku koto]-o Taro-wa Hanako-ni meiji-ta
            Boston-to go C-Acc Taro-Top Hanako-Dat order-Past
        'Taro ordered Hanako to go to Boston.'

  (iii) Taro-wa Hanako-o (orokanimo) *t* tensai-da to   omot-ta.
        Taro-Top Hanako-Acc (stupidly)   genius-Cop Comp think-Past
        '(Stupidly) Taro considered Hanako to be a genius.'

  (iv)*?[*t* tensai-da   to]   Taro-wa Hanako-o (orokanimo) *t* omot-ta
          genius-Cop Comp Taro-Top Hanako-Acc (stupidly)   think-Past
        '(Stupidly) Taro considered Hanako to be a genius.'

Whatever the PBC effect is due to, this contrast indicates that RTO is not a control construction.

2. The RTO-IPB Paradox

2.1. RTO

In this section, let us first review some of the arguments for RTO in Japanese from Kuno (1976), and verify that the accusative case-marked DP is in the matrix clause.

Kuno (1976) presents some arguments that the embedded DP in question is raised to the matrix clause. Let us review three of them from Kuno (1976).

First note the position of the matrix adverb in the examples in (3), cited from Kuno (1976: 25). The adverb may be placed after the accusative DP in (3a), but not after the embedded subject in (3b).

> (3) a. Taro-ga   Jiro-o   orokanimo tensai-da   to   omot-teiru.
>   Taro-Nom Jiro-Acc stupidly   genius-Cop Comp think-Prog
>   'Stupidly, Taro thinks of Jiro as a genius.'
>   b. *Taro-ga   Jiro-ga   orokanimo tensai-da   to   omot-teiru.
>   Taro-Nom Jiro-Nom stupidly   genius-Cop Comp think-Prog
>   'Stupidly, Taro thinks that Jiro is a genius.'

This contrast indicates that the accusative DP in (3a) belongs to the matrix clause, while the embedded subject DP in (3b) does not. Since the adverb *orokanimo* is in the matrix clause, the subject DP *Jiro-ga* must be outside of the embedded clause, and so the sentence is ungrammatical, according to Kuno's (1976: 28) analysis.

The second piece of evidence concerns scopal ambiguity. Kuno (1976: 28) observes that (4a) is scopally ambiguous, while (4b) is not.

> (4) a. Dareka-ga   minna-o tensai-da   to   omot-teiru.
>   someone-Nom   all-Acc   genius-Cop Comp think-Prog
>   'Someone believes all to be geniuses.'
>   (some > every; every > some)
>   b. Dareka-ga   minna-ga tensai-da   to   omot-teiru.
>   someone-Nom   all-Nom   genius-Cop Comp think-Prog
>   'Someone believes all are geniuses.'
>   (some > every; *every > some)

The ambiguity in (4a) illustrates how the raised universal quantifier (i.e. the accusative-marked one) can have a wider scope than the matrix subject (i.e. the existential quantifier). In (4b) the universal quantifier cannot have a wider scope than the existential quantifier, since these two quantifiers belong to different clauses and cannot interact with each other.

Finally, it is generally accepted that pronouns in Japanese are subject to

Binding Condition B, as shown in (5).[3]

(5) *John$_i$-ga   kare$_i$-o   hihanshi-ta.
      John$_i$-Nom he$_i$-Acc criticize-Past
      '*John$_i$ criticized him$_i$.'

With this in mind, let us consider the following sentences, cited from Kuno (1976: 29), with slight modification.

(6) a. ?John$_i$-ga   [kare$_i$-ga tensai-da to]   omot-teiru.
        John-Nom   he-Nom genius-Cop Comp think-Prog
        'John$_i$ thinks that he$_i$ is a genius.'

    b. *John$_i$-ga   kare$_i$-o tensai-da to   omot-teiru.
        John-Nom he-Acc genius-Cop Comp think-Prog
        '*John$_i$ thinks of him$_i$ as a genius.'

Although (6a) is not fully grammatical, it sounds better than (6b) because in the latter case the accusative case-marked DP is a constituent of the matrix clause and this goes against the restriction that an antecedent cannot bind a pronoun within the same clause.   From these and other observations, Kuno (1976) claims that Japanese has a Raising-to-Object transformation, as in English (Postal (1974)).   (7) is his schema for the RTO construction.

(7) [$_{S2}$...DP$_i$ (Acc) [$_{S1}$ t_i V] matrix V]

A few researchers, however, have proposed the involvement of other mechanisms in (2a), against the raising/DP-movement analysis of RTO.[4] For example, Kaneko (1988) proposes a variant of the Exceptional Case-marking analysis which was originally proposed for English in the GB framework.   Saito (1983) claims that the DP in question is base-generated in the matrix clause, and a phonetically null pronominal, *pro*, is in the subject position of the embedded clause, an analysis referred to as the 'prolepsis' analysis in Takano (2003).   Others claim that the DP is still in the embedded clause and case is checked through Agree (e.g. Hiraiwa (2001)).   The Non-raising approaches are worth exploring, but in this paper we will seek a more elaborate mechanism of RTO, following the raising analysis.

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[3] For ease of exposition, I adopt the term 'the Binding Condition B,' of the Government and Binding Theory, which was not available when Kuno wrote his paper in 1976.   It means roughly that pronouns cannot be bound with subjects in the same clause.

[4] In Government and Binding Theory, the Projection Principle and X-bar theory presented difficulties for any movement analysis of RTO.   Therefore, other mechanisms were proposed.   For example, Saito (1983) suggests that RTO might involve a null pronominal in the embedded clause, which led to Takano's (2003) 'prolepsis' analysis.

2.2. IPB

This subsection will examine basics of Indeterminate Pronoun Binding (IPB) in the sense of Kishimoto (2001). When indeterminate pronouns such as *dare* 'anyone' or *nani* 'anything' precede the Q particle *mo*, they can act as Negative Polarity Items (henceforth NPI) (McGloin (1976)).

(8) a. Taro-wa   nani-mo   kaw-anakat-ta.
       Taro-Top anything-Q buy-Neg-Past
       'Taro did not buy anything.'

    b. Dare-mo   sono hon-o   kaw-anakat-ta.
       anyone-Q that-book-Acc buy-Neg-Past
       'No one bought that book.'

The Q particle *mo*, however, need not be preceded directly by the indeterminate pronoun, though there are some restrictions, as illustrated below.

(9) a. Taro-wa   nani-o   kai-mo shi-nakat-ta.
       Taro-Top anything-Acc buy-Q   do-Neg-Past
       'Taro did not buy anything.'

    b. *Dare-ga   warai-mo shi-nakat-ta.
        anyone-Nom laugh-Q   do-Neg-Past
        'No one laughed.'

    c. *Dare-ga   Hanako-o   home-mo shi-nakat-ta.
        anyone-Nom Hanako-Acc praise-Q   do-Neg-Past
        'No one praised Hanako.'

When the indeterminate pronoun is accusative case-marked and *mo* is attached to V, as in (9a), the sentence is acceptable. On the other hand, when the subject is an indeterminate pronoun and *mo* is attached to V, the sentence is ruled out, as shown in (9b, c).[5] This indicates that the object in a simple clause, but not the subject, is within the domain of *mo*. In addition, when *mo* is attached to the complementizer *to* in the embedded CP, both subject and object in the embedded clause can be indeterminate pro-

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[5] An anonymous *EL* reviewer pointed out that the following sentence sounds relatively good.   Some of my informants agree with that judgment.

(i) Nani-ga   okori-mo   shi-nakat-ta.
    Anything-Nom happen-Q   do-Neg-Past
    'Nothing happened.'

This sentence contains an unaccusative verb *okoru* 'occur,' and it has been controversial whether the raising of Theme subject to Spec-TP is necessary or not (e.g. Kageyama (1993: 62)). (i) may show that the Theme subject stays at *v*P/VP without raising to the Spec-TP. Yatsushiro (1996) argues that the subject of unaccusative verbs does remain in its underlying position, due to the binding.

nouns, as illustrated below.

