LABELING AND OVERT/COVERT MOVEMENTS *

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1. Introduction

It has been observed that a language with free word order tend to be a scope rigid language while a language with strict possibilities of word order allows scope ambiguity (Szabolcsi 1997). Let us compare English and Japanese. An English sentence in (1), for instance, allows the inverse scope interpretation as in (2b), as well as the surface order scope interpretaion as in (2a).

(1) A girl recommended every boy

(2) a. There is x, x a girl such that for every y, y a boy, x recommended y ($\exists > \forall$)
b. For every y, y a boy, there is x, x a girl such that x recommended y ($\forall > \exists$)

Japanese, on the other hand, is claimed to be scope rigid (e.g. Kuroda 1965, Kuno 1973, Hoji 1985, Lasnik and Saito 1992, Bobaljik and Wurmbrand 2012).

(3) Onnanoko-ga hitori dono otokonoko-mo suisensita
girl -NOM one every boy -MO recommended

'A girl recommended every boy'

(4) a. There is x, x a girl such that for every y, y a boy, x recommended y ($\exists > \forall$)
b. * For every y, y a boy, there is x, x a girl such that x recommended y ($*\forall > \exists$)

For sentence (3), for example, the inverse scope interpretation in (4b) is hard to get and thus it has often been claimed that Quantifier Raising (QR) of the universally quanfitied object over the subject is not available in Japanese. Let us call this state of affairs "Szabolcsi's inverse correlation."

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(5) Szabolcsi's inverse correlation
   a. languages with free word order: rigid scope
   b. languages with strict possibilities of word order: tolerance for scope ambiguity

An obvious question to ask is why the inverse correlation in (5) holds.

In this paper, I will first present Bobaljik and Wurmbrand's (2012) proposal to account for the inverse correlation in (5) and will point out a conceptual problem of their proposal. I will then propose a labeling-based account of (5). Specifically, I will claim that types of labels can be different between the PF interface and the LF interface. Under the general conception of (Internal) Merge (Chomsky 2013, 2015), given that the highest copy realization is most preferrable (Bošković 2002, Corver and Nunes 2007, Chomksy 2013), overt movement is always preferred over covert movement. I will show that this is exactly what is happening in Japanese scrambling ("overt movement") and thus there is no corresponding QR ("covert movement"): inverse scope reading is hard to obtain. However, if the highest copy realization induces a labeling problem at the PF interface but not at the LF interface, then it turns out to be a covert movement. I will demonstrate that this is the case in English QRs.

The organization of this paper is as follows. In Section 2, I will overview Bobaljik and Wurmbrand's (2012) Scope Transparency approach, which attempts to capture the inverse correlation in (5), and will indicate that their proposal faces a conceptual difficulty. In Section 3, building upon Saito's (2016) proposal that Japanese case particles are an "anti-labeling device," I will propose a labeling-based account of the inverse correlation in (5). In Section 4, I will claim that types of labels can be different between the PF interface and the LF interface, and that this is why QR in English does not cause any labeling problem even though scrambling is not possible in English. I will explore some consequences of the current proposal in Section 5 and in Section 6. Section 7 concludes the paper.

2. Scope Transparency Account

It is well known that word order flexibility in Japanese is much higher than that in English. Theoretically put, scrambling is possible in Japanese while it is not in English. For instance, (b) sentences in (6) and (7) are grammatical in Japanese but the corresponding (b) sentences in (8) and (9) in English are seriously degraded.

(6) a. Mary-wa doko-ni-mo ik-anakat-ta
Mary-TOP where-to-MO go-not-PAST

'Mary didn't go anywhere'

b. Dono-ni-mo$_i$ Mary-wa t_i ik-anakat-ta
where-to-MO Mary-TOP go-not-PAST

(7) a. Taroo-wa sono hon-o Mary-ni watasi-ta
Taro-TOP that book-ACC Mary-to hand-PAST

'Taro handed the book to Mary'

b. Mary-ni$_j$ sono hon-o$_i$ Taoo-wa t_i t_j watasi-ta
Mary-to that book-ACC Taro-TOP hand-PAST

(8) a. Mary didn't go anywhere
b. * Anywhere$_i$ Mary didn't go t_i.

(9) a. John handed the book to Mary
b. * To Mary$_j$, the book$_i$, John handed t_i t_j.

The inverse correlation is clearly demonstrated. Japanese has scrambling as in (6) and (7) but inverse scope (QR) is not easily available as in (3). English, in contrast, does not have scrambling as in (8) and (9) but inverse scope (QR) is available as in (1). Given this, Bobaljik and Wurmbrand (2012) proposed Scope Transparency (10).

(10) Scope Transparency
If the order of two elements at LF is A >> B, the order at PF is A >> B.
(Bobaljik and Wurmbrand 2012: 373)

In the cases at hand, (10) means that if A takes wide scope over B at LF, A linearly precedes B at PF. The LF scope relation and the PF word order must be transparent. However, since English does not have scrambling, it sometimes cannot have the surface structure which transparently correspondes to the desired LF interpretation. For instance, (11) is not a grammatical surface structure although this surface word order transparently corresponds to the "$\forall > \exists$" interpretation at LF when we want the LF interpretation in (12).

(11) * Every boy$_i$, a girl recommended t_i.

(12) For every y, y a boy, there is x, x a girl such that x recommended y ($\forall > \exists$)

Therefore, (1), repeated here as (13), can have the inverse scope interpretation in (12) although the LF/PF order correspondance is not transparent.

(13) A girl recommended every boy (= (1))

On the other side of the same coin, Japanese does allow scrambling and thus we can have a grammatical surface order which transparently corresponds to (12) as shown in (14b).

