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(Anti-)locality and A-scrambling in Japanese

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Abstract

In this paper, I investigate binding effects triggered by long-distance scrambling in Japanese. The first purpose of the study is to describe an environment where long-distance scrambling can feed A-binding and make a generalization about it. The generalization made in this paper is that Long-distance scrambling can feed A-binding only if i) the embedded subject is null, and ii) a bindee is contained in the matrix object (or in the matrix subject if there is no matrix indirect object). The second purpose is to give an analysis to derive the generalization without recourse to A/A'-distinction. As discussed in the paper, there are some problems in an approach to capture binding phenomena resorting to A/A'-distinction. Therefore, I propose an analysis to derive the generalization without using the notion of A/A'-distinction.

(Anti-)locality and A-scrambling in Japanese

Sayaka Goto[*]

1 Introduction

In this paper, I show that scrambling even out of a finite clause can make A-binding possible in Japanese, which is contrary to a conclusion made in previous studies (Nemoto 1993, Takano 2010). The first purpose of this study is to examine the environment where long-distance scrambling can feed A-binding in Japanese and make the generalization (1).

(1) *Generalization on long-distance scrambling*
Long-distance scrambling can feed A-binding only if (i) the embedded subject is null, and (ii) a bindee is contained in the matrix object (or in the matrix subject if there is no object).

The second purpose is to derive the generalization (1) without resorting to the A/A'-distinction. Proposing (2), I present an analysis to capture binding phenomena without recourse to the A/A'-distinction.

(2) Only a copy with a bundle of ϕ-features can be an A-binder.

Given the proposal (2), whether a moved element can A-bind at a landing site is determined by whether the element can carry its ϕ-features to the landing site. I propose that how far an element can carry its ϕ-features is determined by the Locality Condition on Pied-Piping (Ura 2001) and the Anti-locality Condition on Movement (Abels 2003, Koizumi 2000, Bošković 2005; cf. Grohmann 2000, among others).

The organization of the paper is as follows. In section 2, I review previous studies on binding effects triggered by scrambling in Japanese. In section 3, I present novel data about long-distance A-scrambling in Japanese and make a new generalization. Then, in section 4, I present an analysis to derive the generalization without resorting to A/A'-distinction. Section 5 is devoted to a conclusion.

2 A-scrambling and Long-distance Scrambling in Japanese

The previous studies on Japanese scrambling show that there is an asymmetry between clause-internal scrambling and long-distance scrambling; the former can feed A-binding while the latter cannot (Tada 1993, Saito 1992, Nemoto 1993, Abe 1993, among others). The asymmetry is exemplified in (3) and (4).

(3) a. *[Soitu$_1$-no hahaoya]-ga dare$_1$-ni (kooen-de) deatta no?
the.person-GEN mother-NOM who-ACC park-at met Q
'His$_1$ mother met whom$_1$ (at the park)?'
b. **Dare$_1$-ni$_j$** [<u>soitu$_1$</u>-no hahaoya]-ga **t$_j$** (kooen-de) deatta no?
who-ACC the.person-GEN mother-NOM park-at met Q
'Whom$_1$ did his$_1$ mother met (at the park)?'

(4) a. *[soitu$_1$-no hahaoya]-ga [Hanako-ga dare$_1$-ni deatta to] omotta no?
the.person-GEN mother-NOM Hanako-NOM who-DAT met C thought Q
'His$_1$ mother thought Hanako met whom$_1$?'
b. ***Dare$_1$-ni$_j$*** [<u>soitu$_1$</u>-no hahaoya]-ga [Hanako-ga **t$_j$** deatta to] omotta no?
who-DAT the.person-GEN mother-NOM H.-NOM met C thought Q
'Whom$_1$ did his$_1$ mother thought that Hanako met?'

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In (3) and (4), the a-sentences do not involve scrambling, while the b-sentences do. As shown by the acceptability of (3b), a scrambled object can A-bind into the subject from the landing site when scrambling takes place within a clause. As shown by the unacceptability of (4b), on the other hand, an element that undergoes long-distance scrambling cannot A-bind into a matrix element. Given the observation, the widely assumed generalization is as (5).

(5) In Japanese, clause-internal scrambling makes A-binding possible, while long-distance scrambling does not.

