

Size of the Moving Element Matters: LBE is not Scattered Deletion

(pre-published version)

1. Introduction¹

In this paper I investigate the size of the moving element in *Left Branch Extraction* (LBE hereafter). On the standard approach to LBE (e.g., van Riemsdijk 1978, Corver 1990, Bošković 2005 etc.) a left branch element (e.g., adjective, possessor, demonstrative etc.) is extracted out of the nominal argument, as shown in (1). I will call this type of analysis the *Direct Extraction* (DE) approach.

(1) *Direct Extraction*: [XP ... [YP ~~XP~~ Y]

I will compare this approach to the so-called *Scattered Deletion* (SD) approach (or ‘copy-and-deletion’ approach). On this analysis, the entire phrase containing the left branch element moves and leaves behind a copy. Then, at PF, the operation of copy-deletion takes place and deletes copies in such a way that the non-left branch portion of the phrase is deleted in the higher copy, while the left branch element is deleted in the lower copy (e.g., Fanselow and Ćavar 2002, Pereltsvaig 2008, Bondarenko and Davis 2018 etc.). This is illustrated in (2).

(2) *Scattered Deletion*: [[YP XP ~~Y~~]. [YP ~~XP~~ Y]]

On this approach, the size of the moving element is actually bigger than it appears. In particular, the whole nominal argument undergoes syntactic movement, but this is obscured by the PF-deletion, which deletes everything but the left branch element in the higher copy. One advantage of the SD approach is that it can deal much more straightforwardly with the so-called *extraordinary* LBE (e.g., Bošković 2005). As illustrated in (3), this type of LBE involves non-constituent movement, since the fronted preposition and adjective do not form a constituent to the exclusion of the noun under any analysis.

(3) U veliku on uđ-e sobu. (Bošković 2005: 78)
in big he entered room
‘He entered the big room.’

While structures like (3) require additional assumptions for the DE approach, they are handled easily on the SD approach. Namely, what is being moved in (3) is the whole PP *u veliku sobu* ‘in big room’, after which the noun *sobu* is deleted at PF. Thus, there is no constituency issue on this analysis.² On the DE approach, on the other hand, one would have to assume that the

¹ For feedback on some of the ideas presented here, I would like to thank Mamoru Saito, Masahiko Takahashi, Koichi Otaki and audience members at the Keio-Nanzan One Day Workshop on Minimalist Syntax (Keio University, June 2019). I also want to thank two anonymous reviewers and the Editors for their careful and helpful suggestions. All errors are mine.

² The constituency issue does not arise on the *Remnant Movement* approach to LBE (Franks and Progovac 1994, Bašić 2005 etc.) either, since on this analysis (3) involves remnant PP movement. I do not discuss this approach here, but see Murphy (2020) for a recent criticism of this approach to LBE.

preposition in (3) adjoins to the adjective by some process. Borsley and Jaworska (1988) implement this as a restructuring operation, Corver (1992) assumes that the preposition undergoes lowering, while Bošković (2005) suggests the AP moves to a position c-commanding the preposition (within the PP), after which the preposition adjoins to the adjective.

Despite this initial attractiveness and simplicity of the SD approach, I will argue in this paper that the DE approach is actually correct. The logic of my argumentation is quite simple: the two approaches differ in whether they involve syntactic movement of the *nominal argument*, and thus whether (a copy of) this argument is present at a high structural position in syntax and LF. I argue on the basis of variable binding, weak crossover effects and scope that there is no evidence that the nominal argument is located high in syntax/LF. What seems to be moving in syntax is just the left branch element, not the whole noun phrase containing it. In section 2, I will present data from Serbo-Croatian, a well-studied LBE language, in favor of the DE approach.³ In section 3, I will show that the apparent case of LBE in Japanese (Funakoshi and Takahashi 2013) also does not involve scattered deletion. Section 4 is the conclusion.