(10) a. Hanako-wa Taro-ga   nani-o   kat-ta   to-mo
          Hanako-Top Taro-Nom anything-Acc buy-Past Comp-Q
          omow-anakat-ta.
          think-Neg-Past
          'Hanako did not think that Taro bought anything.'

     b. Taro-ni-wa   dare-ga   Masao-o   home-ta
          Taro-Dat-Top anyone-Nom Masao-Acc admire-Past
          to-mo   omo-e-nakat-ta.
          Comp-Q think-can-Neg-Past
          'Taro could not think anyone admired Masao.'

Sentences (10a, b) are grammatical because the domain of *mo* covers the entire embedded clause.

Based on these facts, Kishimoto (2001: 601) proposes that the scope of *mo* is defined by the notion of the domain given below:

(11)   Y is in the domain of a head X if it is contained in Max (X),
       where Max (X) is the least full-category maximal projection
       dominating X.

This means that, when *mo* is attached to V, the scope of *mo* is defined as the VP. If V head-moves into *v*, the scope of *mo* is extended up to *v*P. Furthermore, if *mo* is attached to the embedded C, the embedded clause is within the scope of *mo*.

2.3.   The RTO-IPB Paradox

This section will discuss the interaction between RTO and IPB, which has made the analysis of RTO more complicated and challenging.

Keeping (11) in mind, let us examine RTO with Indeterminate Pronoun Binding.

(12) a. Masao-ga   [dare-ga   tensai-da   to-mo]
          Masao-Nom   anyone-Nom genius-Cop Comp-Q
          omot-tei-nai.
          think-Prog-Neg
          'Masao does not believe that anyone is a genius.'

(ii) Otagai-no   heya-ni   [Uli to Susi]-ga   i-ta.
      Each other-Gen rooms-Loc   Uli and Susi-Nom be-Past
      'Uli and Susi were in each other's rooms.'
      (Yatsushiro's (1996) argumentation on the example is cited from Lasnik (1999b: 191).)

  b. *Dare-ga [Masao-ga tensai-da to-mo]
    anyone-Nom Masao-Nom genius-Cop Comp-Q
    omot-tei-nai.
    think-Prog-Neg
    'No one believed Masao to be a genius.'

In (12a), *mo* is attached to the embedded C and the scope of *mo* includes the embedded CP. That is why (12a) is grammatical. (12b), on the other hand, is ruled out because the subject NP in the matrix clause is not within the scope of *mo*. Thus definition (11) works well. But when it comes to the following sentence (13), a serious problem arises.

 (13) Masao-ga dare-o$_i$ [t_i tensai-da to-mo]
    Masao-Nom anyone-Acc genius-Cop Comp-Q
    omot-tei-nai.
    think-Prog-Neg
    'Masao does not believe anyone to be a genius.'

As argued in Section 2.1, an indeterminate pronoun with accusative case *dare-o* is in the matrix clause according to RTO. At the same time, *mo* is attached to C and the scope of *mo* is the whole embedded clause. This means that *dare-o* should not be able to be bound by *mo* and the sentence is predicted to be ungrammatical. Nevertheless, sentence (13) is grammatical. Let us refer to this as "the RTO-IPB paradox" in this paper. Sakai (1998), who is the first to point out this interaction, argues that the accusative DP is not base-generated in the matrix clause, as was claimed in the control analysis, and that the trace of a raised DP left in the embedded clause suffices for the indeterminate pronoun (i.e. *dare-o*) to be licensed by the particle *mo* in (13). This claim of chain-binding, however, does not seem to hold. In (9b, c), the subject is base-generated in the Spec-*v*P and raises to the Spec-TP, leaving its trace in the original position. Although this trace is in the scope of *mo*, the sentence is ruled out. Even without the assumption that the *v*P-internal subject moves to Spec-TP, the following example indicates that a trace does not count for the license of IPB.[6, 7]

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[6] Sakai (1998) takes the position that a subject does not move to the Spec-TP.
[7] One of the *EL* reviewers finds the following example relatively acceptable.
 (i) Taro-wa dare-o orokanimo [sonnani tensai-da to-mo]
   Taro-Top anyone-Acc stupidly such genius-Cop C-Q
   omow-anakat-ta.
   think-Neg-Past
   'Stupidly, Taro did not believe anyone to be such a genius.'

(14) *Taro-wa   dare (-no-koto)-o   orokanimo
        Taro-Top   anyone (-Gen-thing)-Acc stupidly
        [*t*   tensai-da   to-mo] omow-anakat-ta.
            genius-Cop C-Q   think-Neg-Past
        'Stupidly, Taro didn't consider anyone to be a genius.'

(Hiraiwa (2005: 102))

The phenomenon that once an element is licensed in syntax, no further operation can move it again is called the "freezing effect," and it is observed in IPB.[8]

This is reminiscent of the Small Clause version of ECM (henceforth, SC Type) such as (ii).

(ii) Taro-wa   Hanako-o/*-ga   utsukusi-ku kanji-ta.
        Taro-Top Hanako-Acc/*-Nom   beautiful-ly   feel-Past
        'Taro found Hanako beautiful.'

This construction allows a separate type of Indeterminate Pronoun Binding, such as in (iii).

(iii) Taro-wa   dare-o   utsukusi-ku-mo kanji-nakat-ta.
        Taro-Top anyone-Acc beautiful-ly-Q   feel-Neg-Past
        'Taro did not find anyone beautiful.'

Note that the SC Type does not sound acceptable if it violates some restriction on its predicate, as exemplified below.

(iv)??Boku-wa rokkoozan-o   aoku   kanji-ta.   (Mihara (1998: 78))
        I-Top   Mt. Rokkoo-Acc green feel-Past
        'I found Mt. Rokkoo green.'

However, when we insert either *sonnani-mo* 'such as' or its separate type (*sonnani* 'so' and *mo*) in the following way, the resulting sentences sound much better.

(v) a. Boku-wa rokkoozan-o   sonnani-mo aoku   kanji-nakat-ta.
              I-Top   Mt. Rokkoo-Acc so-Q   green feel-Neg-Past
      b. Boku-wa rokkoozan-o   sonnani aoku-mo kanji-nakat-ta.
              I-Top   Mt. Rokkoo-Acc so   green-Q   feel-Neg-Past
          'I did not find Mt. Rokkoo so green.'

This shows that the addition of *sonnani* and *mo* can improve the unacceptable SC Type. I believe the same mechanism may work in (i) for those who judge it as acceptable: the addition turns an embedded clause of ECM into what is like a predicate of the SC Type. I will leave further discussion on this issue for future research.

[8] As for the degree of this effect, it might vary from person to person, and roughly divide informants into two groups: those for whom it has a loose/weak effect, and those for whom the effect is strong. As discussed in a footnote of Ogawa (2007: 43), the former such as Sakai (1998) insist that the trace/copy of an indeterminate pronoun is counted when it is within the domain of *mo*. That is, indeterminate pronouns can be licensed by reconstruction. On the other hand, the latter including Kishimoto (2001), Hiraiwa (2005), and Ogawa (2007) claim that indeterminate pronouns not be licensed outside the domain of *mo*. Though more research is needed, I will take the position of a strict version of the freezing effect in this paper, based on my own judgment.

The reason that sentence (14) is ungrammatical is due to this freezing effect.   Hiraiwa (2005: 103) provides the following example as evidence for the freezing effect.

    (15)*?Dare-o   Taro-wa [Hanako-ga   *t* tatai-ta to-mo]
          anyone-Acc Taro-Top Hanako-Nom   hit-Past C-Q
          omow-anakat-ta.
          think-Neg-Past
          'Taro didn't think that Hanako hit anyone.'

As is convincingly argued in Saito (1989), long-distance scrambling is undone at LF.   So the LF representation is something like (16).

