String-Vacuity and LF Interpretation in A-Chains: Cases of ECM and Nominative-Genitive Conversion

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Abstract. This paper aims to argue for the Agree-less plus single cycle approach, advocated recently by Hornstein (2009), according to which long-distance dependency is captured by regular movement plus the mechanism of which copy is pronounced. Based upon Lasnik’s (1999) observation that the ‘raising to object’ involved in the ECM construction is optional, I demonstrate that this can be best captured under this approach by assuming (i) that either the top (in the higher Spec-VP) or the bottom copy (in the embedded Spec-TP) of the A-chain involved is pronounceable and (ii) that the activation for LF interpretation such as binding and scope correlates with which copy is pronounced. Further, following Abe and Hornstein’s (to appear) mechanism of chain production, according to which string-vacuous movement requires the pronunciation of the bottom copy of a chain, I address the question how it is possible for the top copy of the A-chain in question to be active for LF interpretation even though the chain involves string-vacuous movement. Finally, I demonstrate that the same mechanism of pronunciation and LF interpretation is naturally extended to capture the similar properties of a genitive-marked subject in the phenomenon of nominative-genitive conversion in Japanese.
Keywords: string-vacuity, ECM, raising to object, nominative-genitive conversion, Agree-less approach, single cycle hypothesis

1. Introduction

It has been an interesting issue since at least Huang’s (1982) work on wh-in-situ languages what mechanism or conditions determine whether a given instance of movement must be overt or covert. Given the recent minimalist setting in which there is no separate component for overt and covert movement, often called the single cycle hypothesis, this issue now bears a different take. There are two major strands: One is an Agree-based approach advocated by Chomsky (2000) in which covert movement is recaptured as the operation of Agree and overt movement is triggered by such a feature as EPP. The other strand, advocated by Hornstein (2009), among others, may be called an Agree-less approach, and captures the overt vs. covert movement in terms of which copy of the resulting chain is pronounced. This paper aims to give support to the second approach.

Under this approach, Abe and Hornstein (to appear) make the following proposal as a condition on string-vacuous movement:

(1) The head of a chain created by Move cannot be pronounced unless it has an effect on PF output (i.e. the string linear properties of the output).

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1 See Hornstein (2009) for the conceptual argument against the operation Agree under the assumption that the movement operation is captured as a species of Merge, i.e., Internal Merge.
They deal with the insensitivity of locality observed in Right Node Raising in English and Left Node Raising in Japanese in terms of string-vacuity of Across-the-Board (ATB) movement involved in these constructions. On the assumption that such locality effects as caused by the Right Roof Constraint and island conditions apply only to ‘overt’ movement, i.e., movement whose top copy is pronounced, string-vacuous movement is free from such locality effects, given (1).

Aiming to seek for any implications of (1) for A-chains, the present paper examines how string-vacuous movement affects LF interpretation in A-chains. One of the target cases of this examination is an Exceptional Case Marking (ECM) construction such as the following:

(2) John believes Mary to be honest.

It is not immediately clear from the surface order of such a sentence where the subject of the ECM construction is located. In the LGB era, where government plays a crucial role in Case-assignment, the subject stays in the embedded Spec-TP, as shown below:

(3) John believes \([\text{TP} \, \text{Mary to be honest}]\)

Here \(\text{Mary}\) receives accusative Case from \(\text{believes}\) under a government relation holding between them. Since the advent of the Minimalist Program, however, in which the notion of government is discarded, Case-assignment, or Case checking in the more recent terminology, has been done uniformly under a more natural relation such as that of a head and its specifier, as proposed by Chomsky (1991). On the assumption that accusative Case is checked in the \(\text{Agr}_o\) projection, such an ECM subject as \(\text{Mary}\) in (2)
is raised covertly to the matrix Spec of Agr, as shown below:\(^2\)

(4) John \([_{\text{Agro}} <\text{Mary}> [_{\text{VP}} \text{believes} [_{\text{TP}} \text{Mary to be honest}]]]\)

Here it is necessary to assume that the movement is covert to get the correct word order. However, Lasnik and Saito (1991) provide plenty of evidence that motivates the claim, originally made by Postal (1974), that such ‘raising to object’ as in (4) must take place overtly. Incorporating this observation as well as the idea of Koizumi (1995)’s split VP hypothesis, which provides a solution to the word order problem that will arise if the ‘raising to object’ takes place overtly, Chomsky (2008) proposes that an ECM subject is raised overtly to Spec-VP, as illustrated below:

(5) John \([_{\text{VP}} \text{v}+\text{believes} [_{\text{VP}} \text{Mary} [_{\text{TP}} \text{believes} [_{\text{TP}} <\text{Mary}> \text{to be honest}]]]\])

Under the standard assumption that the morphological form as well as the semantic function of a verb is determined as a result of forming the \(v+V\) compound (cf. Hale and Keyser (1993), among others), \textit{believes} in (5) is raised overtly to the above \(v\).