2. LBE in Serbo-Croatian

In Despić (2011, 2013) I argued that Serbo-Croatian (SC hereafter) does not project DP and that the possessor in (4a) is a simple adjunct which c-commands into the clause and thus violates Condition C.⁴

- (4) a. *Njegov_i najnoviji film je zaista razočarao Kusturicu_i.
 His latest film is really disappointed Kusturica_{ACC}
 ‘His_i latest film really disappointed Kusturica_i.’
- b. ✓Kusturicu_i je njegov_i najnoviji film zaista razočarao t.
 Kusturica_{ACC} is his latest film really disappointed

Now, whether or not SC has DP is actually not relevant for the main point of this paper. The

³ Bondarenko and Davis (2018) provide an interesting argument in favor of the SD approach on the basis of the behavior of LBE in parasitic gap constructions in Russian. In particular, they argue that not only movement of the whole wh-phrase, but also movement of the wh-modifier via LBE, can license a parasitic gap. I do not discuss this argument here for space reasons and because SC does not have these constructions, which are constrained by factors like aspect and negation even in Russian. Bondarenko and Davis also note that there is a case-matching requirement, whereby only an accusative object can license an accusative gap. They also note that in case of certain QP objects, parasitic gaps can be licensed even without any overt movement whatsoever.

⁴ I assume here the approach to c-command under which the segment of NP does not block the c-command relation in question (e.g., Kayne 1991, Despić 2011 etc.), as in the definition below:

- (i) X c-command Y iff X and Y are categories, X excludes Y, and every category that dominates X dominates Y (X excludes Y if no segment of X dominates Y).

important observation is the contrast between (4a) and (4b). That is, (4b) in which the R-expression is fronted is acceptable on the given co-indexation, unlike (4a). I argued that in (4b) *njegov* ‘his’ does not c-command *Kusturicu*, so no Condition C violation arises. Also, there is no Condition B violation in (4b) either, since the pronoun is free in its binding domain (i.e., NP), given the definition of Condition B in (5), which I adopted:

(5) Condition B: a pronoun is free in its own predicate domain (i.e., phrase). An element is free if it is not c-commanded by a coindexed NP.

Again, regardless of whether or not SC has a DP or whether my assumptions about binding in SC were correct, the simple observation is that structures like (4a) which exhibit Condition-C-like effects, become acceptable when the nominal in the object position is fronted. The clearest example of this effect is the following SC idiom, in which the fronted quantifier can bind the pronominal possessor in the subject:

- (6) Svakome_i je njegov_a muka najveća t_i.
 Everyone_{DAT} is his_{NOM} trouble_{NOM} greatest
 ‘To everyone_i his_i trouble is the greatest.’
 (‘Everyone_i thinks that his_i trouble is the greatest.’)

This binding is of course impossible if the quantifier stays in situ:

- (7) *Njegov_a muka je najveća svakome_i.
 His trouble is greatest everybody_{DAT}

The same type of contrast can be observed between (8a) and (8b) which involve object QPs like *svakog generala* ‘every general’:

- (8) a. Svakog general_a njegov_i vojnici vole t_i.
 Every_{ACC} general_{ACC} his_{NOM} soldiers_{NOM} love
 ‘Every general is loved by his soldiers.’
 b. *Njegov_i vojnici vole svakog general_a.
 His_{NOM} soldiers_{NOM} love every_{ACC} general_{ACC}

Importantly, quantifiers like *svaki* ‘every’ can undergo LBE in SC, just like adjectives or demonstratives:

- (9) Svak_i je Milan pročitao [t_i knjigu].
 Every_{ACC} is Milan_{NOM} read book_{ACC}
 ‘Milan read every book.’

The question is then what happens if instead of fronting the whole QP *svakog generala* ‘every general’ as in (8a), only the quantifier ‘every’ moves via LBE, as in (10). The two approaches to LBE discussed here make different predictions about this example. On the SD approach, there should be no difference in acceptability between (8a) and (10) (on the given co-indexation), since they look identical in syntax and LF – the fact that the only left branch element appears fronted in (10) is a consequence of a PF operation. The DE approach, on the other hand, predicts (10) to be ungrammatical on the given reading, since the whole QP ‘every

general' is at no point of the derivation in position from which it can bind the pronominal possessor in the subject. It stays in the object position throughout the derivation and in that sense should be ungrammatical, just like (8b). As indicated in (10), the DE approach makes the correct prediction (although grammatical, (10) disallows the bound variable reading):

- (10) *Svakog_i njegov_i vojnici vole [t_j generala]_i
 Every_{ACC} his_{NOM} soldiers_{NOM} love general_{ACC}
 'His soldiers love every general'
 (Cannot be interpreted: for every general x, x's soldiers love x)

The following contrast also supports the DE approach. In (11) there is a Condition C violation, as in (4a), since the pronominal possessor c-commands the R-expression *Emira Kusturice*. There is no improvement in (12), in which the adjective modifying the object NP in which the R-expression is embedded undergoes LBE. This is expected under the DE approach, since just like in (11), the pronoun c-commands the R-expression. This is not quite expected on the SD analysis, because the whole object NP, with the R-expression in it is assumed to be moving in syntax to the position in which the R-expression is no longer c-commanded by the pronoun. Thus LBE cannot ameliorate Condition C effects, in contrast to the movement of the whole object, which apparently can, as illustrated in (13) (see also (4b)). I thank one of the reviewers for suggesting checking this contrast.