The generalization (5) suggests that clause-internal scrambling can be A-movement while long-distance scrambling must be A'-movement. In this paper, I call scrambling that is an A-movement "A-scrambling," and one that is an A'-movement "A'-scrambling." Given the generalization (5), long-distance A-scrambling should be disallowed in general.

Note, however, that whether long-distance A-scrambling is always impossible is controversial. Nemoto (1993) observes that when an element undergoes scrambling out of an obligatory control clause, it can feed A-binding, which is shown in (6).

(6) a. *Ken-ga [soko$_1$-no sotugyoosei]$_k$-ni [PRO$_k$ **[Mittu-izyo-no daigaku$_1$-ni]**
K.-NOM it-GEN graduate-DAT three-or.more-GEN university-to
t_j syutugansuru yoo(ni)] susumeta.
apply C recomended
'Ken recommended their$_1$ graduates to apply to [three or more universities]$_1$.'

b. (?)**[Mittu-izyo-no daigaku$_1$-ni]$_j$** Ken-ga [soko$_1$-no sotugyoosei]$_k$-ni [PRO$_k$
three-or.more-GEN university-to K.-NOM it-GEN graduate-DAT
t_j syutugansuru yoo(ni)] susumeta.
apply C recommended
'[Three or more universities]$_1$, Ken recommended their$_1$ graduates to apply to.'
(Takano 2010: 87)

In (6b), the embedded object undergoes scrambling out of a control clause to the front of the sentence. As the acceptability of the sentence shows, the moved element can A-bind a matrix element.

Given the observation, Nemoto (1993) concludes that (i) obligatory control clauses in Japanese are non-finite clauses and (ii) scrambling out of non-finite clauses behaves like clause-internal scrambling. If Nemoto's conclusion is correct, the generalization (7) holds, which means that long-distance scrambling can be A-movement under some environment.

(7) Long-distance scrambling can feed A-binding only if it takes place out of a non-finite clause.

However, Takano (2010) argues that the acceptability of sentences as in (6b) is attributed to a property of obligatory-control constructions and long-distance scrambling cannot feed A-binding even if it takes place out of a non-finite (or control) clause. Takano further examines scrambling out of an obligatory control clause in Japanese to show that it is not the case that scrambling out of an obligatory control clause can always feed A-binding. As exemplified in (8), an element that undergoes scrambling out of an object-control clause cannot A-bind a bound variable inside the matrix subject.

(8) a. *[Soko$_1$-no sotugyoosei]-ga Ken$_2$-ni [$_{CP}$ e_i Mittu-izyoo-no daigaku]$_1$-ni
it-GEN graduate-Nom K.-DAT three-or.more-GEN university-DAT
syutugansuru yoo(ni)] susumeta.
apply C recommended
'Their$_1$ graduates recommended Ken$_2$ to apply to [three or more universities]$_1$.'

b. ***[Mittu-izyoo-no daigaku]$_1$-ni]$_i$** [soko$_1$-no sotugyoosei]-ga Ken$_2$-ni
three-or.more-GEN university-DAT it-GEN graduate-NOM K.-DAT
[$_{CP}$ PRO$_2$ **t_i** syutugansuru yoo(ni)] susumeta
apply C recommended

‘Their$_1$ graduates recommended Ken$_2$ to apply to [three or more universities]$_1$.’
(Takano 2010:88)

The sentence (6b) and (8b) differ from each other in that a bound variable is contained in the matrix indirect object in the former while it is contained in the matrix subject in the latter. Pointing out that scrambling out of a control clause can feed A-binding (into) the matrix subject in subject-control constructions, Takano (2010) makes the generalization (9).

(9) Scrambling out of a control clause makes variable binding possible only if the pronominal is contained in the controller. (Takano 2010:91)

Takano (2010) further argues that the generalization (9) can only be deduced given a movement theory of control (Hornstein 1999) and the assumption that scrambling out of a control clause is exactly like scrambling out of a finite clause. That is, given the movement theory of control, a controller is base-generated in the control clause, and given that long-distance scrambling takes place cyclically, a scrambled element can A-bind a controller in the control clause at the point where the scrambled element undergoes clause-internal scrambling.

