The size of things II

Movement, features, and interpretation

Edited by

Sabine Laszakovits

Zheng Shen

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Jane Meier[a]
[a]University of Eden

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References

Nordhoff, Sebastian. 2018. *BibTeX generator*. Follow the link to generate BibTeX. http://glottotopia.org/doc2tex/doc2bib.

Part I

Size and movement

Chapter 1

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

Miloje Despić[a]
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1 Introduction

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., 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 & Ćavar 2002, Pereltsvaig 2008, Bondarenko & 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

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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.[1] On the DE approach, on the other hand, one would have to assume that the preposition in (3) adjoins to the adjective by some process. Borsley & Jaworska (1988) implement this a 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.[2] In Section 3, I will

[1]The constituency issue does not arise on the *Remnant Movement* approach to LBE (Franks & Progovac 1994, Bašic 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.

[2]Bondarenko & Davis (2018) provide an interesting argument in favor of the SD approach on the basis of the behavior of LBE in parasitic gaps 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.

show that the apparent case of LBE in Japanese (Takahashi & Funakoshi 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.[3]

(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 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:

[3] 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) (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).

(6) Svakome$_i$ je njegova$_i$ 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) *Njegova$_i$ muka je najveća svakome$_i$.
His trouble is greatest everybody$_{DAT}$

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

(8) a. Svakog generala$_i$ njegovi$_i$ vojnici vole t$_i$.
Every$_{ACC}$ general$_{ACC}$ his$_{NOM}$ soldiers$_{NOM}$ love
'Every general is loved by his soldiers.'

b. *Njegovi$_i$ vojnici vole svakog generala$_i$
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) Svaku$_i$ 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$_j$ njegovi$_i$ 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 Emira
His latest film is disappointed big friend Emir$_{GEN}$
Kusturice$_i$.
Kusturica$_{GEN}$
'His$_i$ latest film disappointed a great friend of Emir Kusturica$_i$.'

(12) *Velikog je njegov$_i$ najnoviji film razočarao prijatelja Emira
Big is his latest film disappointed friend Emir$_{GEN}$
Kusturice.
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.[4] 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):[5]

(14) a. Jedan student je pročitao svaku knjigu. ✓∃ > ∀ *∀ > ∃
One student is read every book
'A student read every book.'

b. Svaku knjigu je jedan student pročitao. ✓∃ > ∀ ✓∀ > ∃
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.

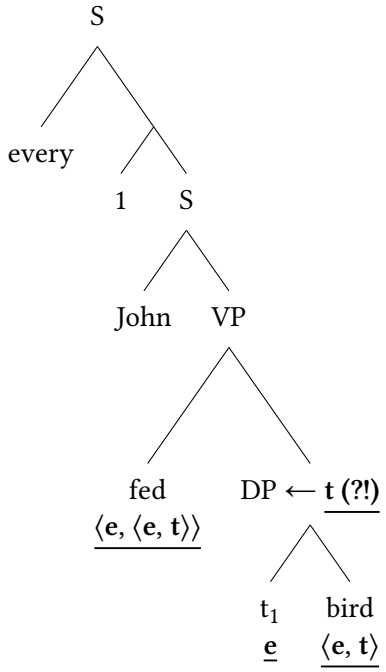
(15) Svaku$_i$ je jedan student pročitao [t$_i$ knjigu]. ✓∃ > ∀ *∀ > ∃
Every is one student read book
'A student read every book.'

[4] A fair number of speakers I consulted share the judgments reported here. However, there are also speakers who seem to allow both readings in (??), 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.

[5] Note that in (??) 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 distributer *po* in SC, which some speakers require to get the distributed reading.

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

(16) John fed every bird.
→ LF:

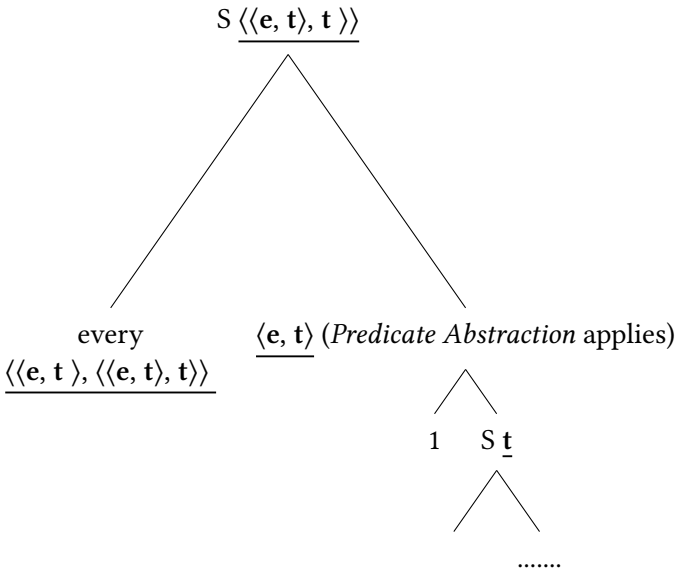


Regarding structures like (16), according to Heim & Kratzer (1998: 212): "…we are not dealing with an interpretable structure here in the first place. The trace's type e meaning combines with the noun's type <e,t> meaning to yield a truth-value (!) as the meaning of the DP "t_1 bird". This cannot be composed with the type <e,et> 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 «e,t>,«e,t>,t», 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 «e,t>,t». Thus the only position in which the quantifier can be interpreted is the low, object-internal position, as expected on

the DE approach.[6]

(17)



3 LBE in Japanese

As discusses in Takahashi & 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. *Dare$_i$-no Taroo-ga [t$_i$ tegami]-o sute-ta-no?
who-GEN Taro-NOM letter-ACC discard-PST-Q
'lit. Whose$_i$, Taro discarded [a letter t_i]?'

(T & F: 237)

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

[6]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.

(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-kara$_i$-no Taroo-ga [t_i tegami]-o sute-ta-no?
who-from-GEN Taro-NOM letter-ACC discard-PST-Q
lit. 'From who$_i$, Taro discarded [a letter t_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-kara$_i$-no Hanako-ga [$_{CP}$ Taroo-ga [t_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 t_i]?'
(T & F: 239)

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

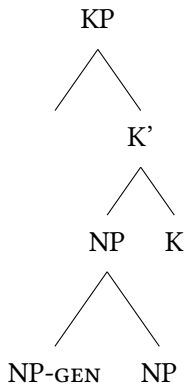
(21) a. Hanako-ga [[$_{RC}$[dare-kara-no tegami]-o sute-ta] hito]-o
Hanako-NOM who-from-GEN letter-ACC discard-PST person-ACC
sagasitei-ru-no?
be.looking.for-PRS-Q
'lit. Hanako is looking for a person that discarded a letter from who?'

b. *Dare-kara$_i$-no Hanako-ga [[$_{RC}$[t_i tegami]-o sute-ta
who-from-GEN Hanako-NOM letter-ACC discard-PST
hito]-o 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:

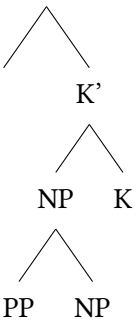
(22)



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 be can extracted without violating any of the above conditions.

(23) KP (KP ≠ phase)



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 & 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 *soko$_i$*-no syain-ga **[dono-kaisya$_i$-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-kaisya$_i$-kara-no** kinoo *soko$_i$*-no syain-ga [t_i
which-company-from-GEN 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 t_i] yesterday?'

c. **Dono-kaisya$_i$-kara-no** kinoo Toyota-no syain-ga [t_i
which-company-from-GEN yesterday Toyota-GEN employee-NOM
syootaizyoo]-o uketot-ta-no?
invitation-ACC 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 *soko*$_i$-no syain-ga **dono-kaisya**$_i$**-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-kaisya**$_i$**-kara** kinoo *soko*$_i$-no syain-ga t_i
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] t_i 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** *soko*$_i$-no syain-e-no
you-TOP which-company-from-GEN it-GEN employee-to-GEN
syootaizyoo]-o mi-ta-no?
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-kaisya**$_i$**-kara-no** kinoo *soko*$_i$-no syain-ga [t_i
which-company-from-GEN 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 t_i] yesterday?

(T & F: 243)

(28) **[Dono-kaisya**$_i$**-kara-no** syootaizyoo]-o kinoo *soko*$_i$-no
which-company-from-GEN invitiation-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 & 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-kaisya*$_i$ '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-kaisya**$_i$**-no** shacho]-ga soko$_i$-no syain-o shikat-ta-no?
which-company-GEN CEO-NOM it-GEN employee-ACC scold-PST-Q
'Which company$_i$'s CEO scolded it$_i$'s employees?'

(30) **[Dono-kaisya**$_i$**-kara-no** syootaizyoo]-ga soko$_i$-no shacho-ni
which-company-from-GEN invitation-NOM it-GEN CEO-DAT
todoi-ta-no?
arrive-PST-Q
'An invitation from 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 njegovi$_i$ roditelji izgrdili t_i ?
Which boy are his parents scolded
'Which boy$_i$ did his$_i$ parents scold?'

c. *Kog$_i$ su njegovi$_j$ 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 njegovi$_i$ 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 njegovi$_j$ 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 (34, 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]$_i$ njegovi$_i$ roditelji izgrdili t_i ? 'Which boy$_i$
When are which boy his parents scolded
did his$_i$ parents scold when?'

b. *Kad su kog_i njegovi$_j$ roditelji izgrdili [t_i dečaka]$_j$?
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 then 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.

Acknowledgements

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Chapter 2

Only the tall and the small: Size restrictions on Icelandic possessors

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In this chapter I discuss the DP-internal fronting of possessors in Icelandic. Fronted possessors are of two types: i) modifier-less definite possessors bearing contrastive focus, and ii) quantified/indefinite possessors. For the definite possessors, I argue that the same mechanism is underlying their fronting as the one underlying the fronting of the head noun and adjective in definite DP as well as the formation of the noun. In the absence of modifiers, the heads forming the noun form a complex head directly and, when bearing focus, can value all the relevant features of D, rather than partially doing so, as is the case when the noun and adjective are fronted. I argue that the fronting of quantified/indefinite possessors is an instance of overt quantifier raising and show that this fronting interacts with the availability of covert subextraction of the possessor.

1 Introduction

In Icelandic, the genitive typically occurs postnominally within the DP, (1). Genitives do vary terms in thematic roles, however, in the interest of space, I will focus on possessors in this chapter. When the possessor is definite and bears focus, it is possible for it to occur prenominally, (2).[1] Generally preposing possessors is easier with pronouns or proper names, than it is with common nouns (see, e.g., Magnússon 1984, Sigurðsson 1993, 2006, Þráinsson 2007:93–94).

[1]The definite article agrees with the noun in case, number and gender, hence these categories occur twice. For the sake of space and presentation, I only mark inflection on the noun.

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(1) Þráinsson 2007: 93

a. bók **stelp-u-nnar**
book girl-GEN-ART
'the girl's book'

b. bók **Ottó-s**
book Ottó-GEN
'Ottó's book'

(2) a. ? **STELPU-NNAR** bók
girl-GEN-ART book
'The girl's book'

b. **OTTÓ-S** bók
Ottó-GEN book
'Ottó's book'

Additionally, these fronted genitives do not allow modification of any kind, whereas postnominal genitives do. (Magnússon 1984; O'Connor et al. 2013).

(3) Magnússon 1984: 101

a. ? **KENNAR-A-NS** bók
teacher-GEN-ART book
'the teacher's book'

b. bók **kennar-a-ns**
book teacher-GEN-ART
'the teacher's book'

c. * **[LEIÐINLEGA KENNAR-A-NS]** bók
boring teacher-GEN-ART book
Int:'the boring teacher's book'

d. bók **[leiðinlega kennar-a-ns]**
book boring teacher-GEN-ART
'the boring teacher's book

Hence it would seem that the fronted genitives in Icelandic are exhibiting at the syntactic level an effect reminiscient of branchingness effect in phonology, where the application of certain processes within the DP are sensitive to whether the phrase contains modifiers or not (for an overview, see, e.g., Selkirk 2011, Bonet et al. 2019).

A number of questions regarding the nature of this movement arise: is this movement phrasal or is this some form of head movement? If this movement is phrasal, why is it the case that the fronted possessor cannot contain any modifiers? Also, if it is the case that the fronted genitive is conditioning the null form of the definite article, how can the appropriate structural relationship be established in order for the noun to host D? If, on the other hand, this is a case of head movement, how is it possible to skip intervening heads, specifically the head noun? And furthermore, given the assumed base-position of the genitive as a specifier, if this is a case of head movement, why is it possible, given the general difficulty of extracting out of non-complements (see, e.g., Huang 1982)?

To answer these questions, I propose that the movement of the possessor is in fact head movement. I adopt a mechanism proposed in Harðarson 2020, where heads can merge directly if neither of them has formed a phrase. Under this approach, a modifier-less definite possessors are heads and phrases simultaneously,

and can thus move to a position above the article, host the article and thus conditioning its null form.

This picture of the preposed possessors is not complete, as indefinite or quantified possessors can occur prenominally as well, (4), however, these are subject to different criteria.[2]

(4) [MÍM][3]

a. [heimsk-ra mann-a] ráð
foolish-GEN men-GEN advice
'advice of fools'

b. [hver-s mann-s] hús
each-GEN man-GEN house
'every person's house'

The main difference between these and the first type of genitives is that indefinite/quantified possessors contain modifiers, do not require contrastive stress, and are obligatorily indefinite.[4]

(5) a. * [heimsku manna-na] ráð
foolish men-ART advice
Int: 'advice of the foolish men'

b. * [hver-s manna-nna] hús
each men-ART houses
Int: 'each of the men's houses'

As will become clear below, I argue that this difference in behaviour is due these genitives being subject to different types of movement. Specifically, I argue that the fronting of the indefinite/quantified possessors is an instance of overt quantifier raising within the DP, as evidenced by the availability of different scope readings depending on its position.

In section 2, I argue that the branchingness effects are linked to D requiring a host. As discussed in, e.g., Harðarson 2017, other instances of DP-internal fronting coincide with a bound article, and the driving forces behind that fronting can be applied to the fronted definite possessors. In section 3, I discuss the distribution of quantified possessors and provide arguments for their fronting being

[2] There is a third class of prenominal genitives, which includes measure genitives, expressive genitives and certain attributive genitives. Although these do appear prenominally, and they seem to be subject to similar criteria as the quantified/indefinte possessors, they differ from possessors in that their distribution appears to be more in line with adjectives. They often do not appear postnominally, and those that can, typically do not maintain the same semantic relationship with the head noun. For reasons of space, I will set these aside for the purposes of this chapter.