Given this, an interesting question arises as to which copy of \textit{Mary} is pronounced in (5) under the Agree-less theory of movement; since the movement of \textit{Mary} appears to be string-vacuous, it might be the case, if the condition given in (1) is extendable to A-chains, that the bottom copy is pronounced. The present paper explores this possibility, investigating the relationship between which copy is pronounced and which

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\(^2\) Here and throughout the paper, angled brackets indicate that a phrase enclosed with them is unpronounced. Thus, in (4), the angled brackets that enclose the top copy of \textit{Mary} indicate that the movement takes place covertly.
participates in LF interpretation.

We also examine the phenomenon of nominative-genitive conversion observed in Japanese, which is illustrated below, in light of the Agree-less theory of movement.

(6) a. [Mary-ga sukina] syoonen
   -Nom like boy
   ‘a boy Mary likes’

   b. [Mary-no sukina] syoonen
   -Gen like boy

Given that genitive Case is licensed in a DP projection, it is natural to assume that a genitive subject such as Mary-no in (6b) undergoes movement to Spec-DP, as shown below:

(7) [DP Mary-no [TP [\v Mary-no sukina]] syoonen]

The question relevant for the present discussion is which copy of Mary is pronounced in (7); given (1), it will be expected that the bottom copy is pronounced. Again, the present paper explores this possibility, demonstrating that the mechanism of pronunciation and LF interpretation invented for the ECM construction works for this genitive subject construction as well, without any significant qualification.

The paper is organized as follows: Section 2 outlines Lasnik and Saito’s (1991) demonstration that ‘raising to object’ takes place overtly in ECM constructions. Further, it presents Lasnik’s (1999) argument that the overt raising to object is in fact optional. In Section 3, I make a proposal to capture the optionality of raising to object under Abe
and Hornstein’s (to appear) mechanism of movement and pronunciation. Section 4 extends the analysis presented in Section 3 to the phenomenon of nominative-genitive conversion in Japanese, providing further consequences regarding the (in)sensitivity to locality of the A-movement involved in this construction. Section 5 concludes with a summary.

2. ‘Raising to Object’ in ECM Constructions

Lasnik and Saito (1991) demonstrate that in such an ECM construction as in (2), repeated below, the ECM subject is raised into the higher clause.

(8) John believes Mary to be honest.

The crucial evidence for this ‘raising to object’ comes from those data that are concerned with the relative height of the ECM subject against other phrases in the higher clause. Consider the following examples:

(9) a. Joan believes he i is a genius even more fervently than Bob’s mother does.

b.?*Joan believes him i to be a genius even more fervently than Bob’s mother does.

(Lasnik and Saito 1991, p. 327)

The acceptability of (9a) with *he referring to Bob indicates that the embedded subject does not c-command into an adverbial phrase hanging in the matrix clause, thus free from a Condition C violation. The unacceptability of (9b) with *him referring to Bob will, in turn, indicate that him does not stay in the embedded subject position but rather is raised into the higher clause, so that it c-commands Bob, violating Condition C. Lasnik and Saito provide the same pattern of data with respect to anaphor binding and licensing
of negative polarity items (NPI), as shown below:

(10) a. *The DA proved [that the defendants were guilty] during each other’s trials.
    b. ?The DA proved [the defendants to be guilty] during each other’s trials.

(ibid., p. 328)

(11) a. *The DA proved [that none of the defendants were guilty] during any of the trials.
    b. ?The DA proved [none of the defendants to be guilty] during any of the trials.

(ibid., p. 329)

Under the standard assumption that such an anaphor as each other must be c-commanded by its antecedent, the fair acceptability of (10b), compared with the impossibility of (10a), indicates that the ECM subject the defendants is raised into the matrix clause so as to c-command the reciprocal in the matrix adverbial phrase. Likewise, given the c-command requirement imposed upon NPIs, the fair acceptability of (11b) again indicates that the ECM subject none of the defendants is raised into the matrix clause.

Lasnik and Saito (1991) argue that the relevant ‘raising to object’ must take place overtly on the grounds that covert movement does not alter the possibility of satisfying Condition C as well as the c-command requirement on anaphors and NPIs. Basically following this argument, Chomsky (2008) adopts a structure such as (5), repeated below, for (8), in which the ECM subject Mary is overtly raised into the matrix Spec-VP.