(10)
A-binding OK
[$_{\text{control clause}}$ QP$_i$ [Controller t$_i$ V$_{\text{embedded}}$]]
clause-internal scrambling

That is why scrambling out of a control clause makes A-binding possible when a bound variable is contained in the controller in obligatory control constructions. On the other hand, given the assumption that scrambling out of a control clause is exactly like scrambling out of a finite clause (i.e., it must be A'-scrambling), an element that undergoes scrambling to the matrix clause across a clause boundary cannot license a bound variable inside a non-controller in the matrix clause. That is why an element that undergoes scrambling out of a control clause cannot license a bound variable inside the matrix subject in the object control construction.

Given that an obligatory control clause is non-finite (Nemoto 1993), Takano's study suggests that scrambling out of a clause can be captured in a uniform way regardless of whether it is finite or non-finite. That is, scrambling out of a clause uniformly cannot feed A-binding regardless of whether the clause is finite or non-finite. Contrary to this conclusion, in the next section, I present new data that suggest that Takano's (2010) analysis and conclusion for obligatory control constructions are incorrect. The data show that (i) scrambling even out of a non-obligatory control clause can feed A-binding under some environments and that (ii) an asymmetry between A-binding into the matrix subject and one into the matrix object, which is a crucial factor for Takano's (2010) conclusion that an obligatory control construction is derived via a movement of controller, is observed even in a non-obligatory control construction.

3 Long-distance A-scrambling

In this section, I present novel data that show that long-distance scrambling even out of a finite clause can feed A-binding and that the subject/object asymmetry observed by Takano (2010) in object control constructions is also observed in non-obligatory control constructions.

Let us, first, look at the following sentences. In these sentences, the predicate *iu* ‘say’ or *tazuneru* ‘ask’ takes a complement clause whose subject is null.

(11) a. Ken$_1$-ga Hanako$_2$-ni [pro$_{1/3}$ (izure) [[Mittu-izyoo-no kaisya]-ni]
Ken-NOM Hanako-DAT soon three-or-more-GEN company-DAT
oobosuru-tumori-da to] itta.
apply-going.to-be.PRES C said
‘Ken$_1$ said to Hanako$_2$ that pro$_{1/3}$will apply to three or more companies (soon).’

b. Ken$_1$-ga Hanako$_2$-ni [pro$_{2/3}$ (kyonen) [[Mittu-izyoo-no kaisya]-ni]
Ken-Nom Hanako-DAT last year three-or-more-GEN company-DAT

oobosi-ta ka] tazuneta.
apply-PAST Q asked
'Ken$_1$ asked to Hanako$_3$ whether pro$_{2/3}$ applied to three or more companies (last year).'

As exemplified in (11), the embedded null subject can be interpreted as coreferential to a matrix subject or a matrix object, or interpreted deictically. The interpretation of the subject varies depending on an interpretation of the embedded clause and a given context. This suggests that the predicates *iu* 'say' and *tazuneru* 'ask' are not obligatory-control predicates. Moreover, in the sentences in (11), the tense in the embedded clause is present or past. This suggests that the complement clause of the predicate *iu* 'say' and *tazuneru* 'ask' is finite.

Now, let us examine a case where scrambling takes place out of such a complement clause. As illustrated in (12), a scrambled element can A-bind (into) an element in the matrix clause from the landing site when the scrambling takes place out of a finite clause with a null subject, which is shown by the acceptable sentences in (13b).[1]

(12) A-binding OK
QP$_i$ [Subj Obj [$_{\textbf{finite clause}}$ pro t$_i$ V$_{embedded}$] V$_{matrix}$]

(13) a. *Ken$_1$-ga [soko$_2$-no raibaru-gaisya-no syain]$_3$-ni [pro$_{1/4}$ (izure)
Ken-NOM it-GEN rival-company-GEN employee-DAT soon
kaisya]$_2$-ni] oobosurusuru-tumorida to/ka] itta/tazuneta.
three-or-more-GEN company-DAT apply-going.to-be.PRES C/Q said/asked
'Ken$_1$ said/asked to [employees of their$_2$ rival companies]$_3$ that/whether pro$_{1/4/3}$ will apply to [three or more companies]$_2$.'

b. (?)**[[Mittu-izyoo-no kaisya]$_2$-ni]$_i$** Ken$_1$-ga [<u>soko</u>$_2$-no raibaru-gaisya-no
three-or-more-GEN company-DAT Ken-NOM it-GEN rival-company-GEN
syain]$_3$-ni [pro$_{1/4}$ (izure) **t$_i$** oobosuru-tumori-da to/ka] itta/tazuneta.
employee-DAT soon apply-going.to-be.PRES C/Q said/asked
'Ken$_1$ said/asked to [employees of their$_2$ rival companies] that/whether pro$_{1/4/3}$ will apply to [three or more companies]$_2$.'

