Ways to sidestep Minimality (and how to diagnose them)

Fabian Heck

Abstract In this paper, I argue that leapfrogging and late Merger, two strategies that have been proposed to be involved in apparent violations of Minimality, can be distinguished wrt. the effects they have on reconstruction: leapfrogging across the intervener leads to reconstruction, late Merger of the intervener to the lack thereof. The argument is concerned with reconstruction asymmetries in scrambling.

Keywords Minimality · reconstruction · derivation · leapfrogging · scrambling

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1 Introduction

Various proposals have been made to account for apparent violations of Minimality (in the sense of Rizzi 1990, Chomsky 1995). One strategy involves removal of the intervener (Rizzi 1986, McGinnis 1998, Anagnostopoulou 2003, Holmberg & Hróarsdóttir 2003), another 'leapfrogging' over the intervener (Bobaljik 1995b, Ura 1996, McGinnis 1998, Doggett 2004), yet another late Merger of the intervener (Stepanov 2001a;b). The main claim of the present paper is that the difference between leapfrogging and late Merger can be correlated with (and thus be diagnosed by) a difference in reconstruction behavior of the moved category.[1]

1.1 A reconstruction asymmetry

The empirical domain that the discussion focuses on is an asymmetry with respect to reconstruction between *intermediate* scrambling of the direct object (DObj) or indirect object (IObj) to a position preceding the subject (Subj)

[1] Collins (2005) proposes that Minimality may be voided by derivations involving so-called Smuggling. In principle, Smuggling makes the same predictions with respect to reconstruction as leapfrogging. However, it potentially violates the Freezing Principle of Ross (1967) (cf. also Wexler & Culicover 1980). Smuggling will not be discussed in this paper.

on the one hand and *short* scrambling of the DObj to a position preceding the IObj (but following the Subj) on the other. While the former often shows reconstruction for Principles A, C or for variable binding the latter usually lacks such effects.[2] This has been reported for Korean (Lee & Santorini 1994, Lee 2020), Japanese (Saito 1992, Tada 1993, Miyagawa 1997), German (Frey 1993, Haider 1993, Lee & Santorini 1994, Lechner 1998; 2019), and Hindi (Mahajan 1990; 1994, Bhatt & Anagnostopoulou 1996).

(1a-c) from Mahajan (1990) illustrate reconstruction of short scrambling (the scrambled category in red) vs. intermediate scrambling (scrambled category in blue) in Hindi for Principle A:

(1) a. *raam-ne*$_i$ *mohan-ko*$_j$ *apnii*$_{i/j}$ *kitaab* *lOTaaii*
Ram-ERG Mohan-DAT SELF's book.FEM.ABS return.PERF.FEM
'Ram$_i$ returned self's$_{i/j}$ book to Mohan$_j$.'

b. *raam-ne*$_i$ *apnii*$_{i/*j}$ *kitaab* *mohan-ko*$_j$ _ *lOTaaii*
Ram-ERG SELF's book.FEM.ABS Mohan-DAT return.PERF.FEM
'Ram$_i$ returned self's$_{i/*j}$ book to Mohan$_j$.'

c. *apnii*$_i$ *kitaab* *raam-ne*$_i$ *mohan-ko*$_j$ _ *lOTaaii*
SELF's book.FEM.ABS Ram-ERG Mohan-DAT return.PERF.FEM
'Ram$_i$ returned self's$_i$ book to Mohan$_j$.'

In (1a), the DObj, which contains a reflexive, remains in situ. Accordingly, the reflexive can be bound by the IObj or the Subj, which both c-command the DObj. In (1b), short scrambling of the DObj across the IObj has applied. In this context, the IObj loses its capacity to function as an antecedent for the reflexive, i.e., short scrambling does not reconstruct for Principle A. (1c) involves intermediate scrambling of the DObj across the Subj. Although the DObj has left the c-command domain of the Subj, the latter may function as the antecedent of the reflexive contained within the former, thereby satisfying Principle A. In other words, intermediate scrambling reconstructs for Principle A in Hindi.

[2]For the moment, the notion of reconstruction is to be understood as referring to the phenomenon as such; see section 1.4 and 2.4, where the theoretical analysis of reconstruction that underlies the present proposal is clarified.