(12) John [\(\_\_P \mathrm{\_\_+\text{believes}_{VP}} \text{Mary} \mathrm{\_\_believes_{TP}} \langle\text{Mary}\rangle \text{to be honest}\)]]

Things are not that simple, however. Lasnik (1999) demonstrates that the overt
raising in question must be optional on the basis of such scopal facts as follows:

(13) a. (It seems that) everyone isn’t there yet.
    
    b. I expected [everyone not to be there yet].
    
    c. Everyone seems [t not be there yet].  
       (Chomsky 1995, p. 327)

Chomsky (1995) observes that “negation can have wide scope over the [universal] quantifier in [13a], and it seems in [13b] but not in [13c].” (p. 327) He takes these facts as indicating that reconstruction is impossible in A-chains. If this reasoning is correct, then it also indicates, as noted by Lasnik (1999), that overt raising of everyone in (13b) must be optional. Lasnik provides more examples to make the same point:

(14) a. I believe everyone not to have arrived yet.
    
    b. I proved every Mersenne number not to be prime.

(15) a. Everyone is believed not to have arrived yet.
    
    b. Every Mersenne number was proved not to be prime.  (Lasnik 1999, p. 199)

(14a,b) allow the wide scope reading of negation over the universal quantifiers, whereas their passive counterparts given in (15) do not have such a reading. This again indicates that the ECM subjects in (14) can stay within the embedded clauses.

Further support for the optionality of overt raising in ECM constructions comes from data involving the make ... out construction discussed by Kayne (1985). Lasnik observes that when an ECM subject quantifier is sandwiched by make and out, so that it is clearly raised into the higher clause, it must take scope over negation, as shown below:

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(16) The mathematician made every even number out not to be the sum of two primes.

(ibid., p. 198)

According to Lasnik, those speakers who accept the alternative order, namely the one in which the ECM subject follows *make out*, allow the narrow scope of negation in that order, as shown below:

(17) The mathematician made out every even number not to be the sum of two primes.

(ibid., p. 201)

This indicates that when the ECM subject follows *make out*, it does not raise into the higher clause. Such binding tests as given in (10) and (11) lead to the same conclusion, as seen below:

(18) a. The lawyer made no witnesses out to be idiots during any of the trials.

b. The lawyer made out no witnesses to be idiots during any of the trials.

(19) a. The DA made the defendants out to be guilty during each other’s trials.

b. The DA made out the defendants to be guilty during each other’s trials.

(ibid., p. 202)

These data show that only when the ECM subjects are clearly raised into the higher clauses, i.e., when they are sandwiched by *make* and *out*, can they bind into the adverbials that hang in those higher clauses.

Given these facts, a crucial question to be asked is why ‘raising to object’ is optional. Under the assumption that accusative Case is checked in the Agr_o projection and further that “the driving force for the overt movement of the NP is a strong EPP feature in Agr_o,” (p. 203) Lasnik (1999) attributes the optionality of object raising to the
fact that $\text{Agr}_o$ optionally has an EPP-feature. Given that $\text{Agr}_s$ obligatorily carries an EPP-feature, namely, the standard EPP requirement that clauses must have subjects, however, it still remains why such an asymmetry arises. This is the more mysterious because $\text{Agr}_o$ is usually assumed “to be the same item as $\text{Agr}_s$, the labels being merely mnemonic.” (p. 203) Chomsky (2008) does not address the optionality of ‘raising to object’ in the ECM construction, simply assuming, following Lasnik and Saito (1991), that the raising is obligatory, as indicated in the representation (12).

In the following section, I present a more principled answer to the optionality of ‘raising to object’ under the Agree-less approach.

3. Proposal

3.1. Abe and Hornstein’s (to appear) Mechanism of Movement and Pronunciation

Abe and Hornstein (to appear) adopt the so-called no covert-cycle hypothesis or single-cycle hypothesis, originally proposed by Groat and O’Neil (1996) and advocated by Hornstein (2009), among others, according to which a chain is produced by the operations Copy, Merge and Delete, and the distinction of overt vs. covert movement is made by which copy of a chain is pronounced, the head or the tail. Thus, in the following schematic structures:

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3 Lasnik (1999) mentions another possibility. Chomsky (1995) considers that if Agr has no strong feature, there is no reason for it to exist since no PF or LF effects would arise without such a feature. Given this, Lasnik suggests that the optionality of raising can be attributed to the optionality of $\text{Agr}_o$ itself.
(20) a. XP [… <XP>…]

b. <XP> [ … XP …]

XP copies itself and merges the newly-created copy to the top of the structure, and then either copy of XP is deleted, the bottom copy as in (20a) (a case of overt movement) or the top copy as in (20b) (a case of covert movement). Abe and Hornstein then propose that the decision of which copy is pronounced is regulated by the PF condition given in (1), reproduced below, in accordance with Chomsky’s (1995) idea that overt movement must have a PF effect:

(21) The head of a chain created by Move cannot be pronounced unless it has an effect on PF output (i.e. the string linear properties of the output).

Abe and Hornstein motivate this PF condition by analyzing the Right Node Raising (RNR) Construction in English, whose representative example is given below:

(22) John likes _ and Bill hates _, the linguistic professor teaching Ling 101.