- (11)*Njegov_i najnoviji film je razočarao velikog prijatelja
 His latest film is disappointed big friend
 Emira Kusturice_i.
 Emir_{GEN} Kusturica_{GEN}
 'His_i latest film disappointed a great friend of Emir Kusturica_i.'

- (12)* Velikog je njegov_i najnoviji film razočarao prijatelja
 Big is his latest film disappointed friend
 Emira Kusturice.
 Emir_{GEN} Kusturica_{GEN}
 'His_i latest film disappointed a great friend of Emir Kusturica_i.'

- (13) Velikog prijatelja Emira Kusturice_i je njegov_i najnoviji film
 Big friend Emira Kusturice_{GEN} is his latest film
 razočarao
 disappointed
 'His_i latest film really disappointed a great friend of Emir Kusturica_i.'

A potential problem for this particular argument would be that (12) seems to be already degraded regardless of the co-indexation. This is still a problem for the SD approach, which in principle predicts that any time the movement of the whole nominal creates a grammatical structure (i.e., (13)), the corresponding LBE should as well (i.e., (12)), all else being equal. A separate question for the DE approach (which I have to leave for future work) is then why (12)

would be degraded to begin with; that is, why would LBE out of a complex nominal be more constrained.

Another argument in favor of the DE approach comes from scope interpretation. For many speakers (including myself), SC seems to be rigid scope language when it comes to QPs.⁵ For those speakers a sentence like (14a) has only the surface scope. To get the inverse scope, the object must overtly move for those speakers, as in (14b):⁶

- (14) a. Jedan student je pročitao svaku knjigu. ✓ $\exists > \forall * \forall > \exists$
 One student is read every book
 ‘A student read every book.’
- b. Svaku knjigu je jedan student pročitao. ✓ $\forall > \exists \forall > \exists$
 Every book is one student read
 ‘A student read every book.’

Focusing on those speakers, the question is what happens if instead of moving the whole object as in (14b), only the quantifier *svaku* ‘every’ is fronted as in (15). The SD approach predicts that this sentence should have the same interpretation as (14b), as on this analysis they would have identical LF representations; i.e., the whole QP object moves in syntax, just like in (14b). On the DE approach, the sentence in (15) can only have the low scope of ‘every book’ since the extracted quantifier ‘every’ is uninterpretable in the fronted position. It can only be interpreted in its original, lower position via reconstruction, which would make it similar to (14a). Speakers for which the contrast in (14) exists, can only have the low interpretation of the universal quantifier in (15), as predicted by the DE approach. Specifically, there is one student and s/he read every book. Fronting of *svaku* ‘every’ has the effect of emphasizing that the student in question read every book and not perhaps just one half or two thirds of the books.

- (15) Svaku_i je jedan student pročitao [t_i knjigu]. ✓ $\exists > \forall * \forall > \exists$
 Every is one student read book
 ‘A student read every book.’

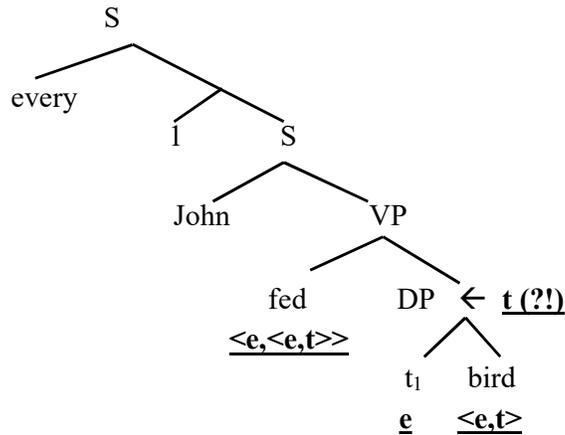
Why is the quantifier *svaku* ‘every’ not interpretable in the fronted position? This is quite straightforward on Heim and Kratzer’s (1998) approach to quantifier interpretation and scope. In fact they directly discuss examples like (16):

⁵ A fair number of speakers I consulted share the judgments reported here. However, there are also speakers who seem to allow both readings in (11a), which indicates that there might be two dialects of SC in this respect. At this point I leave a more careful examination of this split to future work and focus here on judgments from the first group.