(13a) is a sentence without scrambling, while (13b) involves scrambling. In these sentences, the matrix predicate *iu* "say" or *tazuneru* "ask" takes a finite complement clause whose subject is null. The sentence (13a) is ungrammatical because a bound variable is not c-commanded by its antecedent. Contrasted to this, (13b) is acceptable with bound variable reading though they are somewhat degraded for some speakers.[2,3] The acceptability of the sentences shows that the element base-generated in the embedded clause that undergoes long-distance scrambling out of a finite clause can A-bind (into) a matrix element. This suggests that long-distance scrambling can feed A-binding even if it takes place out of a finite clause that is not an obligatory control clause.

Note that contrasted to the acceptable case as in (13b), scrambling out of a finite clause with a null subject cannot feed A-binding into the matrix subject if there is a matrix object.

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[1]An element that undergoes long-distance scrambling out of a clause with a null subject can A-bind (into) the matrix subject if there is no matrix object.

(i) a.*[Soko$_2$-no raibaru-gaisya-no syain]$_1$-ga [pro$_{1/3}$ (izure) [[Mittu-izyoo-no
it-Gen rival-company-Gen employee-Nom soon three-or-more-Gen
kaisya]$_2$-ni] oobosurusuru-tumorida to] itta.
company-Dat apply-going.to-be.PRES C said
'[Employees of their$_2$ rival companies]$_1$ said that pro$_{1/3}$ will apply to [three or more companies]$_2$.'

b.(?)**[[Mittu-izyoo-no kaisya]$_2$-ni]$_i$** [<u>soko</u>$_2$-no raibaru-gaisya-no syain]$_3$-ga
three-or-more-Gen company-Dat it-Gen rival-company-Gen employee-Nom
[pro$_{1/3}$ (izure) **t$_i$** oobosuru-tumorida to] itta.
soon apply-going.to-be.PRES C said
'[Employees of their$_2$ rival companies]$_1$ said that pro$_{1/3}$ will apply to [three or more companies]$_2$.'

[2]I assume that the degradedness should be attributed to a complex processing.

[3]For some speakers, bound variable reading is impossible in (b) when the embedded null subject is interpreted deictically.

(14) * A-binding
[QP$_j$ [SUBJ$_1$ OBJ$_2$ [*pro*$_{1/2/3}$ t$_j$ V$_{embedded}$] V$_{matrix}$]]

(15) a.*[Soko$_2$-no raibaru-gaisya-no syain]$_1$-ga Ken$_3$-ni [pro$_{1/4}$ (izure)
it-GEN rival-company-GEN employee-NOM K.-DAT soon
[Mittu-izyo-no kaisya]$_2$-ni oobosuru-tumorida to] itta
three-or-more-GEN company-DAT apply-going.to-be.PRES C said
'[Employees of their$_2$ rival companies]$_1$ said to Ken$_3$ that pro$_{1/4}$ will apply to[three or more companies]$_2$.'

b.***[[Mittu-izyo-no kaisya]$_2$-ni]$_i$** [<u>soko$_2$</u>-no raibaru-gaisya-no syain]$_1$-ga
three-or-more-GEN company-DAT it-GEN rival-company-GEN employee-NOM
Ken$_3$-ni [pro$_{1/4}$ (izure) **t$_i$** oobosuru-tumorida to] itta
K.-DAT soon apply-going.to-be.PRES C said
'[Employees of their$_2$ rival companies]$_1$ said to Ken$_3$ that pro$_{1/4}$ will apply to [three or more companies]$_2$.'

The sentence (13b) and (15b) are different from each other in that a bound variable is contained in the matrix object in the former while it is contained in the matrix subject in the latter. Just like the case of object control, a long-distance-scrambled element can A-bind into the matrix object but cannot into the matrix subject when a matrix indirect object exists.