(14) a. Onnanoko-ga hitori dono otokonoko-mo suisensita (= (3))
girl -NOM one every boy -MO recommended

'A girl recommended every boy'

b. Dono otokonoko-mo$_i$ onnanoko-ga hitori t_i suisensita
every boy -MO girl -NOM one recommended

Bobaljik and Wurmbrand (2012) argue that Japanese (14a) does not allow the inverse scope reading (12) precisely because we have a more transparent grammatical structure as in (14b):

(15) " … inverse scope in [14a] is blocked by the availability of [14b], which is a more transparent reflection of the scope. QR is possible in this context in English, precisely because English lacks scrambling." See (11). (The underline is the author's)
Bobaljik and Wurmbrand (2012: 373)

Although Bobaljik and Wurmbrand's proposal gives an explicit theoretical account of the inverse correlation observed, it nonetheless involves a massive global comparion. That is, a certain interpretation of a sentence X is supressed by the existence of a potential but yet unrealized structure Y which is derived from X. It would be desirable if we can eliminate such a global comparison from the system in order to account for the inverse correlation fact in question. Assming that the inverse correlation in (5) is real, I am going to give a more principled account of the phenomanon without appealing to the global comparison.

3. A Labeling-Based Account of the Inverse Correlation

3.1. Labeling Mechanism in Phrase Structure Building

Since the very onset of the generative study of phrase structure building, labels (syntactic categories) have been playing a significant role. Labeling is necessary for a syntactic object to be interpreted, for both PF interpretation and LF interpretation (Chomsky and Halle 1968, Chomsky 2013, 2015). In the phrase structure grammar in the early days, labels of phrases are just given as part of the phrase structure rules (Chomsky 1965, for instance). In the X-bar theoretic conception, labels of phrases are a projection of the head, but the process of projection was simply stipulated as part of the X-bar format. Under the bare phrase structure conception of phrase structure building (since Chomsky 1995), attempts have been made to construct a phrase structure building mecahism in the spirit of minimalism, and Chomsky (2013, 2015) propose a specific labeling argorithm, part of which is roughly summarized as follows:

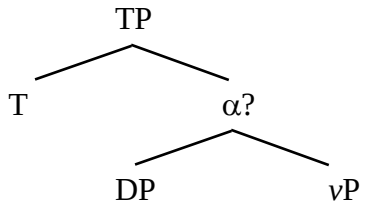
(16) a. {H, YP} ➔ H is the label

b. {XP, YP}
➔ two ways to identify the label:
(i) extraction of one member of the set or (ii) feature sharing

The foundamental minimalist principle at work here is "minimal search." When the interfaces try to identify the label (i.e. category) of a syntactic object such as (16a) where one member is a head H and the other member is a phrase YP, minimal search naturally identifies H as the head. When both members of a syntactic object are phrases as in (16b), on the other hand,

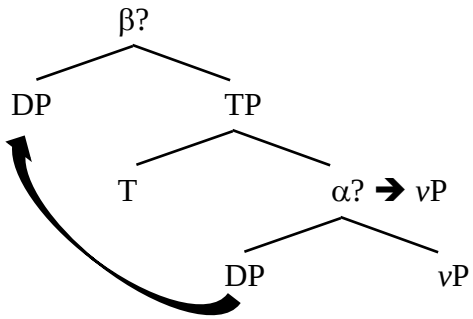
minimal search cannot identify the label in the same way as in cases like (16a). In such cases, there are two options: (i) extraction of one member of the set or (ii) feature sharing. Let us demonstrate this with specifc examples. Suppose that applying Merge recursively, we have built structure (17), in which DP is the predicate internal subject.

(17)



In (17), since neither DP nor *v*P is a head and there is no relevant feature sharing (or "agreement") between DP and *v*P, the label "α" of the syntactic object {DP, *v*P} is not determined at this stage of derivation. However, if you move the DP to TP, we will get (18) in which the lower DP occurrence is a fragment of the DP and thus defective for the purpose of labeling. Therefore, "α" is identified as *v*P and thus becomes interpretable at interfaces. This is one way Chomsky (2013) proposes to solve the {XP, YP} problem of labeling algorithm.

(18)



Now, the derivation in (18) creates another {XP, YP} problem at the root: what is the label "β" for the syntactic object {DP, TP}? In this case, it is reasonable to assume that DP and T share a prominent ϕ-feature set and minimal search identifies this ϕ-feature set as the label of "β" in this structure.

One interesting consequence of this argument is that the "EPP effect" is naturally derived from the necessity of labeling. If the DP stays in the predicate internal subject position as in (17), a part of the structure (i.e. "α") is unlabeled and thus uninterpretable at the interfaces. If the DP moves out of "α" to the "Spec" of TP, the synactic object "α" now can be labeled as *v*P and thus interpretable: the interface condition derives the EPP effect.

The concept of labeling necessity seems to have various implications for the lingusitc theory. For instance, one interesting expansion of the idea to explain cross-linguistic variation is Saito's (2016) proposal that Japanese suffixal cases are an anti-labeling device, to which we will return momenntarily in Section 3.2 below. As for another development of Chomsky (2013, 2015), Bošković (2016) argues that labeling timing can be different between (16a) and (16b). That is, the label is identified immediately upon Merge in (16a), while in (16b) the label is determined when the structure is sent to the interface. Bošković's second point may further

suggest that types of labels can be different between the PF interface and the LF interface. Although Chomsky (2015: 6) specifically states that "the same labeling is required at CI and for the process of externalization," it is a reasonable possibility that types of labels can be different for the purpose of different interfaces, because the nature of the system (sensorimoter system) on the other side of the PF interface and the nature of the system (conceptional-intentional system) on the other side of the LF interface are quite distinct. I will entertain this idea and claim that it can give a plausible labeling-based account of the Szabolcsi's observation of inverse correlation.