⁶ Note that in (11b) the reading where the existential quantifier takes scope over the universal quantifier is not easily available to all speakers. The situation is further complicated by the existence of the distributor *po* in SC, which some speakers require to get the distributed reading.

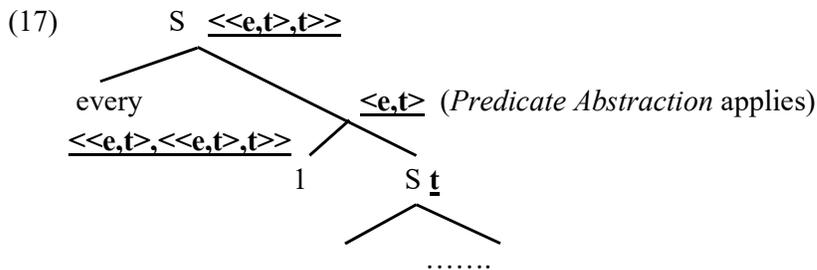
(16) John fed every bird.

⇒ LF:



Regarding structures like (16), according to Heim and Kratzer (1998: 212): “...we are not dealing with an interpretable structure here in the first place. The trace’s type e meaning combines with the noun’s type $\langle e,t \rangle$ meaning to yield a truth-value (!) as the meaning of the DP “ t_1 bird”. This cannot be composed with the type $\langle e,et \rangle$ meaning of the verb, and thus the VP and all higher nodes are uninterpretable”.

But even if we assumed that the trace left by movement of *every* is of type $\langle \langle e,t \rangle, \langle \langle e,t \rangle, t \rangle \rangle$, just like *every* (and that the type mismatch with the transitive verb can be resolved in a usual way via some local movement), we would still have a problem with the highest S node. As shown in (17), the whole sentence would not be of type t , but rather of type $\langle \langle e,t \rangle, t \rangle$. Thus the only position in which the quantifier can be interpreted is the low, object-internal position, as expected on the DE approach.⁷



⁷ One of the reviewers reports that even though they find (14a) ambiguous, they find (15) unambiguous – universal quantifier still must have low scope. We can assume that the speakers of the dialect who find (14a) ambiguous have covert QR, which can apparently apply freely in sentences like (14a). In (15), on the other hand, the overtly moved modifier must reconstruct at LF, as discussed above, which apparently bleeds further QR of the whole object. I leave exploration of this possibility for further research.

3. LBE in Japanese

As discussed in Takahashi and Funakoshi (2013) (T&F hereafter), Japanese in general does not allow LBE, which is shown in (18)

- (18) a. Taroo-ga [dare-no tegami]-o sute-ta-no?
Taro-NOM who-GEN letter-ACC discard-PST-Q
'lit. Taro discarded whose letter?'
- b. *Darei-no Taroo-ga [_i tegami]-o sute-ta-no?
who-GEN Taro-NOM letter-ACC discard-PST-Q
'lit. Whose_i, Taro discarded [a letter _i]?'
(T&F: 237)

However, T&F observe that a PP within a nominal *can* undergo LBE:

- (19) a. Taroo-ga [dare-kara-no tegami]-o sute-ta-no?
Taro-NOM who-from-GEN letter]-ACC discard-PST-Q
lit. 'Taro discarded a letter from who?'
- b. Dare-karai-no Taroo-ga [_i tegami]-o sute-ta-no?
who-from-GEN Taro-NOM letter-ACC discard-PST-Q
lit. 'From who_i, Taro discarded [a letter _i]?'
(T&F: 237)

T&F also show that (19b) is a result of syntactic movement. In particular, this PP LBE is island sensitive. First, (20) shows that PP LBE can take place across a clausal boundary.