The (un)acceptability of the two sentences suggests that (i) a long-distance-scrambled element can bind into a matrix element even though the sentence is not an obligatory control construction (non-OCC), (ii) there is a grammatical asymmetry between A-binding into the matrix subject and into the matrix object even in non-OCCs, and (iii) whether a scrambled QP can A-bind a bindee is not related to whether the null element in the embedded clause is coreferential with an element containing the bindee. These properties are problematic for Takano's (2010) analysis.

Note that as observed in previous studies, scrambling out of a finite clause cannot feed A-binding if the embedded subject is overt, which is exemplified in (16).

(16) * **[[Mittu-izyoo-no kaisya]$_2$-ni]$_i$** Ken$_1$-ga [<u>soko$_2$</u>-no raibaru-gaisya-no
three-or-more-GEN company-DAT K.-NOM it-GEN rival-company-GEN
syain]$_3$-ni [Hanako/kare$_{1/4}$-ga (izure) **t$_i$** oobosuru-tumorida] to itta.
empروyee-DAT Hanako/he-NOM soon apply-going.to-be.PRES C said
Intended: 'Ken$_1$ said to [employees of their$_2$ rival companies]$_3$ that Hanako/he$_{1/4}$ will apply to [three or more companies]$_2$.'

The example in (16) forms a minimal pair with the sentence in (13b). The only difference between them is whether the embedded subject appears overtly or not. As shown by the unacceptability of the sentence in the latter case, a scrambled element cannot A-bind into an element in the matrix clause from the landing site, if it is scrambled out of a finite clause whose subject appears overtly.

Then, a new generalization incorporating Takano's (2010) observation and the presented novel data is given in (17).

(17) *Generalization on long distance scrambling*
Long-distance scrambling can feed A-binding only if i) the embedded subject is null, and ii) a bindee is contained in the matrix object (or in the matrix subject if there is no object).

In the next section, I present a possible analysis to derive the generalization (17).

4 Analysis

In previous studies of Japanese scrambling, binding phenomena have been captured with A/A'-distinction. For example, assuming that an anaphor/reciprocal/bound variable must be A-bound, scrambling that cannot produce a new binding relation has been assumed to be A'-movement. However, there are some problems in such an analysis that resorts to an A/A'-distinction.

Firstly, it is unclear what is the crucial factor that determines A-position. Before the predicate-internal subject hypothesis (Koopman and Sportiche 1991, among others) was introduced, A-position was clearly determined as a potential θ-position (Chomsky 1981:47). However, after the hypothesis was introduced, A-position is generally assumed to be a θ-position <u>or</u> a Case position. In addition, given that an intermediate IP-Spec position in a raising construction is an A-position, A-position is defined as a θ-position, a Case position <u>or</u> an EPP-position. Moreover, in some studies of scrambling, it is assumed that an IP-adjoined position is an A-position. Then, it is totally unclear what is the definition of A-position, and what is a crucial factor that characterizes A-position.

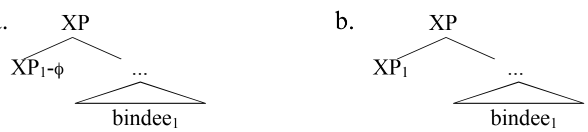
Moreover, and most importantly, even given a distinction of A/A'-position, it is still unclear how a position of an element is related to a possibility of binding. An A/A'-distinction is useful to describe a certain distribution, but it does not give a true explanation for why such a distribution exists. More concretely, in the case of binding, why an element in an A-position can license a bound variable/anaphor while one in an A'-position cannot, is totally a mystery.

For these reasons, I present a new analysis to capture binding phenomena without resorting to the A/A'-distinction. In order to achieve this, I propose (18), adopting Saito's (2003) idea that only an element that has a certain feature can enter a binding relation.

(18) Only a copy with ϕ-features can be a binder.

Given (18), if an XP has ϕ-features and c-commands a bindee, it can license the bindee, while if an XP does not have ϕ-features, it cannot license a bindee even when it c-commands the bindee.

(19) a. b.



--> XP can bind the bindee. --> XP cannot bind the bindee.