3.2. Deriving Inverse Correlation

The first proposal I would like to give is (19), which I assume to be an exterlization mechanism working at the PF interface.

(19) **Externalize Higher**
- a. PF parser externalizes the highest copy at the encounter
- b. If something "phonological" prevernts the realization of the upper copy, the lower copy is externalized/pronounced

(19a) is a specific instantiation of the widely recognized preference of the upper copy realization.[1] Let us look at a Japanese case. Saito (2016) proposes that Japanese suffixal cases are an anti-lableing device. That is, when we have a syntactic object {XP, YP}, if one of the members, say XP, has a suffixal case or *josi*, XP is invisible for the purpose of labeling and thus the other member YP is identified as the label of this syntactic object. Consider (20).

(20) a. [$_{TP}$ Mary-wa [$_{DP}$ doko-ni-mo] ik-anakat-ta]
Mary-TOP where-to-MO go-not-PAST
'Mary didn't go anywhere'

b. [$_{XP}$ [$_{DP}$ doko-ni-mo] [$_{TP}$ Mary-wa [$_{DP}$ doko-ni-mo] ik-anakat-ta]]

We get (20b) from (20a) by (Internal) Merge which I assume to be freely available. Now XP in (20b) consists of {DP, TP}. Given the anti-labeling property of [$_{DP}$ doko-ni-mo 'anywhere'], the DP does not participate in the labeling calculation for XP. Hence, XP is identified as TP. Following (19a), the upper [$_{DP}$ doko-ni-mo] is externalized; this turns out to be an instance of scrambling in Japanese.

Next consdier the corresponding English case in (21).

(21) a. [$_{TP}$ Mary didn't go [$_{DP}$ anywhere]]
b. . * [$_{\boxed{XP?}}$ [$_{DP}$ anywhere] [$_{TP}$ Mary didn't go [$_{DP}$ anywhere]]]

[1] See Bošković and Nunes (2007) for an economy based account of the higher copy preference.

Unless there is some relevant shared feature set between DP and TP in (21b), the label of XP cannot be indentified by minimal search. XP is not interpretable at the interface in (21b), even though Merge itself is freely available. The upper copy of DP is not going to be externalized up there: hence, there is no scrambling in English.

Now let us consider (19) more carefully, especially the part in (19b). There are good specific instantiations of (19b) discussed in the literature. Let me present two of them below. First, Bošković (2002) gives the following paradigm of Romanian.

(22) a. Cine ce precede?
who what precedes

b. * Cine precede ce?
who precedes what

'Who precedes what?'

Romanian is an SVO language and thus the underlying word order is as in (22b). Romanian is, however, a multiple wh-fronting language: all wh-phrases must be fronted. Therefore, if the object wh-word *ce* 'what' remains in the underlying object position, the sentence turns out to be ungrammatical as shown in (22b). The object *ce* 'what' must move to the CP-periphery as in (22a). Interestingly, however, when both subject wh-word and object wh-word are morphophonologically identical, the object wh-word must be pronounced in the original downstairs position as shown in (23a).

(23) a. Ce precede ce?
what precede what

b. * Ce ce precede?
what what precedes

'What precedes what?'

Under the copy theory of movement, Bošković (2002) proposes that a PF constraint in (24) is responsible for the ungrammaticality of (23b).

(24) PF Constraint
*consecutive homophonous wh-phrases

For (22a), we have a syntactic representation in (25a) after the movement (Internal Merge) of *ce* 'what'.

(25) a. Cine ce precede ce ➔ b. Cine ce precede ~~ce~~

In the ordinary case, the upper copy of *ce* is pronounced as (25b).[2] For (23a), in contrast, we have (26a) after the movement of *ce* 'what.' Since the subject wh-word is also *ce* in this case, if we try to externalize the upper copy of the object *ce*, the structure violates PF Constraint (24).

(26) a. Ce ce precede ce ➔ b. Ce ~~ce~~ precede ce

Therefore, the lower copy of the object *ce* is externalized as in (26b). I claim that this is an examplary instance of (19b): if something phonological prevents the upper copy realization, the lower copy is pronounced. Let us now look at another example where (19b) seems to be at work.

Serbo-Croatian allows free word order mutation (SVO is the basic order) as shown in (27).

(27) a. SVO
b. SOV
c. OSV
d. OVS
etc.

Stjepanović (2007) argues that when the subject appears after the verb as in (27d), it receives new information focus. Assuming Nuclear Stress Rule (NSR) (Cinque 1993 and Zubizaretta 1998) which assigns the main stress to the most deeply embedded element to recevie the new information focus, Stjepanović claims that when the subject appears last in the sentence, it is in the most deeply embedded position to receive the main stress. However, Stjepanović also shows that the sentence final subject syntactically exists in the higher position at the same time. For instance, look at the contrast between (28a) and (28b).

(28) a. Mariju je protiv svoje sojlie oborio Jovan.
Marija-ACC is against his will failed Jovan-NOM

'Jovan$_i$ failed Marjia against his$_i$ will'

b. * Mariju je protiv Jovanove$_i$ sojlie oborio on$_i$.
Marija-ACC is against Jovan's$_i$ will failed he$_i$-NOM

'He$_i$ failed Marjia against Jovan's$_i$ will' (Stepanović 2007: 227)

Specifically, the subject *on* 'he-NOM' in (28b) superficially appearing sentence-finally seems to c-command and bind *Jovanove*, because it induces a Binding Condition C violation. To account for this conflicting state of affairs, Stjepanović proposes that the upper copy of the subject (*Jovan* in (28a) and *on* 'he-NOM' in (28b)) exists syntactically in the standard subject position, and that the prosodic/phonological requirement forces the lower copy to be externalized. This is why (28b) shows the Binding Condition C violation effect even though

[2] We may say that our Externalize Higher (19) is at work here as default.

the subject *on* 'he-NOM' appears down below at the surface structure. This is another instantiation of (19b): "If something "phonological" prevernts the realization of the upper copy, the lower copy is externalized/pronounced."