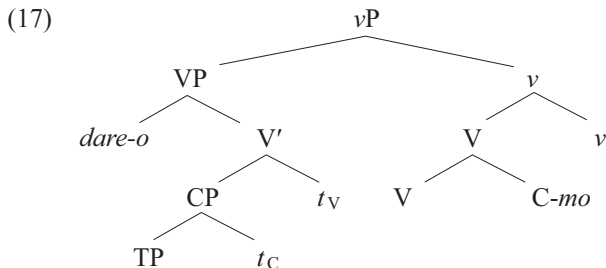   (16)   Taro-wa [Hanako-ga dare-o tataita to-mo] omow-anakat-ta.

Notice that the indeterminate pronoun *dare-o* is within the domain of *mo* at LF because it comes back to its original base-generated position.   In spite of this, the sentence is judged as ungrammatical.   It follows that IPB is determined by the syntactic configuration.   That is, a trace of an indeterminate pronoun cannot be counted as a bindee in IPB.

3.   Two Previous Analyses for the RTO-IPB Paradox

In this section we will review two intriguing analyses for the RTO-IPB paradox: Hiraiwa (2005) and Ogawa (2007).   Although their analyses seem to get around the paradoxical situation successfully, flaws come to light when faced with more complex data.   After reviewing these two analyses, some problematic cases for their accounts will be presented in Section 3.3.   Let us review Ogawa's (2007) approach first.

3.1.   Ogawa's (2007) C-to-V Incorporation Analysis

The paradoxical situation to be faced is that the accusative DP in question must be raised out of the embedded clause, but it is still required to stay within the scope of *mo*.   To solve the problem, Ogawa (2007) claims that the head of the complement CP in RTO in Japanese undergoes incorporation into the verb in the matrix clause.   The partial structure for (13) can be schematized as (17).

(17)

```
                              vP
                    _____
                   VP                       v
              _____                    _____
          dare-o      V'               V        v
                   _____           _____
                  CP    t_V        V    C-mo
               _____
              TP    t_C
```

The complementizer *to* with the particle *mo* incorporates into the selecting verb in the matrix clause. Then V raises to *v*, which helps to extend the scope of *mo* up to the matrix *v*P. Ogawa (2007) presents the following contrast to support his proposal.[9]

(18) a. Taro-wa   dare$_i$-o   kashikoi to-mo   soitsu$_i$-no
          Taro-Top anyone-Acc smart   Comp-Q   he-Gen
          gendou-kara   kanji-nakat-ta.
          speech and behavior-from   feel-Neg-Past
          'Taro didn't consider anyone$_i$ to be smart, based on his$_i$ speech and behavior.'

     b.?*Taro-wa   dare$_i$-ga   kashikoi to-mo   soitsu$_i$-no
          Taro-Top anyone-Nom smart   Comp-Q   he-Gen
          gendou-kara   kanji-nakat-ta.
          speech and behavior-from   feel-Neg-Past
          'Taro didn't consider that anyone$_i$ was smart based on his$_i$ speech and behavior.'

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[9] An *EL* reviewer claimed that the grammaticality difference between the two is not so sharp. Although I agree to some extent, I believe there is a distinction between them and I follow Ogawa's judgment. Actually Kobayashi and Maki (2002: 221) cites the following examples:

   (i) Rie-wa   kaminoke-no ippon ni-itaru-made karera-o$_i$ mujitsu-da to
        Rie-Top hair-Gen   single to-reach-till   they-Acc innocent-is that
        otagai-no$_i$ shoogen-niyotte   shinjite   iru.
        each other-Gen   testimony-based on believing is
        'Rie believes them$_i$ to be every inch innocent based on each other's$_i$ testimony.'
   (ii) *Rie-wa   kaminoke-no ippon ni-itaru-made kare-o$_i$ mujitsu-da to
        Rie-Top hair-Gen   single to-reach-till   he-Acc innocent-is that
        Takashi-jishin$_i$ yori tsuyoku shinjite   iru.
        Takashi-self   than strongly believing is
        'Rie believes him$_i$ to be every inch more strongly than Takashi himself$_i$ does.'

The binding facts in these examples indicate that the accusative NP stays within the lower clause and shows the higher binding properties, which is the same behavior as that shown in (18).

It is known that the bound pronoun *soitsu* 'that guy/he' must be c-commanded by its antecedent here, the indeterminate pronoun. To make sure that the pronoun in the PP can be interpreted differently between (18a) and (18b), let us examine the following sentences in which more adequate lexical items for the bound variable interpretation are used.[10, 11] (See Hoji (1995), Ueyama (1998), and Kataoka (2006) for this respect.)

(19) a. Taro-ga   mittsu-ijyoo-no   purojekuto$_i$-o
          Taro-Nom   three-and over-Gen   project-Acc

          subarashii-to   soko$_i$-no hookokusho-kara omot-ta.
          wonderful-Comp it-Gen   report-from   think-Past
          'From their reports, Taro thought more than two projects to
          be wonderful.'

      b.?*Taro-ga   mittsu-ijyoo-no   purojekuto$_i$-ga
          Taro-Nom   three-and over-Gen   project-Nom

          subarashii-to   soko$_i$-no hookokusho-kara omot-ta.
          wonderful-Comp it-Gen   report-from   think-Past
          'From their reports, Taro thought that more than two projects
          were wonderful.'

In our native checks on the grammaticality difference, the same contrast as in (18) can be recognized in (19): the bound variable interpretation is available only in (19a), but not in (19b).
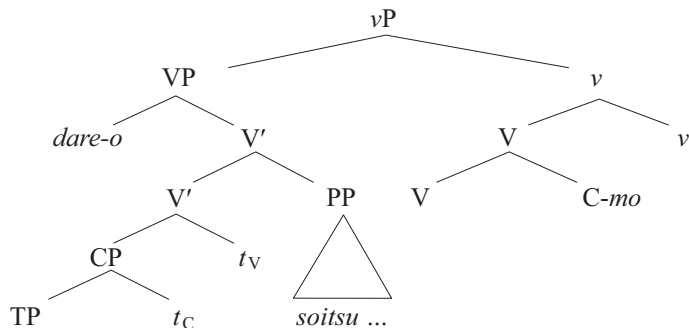
The contrast in (18) demonstrates that *soitsu* in (18a) has a proper antecedent as a result of RTO, while *soitsu* in (18b) does not, as illustrated below.[12]

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[10] As a reviewer mentioned, the PP containing the bound pronoun *soitsu* 'that guy' may merge into VP after the CP. If so, the CP is scrambled before the little *v* enters into the derivation. I follow Ogawa (2007) in this respect.

[11] It was Sakai (1998) who used an anaphor in showing that the accusative-DP is raised in RTO. But as mentioned in the text, his example is based on *otagai*, which is not appropriate as an example of a bound pronoun, according to Hoji (1995).

[12] Ogawa (2007: 56) assumes Pesetsky's (1991) 'C-Peripherality condition,' which requires that a phonologically overt C be adjacent to a boundary of CP, so that the sentences are correctly pronounced as they are: the C overtly incorporated to the V is pronounced in the original position.

(20) a.

```
                              vP
                     _____|_____
                    VP                       v
              _____|_____            _____|_____
          dare-o        V'            V            v
                   _____|_____   ___|___
                  V'           PP  V    C-mo
              ____|____        /\
             CP       t_V     /  \
          ___|___           soitsu ...
         TP    t_C
```

b.

```
                                    vP
                            _____|_____
                           VP                v
                    _____|_____     _____|_____
                   V'           PP      V        v
               ____|____        /\    __|__
              CP       t_V      / \   V   C-mo
           ___|___           soitsu ...
          TP    t_C
        __|__
    dare-ga …
```
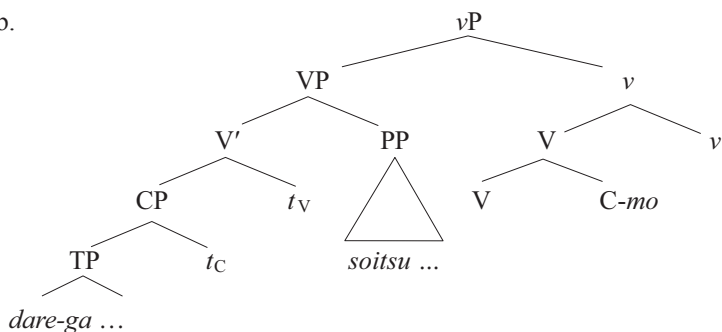
On this basis, Ogawa claims that the RTO-IPB paradox can be explained by the assumption of C-to-V incorporation.