Then, whether a moved element can bind a bindee is determined by whether the moved element can carry its ϕ-features to a landing site where it c-commands the bindee. I propose that how far an element carries its ϕ-features when it undergoes a movement is determined by the Locality Condition on Pied-Piping proposed by Ura (2001) and the Anti-locality Condition on Movement (Abels 2003, Koizumi 2000, Bošković 2005; cf. Grohmann 2000, among others).

(20) *Locality Condition on Pied-Piping*
A formal feature cannot be pied-piped as a free rider if there is an intervening matching feature.

(21) *Anti-locality Condition on Movement*
Movement within a minimal domain is disallowed.

(22) γ *intervenes* between α *and* β iff α c-commands γ and γ c-commands β, and γ and α are not equidistant from β or γ and β are not equidistant from α.

(23) α and β are *equidistant* from γ if they are in the same minimal domain. (Chomsky 1995)

(24) *Minimal Domain* (Chomsky 1995)[4]
a. *Max* (α) = the least full-category [irreflexively] dominating α.
b. *Domain* of a head α = the set of nodes [irreflexively] contained in Max (α) that are distinct from α and do not contain α.
c. For any set S of categories, *Minimal* (S) = the smallest subset K of S such that for any $\gamma \in$ S, some $\beta \in$ K reflexively dominates γ.

(25) a. α *dominates* β if every segment of α dominates β.
b. α *contains* β if some segment of α dominates β. (Chomsky 1995: 177)

[4]Contrary to Chomsky (1993), I assume that a minimal domain is not expanded after a Head movement. Therefore, a movement from a VP-Complement to a Spec to the immediately above *v*P does not violate the Anti-locality Condition on Movement regardless of presence/absence of Head movement from V to *v*.

Given the Locality Condition on Pied-Piping in (20), pied-piping of ϕ-features is prohibited when there is an intervening ϕ features regardless of what feature is a trigger of the movement. Thus, in the structure (26), W cannot carry its ϕ-features to the domain of UP because ϕ-features of Z in the XP-Spec intervene between W's pre-movement position and its landing site.

(26) $[_{UP}\ W\ \ldots\ [_{XP}\ \boxed{Z\text{-}\phi}\ [_{X'}\ X^0\ [_{YP}\ \ldots\ W\text{-}\phi\ \ldots\ ]]]]$ *pied-piping of ϕ-features

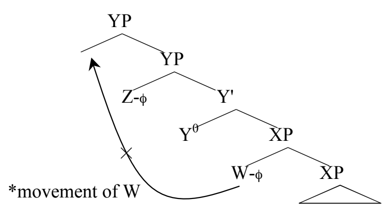
Note that if W moves to an XP-adjoined position as illustrated in (27), it can carry its ϕ-features to the landing site. This is because an XP-adjoined position and an XP-Spec are equidistant from W's pre-movement position, so ϕ-features of Z in the XP-Spec are not an intervener for W's pied-piping ϕ-features to the XP-adjoined position. Then, if W undergoes a further movement to the domain of UP, it can carry its ϕ-features to the position.

(27) $[_{UP}\ W\text{-}\phi\ \ \ldots\ [_{XP}\ W\text{-}\phi\ [_{XP}\ Z\text{-}\phi\ [_{X'}\ X^0\ [_{YP}\ \ldots\ W\text{-}\phi\ \ldots\ ]]]]$

Thus, adjunction makes it possible for an element to pied-pipe α-feature across an intervening matching feature.

Note, however, that if adjunction could take place totally freely, there should be no intervention effects at all. Then, I propose that adjunction is restricted by the Anti-locality condition, which is defined in (21). Given the anti-locality condition in (21), it is not the case that adjunct can take place freely. That is, movement from an XP-adjoined position into a domain of the next higher maximal projection is prohibited by the anti-locality condition. In the structure (28), since the XP-adjoined position and the YP-adjoined are in the same minimal domain, a movement from the former position to the latter position is disallowed by the anti-locality condition.

(28)



For this reason, an element sometimes cannot undergo an adjunction to a certain maximal projection. If W in the XP-adjoined position in the structure (28) undergoes a movement to a higher position, it has to move to the destination without stopping by the YP-adjoined position. Then, W cannot carry its ϕ-features to the landing site because of the intervening ϕ-features of Z in the YP-Spec. Thus, under the present framework, an element can pied-pipe its ϕ-features to a position in some cases, but it cannot in other cases, as a consequence of which, an element can be a binder in some cases, but it cannot be in other cases.