The examples in (2) and (3) illustrate reconstruction of short vs. intermediate scrambling in Hindi for Principle C ((2a,b) are from Mahajan 1990; (3a,b) are from Keine 2016):

(2) a. *mE-ne use_i $raam_i$-ki kitaab dii
I-ERG him.DAT Ram-GEN book.FEM give.PERF.FEM
lit. 'I gave to him_i Ram_i's book.'

b. mE-ne raam-$_i$ki kitaab use_i _ dii.
I-ERG Ram-GEN book.FEM him.DAT give.PERF.FEM

(2a) serves as the base line: A DObj containing an R-expression (a proper name) cannot be c-commanded by an IObj pronoun that is interpreted as co-referential with the R-expression: a violation of Principle C. If the DObj is displaced by short scrambling across the IObj as in (2b), the Principle C violation vanishes: short scrambling does not reconstruct for Principle C.

(3) a. *us-ne$_i$ mohan-ki$_i$ behin-ko dekhaa
he-ERG Mohan-GEN sister-ACC saw
'*He_i saw $Mohan_i$'s sister.'

b. *mohan-ki$_i$ behin-ko us-ne$_i$ _ dekhaa
Mohan-GEN sister-ACC he-ERG saw

(3a) is similar to (2a), the difference being that this time the R-expression in the DObj is bound by a Subj pronoun, resulting in a Principle C violation. (3b) illustrates that this violation cannot be avoided by displacing the DObj to the left of the Subj by intermediate scrambling, again suggesting reconstruction for Principle C.

1.2 Minimal vs. total reconstruction

An additional complication is due to the fact that for some speakers (referred to as group A in what follows), reconstruction of intermediate scrambling by the DObj must target a position between the Subj and the IObj. It may not target the base position of the DObj (below the IObj). In other words: For speakers of group A, intermediate scrambling may not reconstruct with respect to the IObj but only with respect to the Subj. In this sense,

reconstruction is minimal. This has been reported for Hindi (Mahajan 1990; 1994, Bhatt & Anagnostopoulou 1996), Korean (Lee & Santorini 1994) and German (Frey 1993, Lee & Santorini 1994, Lechner 1998). However, there is also another group of speakers (group B), who do allow total reconstruction of intermediate scrambling, i.e., for those speakers reconstruction may target the base position of the DObj; see Lee (2020) on Korean.

The example in (4a) (from Mahajan 1990) illustrates minimal reconstruction of intermediate scrambling in Hindi for Principle A. (4b) illustrates total reconstruction of intermediate scrambling in Korean for variable binding (taken from Lee 2020).

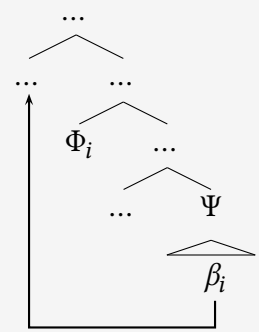
(4) a. *apnii*$_{i/*j}$ *kitaab* *raam-ne*$_i$ *mohan-ko*$_j$ _ *lOTaaii*
SELF'S book.FEM.ABS Ram-ERG Mohan-DAT return.PERF.FEM
'Ram$_i$ returned self's$_{i/*j}$ book to Mohan$_j$.'

b. *Ku-*$_i$*uy* *koyangi-lul* *Suzi-ka* *motun salam*$_i$*-eykey* _ *sokayhayssta.*
he-GEN cats-ACC Suzi-NOM every person-DAT introduced
'Suzi introduced his$_i$ cats to everyone$_i$.'

1.3 A puzzle and some previous accounts

Assuming that both short and intermediate scrambling involve movement, the results of these transformations are representationally identical with respect to the Merge-positions of binder Φ and the moved constituent Ψ containing the bindee β. In both cases, Ψ begins the derivation in a position c-commanded by Φ, see (5).

(5)



If this were a necessary and sufficient condition for reconstruction, then one would expect reconstruction to be either applicable to both types of scrambling or to none of them, contrary to fact.