[3] MÍM = Tagged Icelandic Corpus (Helgadóttir et al. 2012)

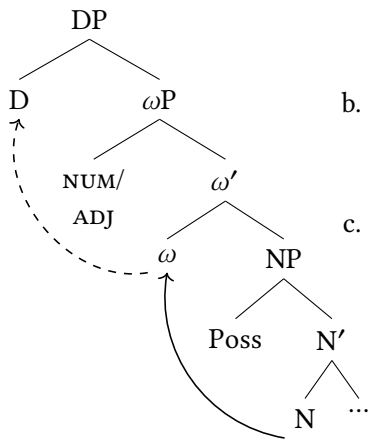
[4] Although the singular form of the possessor with *hver* with a definite complement is independently ruled out in the singular, the plural form shown in (5b) is possible under a partitive interpretation.

an instance of quantifier raising. In section 4, I summarize the chapter and discuss prospects for future research

2 Branchingness effects

Before moving on, some preliminaries on the DP structure are in order. I build on Harðarson 2017 and assume the DP structure argued for there. An abbreviated version of this structure is provided in (6). Under this approach, the head ω marks the top of the traditional NP, encodes reference, and houses numerals and adjectives in its specifier.[5] Heads below ω have been conflated into what is labelled here as N (see Harðarson 2017 for a more intricate structure and the relevant arguments). Possessors are merged in the specifier immediately below ω. Finally, the noun undergoes head movement to ω, and this yields the order shown in (7a–7b). Often in definite DPs, the noun moves onward to D and typically the adjective is fronted as well, yielding a configuration shown in (7c).[6]

(6)



(7) a. tvær stórar bækur Astridar
two large books Astrid.GEN
'two large books of Astrid's'

b. Hinar tvær stóru bækur (hans) Ottós
ART two large books PROP Ottó.GEN
'the two large books of Ottó's'

c. stóru bækur-nar tvær hans Ottós
large books-ART two PROP Ottó.GEN
'Ottó's two large books'

In order to determine the possible mechanism behind the fronting of possessors we must first established what is driving movement within the DP. I assume

[5] This head corresponds roughly to Faarlund's (2004, 2009) R, and aspects of Julien's (2003, 2005) α and n.

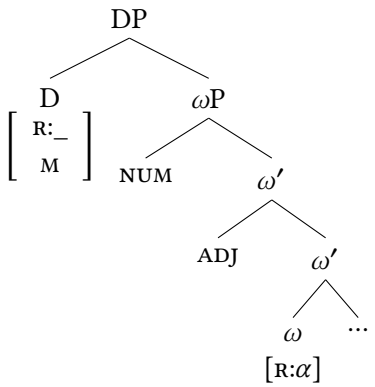
[6] See e.g., (Magnússon 1984, Sigurðsson 1993, 2006, Pfaff 2015, Ingason 2016, Harðarson 2017) for a more detailed discussion on the structure of the DP and the relevant word order effects regarding adjectives and numerals and interpretative effects. See also Sigurðsson 2006 for a discussion on the proprial article that occurs with postnominal possessors in definite DPs. I also assume multiple specifiers (e.g., Chomsky 1995, Lahne 2009), for both ω and D.

that Merge is a last resort operation, which occurs when the derivation would otherwise crash due to unvalued features (cf. Abels 2003, Bošković 2007, Wurmbrand 2012a,b,c, 2013, 2014c,b, 2017). Hence, the movement of the noun to D and, when applicable, the subsequent movement of the adjective is driven by feature valuation.

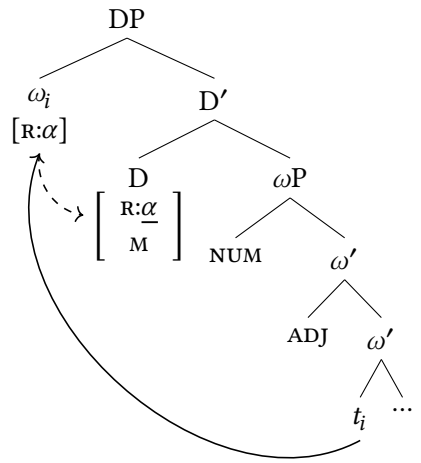
Following Harðarson 2017, N to D movement in Icelandic is the result of an unvalued [R] feature on D, (8). During the derivation, this feature must then receive its value from a corresponding valued [R] feature elsewhere within the appropriate domain (e.g., Pesetsky & Torrego 2007). Assuming *Reverse Agree* (Wurmbrand op cit.), the head carrying the valued counterpart of [R] must c-command D. Here, a valued equivalent is carried by ω Harðarson 2017: 147ff.[7]

Following, e.g. Matushansky 2006 and Harizanov & Gribanova 2019, I assume that head movement in the syntax operates on par with phrasal movement and that complex heads are formed post-syntactically.[8] In syntax, ω hence moves to Spec-DP.[9] From this position, ω c-commands D and values its [R] feature, (9).

(8)



(9)



A possible explanation for the choice of head movement in this case, is that phrasal movement is blocked by *Antilocality* (e.g., Grohmann 2000, Abels 2003).

[7] See Harðarson 2017: 147ff for a discussion on the nature of this feature.

[8] This could also potentially be carried out via traditional head movement (cf. Harðarson 2017).

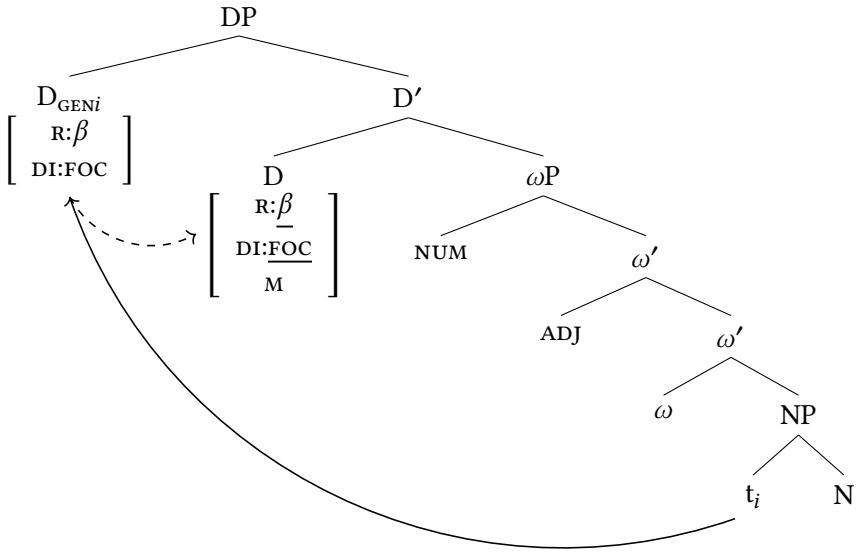
[9] Note that although I present this operation as movement this is done simply for the sake of presentation. Nothing here hinges on whether this operation is movement, copying or remerger.

Post-syntactically D and ω come to form a complex head through e.g., M-merger (Marantz 1988, Matushansky 2006), conflation (Harley 2004) or amalgamation (Harizanov & Gribanova 2019). I assume this is triggered by the presence of a feature M present on D (cf. Harley 2004, Harizanov & Gribanova 2019). This results in the pattern shown in (10).

(10) N - ART > NUM > ADJ
bækur - nar tvær stóru
books - ART two large
'the two large books'

In instances where the adjective also moves to a prearticular position, (7c), Harðarson (2017: 147ff) argues that the adjective is undergoing focus movement, formalized here as D carrying an unvalued [DI(scourse)] feature which is valued by a focus-bearing adjective. In case of fronted possessors, the possessor values both [R] and the [DI] features, (11). D is then merged into a complex head with the fronted possessor, thus conditioning the null form of the definite D, whose presence is indicated by the weak inflection of the adjectives, see (12).

(11)



This approach does capture the fact that fronting these possessors does require contrastive focus and blocks the movement of the noun and adjectives, (12).[10]

(12) a. Astrid-ar (*(h)inar) tvær stóru bækur
Astrid-GEN ART two large. books
'Astrid's two large books'

b. * Astrid-ar bækur tvær stóru
Astrid-GEN books two large

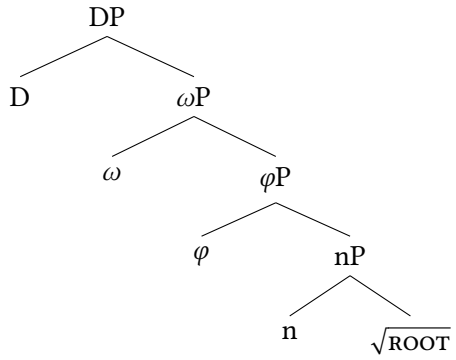
c. * Astrid-ar stóru bækur tvær
Astrid-GEN large books two

There are two issues, however, that are not adequately addressed in Harðarson 2017: one being the branchingness effects, and the other being the minimality violation in fronting the possessor rather than the noun and adjective.

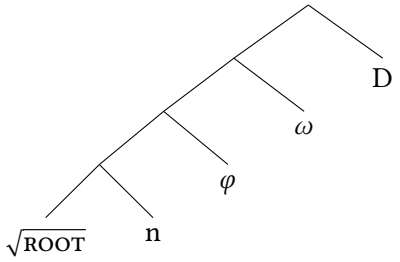
Turning first to the branchingness effects, there are two main questions: how is it possible perform head movement from a specifier position, and why is it not possible to strand modifiers as in typical cases of head movement?

To address these questions, let us first examine the formation of the noun. The full structure of the Icelandic DP under Harðarson 2017 is shown in (13). As mentioned above, the noun is argued to be formed through the accumulation of the heads up to ω (13) and in certain definite DPs, including D, which results in the complex head shown in (14).

(13)



(14)



[10]Under this, Spec-DP of a definite DP would be a criterial position (cf. Rizzi 2006, Bošković 2008, Wurmbrand 2014a, 2015). The unavailability of subextraction of adjectives and genitives would follow, as movement to spec-DP would freeze them for the purposes of any subsequent criterial movement, such as topicalization, focus movement, or quantifier raising. See section 3 for some further evidence for this position.

The configuration shown in (13–14) introduces a redundancy. Under traditional assumptions regarding the formulation of complex heads and merge, the heads necessarily form a phrasal construction prior to the formulation of the complex head. In the absence of any DP-internal modifiers, these operations apply vacuously. This redundancy has been used as an argument for *Spanning*, i.e. vocabulary insertion targeting non-terminal nodes (e.g., Svenonius 2016).

However, under *Bare Phrase Structure Grammar* (Chomsky 1995), is possible to merge two heads and form a complex head directly. This possibility has been utilized, e.g., for the formation of compounds (e.g., Josefsson 1997, Josefsson 1998, Zhang 2007, Siddiqi 2009, Okubo 2013, Harðarson 2018). Harðarson 2020 also makes use of this possibility in addressing patterns in the distribution of Penultimate Vowel Lengthening in Zulu discussed by Cheng and Downing (2007 et seq.). There it is argued that when two unmodified heads are merged, i.e., neither of them has projected to a phrase, with one or both of them carrying an M feature, a complex head is formed directly without first forming a phrase. If either of the heads is modified, i.e. has projected to a phrase, the merger will result in a phrasal construction and the formation of the complex head will take place post-syntactically. This is schematized below.[11]

(15) Merger of two unmodified M-marked heads (Harðarson 2020: 468)

$$Y_M + X_M \rightarrow [_X\ Y\ X]$$

(16) Merger of two M-marked heads with modification (Harðarson 2020: 468)

a. Raising

$$Y_M + [_{XP}\ X_M\ ZP] \rightarrow [_{YP}\ Y_M\ [_{XP}\ X_M\ ZP]] \rightarrow [_{YP}\ [_Y\ Y{+}X]\ [_{XP}\ ZP]]$$

b. Lowering

$$Y_M + [_{XP}\ X_M\ ZP] \rightarrow [_{YP}\ Y_M\ [_{XP}\ X_M\ ZP]] \rightarrow [_{YP}\ [_{XP}\ [_X\ Y{+}X]\ ZP]]$$

The argument carries over to the Icelandic DP. As discussed above, the heads in the extended nominal projection come to form a complex head. Hence, in the absence of modifiers, the complex head in (14) can be formed directly under (15), without first forming the phrasal configuration in (13). Performing head movement out of the specifier is then no longer an issue. This is not a head movement out of a specifier, but a head movement of an entire specifier. The possessor can then satisfy all the requirements of the matrix D, including serving as its host, and subsequently conditioning the null form of D. This allows us to exclude stranding of modifiers given the difficulty of subextraction from specifiers in general.

[11] Note that both heads are M-marked below in order to abstract away from the directionality of the process. That may not be necessarily.

A possible way of ruling out phrasal movement of the possessor may lie in an inversion of the last resort condition of movement, i.e., that Merge does not occur if it leads to features not being satified. As mentioned above, the fronted possessor values both the [R] and the [DI] features, preventing the movement of both the head noun and the adjectives. Note, however, although this would mean introducing some form of optimization into the derivation, the optimization in this case is local in that it only evaluates possibilities for the next step in the derivation (cf. Heck & Müller 2007, Lahne 2009). In the case of the modifier-less possessors, they are also able to satisfy D's [M] feature by virtue of being a nominal head c-commanding D. If a phrasal element were to move to this position, it would be able to value both [R] and the [DI] features and prevent movement of nouns and adjectives, just as the modifier-less. However it would not provide a suitable host for the matrix D as there is no head c-commanding it, thus not satisfying the [M] feature.

Turning to the minimality effects, one possibility is that Agree prioritizes single agree over multiple agree, and when an element that can value all of the relevant features us accessible, that element will be targeted over closer elements that only partially satisfy the unvalued features of the head. This would mean that, as the focused unmodified possessors can satisfy all three of the relevant features, it will be given priority over the head noun and the adjective, which only partially satisfy the features of D.

To summarize this section, the branchingness effects that are observed with definite possessors can be accounted for under the proposal in Harðarson 2020: In the absence of any modifiers, a definite DP will form a single head, hence allowing it to value all the features of the matrix D and serve as a host for D. In the presence of modifiers, the possessor forms a phrase, and can still value the relevant features of D, but cannot serve as a host.

3 Quantified possessors

Turning to the quantified possessors, as mentioned above, these differ from the definite possessors in a number of ways: first, they contain modifiers, as discussed above, and thus would be considered phrasal under the approach taken here. Second, their fronting is not limited to occurring within definite DPs, but they can also be fronted within indefinite DPs. Third, the fronted definite possessors carry focus and obligatory contrastive stress, the quantified possessors do not. And fourth, the position of the possessor relative to other material in the DP has semantic consequences beyond what is observed with the definite possessors.

Just as we saw with the definite possessors, there appear to be two possible positions for quantified possessors within the DP, postnominal and prenominal, (17–20). In addition to that, the position is relevant for the availability of different scope readings.

For the indefinite DPs, when the possessor follows the noun, (17a), the DP is ambiguous with respect to the two possible readings: either there is i) a particular large bunny that belongs to each of the children (∃ ≫ ∀), or ii) each child has their respective large bunny (∀ ≫ ∃). When the possessor is fronted, (17b), this ambiguity is lost and the only reading possible is reading (ii).[12] This indicates that from its position in (17b), the possessor c-commands whatever is carrying the existential force of the DP.

(17) a. stór-∅ kanína [hver-s barn-s] ∃ ≫ ∀; ∀ ≫ ∃
large-STR bunny each-GEN child-GEN
'each child's large bunny'

b. [hver-s barn-s] stór-∅ kanína *∃ ≫ ∀; ∀ ≫ ∃
each-GEN child-GEN large-STR bunny

Assuming that the existential force of indefinite DPs is a property of determiners (cf. Chierchia 1992), the available scope indicates that the possessor is situated in Spec-DP in (17b). The differences in meaning then result from the possessor taking wide or narrow scope with respect to D.[13] The ambiguity of the DPs in which the possessor remains in situ in turn indicates that this movement also occurs covertly.