They adopt Ross’s (1967) ATB-movement analysis of this construction, according to which the shared element undergoes movement out of each conjunct in an ATB fashion and is right-adjoined to the whole coordinate structure, as shown below:

(23) [Clause [Clause John likes _] and [Clause Bill hates _] [the linguistic professor teaching Ling 101]]

Since Ross proposed this analysis, a major obstacle to it has been how to characterize the fact that RNR is immune to the bounding conditions, including island conditions,
imposed upon rightward movement. Thus, it is free from the Right Roof Constraint (RRC); compare (24) and (25).\(^4\)

(24) *Max said [that he was going to return ___ to the library] yesterday each of the books that he checked out last week.  

(Sabbagh 2007, p. 350)

(25) Josh said that he thought that I should sell ___, and Jamie said that she thought that she might want to buy ___, each of the Rambaldi artifacts that I have in my attic.  

(ibid., p. 358)

Further, it has been well known since Wexler and Culicover (1980) that RNR is insensitive to islands in general, as shown below:

(26) I know someone who wants to buy ___, and you know someone who wants to sell ___, a copy of this manuscript.  

(ibid., p. 352)

(27) Josh wonders who bought ___, and Bill will find out who sold ___, pictures of Fred.  

(ibid., p. 382)

(28) Politicians win when they defend ___, and lose when they attack ___, the right of a woman to an abortion.  

(ibid., p. 382)

These RNR examples have the following schematic structure:

\(^4\) Recently, Sabbagh (2007) supports an ATB movement analysis of RNR in English by addressing the question of why such an ATB movement shows insensitivity to locality conditions. Abe and Hornstein (to appear) propose an alternative solution to this question. I have taken relevant RNR examples from Sabbagh (2007).
Here DP₃ is an occurrence of the shared DP that has undergone ATB rightward movement and DP₁ and DP₂ are occurrences in the sites from which it has undergone this movement. Thus, we have two chains whose head is shared: (DP₃, DP₁) and (DP₃, DP₂). Abe and Hornstein propose that while RNR involves overt ATB-movement as a default case, hence DP₃ being the target of pronunciation, the PF condition stated in (21) dictates that DP₂ must be pronounced when the chain (DP₃, DP₂) involves string-vacuous movement. Thus, in all the RNR examples that have been presented so far, the shared DPs are pronounced in their original positions of the second conjuncts.

Abe and Hornstein further propose the following:

(30) Locality conditions such as the RRC and the island conditions apply only to ‘overt’ movement.

Given this proposal, the insensitivity of locality observed with the RNR examples above follows since in these cases, the shared DPs are pronounced in their original positions of the second conjuncts, hence taken to have undergone ‘covert’ movement, due to the string-vacuity of movement involved. It is predicted under the present mechanism that when non-string-vacuous movement is involved in producing the chain (DP₃, DP₂) in (29), the latter chain is sensitive to locality conditions. This is borne out by the following RNR example, which gives rise to an RRC violation:

(31) *Joss said [that he was going to donate ___ to the library] yesterday, and Jamie
claimed [that she would donate _ to the museum] last week, a large collection of ancient texts. (ibid., p. 355)

Here the shared DP is moved out of the embedded finite clause in each conjunct in an ATB fashion, and the movement involved in the second chain is not string-vacuous, hence taken as an ‘overt’ movement. This induces a violation of the RRC.

3.2. An Extension to A-Chains

In this subsection, I address the question why ‘raising to object’ is optional in ECM constructions in terms of Abe and Hornstein’s (to appear) mechanism of movement and pronunciation. Let us consider (12), repeated below with a slight modification, under this mechanism:

(32) John [_{vp} v-believes [_{vp} <Mary> t-believes [_{tp} <Mary> to be honest]]]

Here, Mary is raised to the higher Spec-VP and this raising is assumed to be overt under Chomsky’s (2008) system of movement. On the other hand, it is not a priori determined under the single cycle plus Agree-less approach, which Abe and Hornstein (to appear) follow, whether the raising in question is overt or covert (thus both occurrences of Mary being enclosed with angled brackets). Recall that in the case of RNR, the ATB movement involved is overt in default cases in the sense that the top copy of the resulting chain is pronounced unless any condition such as (21) dictates otherwise. Unlike such an ‘A’-movement’ case, let us hypothesize the following for A-chains:

(33) In the case of an A-chain, any member (except the tail) can be the target for
pronunciation.  

This is, in effect, the source of optionality of ‘raising to object’, and it will be a null hypothesis under the single cycle plus Agree-less approach adopted here. (32) can then be realized as either (34a) or (34b):

(34) a.  John [\(\_p\ v+\)believes [\(v_p\ \)Mary \(t_{\text{believes}}\ [\text{TP} <\text{Mary}\>\) to be honest]]]

b.  John [\(\_p\ v+\)believes [\(v_p\ <\text{Mary}\> t_{\text{believes}}\ [\text{TP Mary to be honest}]]]

Now this may sound odd since usually the top copy is pronounced in a typical A-chain such as one produced by subject raising:

(35)  John seems [\(\text{TP} <\text{John}>\) to be <\text{John}> honest].