- (20) a. Hanako-ga [CP Taroo-ga [dare-kara-no tegami]-o
Hanako-NOM Taro-NOM who-from-GEN letter-ACC
sute-ta]-to omottei-ru-no?
discard-PST-that think-PRS-Q
'lit. Hanako thinks that Taro discarded [a letter from who]?'
- b. Dare-karai-no Hanako-ga [CP Taroo-ga [_i tegami]-o
who-from-GEN Hanako-NOM Taro-NOM letter-ACC
sute-ta]-to omottei-ru-no?
discard-PST-that think-PRS-Q
'lit. From who_i Hanako thinks that Taro discarded [a letter _i]?'
(T&F: 239)

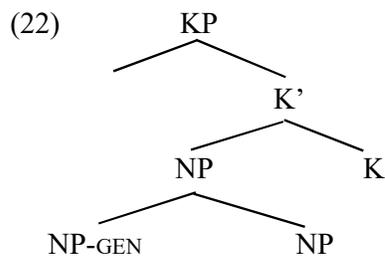
However, the extraction out of the relative clause island is not possible:

- (21) a. Hanako-ga [[RC[dare-kara-no tegami]-o sute-ta]
Hanako-NOM who-from-GEN letter-ACC discard-PST
hito]-o sagasitei-ru-no?
person-ACC be.looking.for-PRS-Q
'lit. Hanako is looking for a person that discarded a letter
from who?'

b.*Dare-karai-no Hanako-ga [[RC[*t_i* tegami]-o sute-ta]
 who-from-GEN Hanako-NOM letter-ACC discard-
 hito]-o PST sagasitei-ru-no?
 person-ACC be.looking.for-PRS-Q
 'lit. From who_i Hanako is looking for a person who
 discarded [a letter *t_i]*?

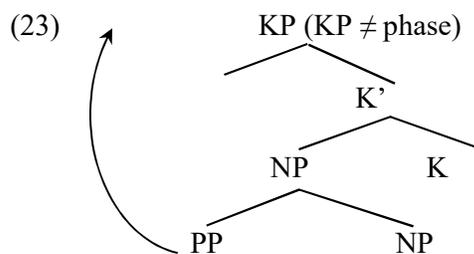
(T&F: 239)

In a nutshell, T&F explain the contrast between (18b) and (19b) in the following way. They assume (i) that K(ase)P (i.e., projection of a Case-particle) is projected above NP in Japanese and (ii) that nominals and PPs are adjoined to host NPs (cf. Bošković 2005, Cheng 2011) (see 22)). Thus, genitive elements within nominals are all NP adjuncts. T&F propose that while KPs with nominals are phases, KPs with genitive PPs are not phases:



There are two potential options to consider with phasal KPs: (i) direct movement of the genitive nominal out of the KP (option 1) and (ii) successive cyclic movement of the genitive nominal through the KP edge (option 2). They are both ruled out by the combination of the PIC and Antilocality. Option 1 is excluded via the PIC (Chomsky 2000), which states that an element that is moving out of the phase must move to the edge of the phase. Option 2 is also excluded because of the *antilocality* (Abels 2002, Bošković 2005). That is, the moving element cannot move to the edge of the phase (thus satisfying the PIC), because that movement would be *too* local; i.e., the first XP that actually dominates the adjunct NP-GEN in (22) is KP.

In the case of PP LBE, however, KP is not a phase by assumption, and the PP can be extracted without violating any of the above conditions.



T&F also assume that *-no* in (18) is structural Case assigned by K while *-no* in (19) is a linking element, attached to a PP by the Mod-Insertion rule (e.g., Kitagawa and Ross 1982, Saito et al. 2008).

3.1 Japanese PP LBE and Weak Crossover

(24) illustrates standard Weak Crossover Effects, which characterize A'-movement:

- (24) a. *Who_i does his_i mother love *t_i*?
 b. Who_i *t_i* seems to his_i mother *t_i* to be intelligent?