[12]Note that it is possible for a quantified possessor to occur between the adjective and noun, (i–ii). This position also freezes the scope possibilities for the QP, as shown.

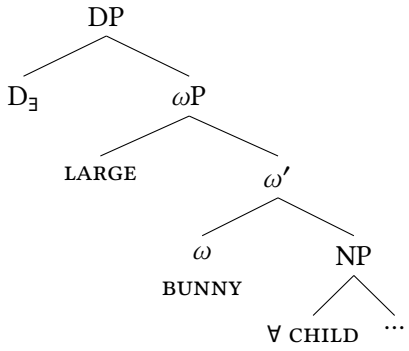
(i) stór-∅ [hver-s barn-s] kanína ∃ ≫ ∀; *∀ ≫ ∃
large-STR each-GEN child-GEN bunny

(ii) hin stór-a [hver-s barn-s] kanína DET ≫ ∀; *∀ ≫ DET
ART large-WK each-GEN child-GEN bunny

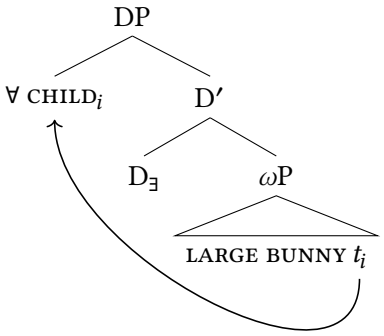
There is, however, reason to believe this may not be a phrasal construction. First there is an absence of a prosodic break between the genitive and the head noun, which occurs with other genitives, and second, the stress pattern is more akin to compound stress, with primary stress on the quantifier and secondary stress on the first syllable of the head noun. Hence it is possible that this may be a case of phrasal compound, which may also explain the semantic effects. If it is a part of a complex head, it cannot move to spec-DP on its own.

[13]Furthermore, in the light of (17) and (20), this indicates that there is in fact a null D in indefinite DPs in Icelandic, contra Harðarson 2017.

(18) ∃ ≫ ∀; ∀ ≫ ∃



(19) *∃ ≫ ∀; ∀ ≫ ∃



For definite DPs, the same pattern is observed. When the possessor is post-nominal, (20a), the DP is ambiguous: i) there is a single large bunny that belongs to each child (DET ≫ ∀), or ii) each child respectively has a single bunny that is large (∀ ≫ DET). If the possessor is fronted, (20b), this ambiguity is lost, and only reading (ii) is available.[14]

(20) a. hin stór-a kanína [hver-s barn-s] DET ≫ ∀; ∀ ≫ DET
ART large-WK bunny each-GEN child-GEN

b. [hver-s barn-s] stór-a kanína *DET ≫ ∀; ∀ ≫ DET
each-GEN child-GEN large-WK bunny

Hence, it would appear that the possessor is moving to Spec-DP by way of overt quantifier raising.

Another relevant point of difference between the quantified genitives and other genitives is that they appear to be extractable out of the DP, albeit not overtly. Overt subextraction from DPs is generally limited to argument PPs, (21a) or their complements, (21b). Overt extraction out of definite DPs is generally ruled out, (21c).

[14]Note that although the definite article has a null form in (20b), the DP can be identified as definite by the weak adjective inflection, which occurs within (formally) definite DPs. Precisely what is conditioning the null form, however, is not entirely clear.

(21) (Harðarson 2017: 197)

a. ? [Á hverjum]$_i$ vannstu [sigur t_i]?
on who won.you victory
'Who did you defeat?'

b. Hverjum$_i$ vannstu [sigur [á t_i]]?
who won.you victory on

c. * Hverjum vannstu [sigurinn [á t_i]]?
who won.you victory.ART on

Overt extraction of possessors is not possible in Icelandic, (22). However, the availability of different scope readings indicate that it is possible for covert extraction to take place (Harðarson 2017). This is shown in (23) below where the possessor to takes wide scope over the subject (see also Wurmbrand 2008, Bobaljik & Wurmbrand 2012 for a similar effect in German).

(22) (Harðarson 2017: 200)
* Hvers$_i$ horfðir þú á [sigur t_i á Svíum]
who.GEN wathced you on victory on Swedes
Int:'Whose victory over the Swedes did you watch?'

(23) (Harðarson 2017: 201, ad.)
[Einn stúdent] borðaði [kanínu [hver-s barn-s]]
one student ate bunny each-GEN child-GEN

a. 'A single student ate all the children's bunnies.' ∃ ≫ ∀

b. 'Each child is such that a student ate their bunny.' ∀ ≫ ∃

It is worth noting at this point that under Kayne 1994: 22ff specifiers are argued to c-command out of their phrases, hence this does beg the question of whether this is really a case of covert extraction of the possessor or if this is rather a matter of covert movement to Spec-DP and subsequent pied piping. We saw in (17a) and (20a), that if scope readings are the result of different c-command relationships, covert movement to Spec-DP does take place. If it were the case that the wide scope of the possessor in (23) is the result of movement to Spec-DP and subsequent pied piping, we would expect all prenominal possessors to be able to license material outside of the DP via c-command. Binding facts show that this is not the case, i.e., possessors in Spec-DP do not c-command out of the DP.

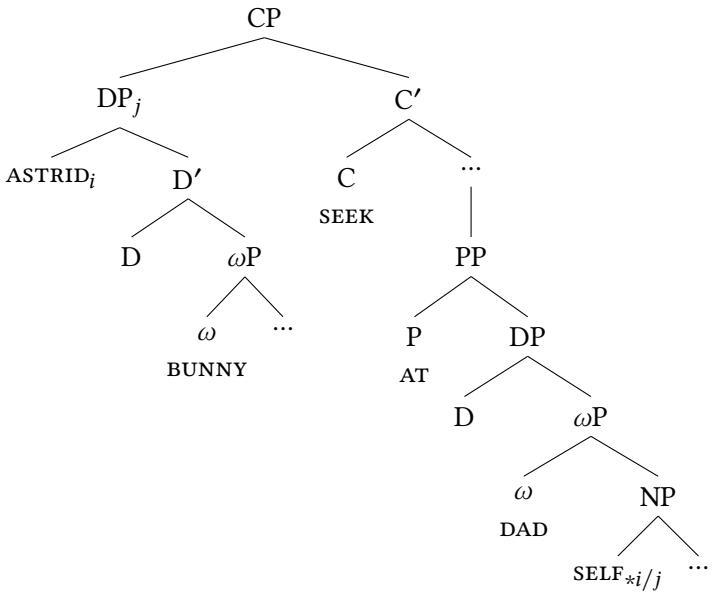
Non-quantified possessors, whether pre- or postnominal, do not licence a reflexive pronoun, (24). This strongly indicates that a possessor does not c-command out of the DP whether it is overtly or potentially covertly positioned in spec-DP.

Note, however, that the DP containing the possessor can serve as an antecedent for the reflexive pronoun. The structure for (24b) is provided in (25) below, where the TP, vP, and VP layers have been omitted.

(24) a. [Kanína Astridar$_i$]$_j$ leitar að [pabba sínum$_{*i/j}$]
bunny Astrid.GEN seeks at dad self's
'Astrid's bunny is looking for her dad.'

b. [Astridar$_i$ kanína]$_j$ leitar að [pabba sínum$_{*i/j}$]
Astrid.GEN bunny seeks at dad self's

(25) The structure of (24b)

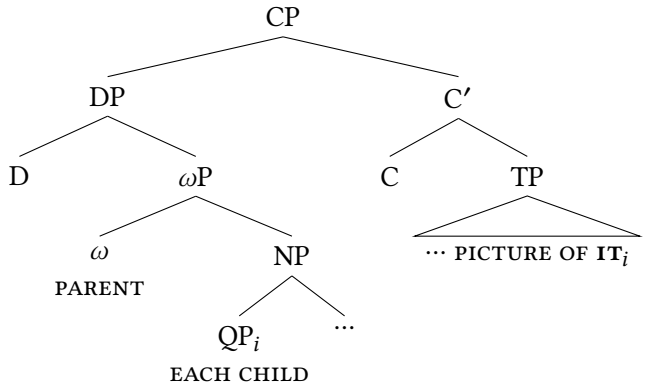


This effect cannot be explained as a matter of domains, i.e., it cannot be the case that the possessor is unable to license the reflexive due to the reflexive being embedded within an inaccessible domain in the structure in (25). If that were the case, we would expect that the DP containing the possessor would also fail to license the reflexive as it is no less distant from the DP containing the possessor in terms of domains. This is not the case and hence this indicates that possessors do not c-command from their position in Spec-DP.

Turning back to the quantified possessors, when they are in a postnominal position they can bind a pronoun and give rise to a bound variable reading. This is shown in (26), where the possessor is able to bind a variable that is overtly c-commanded by its matrix DP. The structure of (26) is given in (27) below.

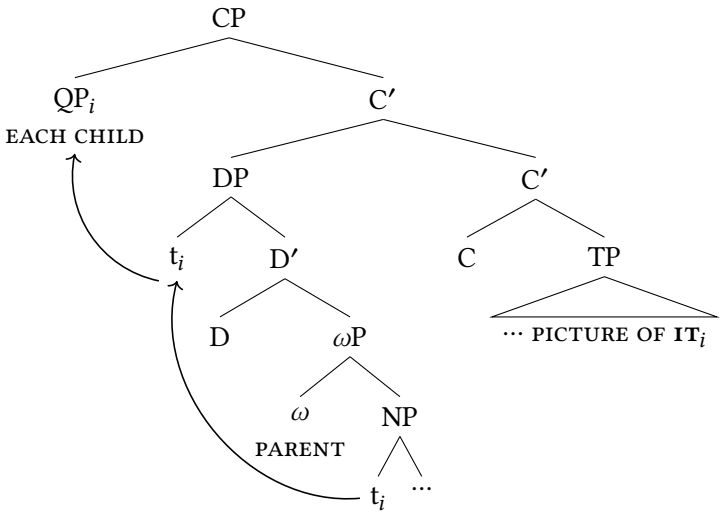
(26) [foreldri [hvers barns]$_i$] er með [mynd [af því$_{i/k}$]] uppi í hillu.
parent each.GEN child.GEN is with picture of it up in shelf
'Each child's parent has their picture up on their shelf.' BV

(27) The overt structure of (26)



Assuming that the bound variable reading requires a c-commanding antecedent (Reinhart 1983), the bound variable reading should be impossible under the structure in (27), as possessors do not license reflexives from their position within the DP. Hence the fact that the bound variable reading is possible indicates that the possessor must move out of the DP to a position c-commanding the variable, (28).

(28) Structure of (26) at LF



However, if the possessor has been fronted, i.e., if it has overtly moved to Spec-DP, the bound variable reading is lost, (29). This indicates that whatever movement that is responsible for the fronting of the possessor, also freezes the possessor for the purposes of subsequent movement.[15]

(29) [[hvers barns]$_i$ foreldri] er með [mynd [af því$_{*i/k}$]] uppi í hillu.
each.GEN child.GEN parent is with picture of it up in shelf
'Each child's parent has their picture up on their shelf.' *BV

Furthermore, if fronting freezes the possessor for further movement, the expectation is that it should be frozen for quantifier raising as well. This prediction is borne out, as shown in (30).

(30) [Einn stúdent] borðaði [[hvers barns] kanínu].
one student ate each.GEN child.GEN bunny
a. 'A single student ate all the children's bunnies.' ∃ ≫ ∀
b. * 'Each child is such that a student ate their bunny.' *∀ ≫ ∃

This is consistent with the proposal above, that the fronting of the quantified possessor is an instance of DP-internal quantifier raising. As such, once the movement has occurred, the possessor is frozen for the purposes of further quantifier raising, whether overt or covert. When the possessor is overtly in situ, it is free to raise covertly to either Spec-DP, or beyond the DP. This is consistent with the notion of criterial freezing (Rizzi 2006, Wurmbrand 2014a, 2015), i.e., criterial movement, such as quantifier raising, focus movement, a.o., prevents any subsequent criterial movement.

To summarize this section, the fronting of quantified possessors appear to be a case of overt quantifier raising, where the position of the possessor affects the interpretation of the DP. This analysis is further supported by the fact that quantified possessors can be covertly extracted for interpretative purposes as well, whereas fronting of the possessor prevents subextraction. This is consistent with theories in which movement prevents subsequent movement for the same purposes.

[15] Carminati et al. 2002 provide some experimental evidence that challenges the view that bound variable anaphora require a c-commanding antecedent and propose that bound variable reading in the absence of a c-commanding antecedent is an instance of an anaphoric pronoun with an inferred antecedent. However, this study does not rule out potential covert raising of the quantifier in the context of embedding or coordination, which could establish c-command relation between the QP and the variable. Furthermore, this would fail to predict the scope differences that are observed between (26–29), as there is no clear reason for why an inferred antecedent coreferential with the possessor would be less available when the possessor is prenominal.

4 Conclusions

Much ground still remains to be covered when it comes to the internal syntax of the Icelandic DP. Staying close to the topic at hand, one aspect that remains to be explored are the properties of the non-possessor genitives, their positions within the DP and their mobility. This includes the midfield genitives, which appear to have a distribution similar to adjectives, and other argument genitives. Unfortunately, due to restrictions on both time and space, these will have to left for future research.

To summarize the ground covered in this chapter, I have discussed two types of DP-internal possessor fronting. The different criteria for the two types were argued to follow from mechanisms already in place, i.e., feature valuation, word formation, and quantifier raising. The feature valuation approach has been argued for in Harðarson 2017 in order to account for other word order effects within the Icelandic DP. With the amendments proposed here, the fronting of definite possessors can be fully integrated into that analysis and provides an explanation for the size restrictions observed. In the case of the quantified possessors, their fronting appears to be an instance of overt quantifier raising, where the possessor takes scope over the determiner. This was also shown to interact with the availability of covert subextraction of quantified possessors, where if they raise to Spec-DP overtly, they cannot be extracted covertly.

Abbreviations

ART	article	PROP	proprial article
ADJ	adjective	STR	strong inflection
NUM	numeral	WK	weak inflection

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Chapter 3

Size of Op in *Tough*-Constructions

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Following (Hicks 2009), the availability of the complex operator with D layer is the pre-requisite for English-like *tough* constructions. Based on the NP/DP parameter, I claim that the size of the null operator (Op) is bigger in languages with articles (so called DP languages) with D layer while Op in languages without articles (so called NP languages) are missing the D layer. Hence English-like *tough* constructions should be available only in DP-languages. Through a cross-linguistic survey of 13 languages, I will show that this is in fact borne out.

1 Complex Null Operator

1.1 Problems in Analyses of *Tough* Construction

The analyses of the *tough* constructions have encountered difficulties with at least one of the core theoretical concepts of Case, locality constraints, and θ-role assignment. For example, the raising analysis of the *tough* subject from the embedded object position by A-movement (e.g. Rosenbaum 1967; an A-movement account) leads to a problem with respect to Case assignment, i.e. the *tough* subject should not be able to avoid accusative Case assignment by the infinitive verb in the embedded clause.