We have seen two specific cases in which the upper copy produced by movement (Internal Merge) is not externalized for some phonological reason. I claim that the failure of labeling at the PF interface can be another reason which blocks the phonological realization of the upper copy. Given this, and Externalize Higher (19), we have a labeling-based account of the Szabolcsi's inverse correlation observed in Japanese and English. Let us schematically summarize the point in (29).

(29) $[_{\alpha}$ DP $[_{TP} \ldots$ DP $\ldots]$

First, Internal Merge applies freely in the syntactic computation, and we can have (29) in syntax. In Japanese, a suffixal case on DP makes the DP irrelevant to labeling (Saito's 2016 proposal) and thus α = {DP, TP} in (29) is identified as TP. Since there is no labeling problem of α at the PF interface, the upper copy of DP is pronounced following (19a): this turns out to be an instance of scrambling. Now recall that QR is an instance where the upper copy syntactically exists but the lower copy is phonologically externalized. As far as nothing blocks the upper copy realization, it is not possible to have the lower copy realization in (29) given (19a). Szabolcsi's observation (5a) is derived for Japanese. Secondly, English does not have scrambling because the upper copy realization of DP in (29) would results in the labeling problem; that is, α = {DP, TP} in (29) turns out to be unlabeld and thus uninterpretable at the PF interface. The upper copy realization is blocked in (29) in English, and thus following (19b), the lower copy is externalized/pronounced: this is in effect an instance of QR. English allows QR because English does not have scrambling. Notice here that the current system does not have a global comparison computation which is a problem for Bobaljik and Wurmbrand (2008). Given (19), local computation at the α locus results in the desired output.

Now a serious question arises at this point. If scrambling (i.e. externalizetion of the upper DP in (29)) is not allowed in English because of the labeling problem, why is QR (i.e. the existence of the upper DP at LF level) free from the labeling problem in English to begin with? In the next section, I will argue that types of labels can be different between the PF interface and the LF interface. This idea will complete the entire picture of Szabolcsi's inverse correlation observed in Japanese and English.[3]

[3] Some instances of inverse scope interpretation may be obtained without appealing to syntactic QR. However, Reinhart (2006: 61-64) argues that syntactic QR is still necessary to obtain some types of inverse scope interpretation, among which are cases where a unversal quantifier takes inverse scope over an existential quantifier or a numeral as in *A girl recommended every boy* in (1).

4. Types of Labels Necessary for the PF Interface and the LF Interface

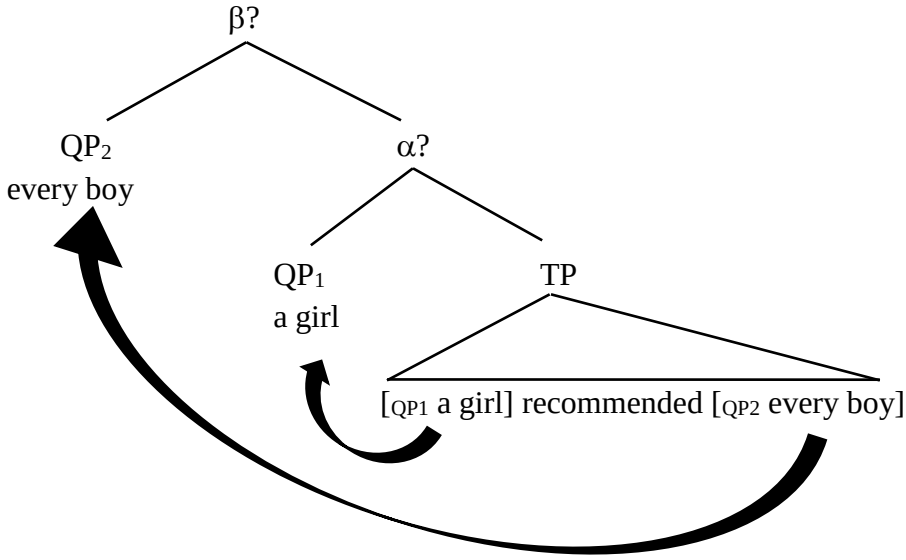
It is well known since Chomsky and Halle (1968) that a syntactic object needs syntactic category information (i.e. a label in the present term) in order to receive phonological interpretation. In other words, phonological rules crucially reply on the label of the syntactic object, and if its label is not identified, the syntactic object is uninterpretable at the PF interface. For the present purposes, I just assume that types of labels necessary at the PF interface are traditional syntactic categories (N, V, A, P, etc.). Now I am going to argue that labels at the LF interface can be different from those at the PF interface. Specifically, I claim that a quantifier phrase is a kind of "head" at LF.

(30) At LF, a quantifier phrase is a kind of "head"

Let us look at (32), which is supposed to be a syntactic structure of (31) after Internal Merge (i.e. movement) of QP_1 and QP_2, corresponding to the "$\forall > \exists$" inverse scopr reading, abstractly represented both for English and Japanese (word order irrelevant).