I assume that this is due to the standard EPP, which is characterized as follows:

(36) a.  The EPP requires that Spec-TP must be occupied by an overt phrase.

(cf. Holmberg 2000, Takahashi 2001, Abe 2010a)

b.  Only the Spec of tensed T is subject to the EPP.

Given this characterization, the top copy of the *John*-chain must be pronounced in (35) in order to satisfy the EPP in the way stated in (36a). In the case of ECM, on the other hand, the qualification “except the tail” is added to exclude the possibility of pronouncing *Mary* in its original position, as below:

(i) *John believes to be Mary honest.

Given the generalization that Case adjacency is required for the Case assigner and assignee or whatever constraint derives such a requirement, the ungrammaticality of (i) will be accounted for on a par with such a sentence as below:

(ii) *John believes sincerely Mary to be honest.

If this is the case, then the qualification in question may be omitted.
hand, the EPP is off according to (36b) since no tensed T is involved in this construction, which thus makes possible both options given in (34) in principle.6

Note, however, that the PF condition (21) excludes the option (34a), since the latter involves string-vacuous movement, and hence (34b) is the sole option. Compare such an ECM case with the make-out construction, which has two realizations, as shown below:

(37) a. John made Mary out to be a fool.
   b. John made out Mary to be a fool.

In this case, it is reasonable to claim that Mary is pronounced either in the higher Spec-VP, giving rise to (37a), or in the embedded Spec-TP, giving rise to (37b); the schematic representations are given below:

(38) a. John [\(vP \rightarrow_v^+_{\text{make}} [vP \text{Mary} t_{\text{make}}^+_{\text{out}} [\text{TP} \text{to be } <\text{Mary}> \text{ a fool}]])] 
   b. John [\(vP \rightarrow_v^+_{\text{make}} [vP \text{Mary} t_{\text{make}}^+_{\text{out}} [\text{TP} \text{Mary to be } <\text{Mary}> \text{ a fool}]])] 

6 The EPP is motivated for the ECM construction by the fact that expletives are required for ECM subjects in the following sentences:

(i) a. John believes there to have been an earthquake.
   b. *John believes to have been an earthquake.

(ii) a. John believes it to be likely that Mary will win.
   b. *John believes to be likely that Mary will win.

I assume, following Abe (1997) and Bošković (2002), that the so-called Inverse Case filter is at work here; namely, such an ECM verb as believe needs to get its uninterpretable \(\phi\)–features checked. Further, I follow Abe (1997) and Bošković (2002) in assuming that the A-movement involved in the ECM construction must pass through the embedded Spec-TP to satisfy the Minimize Chain Links, proposed by Chomsky and Lasnik (1993).
Note that in this case, (38a) is allowed since the A-movement in question is not string-vacuous thanks to *out* intervening.

Now let us consider which copy of the A-chain involved in the ECM construction participates in such LF interpretations as anaphor binding, NPI licensing, and scope interaction. Given what Lasnik (1999) found out with respect to such phenomena, we have the following generalization:

(39) a. In such an ECM case as (34), both members of *Mary* can participate in LF interpretation.

    b. In such a *make-out* case of (38), there is a division of labor: only the pronounced member of *Mary* is active in LF interpretation.

To review the relevant observations briefly, we have seen that in the ECM-type given in (39a), there is evidence for overt raising of ECM subjects into the higher clauses, as repeated below:

(40) a. ?The DA proved [the defendants to be guilty] during each other’s trials.

    b. ?The DA proved [none of the defendants to be guilty] during any of the trials.

Here, the top copy of the relevant A-chain in each case must participate in anaphor binding and NPI licensing. On the other hand, we have also seen that relevant scope facts indicate that the bottom copy is active for determining scope interaction, as repeated below:

(41) a. I believe everyone not to have arrived yet.

    b. I proved every Mersenne number not to be prime.

In these cases, the *every*-phrases can take scope under negation, which thus indicates
that their bottom copies may participate in the scope interaction with *not*.

As for the *make-out*-type ECM construction, ‘what you see is what you get’. Thus, in the following sentences:

(42) a. The mathematician made every even number out not to be the sum of two primes.

   b. The mathematician made out every even number not to be the sum of two primes.

the *every*-phrase in (42a), which is pronounced in the matrix Spec-VP, must take scope over negation, whereas that in (42b), which is pronounced in the embedded Spec-TP, can take scope under negation. Likewise, in the following sentences:

(43) a. The lawyer made no witnesses out to be idiots during any of the trials.

   b. The lawyer made out no witnesses to be idiots during any of the trials.

(44) a. The DA made the defendants out to be guilty during each other’s trials.

   b. The DA made out the defendants to be guilty during each other’s trials.

When the top copies are pronounced as in (43a) and (44a), they can bind into the higher clauses, but when the bottom copies are pronounced as in (43b) and (44b), they cannot.