(1) He$_i$ is easy [$_{CP}$ [$_{TP}$ PRO to please t$_i$]].

On the other hand, Chomsky's (1977) account based on A'-movement of a null operator (Op) assumes that the *tough* subject is base-generated in situ. This analysis, however, appears to leave the matrix subject without a θ-role, since the *tough* predicate is claimed to not assign a θ-role to its subject. This is indicated by the

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grammaticality of the *tough* constructions with expletive/sentential subjects in (2), which is contrasted with other complement object deletion configurations as with *pretty* in (3)

(2) a. It is tough to please linguists.
    b. To please linguists is tough.

(3) a. *It is pretty to look at these flowers.
    b. *To look at these flowers is pretty.

Thus, this A'-movement analysis has to explain how a single θ-role assigned by the embedded verb is apparently "shared" between two arguments, i.e. the null operator in the infinitival clause and the *tough* subject.

Postal (1971), Postal & Ross (1971), Rosenbaum (1967) and Brody (1993), among others propose a composite A/A'-movement analysis by claiming that A'-movement of the *tough* subject is followed by A-movement as shown below.

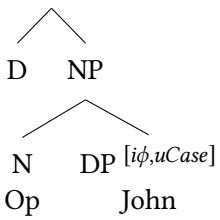
(4) John$_i$ is easy [$_{CP}$ t$_i$ [$_{TP}$ PRO to please t$_i$]].

However, the problem of this approach is the Case mismatch of the subject (Accusative vs. Nominative). Another issue is that movement from an A position to an A'-position that is followed by A-movement, referred to as Improper Movement, is typically assumed to be disallowed (See Chomsky 1973, 1981; May 1979).

1.2 The CNO Analysis

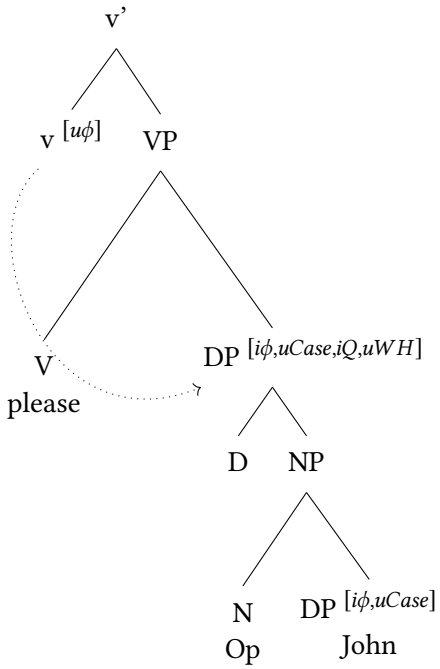
Hicks (2009) proposes a new analysis which incorporates both A-movement and A'-movement but without the problems of the previous approaches noted above, using smuggling (Collins 2005a, 2005b). He claims that a null operator in *tough* constructions is a wh-phrase with a more complex internal structure than is typically assumed, i.e. a complex DP with an internal DP as the *tough* subject (e.g. *John*) as shown below.

(5) DP [*iϕ,uCase,iQ,uWH*]



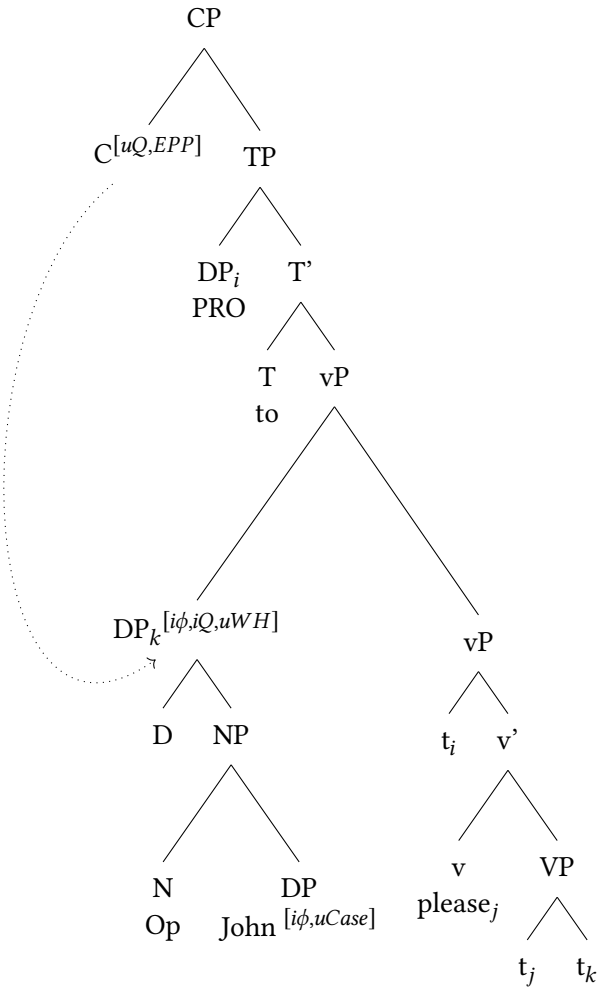
Based on this complex null operator (henceforth, CNO) analysis, the derivation of the *tough* construction *John is easy to please*, for example, proceeds as follows. First, the CNO merges with the V *please* as an object and the patient θ-role from *please* is assigned to the whole complex DP. Second, the derived VP is merged with v, and the complex null operator enters into ϕ-feature agreement with v, [uϕ] (uninterpretable ϕ-feature) on v being the relevant probe. As a reflex of ϕ-feature agreement, v checks [uCase] on the CNO, i.e. the whole DP at this point.

(6)



After V-to-v movement of please and the merger of PRO as the external argument, the CNO must move to the phase edge (outer vP-spec) since it bears [iQ, uWH] feature, where crucially, the operator pied-pipes the inner DP *John*, allowing [uCase] on it to escape. The null operator therefore serves to "smuggle" (Collins 2005a, 2005b) the *tough* subject.

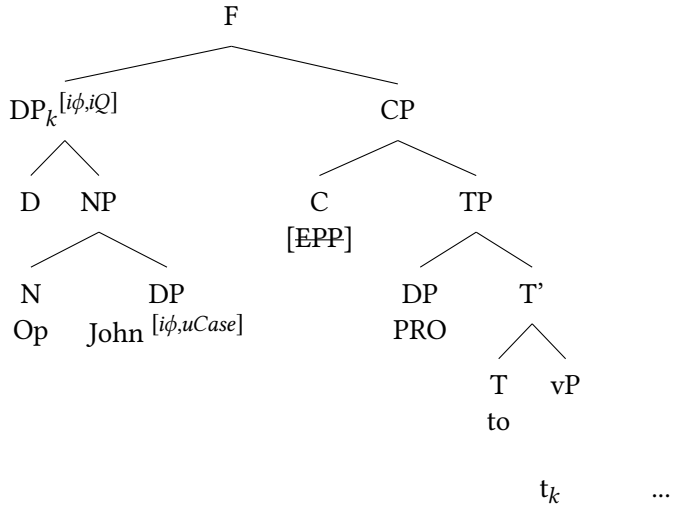
(7)



The PRO, then, moves into Spec, TP of the embedded clause, and the C is merged with [uQ] which is checked with [iQ] on the CNO while the [uWH] is checked as a reflex. The [EPP] on C then drives movement of the CNO into the phase-edge position, allowing the unchecked [uCase] on *John* to escape. At this point the remaining interpretable features in the CNO are now inactive. In other words, the phrase (i.e. the full CNO) is frozen in place and thus is not accessible to further movement, following Rizzi (2006, 2007).[1]

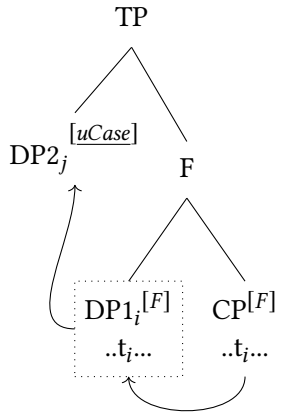
[1]The details of the feature checking relations assumed by Hicks (2009) will actually not be important below.

(8)



Finally, when the main clause T merges into the structure, T, which has [uϕ], probes for [iϕ]. As a reflex of ϕ-agreement, a nominative case value is assigned to the goal John, which moves to Spec, TP to satisfy [EPP], and its [uCase] is checked.

(9)



In short, based on this analysis, when the CNO merges with the V as an object, the patient θ-role is assigned to the whole complex DP1, and after the CNO merges with a CP, the inner DP2 is smuggled (Collins 2005a, 2005b) into the matrix subject position without being assigned an accusative Case prior to that movement. The shared feature F is projected here (based on the Labeling Algorithm in Chomsky 2013), which I assume is a D-related feature.

This CNO analysis avoids the problems of the previous analyses in that (a) the CNO shields the *tough* subject from Case assignment in the lower clause by the infinitival verb, and that (b) it does not involve improper movement. Crucially, there has to be a DP which embeds Op within it, smuggling the *tough* subject from the complement position of the Op in (5).

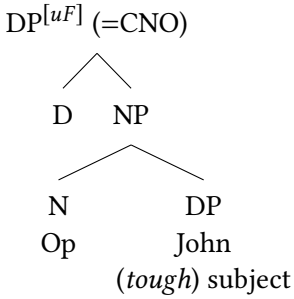
1.3 The NP/DP Parameter and a Prediction

The crucial issue here is that languages without articles have been argued not to have the category D, hence the DP projection (Corver 1992, Zlatić 1997, Bošković 2005, 2012, Despić 2013: among others). For example, Bošković (2012) establishes a number of generalizations based on wide-ranging syntactic and semantic phenomena that correlate with the presence or absence of articles in the languages, based on which Bošković argues that languages without articles lack the DP layer. Furthermore, he proposes an NP/DP parameter where languages with articles like English are DP languages and languages like Japanese which do not have articles are NP languages.

Given this, I claim that the Op has a more complex structure in DP-languages while it does not have the DP layer in NP-languages, as shown in (10). In other words, the size of Op is different among languages.

(10) Null Operators in *tough* constructions

a. DP-languages:



b. NP-languages:

Based on the CNO analysis of *tough* constructions (Hicks 2009) in (9), the *tough* subject is smuggled out of the lower infinitive clause by the complex DP (CNO). If this is the case, then it is predicted that English-like *tough* constructions would not be available in NP-languages, since in NP languages Op is not complex and the uninterpretable [F] feature, which is necessary for the smuggling to take place, is missing.

In order to check this prediction, I will look at the cross-linguistic variation in "*tough* constructions", and conduct a cross-linguistic survey of the availability of "*tough* constructions" in 13 languages in the following sections, which establishes a correlation between the availability of the "*tough* construction" and being a DP-language.

2 *Tough* Constructions without the CNO

Japanese, an NP language, appears to allow *tough* constructions, as in (11). However, Takezawa (1987) claims that (11) should not be analyzed in accordance with the English *tough* construction (Chomsky 1977), as there is no island effect, which is shown by (12). (As the English translation here shows, (12) involves a complex NP configuration and should be ruled out due to movement out of the complex NP.)

(11) John$_i$ -ga [$_{AP}$ [$_{S'}$ Op$_i$ [$_S$ PRO t$_i$ yorokobase]] yasu -i]]
-NOM please easy -PRES
'John is easy to please'

(12) a. [kono te-no hanzai]$_i$ –ga (keisatu-nitotte) [$_{NP}$ [$_{S'}$ e$_j$ e$_i$
This kind-of crime -NOM police-for
okasi-ta] ningen$_j$]-o sagasi-yasu-i
commit-PST man-ACC search-easy-PRES
'*[This kind of crime]$_i$ is easy (for the police) to search [$_{NP}$ a man [$_{S'}$ who committed e$_i$]]'

b. [kooitta itazura]$_i$ -ga (senseigata-nitotte) [$_{NP}$ [$_{S'}$ e$_j$ e$_i$ sita]
This-kind-of trick -NOM teachers-for do-PST
seito$_j$]-o mituke-yasu-i
pupil-ACC find-easy-PRES
'*[This kind of trick]$_i$ is easy (for the teachers) to find [$_{NP}$ a pupil [$_{S'}$ who played e$_i$]]'

c. [Sooiu ronbun]$_i$ -ga (watasi-nitotte) [$_{NP}$[$_{S'}$ e$_j$ e$_i$ kai-ta]
That-kind-of paper -NOM me-for write-PST
gakusei$_j$]-o hyookasi-niku-i
student-ACC evaluate-difficult-PRES
'*[That kind of paper]$_i$ is difficult (for me) to evaluate [$_{NP}$ a student [$_{S'}$ who wrote e$_i$]]' (Takezawa 1987: 203)

Takezawa explains this difference by claiming that Japanese *tough* constructions do not involve movement of Op but involve an empty pronominal (Japanese

independently allows empty pronominals) in the gap position and the "aboutness relation" which correlates the pronominal and its antecedent, just as claimed for the derivation of relativization and topicalization by Saito (1985) based on Kuno's (1973) observation. He further points out that when *tough* constructions have PP subjects, which cannot be coindexed with an empty pronominal, they observe Subjacency, as shown in (13). Thus, Takezawa concludes that only *tough* constructions with PP subjects must be derived by movement of a null operator as in their English counterparts.

(13) a. *[$_{PP}$ Anna taipu -no zyosei-to]$_i$ -ga (John-nitotte) [$_{NP}$[$_{S'}$ e$_j$ e$_i$
that type of woman-with -NOM John-for
kekkon-site-i-ru] otoko$_j$]-to hanasi-niku-i.
marry-PRES man-with talk-hard-PRES
(lit.) '[With that type of woman]$_i$ is hard (for John) to talk to [$_{NP}$ the man [$_{S'}$ who marry e$_i$]]'
cf. [$_{PP}$ Anna taipu -no zyosei-to]$_j$ -ga (John$_i$-nitotte) [$_{S'}$ pro$_i$ e$_j$]
that type of woman-with -NOM John-for
kekkonsite-mo-i-i to] tomodachi-ni ii-niku-i.
marry-may-PRES COMP friend-to say-hard-PRES
(lit.) '[With that type of woman]$_i$ is hard (for John$_j$) to say to his friends [$_{S'}$ that he$_j$ may marry e$_i$]'

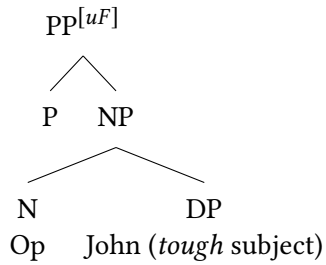
b. ?*[$_{PP}$ Sooiu kin'yuukikan-kara]$_i$ -ga (John-nitotte) [$_{NP}$ [$_{S'}$ e$_j$
such financial.agency-from -NOM John-for
itumo e$_i$ okane-o takusan karite-i-ru] hito$_j$]-o
always money-ACC a.lot borrow-PRES person-ACC
sin'yoosi-niku-i.
trust-hard-PRES
(lit.) '[From such a financial agency]$_i$ is hard (for John) to trust [$_{NP}$ a person [$_{S'}$ who always loans a lot of money t$_i$]]'
cf. [$_{PP}$ Sooiu kin'yuukikan-kara]$_j$ -ga (John$_j$-nitotte) [$_{S'}$ pro$_i$ e$_j$
such financial.agency-from -NOM John-for
okane-o takusan karite-i-ru to] ii-niku-i
money-ACC a.lot borrow-PRES COMP say-hard-PRES
(lit.) '[From such a financial agency]$_i$ is hard (for John) to say [$_{S'}$ that he has loaned a lot of money e$_i$]'

I will argue that this PP subject *tough* construction is irrelevant to our expectation that NP languages do not have a *tough* construction since PP itself may bring in richer structure for the Op, enabling the smuggling of the subject, regardless of the presence of DP layer here.