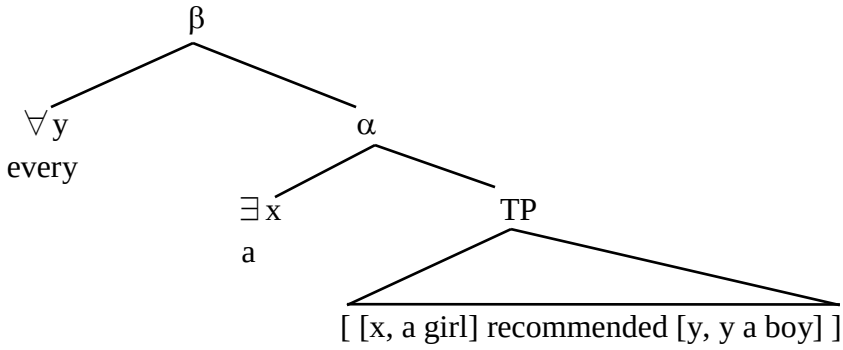
(31) A girl recommended every boy.

(32)



Now, QPs are phrases (not heads) in (32). In Japanese, because of the anti-labeling property of suffixal cases attached to the QPs, the label of {QP_1, TP} = "α" is uniquely identified as TP. Likewise, the label of {QP_2, α (= TP)} = "β" is interpreted as TP. Hence, nothing is wrong in Japanese in terms of labeling at the PF side. In English, however, assuming that there is no relevant "feature agreement" between QP_1 and TP or between QP_2 and TP, the label of {QP_1, TP} = "α" and the label of {QP_2, α} = "β" cannot be determined by minimal search. Neither QP_1 nor QP_2 is able to be phonologically externalized upstairs. However, the stuation can be different at the LF side. At LF, (32) can be informally represented as in (33).

(33)



The idea behind this is that a quantifier is semantically a head selecting a proposition which contains a variable to be bound by the quantifier. More specifically, a quantifier is semantically a one-place predicate taking a proposition as its argument. This is a well-defined LF object and thus can interpreted at the LF interface. There is no labeling problem at the LF side. Although the upper copies of QP_1 and QP_2 in (32) cannot stay upstairs at PF (no scrambling is available in English), they can stay upstaires and be interpreted at the LF side as in (33). This is why overt movement (scrambling) are not possible but covert movement (QR) of QPs is still available, not causing any labeling problem, in English. This analysis, if on the right track, has a strong implication that "LF movements" of an element with phonetic contents are possible only when the corresponding overt movements induce some problem for PF interpretation. This implication might face substantial empirical challenges, but I will argue that there are at least some cases which nicely square with the general picture here, which I will turn to in the next section.

5. Implications and Further Thoughts

In this section, I will discuss two specific cases which are relevant to the idea developed in Section 3 and Section 4 above. Recall that given Externalize Higher (19), covert movement is possible only when there is some good reason that prevents the phonological externalization of the upper copy. Then, a genuine free variation between overt movement and covert movement is not expected. Aoyagi (1998), however, provides the following examples, which seem to go againt our proposal.[4]

Let us first consider (34).

(34) a. John-wa [$_{VP}$ **manga**-*dake* yon]-de zenzen benkyo-si-nakat-ta
John-TOP **comics**-*only* read] at all study-do-not-PAST

lit. 'John read *only* **comics** and did not study at all.'

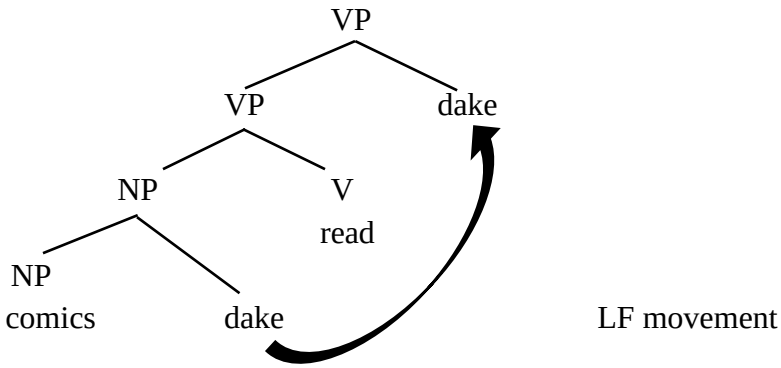
b. John-wa [$_{VP}$ **manga-o yon**]-da-*dake*-de zenzen benkyo-si-nakat-ta
John-TOP **comics-ACC read**]-*only* at all study-do-not-PAST

lit. 'John *only* **read comics** and did not study at all.' (Aoyagi 1998)

[4] I owe Masahiko Takahashi for bringing the relevance of this phenomanon to my attention.

According to Aoyagi (1998), Japanese *dake* 'only' in (34a) can take the VP scope (as well as the object scope), having the same meaning as (34b). Specifically, Aoyagi proposes an LF movement analysis of *dake* as illustrated in (35).

(35)



Notice that this is incompatible what we proposed above.[5] Exterlize Higher (19) maintains that if *dake* 'only' moves up to VP, it must be externalized/pronounced up there, realized as (34b). Unless there is some phonological reason that prevents the upper copy realization of *dake*, structure (35) cannot have the lower copy to be pronounced at PF and the higher copy to be interpreted at LF.

However, Hoshi and Miyoshi (2007) convincingly argue that the scope extension of (34a) Aoyagi argues for is simply illusory. Let us look at one clear illustration presented by Hoshi and Miyoshi.