Various proposals have been made in the literature as to how the asymmetry for reconstruction should be accounted for. The first type of approach, presumably the dominant view in the literature, has it that there is a distinction between A- and Ā-scrambling (Mahajan 1990; 1994; Tada 1993). The assumption then is that A-scrambling (= short scrambling) must not reconstruct while Ā-scrambling (= intermediate scrambling) must reconstruct. Frey (1993) presents an approach where binding is mediated by agreement features, thus distinguishing the Subj from the IObj. Lee & Santorini (1994) develop a theory of the asymmetry that is based on the elaborate notions of binding-domain and argument-domain. Miyagawa (1997), concentrating on Japanese, proposes that scrambling may involve base generation (≈ short scrambling) or movement (= intermediate scrambling). Lechner (2019) proposes to approach the lack of reconstruction with short scrambling by making reference to late Merger (in the sense of Takahashi 2006, Takahashi & Hulsey 2009). Finally, Lee (2020) argues that the asymmetry follows from an anti-locality requirement that is sensitive for binding.

A thorough assessment of these approaches is beyond the scope of this article. Here, I simply would like to remark that it seems to me that while all these approaches successfully capture the asymmetry, they do so either by invoking otherwise non-motivated concepts (Frey 1993, Lee & Santorini 1994, Lechner 2019, Lee 2020) or by analyzing scrambling as a heterogeneous phenomenon (Mahajan 1990; 1994, Tada 1993, Miyagawa 1997). In contrast, in what follows, I argue that an approach to the reconstruction asymmetry is possible that a) is based on a set of independently motivated assumptions and b) treats scrambling in a unified manner.

1.4 The proposal in a nutshell

The underlying idea of the proposal is that short and intermediate scrambling differ *derivationally* in some dimension that goes beyond the difference in landing sites. Namely, due to Minimality short scrambling of the DObj is only possible if at the point of the derivation where such scrambling applies there is no IObj (and thus no binder) present. Rather, the IObj enters the picture only later – too late for binding to apply (a case of opacity,

i.e., counter-feeding, in the sense of Kiparsky 1973). This results in a lack of 'reconstruction.' In contrast, intermediate scrambling of the DObj can apply in the presence of the Subj because the Subj is not in the c-command domain of the attracting head (Bobaljik 1995b's leapfrogging configuration). Thus, the binder is present before movement applies, which thus enables 'reconstruction' to arise.

Under this view, and opposed to the tradition (going back to Bierwisch 1965, Ross 1967), scrambling one argument across another is, in principle, restricted by Minimality. As such, its application requires special conditions. This assimilates scrambling (in Hindi, German, Japanese, etc.) to Scandinavian object shift and also to Dutch scrambling, where Minimality effects show up in a more transparent manner (Vikner 1989, Neeleman 1994, Collins & Thráinsson 1996, Thráinsson 2001).

2 Background assumptions

Before presenting the analysis in detail, I specify the theoretical assumptions that it is based on.

2.1 Minimality

To begin with, I assume that the following locality principle holds (Ferguson 1993, Chomsky 1995; cf. also Rizzi 1990, Fanselow 1991).

(6) *Minimal Link Condition (MLC):*
If in a structure
… H … [… Φ … [… Ψ …] …] …
a. H c-commands Φ, Φ asymmetrically c-commands Ψ, and
b. Φ and Ψ can both, in principle, establish a relation R with H,
then H can establish R only with Φ (but not with Ψ).

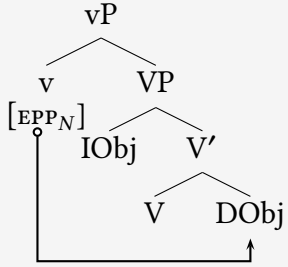
The relation R between H and Ψ blocked by the MLC that is relevant here is the 'probing' of Ψ by H (in the sense of Chomsky 2000; 2001): H is a functional head bearing some feature [F] (the 'probe') that scans its c-command domain in search of an appropriate 'goal' (Φ or Ψ in (6)) that may satisfy the needs of [F]. One such need may be the creation of a specifier of H, which then results in movement of the goal to SpecH.

2.2 Scrambling

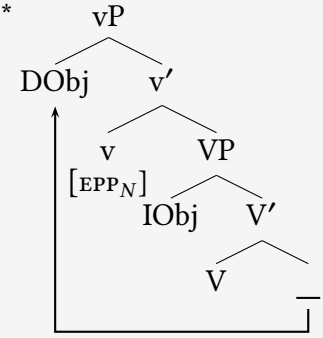
By assumption, scrambling is movement. As such, it is triggered by a probe. Following Miyagawa (2001), I assume that the probe in question is an EPP-feature that is relativized to nominal categories (comprising NP, and, presupposing some abstraction, possibly PP and CP): [EPP$_N$]. This is supposed to reflect the fact that scrambling typically targets nominal categories. In scrambling languages, the EPP-probe may be instantiated on the head introducing the external argument: v (Chomsky 1995, Koizumi 1995, Kratzer 1996).