T&F observe that PP LBE in Japanese behaves as A'-movement in this respect:

- (25) a. *Kinoo *sokoi-no syain-ga* [**dono-kaisyai-kara-no**
 yesterday it-GEN employee-NOM which-company-from- GEN
 syootaizyoo]-o uketot-ta-no?
 invitation-ACC receive-PST-Q
 'lit. Its_i employees received [invitations from which company_i]
 yesterday?'
- b. ***Dono-kaisyai-kara-no** kinoo *sokoi-no syain-ga*
 which-company-from-GEN yesterday it-GEN employee- NOM
 [*t_i* syootaizyoo]-o uketot-ta-no?
 invitation-ACC receive-PST-Q
 'lit. From which company_i, its_i employees received [invitations
t_i] yesterday?'
- c. **Dono-kaisyai-kara-no** kinoo Toyota-no
 which-company-from-GEN yesterday Toyota-GEN
 syain-ga [*t_i* syootaizyoo]-o
 employee-NOM invitation-ACC
 uketot-ta-no?
 receive-PST-Q
 'lit. From which company_i, Toyota's employees received
 [invitations *t_i*] yesterday?'

(T&F: 243)

The acceptability of (25c) indicates that (25b) is unacceptable because of the bound variable reading, since in (25c), the pronoun *soko* 'it' is replaced by the referential expression *Toyota*. Also, the unacceptability of (25b) is not due to the presence of *kara* 'from'. In (26a), *kara* 'from' is a matrix element, and if it is moved (via scrambling) to the sentence-initial position (as in (26b)), the bound variable construal of the pronoun becomes possible.

- (26) a. *Kinoo *sokoi-no syain-ga* **dono-kaisyai-kara**
 yesterday it-GEN employee-NOM which-company-from
 [syootaizyoo]-o uketot-ta-no?
 invitation-ACC receive-PST-Q
 'lit. Its_i employees received [invitations] from which
 company_i yesterday?'

- b. **Dono-kaisyai-kara** kinoo *sokoi-no* syain-ga *ti*
 which-company-from yesterday it-GEN employee-NOM
 [syootaizyoo]-o uketot-ta-no?
 invitation-ACC receive-PST-Q
 ‘lit. From which company_i, its_i employees received
 [invitations] *ti* yesterday?’

(T&F: 244)

Furthermore, T&F show that the presence of *-no* in (25b) has nothing to do with its unacceptability. As shown in (27), genitive marked PPs can bind a variable pronoun if LBE does not apply to them:

- (27) Kimi-wa [**dono-kaisyai-kara-no** *sokoi-no*
 you-TOP which-company-from-GEN it-GEN
 syain-e-no syootaizyoo]-o mi-ta-no?
 employee-to-GEN invitation-ACC see-PST-Q
 ‘lit. You saw [an invitation from which company_i to its_i
 employees]?’ (T&F: 244)

Now, although PP LBE results in weak-cross-over-like effects, moving the whole phrase containing the PP does not. This is the crucial contrast for the purposes of this paper:

- (25) b. ***Dono-kaisyai-kara-no** kinoo *sokoi-no* syain-ga
 which-company-from-GEN yesterday it-GEN employee- NOM
 [*ti* syootaizyoo]-o uketot-ta-no?
 invitation-ACC receive-PST-Q
 ‘lit. From which company_i, its_i employees received [invitations
ti] yesterday?’ (T&F: 243)
- (28) [**Dono-kaisyai-kara-no** syootaizyoo]-o kinoo *sokoi-no*
 which-company-from-GEN invitation-ACC yesterday it-GEN
 syain-ga uketot-ta-no?
 employee-NOM receive-PST-Q

All Japanese speakers I consulted agree with the contrast between (25b) and (28) (see also Arano and Oda 2019). Again, this is surprising on the SD approach to LBE, because on this analysis in both (25b) and (28) the whole phrase containing the PP is moved in syntax.

One of the reviewers points out correctly that (28) should not be grammatical, given T&F’s structure of Japanese nominals. KP dominates the PP *dono-kaisyai-kara-no* ‘from which company’, which is adjoined to the NP, so since the PP does not c-command the pronoun, it should not be able to bind it, contrary to fact. But this seems to be a more general property of variable binding from the NP modifier position in Japanese. According to my informants, in both (29) and (30) *dono-kaisyai* ‘which company’ embedded in the subject binds the possessive pronoun modifying the object, regardless of whether the wh-possessor is an NP possessor (e.g., (29)) or a PP possessor (e.g., (30)).

- (29) [**Dono-kaisyai-no** shacho]-ga soko_i-no syain-o
 which-company-GEN CEO-NOM it-GEN employee-ACC
 shikat-ta-no?
 scold- PST-Q
 ‘Which company_i’s CEO scolded it_i’s employees?’