(14) [Annna taipu –no zyosei-to]$_j$ –ga [$_{CP}$ [$_{PP}$ Op t$_j$]$_i$ John-nitotte t$_i$ kekkon si yasui]

Thus, I will focus on nominal *tough* constructions where NP/DP distinction is crucial for the availability of *tough* construction. Recall that the Op does not have any uninterpretable features in *tough* construction; a DP above the Op is necessary for smuggling the subject in DP-languages. The availability of *tough* construction with PP subject in Japanese then is explained by saying that PP functions as the DP and has an uninterpretable feature [uF] that is needed for the smuggling of the *tough* subject.

(15)



The necessity of the CNO analysis comes from the nominative Case marking on the *tough* subject in English. I.e. the subject needs to be smuggled into the TP spec position in order to avoid getting assigned the accusative Case in the complement position of the infinitive, instead getting the nominative Case from the higher T. If there are languages where the apparent subject of *tough* construction is assigned a Case other than nominative, CNO will then not be needed. I will therefore focus on nominative subjects of *tough* constructions below.

3 Cross-linguistic Survey of Availability of CNO in *tough*

3.1 Diagnostics

Before looking at the data, we need to clarify the diagnostics a little more. Regarding the Case marker of the *tough* subject, as noted above, it is crucial to check if it is a Nominative or another Case such as Accusative/Dative (or the Case normally assigned by the infinitive verb). If the matrix subject has a Nominative Case, then in that language the CNO can be involved in the derivation. However, there is another possibility when the language has no island effect (thus no *tough*-movement) because of a resumptive pronoun as in the case of Japanese *tough* constructions. If the *tough* subject has the Case assigned by the lower verb, it is an

indication that the CNO analysis is not necessary since there is no need for the subject to avoid Case assignment by being smuggled; this also suggests that the subject was base-generated in the object position of the infinitive, and moved to the surface position without any Op movement. There should, however, still be an island effect here.[2] The diagnostics are then summarized below.

(16) Diagnostics to follow
1. The subject has a nominative Case or a Case assigned by the embedded infinitive verb?
2. If nominative Case, then check subjacency effects; if yes, smuggling of the subject with the CNO as in (i); if no, base-generated subject with a null resumptive pronoun in the gap position without Op movement as in (ii).
   (i) Subj(NOM)$_j$ is tough [$_{CNO}$...t$_j$...]$_i$ to please t$_i$ e.g. English
   (ii) Subj(NOM)$_i$ is tough to please pro$_i$ e.g. Japanese
3. If no nominative, with Case assigned by the infinitive verb, then the object of the infinitive verb is moved as in (iii) by e.g. focalization; and there is no need for Complex Op analysis, but there should be a subjacency effect for the movement.
   (iii) Subj(DAT/ACC)$_i$ is tough to please t$_i$

In short, there are three types, i.e. English-like *tough* construction with a nominative subject with the CNO, Japanese-like *tough* construction with a nominative subject without the CNO, and the one without a nominative subject or the CNO.

In order to check the subjacency effect, I will use the translation of Chomsky's (1977) examples regarding the locality in English *tough* constructions, i.e. (17c).

(17) a. John$_i$ is easy (for us) to please t$_i$
b. i. John$_i$ is easy (for us) [to convince Bill [to do business with t$_i$]]
   ii. John$_i$ is easy (for us) [to convince Bill [that he should meet t$_i$]]
c. i. *John$_i$ is easy (for us) [to describe to Bill [a plan [to assassinate t$_i$]]] (Complex NP)
   ii. *Which sonatas$_i$ are the violin$_j$ easy [to play t$_i$ on t$_j$] (Wh-island)[3]

[2] We could be dealing here either with quirky subject movement to Spec TP or movement of the object to a position above TP for topicalization/focalization. Either way, the movement does not result in Case assignment.

[3] Here, *which* sonatas is moving past a null *wh* operator (i.e. CNO in our analysis), resulting in a *wh*-island constraint violation.

Based on this, I have conducted a cross-linguistic survey of the availability of "*tough* constructions" in 13 languages. I will show some examples (of each of the three types) below.

3.2 Example of type (i): German

There are *tough* constructions with a nominative subject in several languages. Thus, the literature discusses the *tough* construction (also often referred to as the *easy-to-please* construction) in German or some Romance languages (e.g. see Montalbetti Mario & Travis 1982; Cinque 1990; Roberts 1993; Wurmbrand 2001).

In German,[4] *tough* constructions have the subject that is nominative-marked but it is interpreted as an object of the infinitival verb as in (18a).

(18) a. Dieser Konflikt ist leicht zu lösen t_i
This.NOM conflict.NOM is easy to solve
'This confict is easy to solve'

b. Es ist leicht, diesen Konflikt zu lösen.
it is easy this.ACC conflict.ACC to solve
'It is easy to solve this conflict.'

c. John hat den/diesen Konflikt gelöst.
John has the.ACC/this.ACC conflict.ACC solved
'John solved the conflict.'

Here, crucially the verb lösen 'solve' used in the infinitival clause in (18b) and in the main clause in (18c) normally takes an accusative Case object, which means that the subject *dieser Konflikt* 'this conflict' in the *tough* construction in (18a) is not assigned a Case by the infinitival verb.

When an inherent Case assigning verb is used as the infinitive in *tough* constructions in German, however, the *tough* subject seems to retain the inherent Case from the infinitives, as shown below.

(19) a. Ihm ist leicht zu helfen
he.DAT is easy to help
'He is easy to help.'

(i) a. The violin$_j$ is easy [$_{CP}$ [$_{CNO}$ Op t_j]$_k$ ~~for~~ PRO to play sonatas on t_k].

b. *Which sonatas$_i$ are the violin$_j$ easy [$_{CP}$ [$_{CNO}$ Op t_j]$_k$ ~~for~~ PRO to play t_i on t_k].

[4]German sentences in this subsection were checked by a consultant, Sabine Laszakovits.

b. Es ist leicht, ihm zu helfen.
it is easy he.DAT to help
'It is easy to help him.'

(20) Bitte hilf mir
Please help me.DAT
'Please help me.'

Here I assume that the preverbal oblique NP *Ihm* 'he.DAT' is not a grammatical subject and thus not in spec TP position, following Zaenen & Thráinsson (1985), who show that German does not have quirky subjects. Thus, for example, the sentence-initial oblique NP in German passives cannot be deleted under identity with a (nominative) subject, which is contrasted with the oblique NP in Icelandic, which has quirky subjects.

(21) a. Er kam und (er) besuchte die Kinder. German
he.NOM came and (he) visited the children

b. Er kam und (er) wurde verhaftet.
he came and (he) was arrested (Zaenen & Thráinsson 1985: 477)

c. *Er kam und ___ wurde geholfen.
he came and was helped

(22) a. þeir fluttu líkið og þeir grófu það. Icelandic
they.NOM moved the-corpse and they buried it

b. þeir fluttu líkið og ___ grófu það

c. Hann segist vera duglegur, en ___ finnst verkefnið of
he.N says-self to-be diligent, but ___.D finds the-homework too
þungt.
hard
'He says he is diligent, but finds the homework too hard' (Zaenen & Thráinsson 1985: 453-454)

For this subjecthood test, the sentence-initial oblique DP in German *tough* construction behaves similarly, which is contrasted with the nominative DP in (24) as shown below.[5]

[5]It is still not clear, though, what is blocking the derivation where the CNO gets the inherent case and the matrix subject gets smuggled to the specifier of TP to get nominative, in the case of e.g. (19a).

(23) *Er hat überlebt und ___ war leicht zu helfen.
he.NOM has survived and was easy to help
'He survived and ___ was easy to help.'

(24) Dieser Konflikt verschlechtert sich und ___ ist schwierig zu lösen.
this.NOM conflict worsened REFL and is difficult to solve
'This conflict worsened and is difficult to solve.'

Also, as in English, German *tough* constructions observe the island effect, as shown below (p.c. Sabine Laszakovits and Roman Reitschmied).

(25) a. Es ist leicht den Plan zu beschreiben, John zu töten
It is easy the.ACC plan to describe John to kill
'It is easy to describe a plan to kill John'

b. *Der John ist leicht den Plan zu beschreiben, _ zu töten.
the.NOM John is easy the.ACC plan to kill to describe
'*John is easy (for us) to describe a plan to kill'

Therefore, German is categorized as type (i) in our diagnostic where the CNO movement is involved with the smuggling of the subject which gets nominative Case in the matrix TP spec position. In other words, German has the relevant *tough* construction.

3.3 Example of type (ii): Thai

As another example of Japanese-like *tough* construction with base-generated subject and a null resumptive pronoun in the gap position without Op movement, I now turn to Thai.[6] As shown below, there are morphemes *–gnai/–yak* '-easy/-difficult' corresponding to Japanese *-yasui/-nikui* '-easy/-tough'.

(26) nang sue nian -yak.
book this read difficult
'This book is difficult to read'

(27) khao deejai -ngai.
he happy easy
'he is easy to make happy'

Another similarity is that there is no island effect, as in its Japanese counterpart.

[6]Thai sentences are checked with two consultants, Panat Taranat and Sidney Mao.

(28) achyakrrm ni jab [khon [t_i tam *e*]] -ngai.
crime this arrest person who did easy
'This (type of) crime is easy to arrest the person who did t.'

Also, Thai can have resumptive pronouns in e.g. relative clauses. A pronoun referring to the head noun may appear in some relative clauses. Here the resumptive pronoun /kháw/ is associated with the head nouns /khon/ and /nák-lian/.

(29) khon [thîi kháw pay yùu kan taam roŋrian].
people C they go stay REC[7] at school
'People who want to stay at school…' (Iwasaki & Ingkaphirom 2005)

(30) mây-chây pen acaan kháp, pen náklian [thîi kháw fùk maa].
NEG is teacher SLP is student C they train come/ASP
'(Dorm directors) are not teachers. They are students who have been trained.'

I assume the island effect is voided by the presence of a null resumptive pronoun in (28), which enables the aboutness relation between the fronted element and the gap, just as in the case of its Japanese counterpart.

Now, as the following sentences show, when a PP subject is used for the *tough* construction, the island effect is observed. This is another similarity with Japanese.

(31) a. ?? [jak tanakhan ni] waijai [khon [ti gu ngen yeu t_i]] yak.
from bank this trust person who loans money much hard
'[from this bank] is hard to trust a person who loans a lot of money t_i'

b. waijai [khon [ti gu ngen yeu jak tanakhan ni]] yak.
trust person who loans money much from bank this hard

In short, Thai *tough* constructions pattern with Japanese, i.e. type (ii) in the diagnostics (16), in that there is no island effect despite the subject being nominative Case-marked, because of the existence of a null pronoun in the infinitival object position.

3.4 Example of type (iii):

The survey found that some languages have *tough* constructions with the noun in the apparent subject position being assigned a Case other than nominative. This means that the CNO is not needed in their derivations. In examples corresponding to the *tough* construction in Serbo-Croatian (SC)[8] in (32), the element

[7] REC = reciprocal, SLP = Speech Level Particle

[8] Serbo-Croatian data in this subsection are from two consultants, Aida Talić and Ivana Jovović.

in the apparent subject position has the Case which is assigned by the infinitival verb *ugoditi* 'please'/*otpustiti* 'fire'.

(32) a. Njemu/*On je lako ugoditi.
him.DAT/he.NOM is easy.ADV please.INF
'He is easy to please'

b. Njega/*On je lako otpustiti.
him.ACC/he.NOM is easy.ADV fire.INF
'He is easy to fire'

(33) a. Ivan je ugodio njemu.
Ivan is pleased him.DAT
'Ivan pleased him (but not her)'

b. Šef je otpustio njega.
boss is fired him.ACC
'The boss fired him (but not her)'

The pronouns can also be placed in the canonical object position as shown below, where the matrix subject is phonologically null.

(34) a. Lako je ugoditi njemu.
easy.ADV is please him.DAT
'It is easy to please him (but not her)'

b. Lako je otpustiti njega
easy.ADV is fire.INF him.ACC
'It is easy (for the boss) to fire him (but not her)'

All this suggests that in the "*tough*" constructions in (32), the sentence initial object of the infinitive verb undergoes topicalization/focalization/scrambling into the matrix clause, the real subject being null.

(32') a. Njemu$_i$ [je lako ugoditi t$_i$]
him.DAT is easy.ADV please.INF
'Him, it is easy to please'

b. Njega$_i$ [je lako otpustiti t$_i$]
him.ACC is easy.ADV fire.INF
'Him, it is easy to fire'

Furthermore, the movement of the object is island-sensitive, as shown below.

(35) a. Lako nam je Borisu prepričati trač da su ubili **njega**.
easy us.DAT is Boris.DAT retell gossip that are kill him.ACC
'It is easy for us to retell to Boris a gossip that they killed him.'

b. *$\mathbf{Njega}_i$ je nama lako Borisu prepričati trač da su ubili t_i.

Therefore, in Serbo-Croatian, the object moves directly from the complement of the infinitive without involving smuggling and CNO. In sum, the sentences that correspond to the *tough* constructions in SC are classified as type (iii) in the diagnostics (16), i.e. Serbo-Croatian does not have the relevant *tough* construction. Through the survey, I found that other languages like Slovenian, Russian and Polish all follow the same pattern as SC.

3.5 Summary

Based on the diagnostics (16), the *tough* constructions in the 13 languages surveyed are categorized into 3 types in the following way.

Table 1: *Types of* tough *constructions*

Languages	**Types**
English	i
German	i
Spanish	i
Italian	i
French	i
Bulgarian	iii
Hungarian	iii
Thai	ii
Japanese	ii
SC	iii
Slovenian	iii
Polish	iii
Russian	iii

As shown above, the type (i) "*tough*" constructions (where the CNO movement is involved) are available in a limited number of languages including English. Recall now that our prediction was that English-like *tough* constructions are available only in DP-languages based on the CNO analysis of *tough* constructions

where the presence of the DP layer is crucial for the CNO to smuggle the *tough* subject. In this regard, the NP/DP distinction and the availability of the type (i) *tough* constructions in the languages under consideration are summarized in the following table.

Table 2: *NP/DP distinction and availability of type (i)* tough *construction*

Languages	**NP/DP**	***Tough* (i)**
English	DP	Yes
German	DP	Yes
Spanish	DP	Yes
Italian	DP	Yes
French	DP	Yes
Bulgarian	DP	No
Hungarian	DP	No
Thai	NP	No
Japanese	NP	No
SC	NP	No
Slovenian	NP	No
Polish	NP	No
Russian	NP	No

Table 2 confirms that *tough* constructions are indeed allowed only in DP languages. Here, we can establish a one-way correlation, i.e. *tough* constructions with (Complex) Op movement are allowed only in DP languages. This is accounted for under the proposed analysis where only DP languages can have the complex null operator, which is needed for the derivation of *tough* constructions.