Assuming that the IObj is merged in SpecV, it asymmetrically c-commands the DObj, which occupies the complement position of the verb. The assumptions about Minimality and scrambling together then imply that an IObj will block probing of the DObj by [EPP$_N$] on v (7a), and, consequently, will ban direct scrambling of the DObj across the IObj, see (7b).

(7) a. *



b. *



2.3 Strict cyclicity

I assume that syntactic derivations obey the Extension Condition (EC, Chomsky 1993; 1995) in (8) (cf. the Strict Cycle Condition of Chomsky 1973).

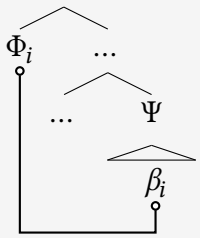
(8) *Extension Condition*:
Merge must apply to the root node of the current tree.

The EC blocks derivations where Merge does *not* apply to the root of the current tree Φ but targets a position internal to Φ instead. Note that the EC also constrains movement, the latter being, essentially, just another instance of Merge, called 'internal' Merge (as opposed to 'external' Merge).

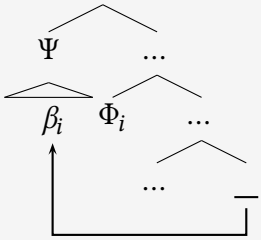
2.4 Reconstruction

While much of current syntactic theorizing is based on the assumption that reconstruction effects are a consequence of the copy theory of movement (e.g., Chomsky 1995, Fox 1999, Takahashi & Hulsey 2009) I assume here that reconstruction for binding principles (such as Principle A and C, and the binding of variables) is due to these principles being computed during the derivation (Burzio 1986, Belletti & Rizzi 1988, Lebeaux 1988; 2009, Heycock 1995, Sabel 1995; 1998):

(9) a.



b.



As (9a) illustrates, reconstruction effects may arise because Principle A is satisfied through syntactic binding of a reflexive β by its antecedent Φ (or Principle C is violated through binding of an R-expression β by a co-indexed pronoun Φ, or a variable β is semantically bound by a quantifier Φ) before movement of the category Ψ containing β applies (see (9b)).

Note that not only does the present approach abstain from making use of the copy theory of movement to account for reconstruction effects. In fact, the approach does not seem to combine easily with the copy theory of movement. The reason is that the lack of reconstruction as it shows up with short scrambling is based on the idea that the IObj enters the derivation too late to c-command the DObj because the latter has been displaced already. If displacement of the DObj left a copy, the IObj would still c-command this copy, thus leading to reconstruction.[3]

[3] A way to maintain the option of combining the present approach with the copy theory would be to assume that a copy left behind by movement does not bear all the features of the displaced category (an assumption that is sometimes made in order to to explain why copies left by Ā-movement do not trigger A-Minimality violations (e.g., Chomsky 2000, Anagnostopoulou 2003).

2.5 Phases

According to Chomsky (2000; 2001), (agentive) vP and CP constitute designated categories that are called 'phases.' As such, they are subject to the Phase Impenetrability Condition (PIC, Chomsky 2001) in (10).

(10) *Phase Impenetrability Condition*:
In a phase Ψ with head H, the complement ('domain') of H is not accessible for operations that involve a position outside Ψ. Only H and its specifier(s) ('edge') are accessible.

Deviating from Chomsky (2000; 2001), I assume that non-agentive vP (unaccusatives, passives, etc.) is also a phase (see Legate 2003, Sauerland 2003, Richards 2005, Deal 2009, Heck 2016).

Due to the PIC, movement out of a phase must pass successive cyclically via the specifier of the phase. Such successive cyclic movement of NP to Specv is triggered by an edge feature [EF_N] (Chomsky 2008). A difference between [EF_N] and [EPP_N] is that a category that was attracted by [EF_N] may not remain at its landing site (witness (11)) while a category attracted by [EPP_N] may.

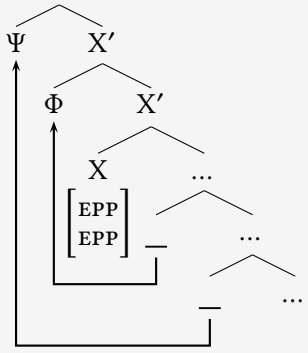
(11) *Who [$_{\text{vP}}$ what bought __]?