(36) idiom-chunk test

a. John-ga [$_{VP}$ hanasi-ni mizu-o sasi]-ta
John-NOM conversation-DAT water-ACC pour-PAST

'John put a damper on the conversation'

b. * John-ga [$_{VP}$ hanasi-ni mizu-dake(-o) sasi]-ta
John-NOM conversation-DAT water-only(-ACC) pour-PAST

lit. 'John put only a damper on the conversation' (Hoshi and Miyoshi 2007: 40)

c. John-ga [$_{VP}$ hanasi-ni mizu-o sasi]-dake si-ta
John-NOM conversation-DAT water- ACC pour-only do-PAST

'John only put a damper on the conversation'

[5] In Bobaljik and Wurmbrand's term, the existence of (34b) fails to block the upper scope reading of (34a).

A part of an idiom alone cannot be focused by *dake* 'only' as shown in (36b),[6] but if LF movement of *dake* 'only' is allowed as Aoyagi argues, (36b) should be able to have the relevant idiom chunk reading in the same sense as (36c), which is not the case. (36b) cannot have the VP scope interpretation obtainable in (36c). This indicates that there is no LF movement of *dake*. This is what is expected in our system.

There is another case in Japaense which may support the idea that even when the upper copy is not realized phonologically because of the labeling failure, it still exists upstairs as a phonologically empty element. Since Kuroda (1965), it has been known that Japanese wh-phrases must be associated with a particle such as *ka* 'Q', *mo* 'also,' etc.

(37) a. * Taroo-wa Hanako-ga nani-o tabeta to omotteiru
Taro-TOP Hanako-NOM what-ACC ate COMP think

'Taro thinks what Hanako ate'

b. Taroo-wa Hanako-ga **nani**-o tabete-**mo** odoroka -nai
Taro-TOP Hanako-NOM **what**-ACC eat -**MO** be-surprized-NEG

'Taro will not be surprised no matter what Hanako eats'

c. Taroo-wa Hanako-ga **nani**-o tabeta-**ka** sitteiru
Taro-TOP Hanako-NOM **what**-ACC ate -**Q** know

'Taro knows what Hanako ate'

Nishigauchi (1990) proposes that wh-words are variables to be bound by an associated particle: unselective binding a la Heim (1982). However, distinct from ordinary unselective binding, wh-island effects are observed between a wh-word and the associating particle, as Nishigauchi (1990) and Watanabe (1992) show.

(38) a. [[Hanako-ga sono toki [[**dare**-ga kuru] to] itta] **ka**] osiete kudasai
Hanako-NOM that time **who**-NOM come COMP said **Q** teach please

'Please tell me who Hanako said then was coming'

b. [[Hanako-ga sono toki [[**dare**-ga kuru] **ka**] tazuneta] **ka**] osiete kudasai
Hanako-NOM that time **who**-NOM come **Q** asked **Q** teach please

A. Please tell me if Hanako asked then who was coming
B??Please tell me who Hanako asked then if she/he is coming (Saito 2017: 2)

A long distance association, which is possible between *dare* 'who' and *ka* 'Q' in (38a), is blocked by the intervening *ka* in the embedded clause as in (38b): a typical wh-island effect.

To account for these facts, Saito (2017) proposes that wh-words in Japanese has a quantificational force unvalued and can move covertly to the position at which it probes the

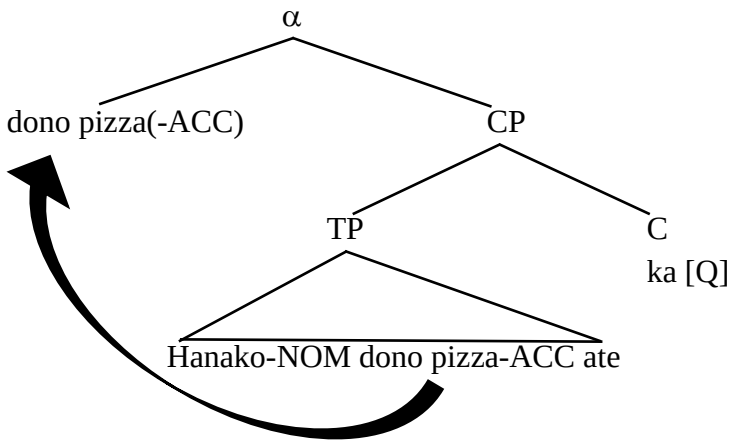
[6] (36b) is possible only with its literal meaning which does not make any sense.

relevant quantificational value from the associating particle. For instance, a wh-phrase *dono pizza* 'which pizza' in (39) covertly moves to CP as in (39b), where it c-commands and probes the relevant quantification feautre on the question particle *ka*.[7]

(39) a. Taroo-wa [[Hanako-ga **dono pizza-o** tabeta] **ka**] sitteiru
Taro-TOP Hanako-NOM **which pizza-ACC** ate **Q** know

'Taro knows which pizza Hanako ate'

b.



c. Taroo-wa [**dono pizza-o**$_i$ [Hanako-ga t_i tabeta] **ka**] sitteiru

Here Saito (2017) assumes the covert movement of wh-words/phrases, which is problematic with our proposal in (19), repeated here as (40).

(40) **Externalize Higher** (= (19))
a. PF parser externalizes the highest copy at the encounter
b. If something "phonological" prevernts the realization of the upper copy, the lower copy is externalized/pronounced.

Recall that given (40), once you move, the PF parser inevitably pronounces you upstairs unless something prevents the upper copy externalization. Now, I will argue that Saito's proposal is actually not problematic but rather gives an additioanl support to (40) in the following fashion.[8] First, if the wh-word/phrase moves together with a case particle (e.g. the accusative case-marker *-o* in (39)), the label at α turns out to be CP because the case-marked *dono pizza-o* 'which pizza-ACC' does not participate in labeling. We get a grammatical sentence in (39c). Suppose next that *dono pizza* 'which pizza' moves without the case particle. Since there is no case particle in the upper copy of the wh-phrase, the labeling algorithm inspects both wh-phrase and CP, and minimal search cannot identify the label of α. The labeling failure blocks the

[7] Saito (2017) assumes Bošković's (2017) mechanism of feature valuation, which I will not recreate here. See Saito (2017) and Bošković (2017) for details.