Note that the correlation between the availability of *tough* constructions and DP languages is a one-way correlation, because of Hungarian or Bulgarian. A remaining question is, then what makes Hungarian and Bulgarian different among DP languages regarding the availability of *tough* constructions. I suggest here that other independent factors are involved. In the case of Bulgarian, its *tough* formation utilizes a subjunctive complement, as infinitive is rarely used in this language.

Even in English, *tough*-formation movement is very local, i.e. it can only cross an infinitival clause but not a finite clause, which was pointed out by Stowell (1986).

(36) a. *Betsy$_i$ is easy [Op$_i$ [PRO to expect [t$_i$ fixed the car]]].
b. *John is easy [Op$_i$ [PRO to believe [t$_i$ kissed Mary]]].
c. ??This car is hard [Op$_i$ [PRO to claim [[Betsy fixed t$_i$]]]].
d. ??That language is impossible [Op$_i$ [PRO to say [[Greg will learn t$_i$]]]]. (Stowell 1986: 477)

I suggest then that the movement across a subjunctive clause boundary in Bulgarian is prohibited in the same way, which blocks the possibility of the relevant *tough* constructions.

Turning now to Hungarian, it has been argued that the Op movement in *tough* constructions in some languages like German is more local than in English, in that it is not even allowed out of all infinitives (Wurmbrand 2001, Kayne 1989, Roberts 1997), more precisely it is allowed only out of "small" infinitives (i.e. restructuring). While I will not address the issue here, it is worth noting that it may be related to Hungarian. Kenesei (2005) and Dalmi (2004) argue that infinitival constructions in Hungarian project a full-fledged CP by pointing out that it has typical left peripheral projections with the strict order that is also found in finite clause. This property of infinitival constructions in Hungarian may be the reason why *tough* construction is not allowed in Hungarian; *tough* formation movement may not be allowed to cross the Hungarian infinitive clause.

4 Conclusion

In conclusion, I have argued for the CNO analysis (Hicks 2009) of *tough* constructions in English, with smuggling of the nominative *tough* subject. This analysis resolves the problems of the previous analyses by blocking the *tough* subject from Case assignment in the infinitival clause, and it also avoids the Improper Movement issue. The smuggling of the *tough* subject is what resolves both issues. Crucially, for the smuggling to take place, there has to be a DP layer above a bare Op. Based on this, a prediction was made that *tough* constructions involving nominative subjects as well as Op movement will be possible only in DP languages. This prediction was borne out through a survey of 7 DP-languages and 6 NP-languages, which showed that *tough* constructions are indeed possible in only DP languages. Under the proposed analysis, the null Op does not have any uninterpretable features that would enable it to smuggle the *tough* subject. In DP languages, there is a DP above the null Op. It is this DP that smuggles the *tough* subject. The only difference between DP languages and NP languages is then that there is a DP above the null Op in DP languages. The lack of (type

(i)) *tough* constructions in NP languages was attributed to the inability of Op to smuggle the *tough* subject. It was also noted that Japanese and Thai, which are NP languages, have the relevant *tough* construction when its subject is a PP. This is captured under the proposed analysis because PP itself brings in a richer structure for the Op, enabling the smuggling of the subject, regardless of the presence of the DP layer.

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Chapter 4

What moves where? A typological-syntactic approach to multiple wh-questions

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This paper presents a new syntactic analysis for multiple wh-constructions. Adopting Richards 1997, I assume that there are two types of languages concerning wh-movement: Such which A-move their wh-words (A-languages) and such which A'-move them (A'-languages). I expand this account by assuming that in both types, wh-movement targets the CP. This is done via A'-movement, as well as via A-movement. Building on recent work on Cross-clausal A-dependencies (mainly Wurmbrand 2018), I adopt the idea of [A]-features inside CP. Based on Rizzi 1997, I propose a split CP domain whose different parts (*ForceP, FocusP, TopicP*) can either have A'- or A-quality. Wh-movement targets *ForceP* and *FocusP*, CCA-elements move to *TopicP*. The CP heads are ordered in an implicational hierarchical way, and their featural make-up entails the properties of the embedded and higher-ordered heads. Within this ordering, there is a threshold where A'-qualities shift to A-qualities. I assume that certain CP-heads are able to contain A-properties and by that, the CP domain contains A'- as well as A-properties. The option of having A-quality is restricted by embedding options: An A-CP-part cannot embed an A'-CP-part within the same domain (CP). I claim that languages pattern into three types, depending how high in the CP the A'/A-shift is located. This assumption predicts that there is a correlation between A-wh-movement and CCA-phenomena which indeed is the case and will be summarised as a novel typological generalisation: "Whenever a language A-moves its wh-words, it allows CCA (but not the other way around)." This generalisation describes that A-wh-movement entails CCA which is expected by my analysis of the CP domain. My account ties together CCA-phenomena and A-wh-movement in a syntactically novel way and might shed new light on the universal composition of the CP-domain.

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1 Wh-movement as A-movement

When it comes to multiple wh-questions, languages show three different kinds of behaviour. First, there are languages which raise one wh-word to sentence-initial position and leave all others in-situ (e.g. English, German, Greek, Brazilian Portuguese). I will call them 'single-raising'.

(1) What did John give to whom?
English (Bošković 2002: p. 351)

Then, there are multiple-fronting languages like Bulgarian, Polish, Romanian, Hungarian, Bosnian, Croatian and Serbian, which move several wh-words to sentence-initial position.

(2) Na kogo kakvo dade Ivan?
to whom what give.3SG Ivan
'What did Ivan give to whom?'
Bulgarian (Bošković 2002: p. 351)

Finally, there are languages which leave all of their wh-words in their base-generated position (such as Japanese, Chinese, Korean or Turkish), called 'wh-in-situ languages'.

(3) John-ga nani-o naze katta no?
John.NOM what.ACC why bought Q
'What did John buy why?'
Japanese (Richards 1997: p. 31)

Throughout linguistic history, there have been several syntactic explanations for each of the three. One of those accounts stands out because of its unconventionality: The ideas proposed in Richards 1997. He suggests that languages do not divide into three classes depending on what is moved on the surface but only into two classes instead. Based on Huang 1982, he assumes that in all languages, all wh-words move to sentence-initial position at LF due to interpretability.[1] What happens on the surface is determined by other factors. Sup-

[1]This statement is probably not universally applicable. Literature provides different analyses for wh-in-situ languages, e.g. quantificational inverse linking (see for example May 1978, Larson 1985, May & Keyser 1985, Chang 1997, Pollard & Yoo 1998, Cooper 2013, May & Bale 2017) Additionally, it is more difficult to test the A'/A-movement distinction in in-situ languages. Since the length of this paper is restricted and for the sake of the argument, I adopt the claim in Huang 1982, that wh-words move on LF and Richards 1997 argumentation why and how in-situ languages part into A'- and A-languages and refer to his dissertation for a more detailed description of the supporting data. I am aware that wh-in-situ languages posit an important question for further research.

posing that all wh-words move, Richards 1997 claims that there are only two types of languages: IP-absorption languages and CP-absorption languages. The difference between them is not the PF-quantity of moved wh-words but rather the LF-quality of their movement. According to him, languages can either A'-move their wh-words (CP-absorption languages; from here on A'-languages) or A-move them (IP-absorption languages, from here on A-languages). This sheds a completely new light onto the discussion of multiple wh-questions. So far, wh-movement has always been assumed to be pure A'-movement. However, Richards 1997 lists some criteria which show that the quality of wh-movement does not seem to be uniform within syntax. It appears that whether wh-movement has A- or A'-qualities is more important than how many wh-words move on the surface. The difference between A'-wh-movement and A-movement is bound to distinctive behaviour in the following aspects: A-languages do not obey Superiority between the wh-words, they usually allow A-scrambling of items other than wh-words and do not show WCO-effects in local wh-questions. A'-languages behave inversely to that; They do obey Superiority between their wh-words, do not allow A-scrambling in general and do show WCO-effects in local wh-questions. These observations are true for languages of all three surface classes. This means, each surface language type (multiple fronting, single fronting or in-situ) contains languages which A-move their wh-words as well as such which A'-move them. To put it differently: Whether a languages A- or A'-moves its wh-words is independent of how many wh-words are raised on the surface. The exact typology can be seen in table (1) (adapted from Richards 1997). Each language type splits into two classes. Multiple-fronting languages for example divide into Bulgarian-like languages and Bo,Cr,Se-like languages[2]. Bulgarian-like languages obey Superiority (4), show WCO-effects (5) and do not allow A-Scrambling and therefore A'-move their wh-words.

[2]For reasons of simplicity, I cannot present all the supporting data for all languages here. It can be found in great detail in Richards 1997.

Table 1: A- versus A'-movement of wh-words

		Superiority	WCO	A-SCR
Multiple fronting	*Bulgarian-like*	✓	✓	✗
Wh-in-situ	*Chinese-like*	✓	✓	✗
Single fronting	*English-like*	✓	✓	✗
Multiple fronting	*Bo,Cr,Se*[a]*-like*	✗	✗	✓
Wh-in-situ	*Korean-like*	✗	✗	✓
Single fronting	*German-like*	✗	✗	✓

[a]In literature, Bosnian, Croatian and Serbian are summarized as 'Serbocroatian' or 'B/C/S'. The three languages are similar but not the same and therefore, I refer to them as Bo,Cr,Se. Since they do not seem to behave crucially different to each other concerning wh-movement (they all A-move their wh-words and are multiple fronting), I group them together in this paper.

(4) a. Koj kogo vižda?
who whom sees
'Who sees whom?'

b. * Kogo koj vižda?
whom who sees
Superiority in *Bulgarian* (Richards 1997: p. 30)

(5) * Kogo$_i$ običa majka si$_i$?
who$_i$ loves mother his$_i$
'Whom$_i$ does his$_i$ mother love?'
WCO in *Bulgarian* (Richards 1997: p. 32)

Opposed to that, Bo,Cr,Se-like languages do not show Superiority effects (6), omit WCO effects (7) and have local A-scrambling. Therefore, they A-move their wh-words.[3]

[3]A reviewer noted that a crucial property of A-movement is that it is restricted to nominals. This predicts that properties like Superiority and WCO might arise in A-movement languages when a non-nominal is moved. This is a very interesting clue and is in need of proper examination. I have no answer to this question yet since providing a well-founded one includes fieldwork in different languages and a lot more literature research. Hence, I leave this question open to further investigation.

(6) a. Ko je koga vidjeo?
who AUX whom seen
'Who saw whom?'
b. Koga je ko vidjeo?
whom AUX who seen
Superiority in *Bo,Cr,Se* (Richards 1997: p. 30)

(7) Koga$_i$ voli njegova$_i$ majka?
who$_i$ loves his$_i$-NOM mother-NOM
'Whom$_i$ does his$_i$ mother love?'
WCO in *Bo,Cr,Se* (Richards 1997: p. 33)

On the following pages, I will propose a new account for A-wh-movement by linking wh-movement to the concept of an A-position inside CP. The ingredients for my analysis have their origin in different, so far unrelated grammatical phenomena and their corresponding theories: First, Richards 1997 proposal that in some languages, wh-movement has A-quality. Then, cross-clausal A-phenomena (as discussed, among many others, in Wurmbrand 2018), i.e. the ability of certain languages to allow A-relations into embedded CP domains or A-movement out of them. And finally, an extended CP domain, consisting of multiple CP-parts (as proposed in Rizzi 1997). By combining these three, I will present a novel analysis of the CP domain, rendering new derivational positions for wh-movement. Eventually I will substantiate my claim with typological observations and a universal generalisation.

2 An A-position inside CP

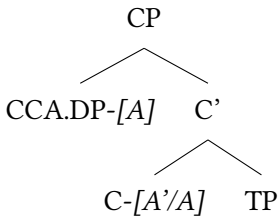
In recent literature, the claim for an A-position inside CP (Tanaka 2002, Şener 2008, Takeuchi 2010, Alboiu & Hill 2011, Bondarenko 2017, Zyman 2017, Zyman 2018, Wurmbrand 2018, Fong 2019), respectively the dissolving of strictly separated A- and A'-positions (Obata & Epstein 2011, Van Urk 2015) grew stronger. This idea is mainly used to explain cross-clausal A-dependencies (CCA) like Hyperraising, Hyper-ECM or Hyperagreement. CCA include A-dependencies (Case Assignment, Raising or Agreement) operating across a CP-boundary. Take Hyper-ECM as an example: It behaves like regular Exceptional Case-Marking (ECM) the only difference being that the embedded clause (containing the targeted DP) is a full CP. Mongolian, for example, shows this phenomenon: The embedded subject *Dulmaa* receives accusative case from the matrix verb *say*. The

embedded clause, however, is a full CP and thus case assignment crosses a clause boundary.

(8) Bat [margaash Dulmaa-g nom unsh-n gej] khel-sen.
Bat [tomorrow Dulmaa.ACC book read.N.PST COMP] say.PST
'Bat said that Dulmaa will read a book tomorrow.'
Mongolian (Fong 2019: p. 2)

Hyper-ECM appears in several non-related languages, amongst others in Korean (Yoon 2007), Japanese (Horn 2008), Turkish (Şener & Şener 2011) or Uyghur (Shklovsky & Sudo 2014). Wurmbrand 2018 (amongst others) negates that Hyper-ECM is an instance of Object Raising, Binding, Prolepsis or deficient CPs and argues that the embedded clause is a fully functional CP, that the accusative case comes from the matrix clause and targets the embedded subject and that the targeted DP remains within the embedded CP. She brings forward several arguments for this claim (such as idiomatic reading, impossibility of embedded overt pronominal subjects, embedded negation, matrix predicate scope, clefts, Proper Binding Condition violations, island sensitivity or shifted indexicals)[4]. Eventually, Wurmbrand 2001 proposes the following analysis for CCA which I will adopt and apply to wh-constructions: She claims that languages allowing CCA contain an A-position inside CP which can be targeted by A-relations from the matrix and embedded clause. This A-position is made possible by an [A]-feature on C. Based on a composite probe approach by Van Urk 2015, stating that C-heads may have mixed [A] and [A']-features, Wurmbrand 2018 proposes that in CCA-cases, C-heads can have [A]-features additionally to their [A']-features. If a C-head has [A]-features, a DP agreeing with it inherits these [A]-features. Then, A-movement from a mixed A/A'-position is possible as well as an A-relation targeting it. Languages differ in whether they have [A]-features on their C-head or not. Languages allowing CCA do have [A]-features on C, languages disallowing CCA do not. The following structure shows the general idea (adapted from Wurmbrand 2018, p. 15):

[4]For detailed typological data and similar approaches see Bondarenko 2017, Bruening 2001, Deal 2017, Halpert 2015, Halpert & Zeller 2015, Podobryaev 2014, Polinsky & Potsdam 2001, Shklovsky & Sudo 2014, Şener & Şener 2011, Zyman 2017. Due to the limited extent of this paper, I cannot provide the the full analysis of CCA in these works. However, I only use languages from works on CCA which cearly show that the A-dependencies are made possible via an A-position in CP and not other mechanisms such as prolepsis, etc.