In order to derive the generalization given in (39), let us first assume the following:

(45) a. The semantic feature [SF] indicates that its carrier can participate in LF interpretation.

   b. The phonetic feature [PF] indicates that its carrier must be pronounced.

Then, I propose the following:
(46) [SF] and [PF] must be carried by the same member of an A-chain.

From this hypothesis, the generalization (39b) follows immediately. Furthermore, it correctly captures the fact that there is no reconstruction in A-chains. The relevant examples are reproduced below:

(47) Everyone seems [not be there yet].

(48) a. Everyone is believed not to have arrived yet.

   b. Every Mersenne number was proved not to be prime.

In these examples, the every-phrases must take scope over negation. This follows from (46).

As for (39a), let us again consider the representations given in (34), reproduced below:

(49) a. John [\[\text{v} + \text{believes} [\text{VP} \text{Mary} \text{tbelieves} [\text{TP} <\text{Mary}> \text{to be honest}]]]]

   b. John [\[\text{v} + \text{believes} [\text{VP} <\text{Mary}> \text{tbelieves} [\text{TP} \text{Mary to be honest}]]]]

Recall that (49a) is excluded by the PF condition (21) since the raising involved is string-vacuous. According to (46), the bottom copy of Mary in (49b) carries not only its [PF] but also its [SF], so that this representation can capture the fact that the every-phrase in ECM subject position may take scope under negation, as shown in (41).

How about those cases of anaphor binding and NPI licensing that show that the top copy of an ECM subject is active for LF interpretation? At least two possibilities come to mind. One is to claim that unlike such A’-movement cases as in RNR, the PF condition (21) does not apply to A-chains, so that (49a) is not an illegitimate representation. Though it appears most straightforward, I do not pursue this possibility
here, simply because there seems to be no plausible reason for this asymmetry between A- and A’-chains. The other possibility, which I pursue here, is to admit the following representation somehow as an exceptional case to (46):

(50) *John [vP v+believes [vP Mary tbelieves [TP Mary to be honest]]]

[SF] [PF]

In order to instantiate this idea, I suggest that the PF condition (21) be reformulated as a sort of PF adjustment rule to the following effect:

(51) Given a chain C = (α₁, …, αₙ), if any pair of (αᵢ, αⱼ) in which αᵢ carries [PF] has no effect on PF output (i.e. the string linear properties of the output), then adjust this pair as follows: make αⱼ carry [PF].

Suppose further that condition (46) applies at the point of Transfer or Spell-Out. Then the following derivation is legitimate:

(52) a. John [vP v+believes [vP Mary tbelieves [TP Mary to be honest]]] (satisfying (46))

[SF][PF]

↓ apply (51)

b. John [vP v+believes [vP Mary tbelieves [TP Mary to be honest]]]

[SF] [PF]

In this way, the top copy of an ECM subject can be active for LF interpretation even though the bottom copy is pronounced. In the next section, I argue for this approach in terms of (51) on the basis of the comparable behaviors of nominative-genitive conversion in Japanese.

Finally, there is one case of the ECM-type belonging to (39a) that suggests that
‘raising to object’ is obligatory, that is, that the top copy of the resulting chain must be pronounced. This is concerned with a Condition C violation case such as the following:

(53)*Joan believes him to be a genius even more fervently than Bob’s mother does.

In order to exclude such a case, we need to force him to have its [SF] carried by its occurrence in the matrix Spec-VP, so that it c-commands Bob. As Lasnik (1999) observes, “it is not uncommon for ‘object shift’ to be obligatory with pronouns even when it is optional with lexical NPs,” (p. 201) as exemplified clearly by the make-out construction:

(54) a. Mary made him out to be a fool.
   b. *Mary made out him to be a fool.

One way to capture the obligatoriness of ‘object shift’ of pronouns is to treat them as a kind of clitic that needs to be attached to a verb. Suppose that in order to cliticize onto a preceding verb, a clitic must have its top copy pronounced and that this requirement supersedes that of (51). Then, (53) must have the following representation:

(55) Joan [vP v+believes [vP him t_believes [TP him to be a genius ...]]]

[SF][PF]

With this representation, (53) is correctly ruled out as a Condition C violation.


In this section, I discuss the phenomenon of nominative-genitive (ga-no) conversion in Japanese to demonstrate that the mechanism of pronunciation and LF interpretation for A-chains proposed in the previous section is extendable to this construction rather
straightforwardly with further interesting consequences. The relevant examples are reproduced below:

(56) a. [Mary-ga sukina] syoonen

   -Nom like boy

   ‘a boy Mary likes’

b. [Mary-no sukina] syoonen

   -Gen like boy

Given that genitive Case is licensed in a DP projection, it is natural to assume under the present Agree-less plus single cycle approach that a genitive subject such as Mary-no in (56b) undergoes movement to Spec-DP, as shown below:

(57) [DP Mary-no [TP [IP Mary-no sukina]] syoonen]

The question relevant for the present discussion is which copy of Mary is pronounced in (57). Since this movement is basically applied for checking or licensing the genitive Case of the moved DP, it is natural to take it as an instance of A-movement. Then, according to (33), either copy of Mary should be pronounceable in principle, though in this particular case, the bottom copy is pronounced by the PF adjustment rule (51).