Let us, then, look at how the novel generalization (17) is derived under the present framework. Remember that as stated in the first condition in the generalization, long-distance scrambling cannot feed A-binding unless the embedded subject is null. The impossibility of long-distance A-scrambling can be accounted for given the Phase-Impenetrability Condition as proposed by Chomsky (2000).

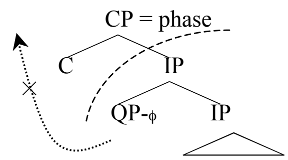
(29) *The Phase-Impenetrability Condition (PIC)* (Chomsky 2000)
In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.

Assuming that Japanese scrambling targets an XP-adjoined position (Saito 1985, 1992, Tada 1993, Abe 1993), an embedded object QP, when it undergoes scrambling, can carry its ϕ-features to the embedded IP-adjoined position under the present framework.[5]

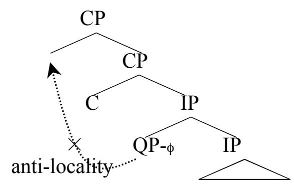
(30) $[_{IP}$ QP-ϕ $[_{IP}$ Subj-ϕ I^0 $[_{vP}$ QP-ϕ [Subj-ϕ v^0 $[_{VP}$ V^0 QP-ϕ]]] (Order irrelevant)

Given the PIC and the assumption that C and *v** are a phase head, however, once the embedded CP is completed, QP in the IP-adjoined position cannot move directly into the matrix clause, as in (31a). Note, also, that QP in the IP-adjoined position cannot move to a CP-edge position because of the anti-locality condition, as in (31b). Thus, if QP moves to an IP-adjoined position, it cannot undergo a further movement.

(31) a.



b.



Therefore, when QP moves to a higher clause, it must move from the *v*P-edge position directly to the CP-edge position. Note, however, that since this movement crosses intervening ϕ-features of the embedded subject in the IP-Spec, QP cannot carry its ϕ-features to the CP-edge.

(32) $[_{CP}$ QP C^0 $[_{IP}$ $\boxed{\text{Subj-}\phi}$ I^0 $[_{vP}$ QP-ϕ [Subj-ϕ v^0 $[_{VP}$ V^0 QP-ϕ]]]

Hence, a copy of QP in the CP-edge and a higher copy do not have ϕ-features, as a consequence of which, they cannot be used as a binder. That is why long-distance scrambling cannot feed A-binding when the embedded subject is overt.

Remember that when the embedded subject is null, long-distance scrambling can makes A-binding possible. I propose that this property can be derived given the following two hypotheses.

(33) a. A null element needs no Case.[6]
b. Case-checking/-valuation determines phases. (Ferreira 2000, Takahashi 2011, Miyagawa 2011)

Given the hypothesis in (33a), when the embedded subject is null, the subject does not have to get a Case. In this case, if we do not assume the Inverse Case Filter (Fukui and Speas 1986, Bošković 2002) (universally or in Japanese), the embedded IP-Head does not have to assign a Case. Following the hypothesis in (33b), then, the embedded CP is not a (strong) phase. Therefore, QP can move from an embedded IP-adjoined position directly into a higher clause without stopping by the embedded CP-edge. Then, if QP moves to a matrix VP-adjoined position when a matrix object is present or to a matrix *v*P-adjoined position when no matrix object is present, it can carry its ϕ-features to the landing site.

(34) a. $[_{VP}$ QP-ϕ_i $[_{VP}$ Obj-ϕ V^0 $[_{CP}$ C^0 $[_{IP}$ QP-ϕ_i $[_{IP}$ PRO/pro I^0 $[_{vP}$ ...]]]]]
b. $[_{vP}$ QP-ϕ_i $[_{vP}$ Subj-ϕ $[_{VP}$ V^0 $[_{CP}$ C^0 $[_{IP}$ QP-ϕ_i $[_{IP}$ PRO/pro I^0 $[_{vP}$ ...]]]]]