- (30) [**Dono-kaisyai-kara-no** syootaizyoo]-ga soko_i-no
 which-company-from-GEN invitation-NOM it-GEN
 shacho-ni todoi-ta-no?
 CEO-DAT arrive- PST-Q
 ‘An invitation form which company_i arrived to it_i’s CEO?’

It seems to me that either KP (regardless of whether it is a phase or not) does not count as a category for purposes of c-command (the first category that properly dominates wh-possessors in (29) and (30) would actually be the first one that properly dominates KP), or that the wh-possessor always moves out at LF to a position from which it could bind the pronoun and, crucially, this movement would not be constrained by the PIC and Antilocality, as the overt LBE movement in (18) is. This assumption would be necessary to account for (29). The latter option would very similar to Kayne’s (1994) treatment of variable binding in similar English construction and the contrast between (31) and (32):

- (31) Every girl_i’s father thinks she_i is a genius.
 (32) *Every girl’s father admires herself.

Kayne (1994) argues that the possessor QP moves to a higher DP position at LF from which only variable-binding, but not anaphor-binding, is possible. This is, however, somewhat orthogonal to the main goal of this paper, which is to show that there are deep difference between LBE and movement of the whole nominal, which I believe, the contrast between (28) and (25b) illustrates well.

Note finally that SC exhibits a similar contrast. Just like in the case of QP fronting from section 2, binding is possible only if the whole wh-phrase moves overtly, as in (33b). If the wh-phrase stays in situ (e.g., (33b)), or if *kog* ‘which’ undergoes LBE (e.g., (33c)), binding is not possible.

- (33) a. *Njegovi_i roditelji su izgrdili kog dečaka_i?
 His parents are scolded which boy
 ‘Which boy_i did his_i parents scold?’
 (ungrammatical on this coindexation)
 b. [Kog dečaka]_i su njegov_i roditelji izgrdili *t_i* ?
 Which boy are his parents scolded
 ‘Which boy_i did his_i parents scold?’
 c. *Kog_i su njegov_j roditelji izgrdili [*t_i* dečaka]_j ?
 Which are his parents scold boy
 ‘Which boy_i did his_i parents scold?’
 (ungrammatical on this coindexation)

As noted by a reviewer, (33a) should be ungrammatical regardless of the coindexation, since the wh-phrase stays in-situ. To control for this, we can add another wh-phrase, which does not have to move, as below.

- (34) a. [Kog dečaka]_i su njegov_i roditelji izgrdili *t_i* kad?
 Which boy are his parents scolded when
 ‘Which boy_i did his_i parents scold when?’
 b. *Kog_i su njegov_j roditelji izgrdili [*t_i* dečaka]_j kad?
 Which are his parents scold boy when
 ‘Which boy_i did his_i parents scold when?’
 (ungrammatical on this coindexation)

In (34a-b), at least one wh-phrase moves to the front and there is still a contrast in binding. Even if all wh-elements move to the front, as in (35), the pronominal possessor cannot be bound if *dečaka* ‘boy’ does not move (35b).

- (35) a. Kad su [kog dečaka]_i njegov_i roditelji izgrdili *t_i* ?
 When are which boy his parents scolded
 ‘Which boy_i did his_i parents scold when?’
 b. * Kad su kog_i njegov_i roditelji izgrdili [*t_i* dečaka]_i?
 When are which his parents scold boy
 ‘Which boy_i did his_i parents scold when?’
 (ungrammatical on this coindexation)

4. Conclusion

In this paper I have investigated the size of the element that undergoes LBE. On the DE approach, what moves is exactly what we see overtly fronted – a left branch element (e.g., adjective, demonstrative, possessive etc.) and nothing more. On the SD approach, the size of the moving element is actually bigger than what is overtly evident. In addition to the left branch element (and the phrase immediately dominating it, such as AP), the modified nominal is also moved in the syntax, but it is not pronounced (overly realized) at PF. But in terms of its syntactic and semantic properties, LBE structures should not differ from structures in which the whole object is overtly moved on this analysis – the only difference between them is whether or not the moved noun is overtly realized. I have tried to show, using these two types of structures, that the SD approach in its basic form is not on the right track. That is, there are significant syntactic and semantic differences between the LBE structures and those in which the whole object moves. I have used variable binding, weak crossover effects and scope properties to make this point. Empirically speaking, I have focused on data from SC, a well-studied LBE language, but I have shown that the same point can be made even in a language like Japanese.

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