[8] I thank Mamoru Saito (personal communication) for suggesting the following idea to be relevant and worth exploring.

externalization of the upper wh-phrase at the PF interface. At LF, however, the wh-phrase is an operator and thus semantically interpreted as a head. That is, an operator is a one-place predicate selecting a TP as its argument, which contains a variable to be bound by the operator. The label α is successfully identified at the LF interface. Saito's covert movement analysis of Japanese wh-words/phrases therefore provides another piece of evidence for Externlize Higher (40).[9]

6. Apparent counterexamples in Japanese

Finally, there is a class of verbs in Japanese which seem to go against Externalize Higher (40). To deal with such apparent counterexamples, I will argue that these verbs are unaccusatives and hence they do not constitue real counterexamples to (40). Let us look at sentences in (41).

(41) a. TA-ga futari dono CALL kyoositu-ni-mo taikisita (∀ > 2; #2 > ∀)[10]
TA-NOM two every CALL room-in-MO were-on-standby

'Two TAs were on standby in every CALL room' (Oku 2010)

b. Gaadoman-ga futari dono iriguti-ni-mo tatteiru (∀ > 2; #2 > ∀)
guard-NOM two every gate-at-MO standing

'Two guards are standing at every gate'

c. SP-ga hitori dono VIP-ni-mo harituita (∀ > ∃; #∃ > ∀)
SP-NOM one every VIP-to-MO stuck to

'An SP guarded every VIP'

The inverse scope reading is allowed (and actually strongly preferred) in (41). Crucially, the existence of the more transparent scrambled versions in (42) below *does not* block the inverse scope reading of the sentences in (41), contrary to what Externalize Higher (40) expects.

(42) a. Dono CALL kyoositu-ni-mo TA-ga futari taikisita (∀ > 2; #2 > ∀)
every CALL room-in-MO TA-NOM two were-on-standby

'In every CALL room, two TAs were on standby'

b. Dono iriguti-ni-mo gaadoman-ga futari tatteiru (∀ > 2; #2 > ∀)
every gate-at-MO guard-NOM two standing

'At every gate, two guards are standing'

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[9] I assume that because Japanese wh-words do not have specific quantificational force lexcially, they are different from English type wh-words in that they do not implement the Q-feature sharing mechanism for labeling of the wh-question at CP.

[10] As far as I can see, in (41) the surface order scope (2 > ∀) is syntactically and semantically available as well, but it is just pragmatically odd. See Reinhart (2006) for the relevant discussion.

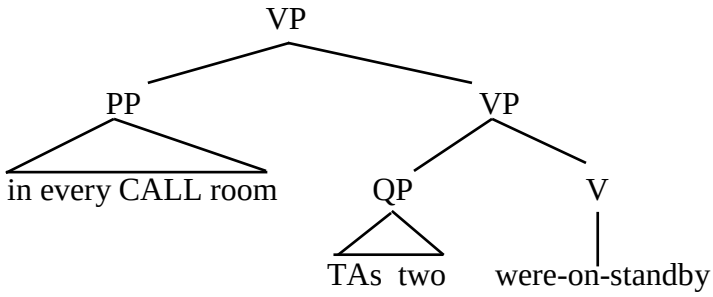
c. Dono VIP-ni-mo SP-ga hitori harituita (∀ > ∃; #∃ > ∀)
every VIP-to-MO SP-NOM one stuck to

lit. 'Every VIP, an SP guarded'

Externlize Higher (40) predicts that if the universally quantified object moves to the front of the sentence, it must be externalized at the landing site as in (42), and that it is not possible for the universally quantified phrase to have the higher scope and at the same time to be pronounced downstairs.

Here I propose that verbs in (41) are unaccusative verbs and thus the surface subject is the underlying complement of the verb (Levin and Rappaport 1998).

(43) underlying structure of (41a)



The ∀ > 2 scope for (41a) is determined at this stage of derivation in (43). This accounts for the fact that the ∀ > 2 reading is easily available for (41a). [$_{QP}$ TA-ga futari] 'TAs-NOM two' in (43) may move to the subject position to get the surface order in (42a). Now it is to be seen if there is any independent evidence to show that a class of verbs in (41) are actually unaccusaative.

Miyagawa (1989) argues that the surface subject in unaccusataive sentences allows Floating Quantifier (FQ), exhibiting a sharp contrast with subjects in transtive sentences and in unergative sentences. Let us look at a sentence with a typical unaccusative verb *iru* 'exist' in (44).

(44) a. TA-ga furari dono CALL kyoositu-ni-mo iru (∀ > 2)
TA-NOM two every CALL room-in-MO exist

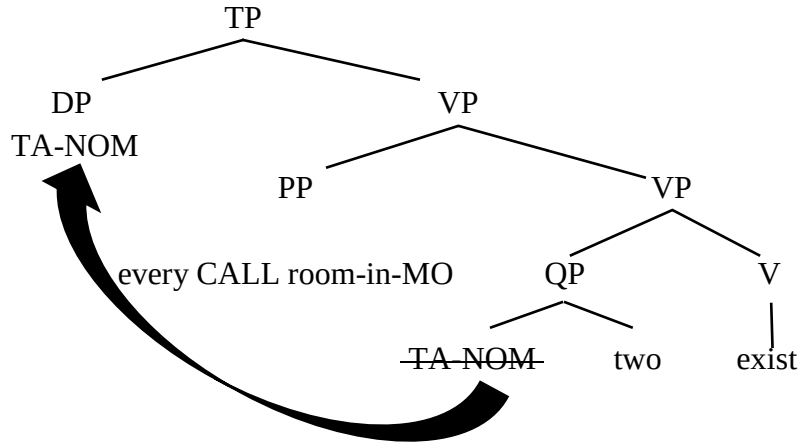
'Two TAs are in every CALL room'

b. **TA-ga** dono CALL kyoositu-ni-mo **futari** iru
TA-NOM every CALL room-in-MO **two** exist

lit. 'TAs are two in every CALL room'

(45) illustrates the derivation of (44b).