In the structures in (34), a copy of QP with ϕ-features c-commands the matrix object or the matrix

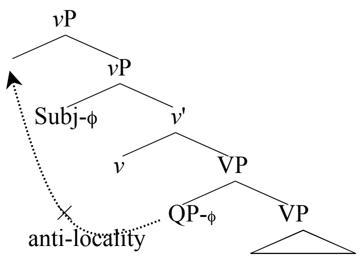
[5] I assume that the first movement of QP to the domain of the *v*P in (30) can target a Spec position. This is because given that whether a movement of α targets an XP-Spec or an XP-adjoined position is determined by whether the moved element has a checking relation with the head of the XP, the landing site of QP should be a *v*P-Spec because QP should have a Case-checking relation with the v^0. I assume here that this movement is an object shift, different from a scrambling.

[6] Authier (1988) and Hornstein (1999), among others, argue that pro is a Caseless element, which is compatible with the hypothesis (33a).

subject. Therefore QP can bind (into) the object or the subject. Thus, the two hypotheses in (33) make it possible to account for the reason why long-distance scrambling can feed A-binding when the embedded subject is null.

Note that as stated in the second condition in the generalization (17), long-distance scrambling cannot feed A-binding into the matrix subject when the matrix object is present. This is because, as illustrated in (35), once QP moves to a matrix VP-adjoined position, it cannot move to a *v*P-adjoined position due to the anti-locality condition.

(35)



Thus, QP in the VP-adjoined position must move to a position higher than the *v*P-adjoined position. However, since this movement crosses intervening ϕ-features of a copy of the matrix subject in *v*P-Spec, it cannot pied-pipe its ϕ-features to the landing site.[7,8]

(36) $[_{IP}$ QP $[_{IP}$ Subj-ϕ I^0 $[_{vP}$ $\boxed{\text{Subj-}\phi}$ v^0 $[_{VP}$ QP-ϕ $[_{VP}$ V^0 $[_{CP}$ ... $]]]]]]$

In the structure (36), no copy of QP with ϕ-features c-commands a copy of the matrix subject. Therefore QP cannot bind (into) the matrix subject. That is why an element that undergoes long-distance scrambling cannot bind into the matrix subject if the matrix object is present.

As discussed in this section, it is possible to derive the generalization in (17) under the present framework without recourse to A/A'-distinction.

5 Conclusion

In this paper, I present that long-distance A-scrambling is possible under some conditions in Japanese. A new generalization made in this paper is that Long-distance scrambling can feed A-

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[7]I assume that an indirect object of *iu* "say" and *tazuneru* "ask" is not assigned Case by the matrix *v*. Given the assumption, the matrix *v*P is not a (strong) phase because v^0 does not assign a Case. The assumption is compatible with the fact that an indirect object cannot license a floating numeral quantifier, which is licensed by a DP with a structural Case (Miyagawa 1989).

(i) Ken-ga gakusei-ni (?*san-nin) [Taro-ga (izure) sono kaisya-o tyoosasuru-tumorida
K-NOM student-*ni* three-cl. [T-NOM soon the company-ACC investigate-will
to/ka] itta/tazuneta
C/Q] said/asked
'Ken said to/asked three students that Taro will investigate the company.'

[8]Chomsky (1995) argues that a trace does not count as an intervener for Relativized Minimality effects, which is evidenced by the following examples (see Nunes (2004) for arguments against the assumption).

(i)a.??Gianni sembra a Piero fare il suo dovere.
Gianni seems to Piero to.do the his duty
'Gianni seems to Piero to do his duty.'

b. A Piero Gianni sembra t_i fare il suo dovere.
to Piero Gianni seems to.do the his duty
'Gianni seems to Piero to do his duty.'

Note, however, that Bruening (2012), observing that a raising sentence is degraded even when an adjunct appears between a raising subject and a raising predicate, concludes that the degradedness of sentences as in (ia) is not attributed to an intervention effect. If the conclusion is correct, the grammatical contrast in (i) does not show that a trace does not count as an intervener for Relativized Minimality effects.

binding only if (i) the embedded subject is null, and (ii) a bindee is contained in the matrix object (or in the matrix subject if there is no object). This generalization can be derived by the proposed analysis without resorting to A/A'-distinction. Although this study only focuses on Japanese scrambling, a further study is needed to account for (i) a cross-linguistic difference in Weak Crossover effects and (ii) a difference between anaphor binding and variable binding in German (Grewendorf and Sabel 1999) under the framework.

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