Here a prediction arises: in such a case, either copy can participate in LF interpretation. That the top copy is active for LF interpretation is shown by Miyagawa (1993) with such data as the following, which involve scope interaction of a genitive quantifier phrase with the licensing N head riyuu ‘reason’:
(58) a. [Daremo-ga paatii-ni kita] riyuu-o osiete. (*every > reason)

everyone-Nom party-to came reason-Acc tell

‘Tell me the reason everyone came to the party.’

b. [Daremo-no paatii-ni kita] riyuu-o osiete. (every > reason)

everyone-Gen party-to came reason-Acc tell

In (58a), the universal quantifier which bears nominative case cannot take scope over riyuu, and this is expected since it is located in the Spec-TP in the relative clause, hence structurally lower than the nominal head riyuu. On the other hand, the fact that the universal quantifier bearing genitive case can take scope over riyuu indicates that it undergoes A-movement to the Spec-DP and the top copy is active for such scope interaction, as indicated below:

(59) [dp daremo-no [tp daremo-no paatii-ni kita]] riyuu]

Note that condition (46) requires that [SF] and [PF] be borne by the same phrase, hence forcing daremo in (59) to bear both features. After Spell-Out, the [PF] is transferred to the bottom copy by the PF adjustment rule (51).

Further, there is evidence that a genitive-marked subject can take scope in the position occupied by the bottom copy of the A-chain involved. Consider the following examples:

(60) a. [subete-no hito-ga ko-naka-tta] riyuu (not > every)

everyone-Gen person-Nom come-not-Past reason
'the reason everyone didn’t come'

b. [subete-no hito-no ko-naka-tta] riyuu (not > every)

everyone-Gen person-Gen come-not-Past reason

In (60b), the genitive-marked subject *subete-no hito-no* ‘everyone-Gen’ can take scope under negation, just like the nominative-marked subject in (60a). This indicates that (60b) can have the following representation, in which the bottom copy is pronounced and is involved in scope interaction with negation:

(61) ![DP subete-no hito-no [TP [v subete-no hito-no ko-naka-tta]] riyuu]

As Nakai (1980) observes, it is possible to place an adverbial phrase in front of a genitive-marked subject, which thus clearly indicates from the word order that the subject is inside the relative clause:

(62) [paatii-ni Mary-no kita] riyuu

‘the reason Mary came to the party’

It is predicted under the present approach that in such a case, a genitive-marked quantifier phrase cannot take scope outside the relative clause, since the relevant word order indicates that the bottom copy of the quantifier phrase is pronounced and hence according to (46), it must also be the one that is involved in scope interaction. This is in fact borne out; compare (58b) with the following sentence:

(63) [Paatii-ni daremo-no kita] riyuu-o osiete. (*every > reason)

‘the reason everyone-Gen came reason-Acc tell’
This sentence does not allow the reading where *daremo* ‘everyone’ takes scope over the head noun *riyu* ‘reason’, as predicted.\(^7\) The following example shows that a genitive-marked quantifier phrase can take scope within the relative clause when preceded by an adverbial phrase:

(64) \([\text{paatii-ni subete-no hito-no ko-naka-tta}] \text{ riyuu (not > every)}\)

\[
\begin{array}{c}
\text{party-to every -Gen person-Gen come-not-Past reason} \\
\text{‘the reason everyone didn’t come to the party’}
\end{array}
\]

Thus, when the relevant word order clearly indicates that the bottom copy of a genitive-marked phrase is pronounced, it must also be the one that is involved in LF interpretation in accordance with (46).

Finally, the present approach has a nice consequence with respect to the (in)sensitivity to locality of the A-chain involved in the construction under consideration. It can answer the question why a genitive-marked subject is able to move out of the relative clause island, taking scope in the above DP in such a case as (59), reproduced below:

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\(^7\) Miyagawa (1993) reports that there are some speakers who allow a genitive-marked quantifier phrase to take scope outside the relative clause when it is preceded by a bare adverbial such as *kinoo* ‘yesterday’. His original example is given below:

(i) \([\text{Kinoo John ka Mary-no kita}] \text{ riyuu-o osiete.} \)

\[
\begin{array}{c}
\text{yesterday or -Gen came reason-Acc tell} \\
\text{‘Tell me the reason John or Mary came.’}
\end{array}
\]

Personally, I find the wide scope reading of *John ka Mary-no* ‘John or Mary-Gen’ hard to obtain. I have nothing interesting to say about the variation among Japanese speakers at this moment.
The answer is that since the A-movement involved is string-vacuous, the PF adjustment rule (51) dictates that the bottom copy of the resulting chain be pronounced. Recall what Abe and Hornstein (to appear) propose with respect to the locality-sensitivity of string-vacuous movement; the relevant condition is reproduced below from (30):

(66) Locality conditions such as the RRC and the island conditions apply only to ‘overt’ movement.