I will adapt the idea of a potential A-position in CP in order to derive a new account for multiple wh-questions typologically. This means that I will use the approach that CP is not a pure A'-domain and extend it to another phenomenon of grammar, namely wh-movement. Wh-movement has been the stereotypical instance of A'-movement for a long time. Assuming that this grammatical transformation might be A-movement (based on Richards 1997) sheds new light onto a very old discussion. What is new about my proposal is the idea that wh-movement has A-quality but still targets the CP-domain. How this combines and extends the accounts on CCA and multiple wh-questions will be elaborated on further in the following section.

3 Wh-movement as A-movement to CP

A-languages (like Bo,Cr,Se) remain a mystery for most accounts on multiple wh-constructions. In A-languages, wh-movement resembles A-movement in that it shows neither WCO-effects nor Superiority. However, so far, the usual landing site for wh-words has been the CP-domain, a pure A'-domain. Thus, all wh-movement targeting it has to be A'-movement. A-languages constitute a problem for this assumption: Their wh-words do move but their movement does not have A'-quality. The question arises: If CP is an A'-domain, where do the wh-words move to? Several authors tried to find a position high enough to be close to CP and interpretable but simultaneously low enough as not to actually enter CP. Citko 1998 for example proposes an additional functional phrase between CP and TP, Bošković 2002 claims that wh-movement in A-languages is Focus-movement to a very high TP-position and Rudin 1988 and Richards 1997 use TP-adjunction as a target position for wh-movement in A-languages. This means they all face the same problem: Apparently there are two kinds of languages: A'-languages (Bulgarian, Chinese, English...) in which all wh-words A'-move to CP and A-languages, in which only one or no wh-word A'-moves to CP. All others A-move to some very high functional position below CP but above TP. For the latter class, it seems to be difficult to find a proper landing-site and proper

motivation to move at all. My idea is built on this struggle to find a destination for A-moved wh-words. I do not assume that these wh-words remain in TP or some inbetween functional projection between CP and TP. I claim that they target CP. This proposition is based on the ideas and data in Wurmbrand 2018 and related literature on CCA (Tanaka 2002, Şener 2008, Takeuchi 2010, Alboiu & Hill 2011, Obata & Epstein 2011, Van Urk 2015, Bondarenko 2017, Zyman 2017, Zyman 2018, Wurmbrand 2018, Fong 2019). I adopt their claim that CP is not a pure A'-domain but may involve [A]-features and thus A-positions and apply it to wh-movement. This assumption has one advantage over several others proposed earlier: A-languages and A'-languages do not differ any longer by the domains they move to but only by the quality of movement. This means that all wh-movement targets CP where it can be interpreted. The only difference is the featural make-up of the CP-part to whose specifier a wh-phrase moves: If it has A-features, the movement is A-movement, if not, it is A'-movement. In the following section, I will explain my approach in detail and eventually bring forward typological connections between CCA and A-wh-movement supporting my claim.

3.1 Analysis

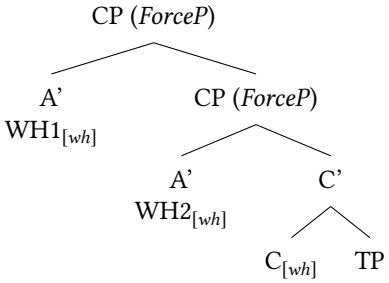
I adopt Richards 1997 analysis that there are two types of languages. Those, which move all of their wh-words via A'-movement and those, which move their wh-words by A-movement. I also adopt the idea that all wh-words are moved at LF, independently from what is moved or not on the surface (Huang 1982). However, contrary to Richards 1997 (and Bošković 2002, Citko 1998, or Rudin 1988), I claim that all of these movement-operations target the CP-domain instead of only adjoining to TP. In order to do so, I assume a split CP domain, as proposed in Rizzi 1997.[5]

3.1.1 A'-languages

My analysis for A'-languages (Bulgarian-like, Chinese-like, English-like), is based on assumptions in Richards 1997 and Rudin 1988; I claim that all wh-words A'-move to CP. Whether this movement targets separate A'-SpecCPs or the wh-words form a cluster is irrelevant for the moment. What is important is that

[5] I have to admit that my analysis of the CP configuration is still in a somewhat underdeveloped stage and needs theoretical improvement, as noted by two reviewers. The following proposal should rather be considered a raw sketch than a fully developed framework. However, the idea of both A'- and A-movement targeting CP will be important for the typological generalisations I am about to meet in the following section.

the part of CP responsible for wh-movement has pure A'-quality in these cases. Assuming an extended left periphery, respectively a split CP (based on Rizzi 1997), this A'-movement presumably targets the highest part of CP, ForceP. A'-wh-movement is triggered by a [wh] feature on C and all wh-words. [Wh] is an A'-feature.



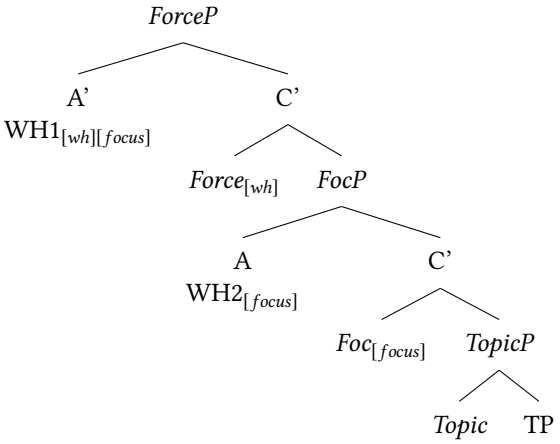
All wh-words are attracted by the same C-head via Multiple Agreement (see Hiraiwa 2001). This means that the wh-probe on C does not stop probing after it found a goal but continues to search. It finds the highest wh-word first and raises it to SpecCP (*Attract Closest*). Then, it finds the next wh-word and tucks it in below the first SpecCP (*Shortest Move*). By that, Superiority arises: The wh-word from the highest base-generated position becomes the highest in the movement-structure. Since all wh-words undergo A'-movement, the moved wh-words leave their binding domain and WCO-effects arise.

3.1.2 A-languages

The more interesting phenomenon are A-languages (Bo,Cr,Se-like, Japanese-like and German-like).[6] Richards 1997 and Bošković 2002 propose that all wh-words first adjoin to TP via Focus-movement and then one of them A'-moves up to CP to satisfy the [wh]-feature on C. The other wh-words remain adjoined to TP. Contrary to that, I bring forward an analysis where no wh-word remains in TP. I propose that in A-languages, all wh-words A-move to a Focus-phrase (*FocusP*) within the CP domain. The idea that wh-movement in A-languages has focus qualities comes from Bošković 1997a, (1997b), (2002). The *FocusP* (*FocP*) constitutes a part of the split CP domain and is located below *ForceP* but above *TopicP*. I claim that its head *Foc* has [focus] features and that in A-languages all

[6] German is a very special case and behaves distinct to other A-languages. I only include it here since it is mentioned in Richards 1997 as A-language but I will further on not use it as an example.

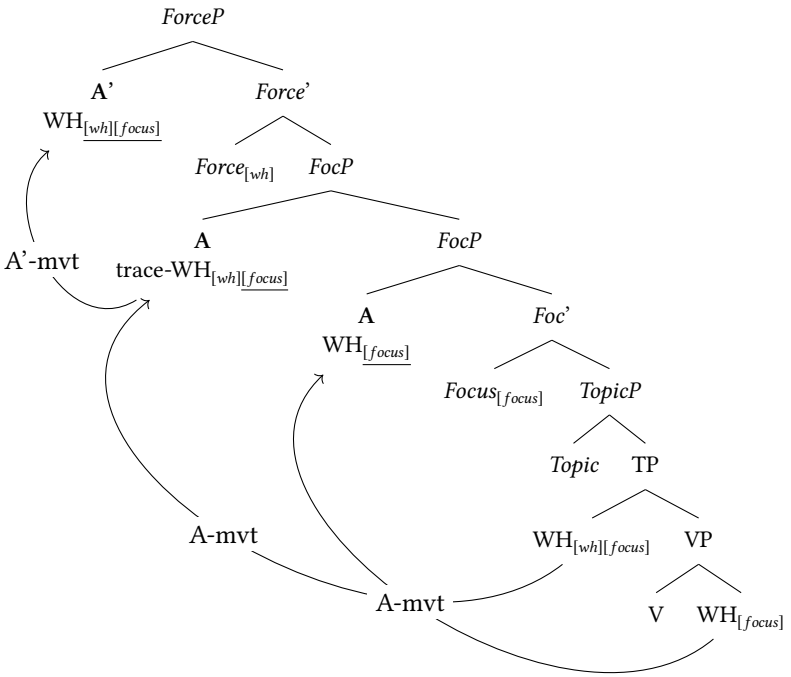
wh-words have [focus] features as well. By that, they are attracted by *Foc* and moved to its specifiers. I assume that [focus] features have A-quality and that in A-languages movement to *FocP* is A-movement. One wh-word has a [wh] feature additionally to its [focus] feature and in a further step is probed by *Force* and A'-moved to ForceP.



The exact derivation looks like this: All wh-words bear a [focus] feature and one of them has an additonal [wh] as well. This is the main difference to A'-languages where all wh-words carry a [wh]-feature and none of them has a [focus]-feature. *Foc* is a multiply agreeing [focus] probe and attracts all wh-words. Recall that [focus] is an A-feature. Attracted by [focus] on *Foc*, all wh-words A-move and attach to specifiers of *FocP*.[7] Then, the one of them carrying a [wh] feature is attracted by the A'-probe [wh] on the higher-up *Force* and A'-moves to the *ForceP* specifier. Thereby only one wh-word A'-moves in A-languages whereas in A'-languages, all wh-words carry a [wh] and by that have to undergo A'-movement. A-languages lack Superiority due to the fact that only one wh-word bears an additional [wh]-feature whereas all others only have [focus] features. The lack of WCO-effects in A-languages results from the intial Focus-movement of wh-words. In A-languages, all wh-words have a [focus] feature. Even in a non-multiple wh-construction, i.e. a construction with only one wh-word, this wh-word bears both [wh] and [focus]. Thus, it first A-moves to *FocP* (trigered by [focus]) and then A'-moves to *ForceP* (triggered by [wh]). (I assume that *ForceP*

[7]Rizzi 1997 claims that *FocP* cannot be multiply filled. However, his claim is based on Italian focalized elements. As a matter of fact, Italian does not allow multiple wh-questions at all. Hence, the restriction on multiple focalized elements probably is language-specific.

always has to be filled in order to derive interrogative semantics.) The moved wh-word leaves a trace in *FocP* which is able to bind an anaphor and WCO-effects are omitted. The following structure is an example for an external argument bearing the [wh]-feature. The underlined features are the satisfied ones whereas the blank ones are those which still need to be valued.



In this framework, A-languages differ from A'-languages in the following way: In A'-languages, all wh-words carry an A'-[wh] feature. They are all attracted by an A'-head in CP (here *Force*) and A'-move directly to the the highest part of CP. The [wh]-attracting head probes multiply for [wh]. In A-languages, on the other hand, all wh-words carry a [focus]-feature and only one of them has an additional [wh]-feature. They are all attracted by a *Focus*-head in CP and A-move to *FocP*. Then, one of them, namely the one carrying the [wh]-feature, is attracted by [wh] on *Force* and A'-moves up to *ForceP*, the higher part of CP. Given that, CP has a higher-layered A'-part and a lower A-part. Important for my analysis is that both of them are constituent parts of the CP domain and that there are projections of CP below them too, enabling other processes

such as CCA. I will come back to this assumption in the next section. But first, there is one observation left that needs to be included into the framework: Long-distance questions.

3.1.3 Long-distance questions

Long-distance questions show very peculiar behaviour in A-languages. As soon as wh-words are moved over a CP-border into another clause, A-languages adopt the qualities of A'-languages: Superiority between the wh-words arises (9a) and WCO-effects occur (9b).

(9) a. * Koga si ko tvrdio da je istukao?
whom AUX who claimed that AUX beaten
'Who did you claim beat whom?'
Superiority in *Bo,Cr,Se* (Richards 1997: p. 51)

b. * Koga$_i$ njegova$_i$ majka misli da Marija voli?
who$_i$ his$_i$-NOM mother-NOM thinks that Maria loves
'Who$_i$ does his$_i$ mother think that Mary loves?'
WCO in *Bo,Cr,Se* (Richards 1997: p. 33)

All wh-movement seems to be A'-movement as soon as it crosses a clause boundary. In my framework, these facts can be accounted for the following way: In A-languages, all wh-words first focus-move since they have focus-qualities (A-qualities). I claim that focus-movement is clause-bound and that the *FocusP* does not represent a phase-edge. This means an embedded interrogative CP cannot be truncated to *FocusP* but needs a *ForceP* (probably due to semantic/ selectional reasons, see section 4.4.3 for an exact elaboration). Thus, whatever element wants to move out of an embedded interrogative clause has to move through *ForceP*. Since *ForceP* is always an A' domain (and that is a stipulation one has to make), long-distance movement has to be A'-movement. For A-languages, this means that they have to shift and act like A'-languages if their CP is embedded and they want to move wh-words out of this embedded clause.

4 Typological predictions

So far, I brought forward the idea that wh-movement has A-qualities and targets CP at the same time. This is a unification of two accounts, namely Richards 1997 and to some extent Bošković 2002 who claim that wh-movement is

A-movement and/or focus movement and Wurmbrand 2018 (and other accounts on CCA) who propose that CP can host A-positions or [A]-features. I will now go a step further: If we assume that the possibility of allowing an A-position inside CP is a language-specific parametric option, then there should be two kinds of languages. Such, that allow A-moved elements in their CP and thereby CCA and A-wh-movement, and such that do not. This is a very strong implication and it will have to be weakened. However, there seems to be a typological correlation between allowance of CCA and A-wh-movement. I bring forward a unidirectional generalisation, stating a correlation between languages allowing A-wh-movement and languages allowing CCA phenomena.

(10) Whenever a language A-moves its wh-words, it allows CCA (but not the other way around).[8]

For the examined languages, I tested whether they allow some instance of CCA (based on the criteria brought forward in CCA-literature) and if their wh-words move via A-movement or A'-movement (based on Superiority and WCO-effects). There are four possible combinations resulting from this: Languages allowing both CCA and A-wh-movement, languages allowing neither, languages allowing only CCA and languages allowing only A-wh-movement. Crucially, there do not seem to be any languages allowing A-wh-movement but not CCA. The results I received are presented in table (2).[9]
One class, namely A-wh-movement without the possibility of CCA is not attested. This renders the unidirectional implication between CCA and A-wh-movement in (10). I will shortly exemplify each attested class and then give a formal explanation for the correlation.

4.1 A-wh-movement and CCA

The expected outcome of combining A-wh-movement with allowance of CCA is a class of languages exhibiting both of these phenomena. Those are languages

[8]This generalisation is based upon a small set of languages and I do not claim its universal applicability. I looked at 10 languages from 6 different language families altogether. However, within those, the proposed generalisation appears to be plausible. Most of the languages are taken from current works on CCA.