3.2. Hiraiwa's (2005) Cartographic Analysis

Hiraiwa (2005) proposes that RTO in Japanese should be derived through a two-step process: one step is the obligatory movement of the accusative DP to the CP-edge, and the other is an optional raising.[13] The former occurs because of the Phase Impenetrability Condition (henceforth, PIC). Chomsky (2000, 2001, 2004) proposes that syntactic computation proceeds phase by phase, and formulates his proposal as the PIC.

(21) Phase Impenetrability Condition (PIC) (Chomsky (2001))
      In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.
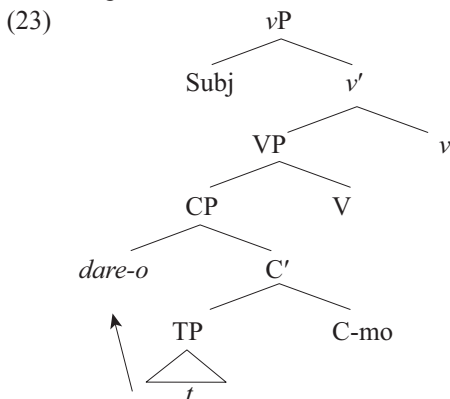
---

[13] In a previous study, Sells (1990) presents a variant of the 'two-step' analysis of RTO, in which he claims that the accusative nominal gets Case from the embedded predicates and then it is moved out of the lower clause by scrambling.

According to PIC, syntactic operations prevent a higher probe from accessing a goal below H, i.e. the domain of H, unless the goal is moved to the edge of the lower phase. It follows that the accusative DP in the embedded clause in RTO is first dislocated to the edge of the embedded CP, in which position it agrees with v, having its Case valued as Accusative.[14]

This PIC-induced dislocation could potentially help solve the RTO-IPB paradox, if the definition of the domain of *mo* were revised so as to cover the newly added CP by adjunction. Hiraiwa (2005), however, does not adopt Kishimoto's definition, for it is based on the concept of m-command. He insists that the configurational relation based on m-command is not adequate in terms of minimalist theorizing because m-command is regarded as stipulative in the minimalist program. In order to have recourse to the more fundamental/natural configurational relation of c-command, Hiraiwa defines the domain of the particle *mo* as follows:

(22)   An indeterminate DP must be in the c-commanding domain of the particle Q (at Transfer).

Note that even if we adopt his definition of the domain of *mo*, we still cannot solve the paradox, as illustrated in the following tree diagram.

(23)

```
                        vP
                   /          \
                Subj           v'
                           /        \
                         VP          v
                      /      \
                    CP        V
                  /    \
            dare-o      C'
                      /    \
                    TP      C-mo
                    /\
                     t
```
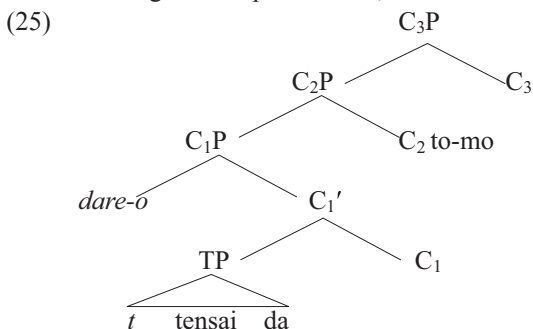
If the indeterminate pronoun *dare-o* is at the edge of CP as a result of PIC-induced dislocation, it falls outside the c-commanding domain of *mo*. In order to avoid this problem, therefore, Hiraiwa adopts Rizzi's (1997) cartographic approach: COMP does not have a single head, but it consists of

---

[14] Hiraiwa (2005) differentiates a strong phase head, v^*, from a weak one, v. But this distinction is not made in this paper. The phase-based dislocation to the CP-edge is proposed in Bruening (2001).

more than one head.   Rizzi (1997, 2004) argues that the functional heads of the left periphery are rich, as shown in (24).[15]

(24) $[_{Force\ P}$ Force^0 $[_{Topic\ P}$ Topic^0 $[_{Focus\ P}$ Focus^0 $[_{Finite\ P}$ Finite^0 $[_{TP}$ ....]]]]]

Hiraiwa's suggestion is that the CP at issue is lower than other Cs, one of which the particle Q *mo* is adjoined to.   Because of the Split-CP, even if *dare-o* is at the edge of a CP, it is guaranteed to be in the domain of *mo* adjoined to the higher complementizer, as illustrated below.

(25)

```
                                    C₃P
                                   /    \
                         C₂P              C₃
                        /    \
                 C₁P           C₂ to-mo
                /    \
         dare-o       C₁′
                     /    \
                  TP        C₁
                 /  |  \
                t tensai da
```

Hiraiwa proposes that the place where the indeterminate pronoun moves is the edge of C_1P, and that the Q-particle is suffixed to C_2, which is located higher than C_1P.   This hierarchical difference guarantees a proper configurational relation between the indeterminate pronoun and the Q-particle.   In this way, Hiraiwa (2005) gets around the RTO-IPB paradox, along with the Split-CP hypothesis and PIC-induced dislocation.

As for the second step of RTO, Hiraiwa considers it to be an optional raising.   Therefore, if this raising occurs, we get sentence (3a), repeated here as (26).

(26)   Taro-ga   Jiro-o   orokanimo   tensai-da   to
        Taro-Nom   Jiro-Acc stupidly   genius-Cop Comp
        omot-teiru.   (=(3a))
        think-Prog
        'Stupidly, Taro thinks of Jiro as a genius.'

On the other hand, if the same raising occurs for the RTO-IPB paradoxical case, the derived sentence is ruled out.[16]

---

[15] We omit the lower Topic between Foc and Fin, for it may be contained in Foc.

[16] Hiraiwa (2005) decomposes VP into root $\sqrt{r}$ and AspP and claims that there are two landing sites available for the raised DP: Spec $v*$P and Spec-AspP. For convenience, however, we will treat them as one phrase VP in this paper.   For the details of the analysis, see Hiraiwa (2005).

(27) *Taro-ga   dare (-no koto)-o   orokanimo tensai-da
       Taro-Nom   anyone (-Gen thing)-Acc stupidly   genius-Cop
       to-mo   omow-anakat-ta.
       Comp-Q   think-Neg-Past
       'Stupidly, Taro did not think anyone to be a genius.'

The reason this sentence is ruled out is because the indeterminate pronoun falls outside the c-command domain of *mo*: the whole embedded CP is the domain of *mo* and the indeterminate pronoun is raised to the matrix clause by the second raising step. Thus, Hiraiwa's mechanism of the two-step analysis for RTO, including Rizzi's cartographic approach, can explain the relevant data. As for the second step of raising, it is optional scrambling and we will leave this aside and limit our discussion to the first step.