According to this statement, such string-vacuous movement as that involved in (65) is immune to the relative clause island since it is ‘covert’ in the sense that the bottom copy of the resulting chain is pronounced. Hence, under the present approach, the immunity to the relative clause island comes from the fact that the bottom copy of a genitive-marked subject is pronounced while its scopal behaviors are attributed to the fact that it undergoes A-movement to the above Spec-DP, hence both the top and bottom copies acting as scope-bearers. This leads to the prediction that ‘overt’ movement of a genitive-marked subject is never possible since it would give rise to a relative clause island violation. This is in fact borne out by the following examples, pointed out by Terada (1987):

(67) a. [utukusii] [John-\textbf{no} sukina] basyo
    beautiful   -Gen like place
    ‘a beautiful place that John likes’
b. *[John-no [utukusii] [t sukina] basyo

-Gen beautiful like place

(67b) would be derived by applying overt movement to John-no, so that the latter phrase occupies the above Spec-DP, as indicated below:

(68) [DP John-no [NP utukusii [TP [v John-no sukina]] basyo]]

The unacceptability of (67b) then indicates that overt movement of a genitive-marked subject out of the relative clause is impossible, as predicted.\(^8\,^9\)

\(^8\) Ochi (2001) claims that while relative clauses resist overt raising of a genitive subject, gapless clauses do allow such overt raising, but as far as I can determine, the contrast in acceptability of the relevant examples is far from clear. Ochi provides the following examples:

(i) a. totemo mazusii, (seihu-niyotte) zyuubun-na tyuui-no harawarete-inai tiiki very poor government-by enough attention-Gen be-paid -not area

‘the area to which enough attention is not paid (by the government)’

b. *zyuubun-na tyuui-no, totemo mazusii, (seihu-niyotte) t harawarete-inai tiiki enough attention-Gen very poor government-by be-paid -not area

(Ochi 2001, p. 268)

(ii) a. kompyuutaa-ga keisan-sita, zyuubun-na tyuui-no dono tiiki-ni-mo computer -Nom calculated enough attention-Gen any area-Dat-Q harawarete-inai kanoosei be-paid -not possibility

‘the possibility that enough attention is not paid to any area which the computer calculated’

b. zyuubun-na tyuui-no, kompyuutaa-ga keisan-sita, t dono tiiki-ni-mo enough attention-Gen computer -Nom calculated any area-Dat-Q
5. Conclusion

In this paper, I have argued for the Agree-less plus single cycle approach, advocated recently by Hornstein (2009), according to which long-distance dependency is captured not by the operation of Agree with optional [EPP] features but rather by regular movement plus the mechanism of which copy is pronounced. I have demonstrated that the optionality of ‘raising to object’ in the ECM construction can be best captured under this approach by assuming (i) that either the top (in the higher Spec-VP) or the bottom copy (in the embedded Spec-TP) of the A-chain involved is pronounceable and (ii) that the activation for LF interpretation correlates with which copy is pronounced. Further, given the PF condition on string-vacuous movement, proposed by Abe and Hornstein (to appear), I have addressed the question how it is possible for the top copy of the A-chain in question to be active for LF interpretation even though the chain involves

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harawarete-inai kanoosei
be-paid -not possibility

(ibid., p. 282)

(ib) shows that overt raising of a genitive-marked subject out of a relative clause is impossible, whereas (iib) shows that such overt raising is possible with gapless clauses. To me (iib) seems as bad as (ib). See Abe (2010b) for a more thorough examination of Ochi’s examples that are claimed to suggest overt raising of a genitive-marked subject.  

9 There remains a crucial question with the present movement approach to a genitive-marked subject: what makes it possible for such a subject to move across the Spec-TP where it would have its Case checked/licensed if it would carry nominative Case? See Abe (2010b), who addresses this question in terms of the availability of scrambling.
string-vacuous movement. In order to reconcile this PF condition with the second assumption stated above, I have proposed that it be reformulated as a PF adjustment rule, which transfers the [PF] of the top copy to the bottom when both copies are adjacent to each other. Finally, I have shown that the mechanism of pronunciation and LF interpretation proposed for the ECM construction is naturally extended to capture the similar properties of a genitive-marked subject in the phenomenon of nominative-genitive conversion. The most crucial consequence of this approach is that it is able to give an answer to why the A-movement of a genitive-marked subject does not induce a relative clause island violation: this is because it involves ‘covert’ movement, i.e., the bottom copy of the resulting A-chain is pronounced.

References


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