(45)



QP *TA-ga futari* 'TA-NOM two' is base-generated as the sister of the verb *iru* 'exist,' and the DP part *TA-ga* 'TA-NOM' alone moves to the TP subject position leaving the numeral *futari* 'two' behind as illustrated in (45). This gives us the FQ sentence in (44b). Given this, if the inverse scope is easily available (strongly preferred), then it is predicted that the verb is unaccusative and thus FQ is possible. The prediction is borne out for the sentences in (41).

(46) a. TA-ga futari dono CALL kyoositu-ni-mo taikisita (= (41a)) ($\forall > 2$)
TA-NOM two every CALL room-in-MO were-on-standby

'Two TAs were on standby in every CALL room'

b. **TA-ga** dono CALL kyoositu-ni-mo **futari** taikisita
TA-NOM every CALL room-in-MO **two** were-on-standby

lit. 'TAs were on standby two in every CALL room'

(47) a. Gaadoman-ga futari dono iriguti-ni-mo tatteiru (= (41b)) ($\forall > 2$)
guard-NOM two every gate-at-MO standing

'Two guards are standing at every gate'

b. **Gaadoman-ga** dono iriguti-ni-mo **futari** tatteiru
guard-NOM every gate-at-MO **two** standing

lit. 'Guards are two standing at every gate'

(48) a. SP-ga hitori dono VIP-ni-mo harituita (= (41c)) ($\forall > \exists$)
SP-NOM one every VIP-to-MO stuck to

'An SP guarded every VIP'

b. **SP-ga** dono VIP-ni-mo **hitori** harituita
SP-NOM every VIP-to-MO **one** stuck to

lit. 'An SP guarded one every VIP'

When the inverse scope reading is strongly preferred as in (a) sentences in (46)-(48), subject FQ is also available as shown in (b) sentences in (46)-(48). These FQ facts exhibit a sharp contrast with transitive verbs and with unergative verbs. In a sentence with a transitive verb, the inverse scope is hard to get and FQ is not possible as shown in (49).

(49) transitive verbs

a. TA-ga futari dono CALL kyoositu-ni-mo sezyoosita (2 > ∀; * ∀ > 2)
TA-NOM two every CALL room-to- MO locked

'Two TAs locked every CALL room'

b. * **TA-ga** dono CALL kyoositu-ni-mo **futari** sezyoosita
TA-NOM every CALL room-in-MO **two** locked

lit. 'TAs locked two every CALL room'

Likewise, it is hard to obtain the inverse scope reading in a sentence with an unergative verb, and correspondingly, FQ is difficult to get.

(50) unergative verbs[11]

a. TA-ga futari dono CALL kyoositu-de-mo geragerato waratta (2 > ∀;?? ∀ > 2)
TA-NOM two every CALL room-in-MO loudly laughed

'Two TAs loudly laughed in every CALL room'

b.?? **TA-ga** dono CALL kyoositu-de-mo geragerato **futari** waratta
TA-NOM every CALL room-in-MO loudly **two** laughed

lit. 'TAs loudly laughed two in every CALL room'

Therefore, it is reasonable to assume that verbs in (41) are all unaccusative, and thus they do not constitute real counterexamples to Externalize Higher (40).

7. Conclusion

In this paper, I proposed a labeling-based account of Szabolcsi's inverse correlation, comparing Japanese and English. Assuming the general preference of the upper copy externalization, once you move, you have to be phonologically realized at the highest landing site. Since Japanese scrambling causes no labeling problem at the PF interface (Saito 2016), the upper copy is always pronounced: scrambling has the priority over QR. English, on the other hand, if there is no relevant feature sharing between XP and YP, the upper copy externalization causes a labeling problem at the PF interface, and thus there is no scrambling. Further, I argued that types of labels can be distinct between the PF interface and the LF interface; that is, a quantifer can stay upstairs at the LF interface but not at the PF interface in English. This is precisely because a quantifier phrase is a traditional phrasal category at the PF

[11] See Miyagawa (1989: 41-45) for more discussion and data on unergative verbs.

interface, while it can be rendered as a head semantically at the LF interface. The current proposal makes a very strong claim that "covert movement" of an element with phonological contents is possible only when the overt realization of the upper copy causes some problem at the PF interface. Having introduced that Romanin multiple wh-fronting (Bošković 2002) and Serbo-Croation sentence final subjects (Stjepanović 2007) are such instances reported in the literature, I argued that the (im)possibility of labeling can also be a case in which the upper copy is interpreted at the LF but not externalized at the PF (i.e. a real case of covert movement). Further, I argued that LF movement of *-dake* 'only' discussed in Aoyai (1998) is not a real fact and thus does not affect the proposal here, and that Saito's proposal of operator movement analysis of Japanese wh-words actually gives a support for what I proposed in this paper. Finally, apparent counterexamples to Szabolcsi's inverse correlation in Japanese are cases in which the verbs involved are unaccusative and the surface inverse scope reading is acutally obtained at the underlying structure, and thus they do not constitute a real counterexample to the system presented in this paper.

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