3.3. Potentially Problematic Cases

We have seen two approaches to the RTO-IPB paradox: Ogawa's (2007) C-to-V incorporation approach, and Hiraiwa's (2005) cartographic approach. They seem to be effective for typical cases of the RTO-IPB paradox. A closer examination, however, brings to light some cases that are potentially problematic for their approaches.
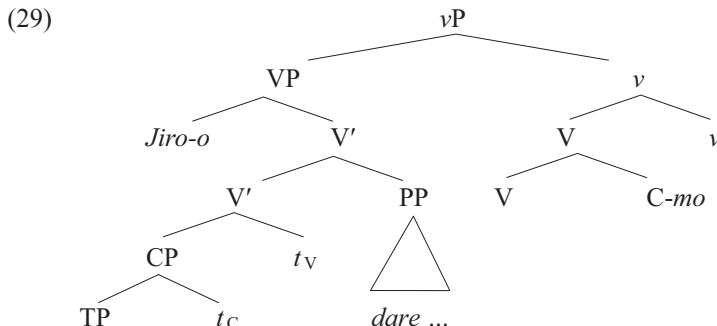
3.3.1. Ogawa's (2007) Weak Points

Ogawa's proposal for C-to-V incorporation seems to account for the core data of Indeterminate Pronoun Binding as in (13). However, the following example causes a serious problem for his assumption that C-to-V incorporation takes place in overt syntax. Let us consider the following sentence carefully.

(28) *Taro-wa Jiro-o   kashikoi to-mo   dare-no
       Taro-Top Jiro-Acc smart   Comp-Q anyone-Gen
       gendou-kara   kanji-nakat-ta.
       speech and behavior-from   feel-Neg-Past
       'Taro did not consider Jiro to be smart, based on anyone's speech
       and behavior.'

(28) is completely ungrammatical. If we adopt Ogawa's analysis that C-to-V incorporation takes place in overt syntax, however, (28) would be predicted to be grammatical, for the scope of *mo* is extended to the matrix VP, by which the indeterminate pronoun, *dare* in PP, is within the scope of *mo*, as shown in (29).

(29)

```
                              vP
                  ┌───────────┴───────────┐
                 VP                        v
          ┌───────┴───────┐          ┌─────┴─────┐
       Jiro-o            V'           V            v
                  ┌───────┴───────┐  ┌──┴──┐
                 V'              PP  V    C-mo
            ┌─────┴─────┐       ╱╲
           CP          t_V     ╱  ╲
      ┌─────┴─────┐          dare ...
     TP          t_C
```

This illustration makes it clear where the problem comes from. That is, it originates with the assumption that C-to-V incorporation should occur as overt syntactic movement.[17]

In addition, Ogawa's analysis cannot explain the ungrammaticality of the following sentence from Hiraiwa (2005) (=(27)).

(30) *Taro-ga   dare (-no koto)-o   orokanimo tensai-da
     Taro-Nom anyone (-Gen thing)-Acc stupidly   genius-Cop
     to-mo   omow-anakat-ta.
     Comp-Q   think-Neg-Past
     'Stupidly, Taro did not think anyone to be a genius.'

If the domain of *mo* expands with the C-to-V incorporation, the domain could cover the whole *v*P, and the indeterminate pronoun, *dare-o*, which is raised to some place within the *v*P, would be licensed, and the resulting sentence would be predicted to be grammatical. These two examples indicate that Ogawa's account is not plausible, even though it may be able to get around the typical RTO-IPB paradox.

3.3.2. Hiraiwa's (2005) weak point

On the face of it, Hiraiwa's approach seems not to give an explanation for the contrast in (18) (repeated as (31) below) provided by Ogawa (2007).

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[17] To get around this, it might be possible to assume that the incorporation occurs at LF. But if we do so, we lose the rationale for the accusative DP to be moved to the Spec-VP according to Ogawa's analysis.

(31) a. Taro-wa   dare$_i$-o   kashikoi to-mo   soitsu$_i$-no
         Taro-Top   anyone-Acc   smart   Comp-Q   he-Gen
         gendou-kara   kanji-nakat-ta.
         speech and behavior-from   feel-Neg-Past
         'Taro didn't consider anyone$_i$ to be smart, based on his$_i$
         speech and behavior.'

    b.?*Taro-wa dare$_i$-ga   kashikoi to-mo   soitsu$_i$-no
         Taro-Top   anyone-Nom smart   Comp-Q   he-Gen
         gendou-kara   kanji-nakat-ta.
         speech and behavior-from   feel-Neg-Past
         'Taro didn't consider anyone$_i$ to be smart, based on his$_i$
         speech and behavior.'

If the accusative DP is scrambled from the Spec-CP to the matrix clause so
that it can qualify as the antecedent for an anaphoric pronoun, it cannot stay
within the c-command domain of *mo* suffixed to C-head, as illustrated in
(32).

(32)
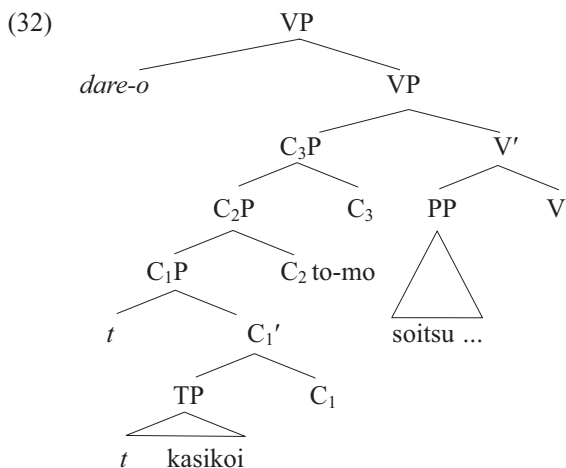
Thus Hiraiwa's approach seems to be vulnerable to the bound pronoun
problem.

Although Hiraiwa's account cannot deal with Ogawa's data at face value,
we will see in the following section that his adoption of Chomsky's case
licensing/valuation leads to a solution for the bound pronoun problem.[18]

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[18] Another problem is that Hiraiwa assumes C_3P to be weak. This is clearly a stipula-
tion.

4. An Alternative

We have seen that the final site of raised DP is not high enough to qualify as an antecedent for the pronoun in the adjunct PP, for the DP cannot get out of the periphery of the embedded clause, which corresponds to the domain of *mo*. Ogawa (2007), which introduces the binding fact into the RTO-IPB paradox, fails to explain data like (28). Also we have seen that the same is true of Hiraiwa's analysis.

This section will argue that we can solve the problem by applying Reuland's (2001, 2011) Agree-based Construal (henceforth, ABC), together with Hiraiwa's (2005) cartographic approach to the RTO-IPB paradox. Before going into the main issue, let us start with Reuland's mechanism of ABC.

4.1. Agree-based Construal (ABC)

One of the fascinating insights of Reuland's analysis on anaphora is that his Agree-based approach treats binding as the output of agreement and that the requirement on anaphora that the binder c-command the bindee structurally is derivative. Consider the following configuration, in which it is assumed that the bindee (Anaphor) is not c-commanded by the binder (Antecedent).

(33)   [… [… F … Antecedent … Anaphor …] …]

In (33) the binding relation between the antecedent and anaphor is not in a c-command relation, and the standard approach cannot treat it. But ABC can treat the binding relation properly. The antecedent DP is case-licensed/-valued through Agree with a functional head F, which is located higher than the DP. And if the anaphor is in a position c-commanded by F, then the φ-features on F can function as its antecedent. That is, the binding relation at issue is held indirectly under the approach: F, the antecedent, and the anaphor are tied to each other. The two lexical items relate to each other by virtue of the φ-feature relation with their common functional head F. In this way, the syntactic operation relating antecedent to anaphor is driven by the operation of Agree.

To observe this process concretely, we will see how the mechanism works in an example of the Icelandic expletive construction, cited from Reuland (2011: 179).

(34) Það   kom   maður$_i$ með börnin   sín$_i$/*hans$_i$.
      There arrived a-man   with children SE[19]

      'There arrived a man$_i$ with his$_i$ own children/his$_i$ chidren.'

Note that in (34) the reflexive pronoun *sin* is required, although the for-
mer is not c-commanded by the binder *maður* (a-man). Schematically this
construction has the following structure, in which *R* represents a subject-
oriented reflexive.

(35) EXPL Tns [[V DP$_{NOM}$] [$_{PP}$ P R...]]