[9]Language data taken from: Turkish: Özsoy 1996, Şener & Şener 2011; Japanese: Richards 1997, Hiraiwa 2001, Watanabe 1992; Greek: P.c. Christos Christopoulos, Sinopoulou 2008, Joseph 1976, Alexiadou & Anagnostopoulou 1999; Hungarian: Brody 1995, Richards 1997, Horvath 1998, Den Dikken et al. 2017; Korean: Jeong 2003, Kim & Goodall 2016, Yoon 2007; Braz. Portuguese: P.c. Ingrid Cisneiro Facchim, Nunes 2009; Romanian: Rudin 1988, Rivero 1991; Mandarin Chinese: Cheng 1997, Richards 1997; English: P.c. Sean Anstiss, Richards 1997, Ross 1967; Bulgarian: P.c. Marchela Oleinikova, Aline Panajotov, Rudin 1986, (1988), Richards 1997.

Table 2: Correlation between CCA and A-wh-movement

✓ A-wh-mvt ✓ CCA	✓ A-wh-mvt ✗ CCA	✗ A-wh-mvt ✓ CCA	✗ A-wh-mvt ✗ CCA
Turkish		Korean	English
Japanese		Brazilian Portuguese	Bulgarian
Greek		Romanian	
Hungarian		Mandarin Chinese	

like Turkish, Japanese, Greek or Hungarian. Take Turkish as an example. It behaves like an A-language concerning wh-movement in that it does not show Superiority between the wh-words:

(11) a. Kim Kim-e ne-yi sat-miş?
who who.DAT what.ACC sell.REP
'Who has sold what to whom?'
b. Kim-e kim ne-yi sat-miş?
c. Ne-yi kim kim-e sat-miş?
(Özsoy 1996: p. 4)

Additionally, Turkish allows Hyper-ECM, an instance of CCA:

(12) Pelin [dün Mert-i sinav-a gir-di diye] bil-iyor.
Pelin.NOM [yesterday Mert.ACC exam.DAT enter.PAST C] know.PRES
'Pelin thinks that yesterday, Mert took an exam.'
(Şener & Şener 2011: p. 5)

4.2 No A-wh-movement, no CCA

Languages allowing neither A-wh-movement nor CCA are equally present. English and Bulgarian behave like that. Bulgarian shows Superiority between its wh-words as well as WCO-effects (see (4) and (5) from above). Therefore, its wh-movement has A'-quality. In addition to that, there are no CCA phenomena in Bulgarian. ECM is not possible, either into non-finite clauses (introduced by the particle 'da') or into finite clauses. Neither are there instances of Hyperraising.

(13) Njama koj / *kogo da otide.
isn't who.NOM / *whom.ACC to go
'There isn't anyone to go.'

(Rudin 1986: p. 193)

Bulgarian thus neither has A-wh-movement nor does it allow CCA. In conclusion its CP-domain is a pure A'-domain.

4.3 No A-wh-movement but CCA

Finally and most interestingly, there are several languages which do not A-move their wh-words but do exhibit CCA phenomena. This means that CCA cannot be directly dependent on A-wh-movement. Amongst these languages are Korean, Brazilian Portuguese, Romanian and Mandarin Chinese. I take a closer look at Korean here. It behaves like an A'-language when it comes to wh-movement. It does, for example, show Superiority effects:

(14) a. Mwues-ul wae ne-nun sa-ess-ni?
what.ACC why you.TOP buy.PAST.Q
'Why did you buy what?'

b. * Wae mwues-ul ne-nun sa-ess-ni?
why what.ACC you.TOP buy.PAST.Q
(Jeong 2003: p. 131)

Korean does also allow CCA, namely Hyper-ECM.

(15) Cheli-nun wonswungi-ka banana-lul cal meknunta-ko sayngkakhanta.
Cheli.TOP monkey.ACC banana.ACC well eat.COMP think.3.SG
'Cheli thinks monkeys love to eat banana.'
(Yoon 2007: p. 630)

This means that its ability for CCA is not dependent on the quality of its wh-movement. However, the absence of the inverse configuration, a language allowing A-wh-movement but not CCA, indicates that the character of wh-movement determines CCA but not the other way around.

4.4 Generalisation

As has been shown in the previous section, there are languages allowing both, A-wh-movement and CCA and such allowing neither. Additionally, there are languages which allow CCA but not A-wh-movement but no languages that allow A-wh-movement but not CCA. This renders the unidirectional generalisation given in (10), repeated below.

(16) Whenever a language A-moves its wh-words, it allows CCA (but not the other way around).

In this last section, I will give a syntactic analysis on how the correlation between A-wh-movement and CCA could be explained. As noted above, both of them involve an A-position inside CP and thus derive from the same grammatical source: Allowance of [A]-features inside the CP-domain.

4.4.1 A split hierarchical CP domain

I assume that within a single CP-domain, A'-positions and A-positions are allowed. However, they stand in a hierarchical relation to each other: A'-projections can embed A-projections but not the other way around. My analysis is built upon a split CP domain, adopting Rizzi 1997. I assume the following structure for CP:[10]

(17) [*ForceP*[*FocusP*[*TopicP*]]]

I assume that *ForceP* always has A'-qualities, sustaining the traditional assumption of CP having A'-quality. It hosts one (or more) A'-specifiers which can be targeted by A'-wh-movement and serve as a left-edge to escape an embedded interrogative clause. Embedded in *ForceP* is *FocusP*, which can have A-properties. In A-languages, A-wh-movement targets *ForceP* and A-moves its wh-words to that phrase. (Presumably, *FocusP* can have A'-qualities instead of A-qualities in other languages.) Embedded into *FocusP* is *TopicP*. I claim that elements participating in CCA relations (like the accusative DP in Hyper-ECM or the embedded element in long-distance Agreement) move to *TopicP* which, in languages allowing CCA, has A-properties. This assumption is based on Şener 2008 and comes from the fact that very often, CCA is restricted to topicalized elements (as it is the case in Tsez and Turkish). Tsez Long-distance Agreement (LDA) becomes obligatory when the embedded element ('bread' in (18)) is topic-marked (particle *-(go)n*).

(18) a. Eni-r [už-ā magalu-**(go)n** b-āc'ru-łi]
mother-DAT [boy-ERG bread.**III**.ABS-**TOP** **III**-eat-PST.PRT.NMLZ]
b-iy-xo.
III-know-PRES
('The mother knows the boy ate the bread.')
'The mother knows that the bread, the boy ate.'

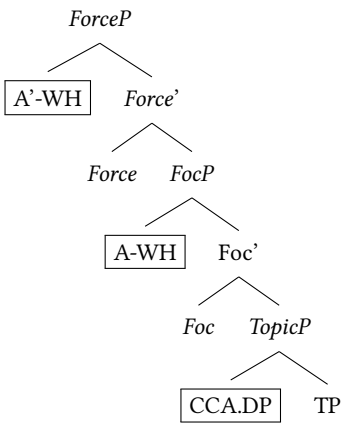
[10] Rizzi 1997 claims that there are at least an additonal *FinP* and another *FocusP* below *TopicP*. These projections are irrelevant for me at the moment, hence I do not include them in my schematic structures.

b. * Eni-r [už-ā magalu-**(go)n** b-āc'ru-łi]
mother-DAT [boy-ERG bread.**III**.ABS-**TOP** **III**-eat-PST.PRT.NMLZ]
r-iy-xo.
IV-know-PRES
'The mother knows the boy ate the bread.'
Tsez (Polinsky & Potsdam 2001: p. 610)

Turkish Hyper-ECM is restricted to topicalized elements. Assuming that the object NPI *anybody* cannot be topicalized predicts that it is excluded from undergoing Hyper-ECM. This prediction is borne out:

(19) * [Kimse-**yi** gel-di] san-ma-dı-m.
pro [anybody-**ACC** come-PAST] believe-NEG-PAST-1SG
'I didn't think anybody came late.'
Turkish (Şener 2008: p. 14)

Taking these facts into consideration and based on the analysis in Şener 2008, I claim that the element undergoing CCA moves to or is located in *TopicP*. This renders the following structure for the CP-domain:



4.4.2 The A'/A shift

This leads to a genereal conclusion about the CP-domain: I assume that all parts of CP lower than *ForceP* (i.e. *FocusP* and *TopicP*) can either have A'- or A-quality. Let us assume that within one domain (and I claim that CP still forms a single domain, consisting of multiple phrases), an A'-position can embed an A-position but not the other way around. This means, an A'-*ForceP* can embed an A-*FocusP*

but an A-*FocusP* cannot embed an A'-*TopicP*, only an A-*TopicP*. At some point, there is an A'/A-threshold within CP. All projections above this threshold have A'-quality, all projections underneath it have A-quality.[11] In table (3) the relevant CP-projections with their embedding options are presented.

Table 3: A'/A threshold options

[***ForceP***	[***FocusP***	[***TopicP***]]]
A'	A'	A'
A'	A'	A
A'	A	A

Languages part into different groups regarding this threshold. There are languages where the shift from A' to A lies between *ForceP* and *FocusP*, there are languages where it lies between *FocusP* and *TopicP* and then there are languages where it lies even lower, below *TopicP*.[12] As explained above, I assume that A-wh-movement requires a *FocusP* with A-qualities and CCA requires a *TopicP* with A-qualities. I assume that there is a language-specific shifting threshold. Depending on the language type, the locus of the A'/A-shift varies. This assumption provides an explanation for the A-wh-movement + CCA combinations presented in table (2). Take for example the group of languages allowing both A-wh-movement and CCA (as shown in (20): The A'/A-shift lies between *ForceP* and *FocusP*. This results in an A-*FocusP* (enabling A-wh-movement) and an A-*TopicP* (enabling CCA). The exact shifting location for each (im)possible language type is given below (the shift is indicated as $\longrightarrow$).

(20) a. ✓A-wh-mvt, ✓CCA languages shift between *ForceP* and *FocusP*

b. [$_{\boxed{\text{A'}}}$ *ForceP* $\longrightarrow$[$_{\boxed{\text{A}}}$ *FocusP* [$_{\boxed{\text{A}}}$ *TopicP*]]]

(21) a. ✗A-wh-mvt, ✓CCA languages shift between *FocusP* and *TopicP*

b. [$_{\boxed{\text{A'}}}$ *ForceP* [$_{\boxed{\text{A'}}}$ *FocusP* $\longrightarrow$[$_{\boxed{\text{A}}}$ *TopicP*]]]

[11] A reviewer noted that a similar assumption could be modeled in the framework by Williams 2002 and subsequent works like Keine & Poole 2018.

[12] David Pesetsky, p.c., pointed out to me that this threshold could be even lower, somewhere inside TP. This could explain 'regular' ECM-phenomena, such as English ECM and I leave the idea open for further research.

(22) a. ✗A-wh-mvt, ✗CCA languages shift below *TopicP*
b. [A' *ForceP* [A' *FocusP* [A' *TopicP* →[A]]]]

(23) a. ✓A-wh-mvt, ✗CCA languages are excludeed because they would require two shifts: One from A' to A between *ForceP* and *FocusP* and (a syntactically excluded) one from A to A' between *FocusP* and *TopicP*.
b. * [A' *ForceP* →[A *FocusP* →[A' *TopicP*]]]

4.4.3 Embedded clauses

It lies in the nature of CCA that they involve embedded clauses. I noted above that interrogative embedded clauses necessarily have to project a *ForceP* in order to explain the A'-behaviour of long-distance wh-movement in A-languages. This probably is the case due to selectional requirements: The embedded clause has to be typed interrogative which can only be done in *ForceP*. I claim that no such restriction is posited onto embedded CCA clauses. They are truncated down to *TopicP*, or only project a *TopicP*. This is based on the assumption that functional heads only project when there is a reason to do so (Bošković 1997b). The embedded CP in a CCA construction does neither have a *ForceP* nor a *FocusP*. By that, the specifier of *TopicP* becomes the left-edge of the embedded clause (see Şener 2008 for a similar claim). In CCA-languages, *TopicP* has A-qualities and therefore, this left-edge position is an A-position. This enables A-relations into the embedded clause and A-movement out of it to a higher clause. It also predicts that if both wh-movement and CCA occur together, wh-movement should block CCA. This should be the case since wh-movement requires an (A'-)*ForceP* and CCA requires the absence of a ForceP. The prediction is illustrated in Zyman 2018 for Janitzio P'urhepecha.

(24) * ¿**Ambe=ri** ueka-sïn-∅-gi Alicia-**ni** eska kusta-a-∅-ka?
what=2sS want-HAB-PRS-INT Alice-**ACC** that play-FUT-PRS-SJV
Int.: 'What do you want Alice to play?'
Janitzio P'urhepecha (Zyman 2018: p. 114)

5 Summary

I examined a typological correlation between wh-constructions exhibiting A-quality and CCA-phenomena. A new syntactic analysis for multiple wh-questions is presented which makes the right predictions about A-wh-questions

and CCA-dependencies. I adopt the account in Richards 1997 who divides languages into two classes regarding their LF: Those which A-move their wh-words and those which A'-move them. I extend Richards' claim in that I propose that all wh-movement targets the CP domain. Assuming a split CP-domain (Rizzi 1997), I propose an analysis in which A'-wh-movement, A-wh-movement as well as CCA-elements target different CP-projections. A'-wh-movement uses *ForceP* as a landing site, A-wh-movement *FocusP* and CCA *TopicP*. Given the hierarchical embedding structure of CP-projections such as *ForceP, FocusP* and *TopicP*, an implicational relation between A'-wh-mvt, A-wh-mvt and CCA arises. I bring forward an A'/A-shifting threshold inside CP which varies in height, depending on the language type. This means that the CP-domain has an A'-part and an A-part. At which exact point A'-positions end and A-positions begin is defined by a shifting threshold. This threshold varies language-specifically and can either be located between *ForceP* and *FocusP*, between *FocusP* and *TopicP* or below *TopicP*. Languages pattern together, depending on the location of their A'/A-shift. This assumption renders the right predictions concerning the observed typological generalisation 'whenever a language A-moves its wh-words, it allows CCA (but not the other way around)'. Additionally, I propose that embedded wh-constructions require an (A'-)*ForceP*, assigning all long-distance wh-movement A'-quality. CCA-constructions, on the other hand, have a truncated embedded CP, consisting solely of an (A-)*TopicP*, rendering their left-edge CP position an A-position.

There are still several open issues remaining. Above all, a more detailed derivation of the CP-domain. Furthermore, in order to deploy a valid typological generalisation, a larger set of languages has to be examined. Wh-in-situ languages should be investigated more carefully since, for the moment, I simply adopt Richards 1997 and Huang 1982's claims about their LF. Then, there are several languages posing fundamental problems like German which is hard to categorise into an A'- or A-language at all (see Wiltschko 1997 for an exact analysis). A closer look will have to be taken on D-linked wh-words, since they behave very different from regular wh-words (see for example Pesetsky 1987, Krapova 1999). Finally, there might be a possbile correlation with the ICH proposed in Wurmbrand & Lohninger 2019, regarding the type of matrix predicate and the behaviour of long-distance wh-questions.

Abbreviations

ACC = Accusative Case
CCA = Cross-clausal A-dependencies

ECM = Exceptional Case Marking
NOM = Nominative Case
WCO = Weak Cross-over

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Part II

Size and features

Part III

Size and interpretation

The size of things II

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