The prepositional phrase *með börnin sín* ('with children SE'), an adjunct,
is located at the sister-position of VP. That is, the pronominal element in
the PP cannot be c-commanded by its antecedent *maður*. In spite of this
syntactic relationship, the sentence is grammatical and *R* is successfully
co-construed with the DP. This is because each of the two lexical items
has an agreement relationship with the common functional category T, and
therefore they can be construed with each other.[20]

Let us illustrate how the mechanism works with English examples. Con-
sider Example (36), in which binding into an adjunct is involved.

(36) John told Mary$_i$ about herself$_i$/*her$_i$.

In (36), where the verb *tell* is used, the reflexive is in complementary
distribution with a pronoun, which suggests that the reflexive is not logo-
phoric. If the PP including the reflexive is an adjunct, then (36) may be
represented as follows.

(37) T [$_{vP}$ John v [$_{VP}$ [$_{VP}$ told Mary] [$_{PP}$ about herself]]]

---

[19] SE refers to a simplex-element anaphora, which involves essentially pronominal ele-
ments that lack a specification of certain features (typically, number and gender, but oc-
casionally also person), according to Reuland (2011: 7).

[20] An *EL* reviewer pointed out that Example (34) is an Existential construction and
(34) can be explained if we take a view that the expletive *there* shares the features with
a man, as argued in Chomsky's (1991) discussion of LF-movement. However, as dis-
cussed in Lasnik (1999a), the view cannot explain the following contrast observed in Las-
nik and Saito (1991: 335).

   (i) a. The DA proved two men to have been at the scene during each other's tri-
            als.
        b. *The DA proved there to have been two men at the scene during each
            other's trials.
  (ii) a. The DA proved no one to be at the scene during any of the trials.
        b. *The DA proved there to be no one at the scene during any of the trials.
This shows that some features involving binding relation cannot be shared between *there*
and its associate (e.g. *two men*).

The little *v* probes *Mary*, and it can license the accusative case. At the same time *v* gets the φ-feature information of *Mary* in exchange for case. Note that the little *v* is located in the position c-commanding the reflexive *herself* in the adjunct PP. A binding relation is effected between *Mary* and *herself*, even though the former, the antecedent, does not c-command the latter, the reflexive, directly.

This mechanism can easily explain the following case, too.

(38)   John$_i$ told Mary about <u>himself</u>$_i$/*him$_i$.

(Drummond et al. (2011: 419))

It is straightforwardly accommodated if we assume that T can replace *v* as the probe. The relevant structure is (39).

(39)   T [$_{vP}$ John$_v$ [$_{VP}$ [$_{VP}$ told Mary] [$_{PP}$ about himself]]]
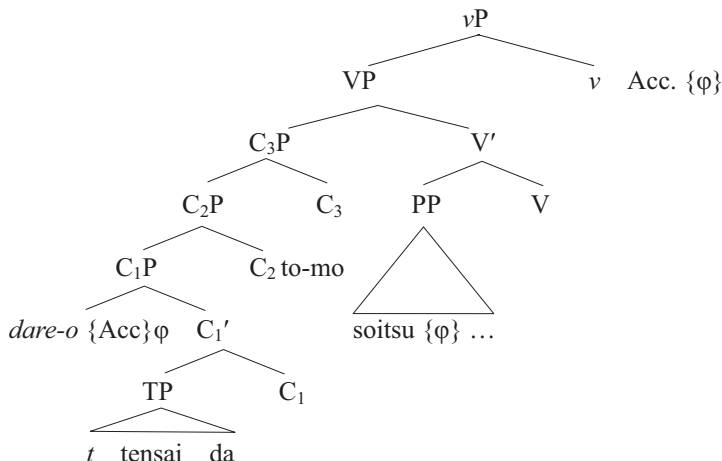
Thus, ABC works without recourse to a direct syntactic relationship between antecedent and reflexive.

Now let us go back to the main point of our original problem. The ABC mechanism can be applied to the troublesome case of bound pronouns. The relevant structure is as follows:

(40)

The accusative DP *dare-o* stays within the CP-layer, so that it is c-commanded by *mo*, as shown in Hiraiwa (2005). Given that the DP is at phase-edge, the accusative case is licensed at this position via Agree by the little *v*. The ABC approach enables the φ-features on the little *v* to be the antecedent for *soitsu* in the adjunct PP.

(41)

```
                                              vP
                                        ┌──────────┴──────────┐
                                        VP                    v   Acc. {φ}
                                  ┌─────┴─────┐
                                C₃P           V′
                            ┌────┴────┐    ┌───┴───┐
                          C₂P        C₃   PP       V
                       ┌───┴───┐          /\
                      C₁P      C₂ to-mo  /  \
                   ┌───┴───┐            /    \
            dare-o {Acc}φ  C₁′      soitsu {φ} …
                       ┌───┴───┐
                      TP       C₁
                     /  \
                    /    \
                   t tensai da
```

Although there is no direct relation between the antecedent *dare-o* and the pronoun *soitsu*, the φ-features on *v* tie each of them indirectly. That is why the bound pronoun can be construed with an antecedent which does not c-command it.

Note that the binding relation at issue cannot hold between the two lexical items in (31b), for Nominative case on *dare-ga* is licensed by T in the embedded clause and the φ-features on T are not high enough to c-command the bound pronoun *soitsu*. If *dare-ga* were scrambled to some higher position in the matrix clause to c-command *soitsu*, the scrambling would illicitly remove the indeterminate pronoun from the domain of *mo*.

Thus, we can solve the problem caused by the interaction of RTO-IPB with bound pronouns, by adopting Hiraiwa's analysis and Reuland's ABC approach to binding.[21]

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[21] As mentioned in footnote 10, if the PP precedes the CP, the same binding relation would be predicted, for the bound pronoun is c-commanded by the little *v* which gets the φ-features by Agree.

    (i) *Taro-wa soitsu$_i$-no gendou-kara   dare$_i$-o   kashikoi
        Taro-Top he-Gen   speech and behavior-from   anyone-Acc smart
        to-mo   kanji-nakat-ta.
        Comp-Q   feel-Neg-Past
        'Taro didn't consider anyone$_i$ to be smart, based on his$_i$ speech and behavior.'
Reuland (2001) solves this sort of problem by defining a notion of A-Chains. See Reuland (2001) for details.

5.   The Center of Phase in CP-zone

In the remainder of this paper we would like to discuss the concrete position of C_1, at the Spec of which a DP may be case-licensed.   We believe that identifying this is of importance in investigating what property characterizes phase-hood in the CP-zone.   In the generative literature, it has been assumed that CP is a typical phase and that only a C-head and its specifier can be accessible, or "visible" from above, while its complement cannot (by the PIC).   As seen in Section 3, Rizzi's (1997) cartographic research shows us that the structure of the CP periphery is as follows:

(42) $[_{\text{Force P}} \text{Force}^0 \ [_{\text{Topic P}} \text{Topic}^0 \ [_{\text{Focus P}} \text{Focus}^0 \ [_{\text{Finite P}} \text{Finite}^0 \ [_{\text{TP}} \ ....]]]]]$

$(=(24))$

Once the C-head is disassembled into several functional heads, it is quite natural to raise the question of where the boundary is between the core phase-head and its complement.   Certainly there is a possibility that sub-heads in the CP zone tie to each other and the amalgamation may function as a phase.   This is an empirical issue and we believe that pursing this line of investigation may lead to a deeper understanding of phase-hood.

Akaso and Haraguchi (henceforth, A&H) (2011, 2013) offers a promising approach to specifying the core phase-head.   Their research concerns Nominative/Genitive Conversion (NGC) in Japanese, which has often been pointed out as having a common issue of case-licensing with RTO.   Let us review this approach briefly.

A&H (2011, 2013) proposes that the syntactic categories of Japanese prenominal clauses are of two types: one is Focus Phrase (FocP) for those with a Nom-subject, and the other is TP for those with a Gen-subject.   The evidence for this proposal comes from the data in (43) and (44).   As is well-known, Japanese prenominal clauses are roughly subcategorized into two types: Relative Clauses and Gapless Clauses.   The examples in (43) are Relative Clauses and those in (44) are Gapless Clauses.

(43)   a.   Taro-*dake*-ga/*no   non-da   kusuri
　　　　　　Taro-*only*-Nom/Gen   take-Past   medicine
　　　　　　'the medicine that only Taro took'

　　　　b.   gakusei-*bakari*-ga/*no   kat-ta   hon
　　　　　　students-*only*-Nom/Gen   buy-Past   book
　　　　　　'the book that only students bought'

　　　　c.   kokosei-*nomi*-ga/*no   eran-da   manga
　　　　　　high school students-*only*-Nom/Gen   choose-Past   comics
　　　　　　'the comics that only high school students chose'

(44) a. Taro-*dake*-ga/*no   nai-ta   jijitsu
          T.-only-Nom/Gen   cry-Past   fact
          'the fact that only Taro cried'
      b. nihonjin-*bakari*-ga/*no   aruku   riyu
          Japanese-only-Nom/Gen   walk   reason
          'the reason that only the Japanese walk there'
      c. joshi-*nomi*-ga/*no   hashit-ta kyogi
          girl-only-Nom/Gen   run-Past   game
          'the game in which only girls ran'

Note that grammaticality is different for Nominative subjects and Genitive subjects when Focus particles (henceforth, FP) are added to subjects in both (43) and (44). This observation led A&H (2011) to the generalization that FPs cannot be licensed in prenominal clauses with Genitive subjects.

Assuming that FPs are licensed by the Foc-head in the CP-zone, in line with Rizzi (1997), A&H (2011) proposes that the syntactic structures are as shown in (45).

(45) a.   Nominative subject   b.   Genitive subject
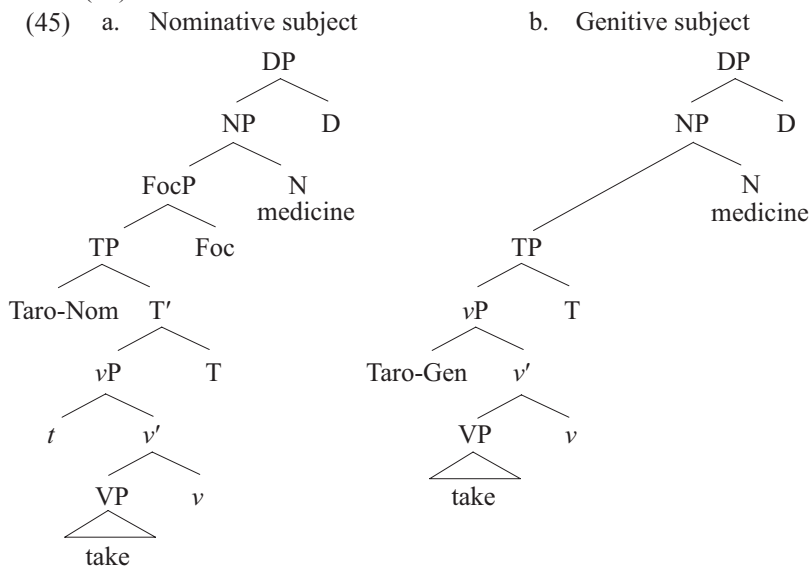
As for case-licensing, A&H (2011), modifying Saito's (2004) analysis, proposes that there are two types of T: one is declarative T which licenses nominative case, and the other is adnominal T which licenses genitive case. In this paper, however, we do not follow their two T analysis, for it has a redundancy: the declarative T is always followed by FocP, and the adnominal T is always followed by a head noun without any CPs. In-
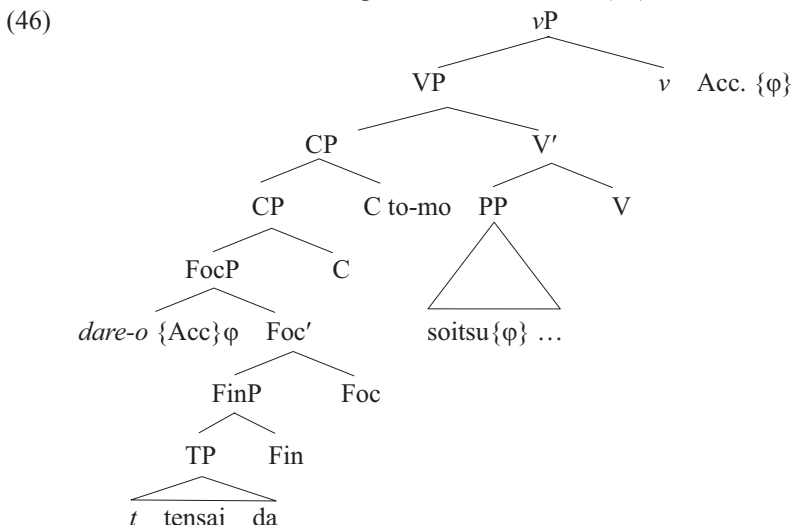
stead, we are going to adopt the D-approach in which the D-property of the head noun licenses genitive case on subject DPs within prenominal clauses. Given this, NGC can be explained without recourse to the stipulation of two Ts. When FocP lies between a prenominal clause and its head noun as in (45a), the D-property of the latter cannot affect the subject DP, and the subject DP is case-marked as Nominative by T, as standardly assumed. Without FocP, which means that there are no licensers for FPs like (45b), the D-property is accessible to the subject DP and licenses genitive case on it within the prenominal clause.

The crucial point of this analysis is that FocP prevents genitive case from being licensed by a head noun/D. That is, FocP blocks case-licensing by an external licenser.

We can apply this result to the original issue of RTO. If Foc has the core property of phase-hood, then the accusative DP moves to Spec-FocP, as the complement of the phase is inaccessible from outside of the phase (via PIC). It follows that the DP must be raised above FinP, for FinP is located below FocP according to Rizzi's articulated structure of the CP-zone.

Furthermore, the Japanese complementizer *to* is considered to be at the highest position in CP in the hierarchy (see Saito (2012)). If we are on the right track, we arrive at the following structure instead of (41).

(46)

$$
\begin{array}{c}
v\text{P} \\
\diagup\quad\diagdown \\
\text{VP}\qquad v\ \ \text{Acc. }\{\varphi\}
\end{array}
$$

vP
- VP
  - CP
    - CP
      - FocP
        - *dare-o* {Acc}φ
        - Foc′
          - FinP
            - TP
              - *t* tensai da
            - Fin
          - Foc
      - C
    - C to-mo
  - V′
    - PP
      - soitsu{φ} …
    - V
- *v* Acc. {φ}

Thus, we have shown that FocP could be the core phase-head in terms of the boundary between phase-edge and spell-out domain, and we have claimed that Spec-FocP is the landing site for the accusative DP dislocated by PIC.

6. Implications

If we are on the right track, this study has implications for the following: φ-feature agreement, the better explanatory power of Chomsky's (2001) Case mechanism over Bošković's (2007), and Scrambling out of embedded clauses. Firstly, the Japanese Case-licensing mechanism is the same as the English one, which means that Japanese makes use of φ-feature agreement in Case-licensing, contra the standard analysis that Japanese lacks agreement. Secondly, our analysis is in opposition to Bošković's proposal that DPs with unvalued Case features probe the value assigners, for the licensing/valuation does not require the accusative DP to move higher than the embedded CP edge. Thirdly, the movement of the object to the main clause is optional, which shows the movement is considered to be scrambling, as pointed out in Hiraiwa (2005). We will discuss why this does not violate the restriction on illicit movement (i.e. A-A′-A).

6.1. Case-licensing

As seen in the preceding section, Reuland's (2011) mechanism for binding is based on the operation Agree, an indispensable syntactic operation in minimalist theorizing. Reuland claims that we use Agree in the analysis of binding, for C-command is included in it. Reuland's ABC can deal with the RTO-IPB puzzle interacting with the bound pronoun interpretation. This suggests that Japanese exploits φ-feature agreement as a syntactic operation, as long as the ABC works effectively.[22] This goes against the standard view that Japanese lacks agreement.[23] It is well known that Japanese, in contrast to European languages (i.e. agreement languages), does

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[22] Baker (2015) claims that although the case by agreement approach seems to be fairly well worked out, it would be better to specify at least one mode of case-licensing: what he calls, Dependent case assignment. If it is proved that Japanese is a language with Dependent case assignment, but not with case by agreement, the issue discussed in this paper remains unsolved.

[23] There are some pieces of observational evidence against our claim that Japanese has implicit φ-feature agreement: Multiple subject constructions and PP-subjects.

The former is exemplified as follows:

    (i) Nihon-ga   dansei-ga   heikin   jumyou-ga   nagai.
         Japan-Nom   man-Nom   average   life span-Nom   long
         'Japanese men's life span is long.'

The true argument of the predicate *nagai* 'long' is just the lowest NP, *heikin-jumyou* 'average life-span.' Some insist that this is derived from a sentence like (ii) through possessor raising.

not show agreement between subjects (and objects) and their predicates, as illustrated in the following example.

(47) boku/kimi(tachi)/kare/yatsura-ga   iru.
      I/you(pl.)/he/they-Nom   be
      'I/you(pl.)/he/they am/are/is (here).'

Given this descriptive observation, it may seem natural to see Japanese as an 'agree-less' language. On the other hand, there are some pieces of evidence indicating that Japanese shows agreement phenomena as illustrated below.

(48) a. Tanaka-sensei/*Tanaka-ga   irasshaimasu.
          Tanaka-teacher/Tanaka-Nom   be/come (respectful form)
          'Mr. Tanaka/Tanaka will be/come.'

      b. Gakusei ga   san-nin biiru-o   nonda.
          Students-Nom   three-Cl   beer-Acc   drank
          'Three students drank beer.'

Example (48a) is an example involving honorifics. Although it is still controversial, some researchers claim that subject honorification marking on verbs is a sort of realization of agreement. See Ura (2000: 100−101) among others. Example (48b) concerns numeral quantifier-floating, which employs classifiers semantically connected to the host noun. Clearly it should be differentiated from the φ-feature agreement in Japanese honorifics and subject-verb agreement in European agreement languages, but such examples suggest that agreement can be found in Japanese. However,

(ii) Nihon-no   dansei-no heikin   jumyou-ga   nagai.
      Japan-Gen   man-Gen   average   life span-Nom   long
      'Japanese men's life span is long.'

  Another much-discussed observation is that PP can be case-marked as in (iii).

(iii) Tokyo-kara-ga   nimotsu-ga   okuri-yasui.
       Tokyo-from-Nom   baggage-Nom   send-easy
       'Baggage is easy to send from Tokyo.'

As the gloss shows, the phrase *Tokyo-kara* "from Tokyo," which is really a postpositional phrase (PP), is suffixed with Nominative case-marker, -*ga*. These observations have been used as evidence that Japanese lacks agreement. If the case licensing is based on the one-to-one relation between F and the argument, this multiple subject construction would be impossible. As for the Nominative PP, it is very odd to say that PP has some φ-features, which means that the nominative case marker is not a reflex of agreement. But it is possible to regard these cases of -*ga* as exceptional. The multiple occurrence is only possible with -*ga*, but not with -*o*. And the combination of postpositional phrase and case-marker is so restricted that we can find only a limited number of examples. These restrictions might suggest that they are not allowed syntactically, but for some other reason. We leave this issue for future research.

more research is needed as to whether or not Japanese has some type of φ-agreement.

6.2. Bošković (2007)

The second implication is that case licensing does not require DPs to c-command the case-licenser (or value-provider) as argued in Bošković (2007). Bošković claims that an unvalued feature on the probe is uniformly valued with the value-provider c-commanded by the probe. For instance, the licensing/valuation of nominative Case is carried out in the following way. First, a T-head, which has unvalued φ-features, probes a DP, and can get its φ-features valued by the goal DP. Then, the DP with an unvalued Case feature moves to Spec-TP, where the DP qualifies as a probe. The unvalued Case feature probes the T-head which has a Nominative feature, and the raised DP can obtain nominative case. Thus, the probe is required to c-command its value-provider in Bošković's (2007) analysis.

Our data and analysis, however, do not support Bošković's mechanism of Case licensing/valuation, for the accusative-marked indeterminate pronoun (i.e. *dare-o*) must stay within the c-command domain of the Q *mo*. That is, the DP is not necessarily raised to a position c-commanding *v*/V. Its unvalued Case feature can obtain accusative case from the value-provider without raising.

6.3. Further Movement as Scrambling, but not Illicit Movement

As shown in example (3a), repeated below as (49), the accusative DP looks like an element in the matrix clause, for it is sited at the left side of the matrix adverb, *orokanimo* 'stupidly.'

    (49)   Taro-ga   Jiro-o   orokanimo tensai-da   to
           Taro-Nom Jiro-Acc stupidly   genius-Cop Comp
           omot-teiru.   (=(3a))
           think-Prog
           'Stupidly, Taro thinks of Jiro as a genius.'

As argued in Hiraiwa (2005), we believe that this is due to Scrambling from the case-licensed/valued position at the CP-edge to the matrix clause. As Scrambling is optional, the DP can either stay at the case-valued position or move to another position. Example (49) is a case in which the DP is raised to the matrix clause by Scrambling. Note that our analysis can circumvent the problem of illicit movement. For earlier RTO analyses in which accusative case was thought to be licensed at a certain position in the matrix clause, a theoretically challenging problem arises—that of il-

licit scrambling: A-A′-A. This is because Long-distance scrambling (i.e. scrambling out of a clause) requires a scrambled DP to stop at a CP-edge as an intermediate site, which is considered to be an A′-position. If the case is licensed/assigned in the matrix clause, the movement should be A-A′-A and hence counted as improper. This problem can be circumvented in our system. The case is valued at the CP-edge and we can count it as an A-position. That is, the movement in (49) is A-A-A′. The final position is A′ because it is not a case-licensed position under the current system. The position at issue (i.e. the post-subject position) is taken to be A′, as illustrated below (Nemoto (1993: 155)).[24]

(50) ?Joe-ga   kare-o   Michael-no   sensei-ni   [PRO *t*
       Joe-Nom   he-Acc   Michael-Gen   teacher-Dat
       hihansuru-yooni]   tanonda.
       criticize-Comp   asked
       'Joe asked Michael's teacher to criticize him.'

Although the scrambling to the matrix clause in (50) is A-A′-A′, and is different from that in (49), this demonstrates that the final position is A′.

Thus, our analysis allows the accusative DP to be scrambled to a matrix clause without any problem of illegitimate movement.

7. Conclusion

This paper has shown that the mysterious and problematic behavior which Japanese RTO exhibits when coupled with IPB and bound pronouns can be explained with Reuland's (2011) ABC. The standard binding mechanism, based on a direct c-command relation between an argument and its licensor, fails to handle the case at issue, as an indeterminate pronoun does not c-command the bound pronoun in the adjunct PP. On the other hand, Reuland's binding system can successfully deal with it, for the lexical items (the bound pronoun and its antecedent (e.g. an indeterminate pronoun)) are indirectly connected via φ-features on v/V. A bundle of the valued φ-features on v/V qualifies as an antecedent for the pronoun c-commanded by v/V, and a bound variable interpretation is available. We argued that

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[24] Nemoto (1995: 265) points out that when the embedded subject is a *pro* ("PRO" in her terms), the same scrambling results in a fully grammatical sentence.

(i) John-ga   sono hon-o   minna-ni [PRO *t* yonda to]   itta.
     John-Nom   the book-Acc   all-Dat   read   Comp said
     'John said to all that he read the book.'

this is possible under the assumption that Japanese exploits case-by-agree-ment in which φ-features are indispensable, as do agreement languages in-cluding English.   We know this data and argumentation are not enough to prove that Japanese is an agreement language, but we believe that we have succeeded in showing that Reuland's ABC can solve the problematic case of Japanese RTO.

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