Edge features are added to the derivation when needed. In particular, I assume that each head taken from the lexicon has its probe features [π_i] ordered in an array determining the order of operations that the head triggers: [π_1] > … > [π_n]. By assumption, a probe [π_i] cannot be accessed before the probe [π_{i-1}] that directly precedes it in the array has been satisfied in a previous step (Koizumi 1994, Sabel 1998, Heck & Müller 2007, Müller 2010, Georgi 2014, Amato 2021). Edge features are added to the beginning of the feature array of a head H before H is merged: [EF] > [π_1] > … > [π_n].

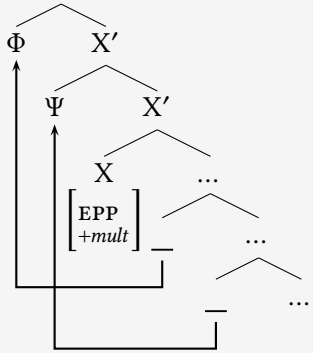
2.6 Multiple specifiers

Multiple movement to the same specifier domain triggered by different features (also multiple instances of the same feature) creates nested paths (12a). In contrast, multiple movement to the same specifier domain triggered by a single feature (e.g. [EPP_{+mult}], a feature that is able to attract multiple categories) creates crossing paths (12b) (McGinnis 1998' generalization).

(12) a.



b.



Note that (12a) involves leapfrogging: After Φ has been attracted to SpecX by the first EPP-feature on X, it is located outside the c-command domain of the second EPP-feature, which is supposed to attract Ψ. Therefore, Φ does not intervene and Ψ can be attracted in the next step. Of course, Φ could as well reach SpecX via (external) Merge and then be leapfrogged over by Ψ.

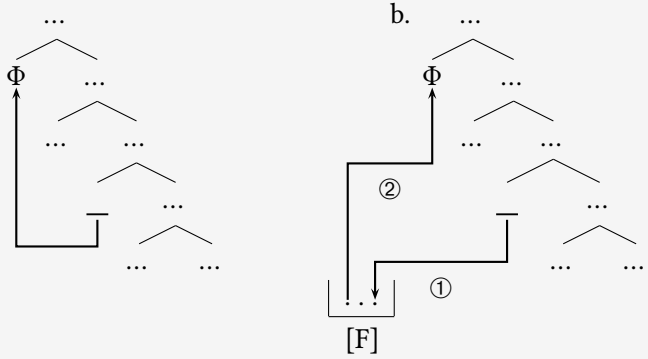
2.7 Workspaces

Finally, every theory in which syntactic structure building proceeds in a derivational fashion needs to make use of different workspaces (WSPs) in order to generate complex syntactic objects (see Uriagereka 1999). Moreover, WSPs have proven useful for a strictly cyclic account of head-movement (Bobaljik 1995a, Bobaljik & Brown 1996) and for a strictly cyclic analysis of order-preservation in multiple movement constructions (Doggett 2004, Stroik 2009, Heck & Himmelreich 2016; cf. (12b), which would otherwise violate the EC or the MLC).

Here, I will assume, following Heck (2016), that syntactic derivations can make use of various WSPs in a generalized way, hosting categories that participate in the derivation (often resulting in what is called a 'non-monotonic' derivation in Heck 2016). In particular, the idea is that any garden-variety type of movement of a category Φ as in (13a) may actually be decomposed into two operations. First, removal of Φ applies (cf. Müller 2017; 2018, Pesetsky 2016) to another WSP (step ① in (13b)).[4] Second, Φ is remerged from the WSP to the current tree (② in (13b)).

[4]This looks like sideward movement (in the sense of Nunes 2001). However, I am assuming here (following Heck 2016) the standard condition on movement to the effect that the movement trigger (the probe) c-commands the goal at the point of the derivation where the goal is attracted, which excludes typical analyses of sideward movement.

(13) a. b.



(Note in passing that the feature [F] that attracts Φ acts as a pointer to the WSP that Φ is temporarily moved; here and in what follows, this is indicated by displaying the feature below the WSP.) If no other operation is interspersed between the steps ① and ②, movement applies in the ordinary way (giving the impression of (13a)). The more interesting case is one where such interspersion applies.

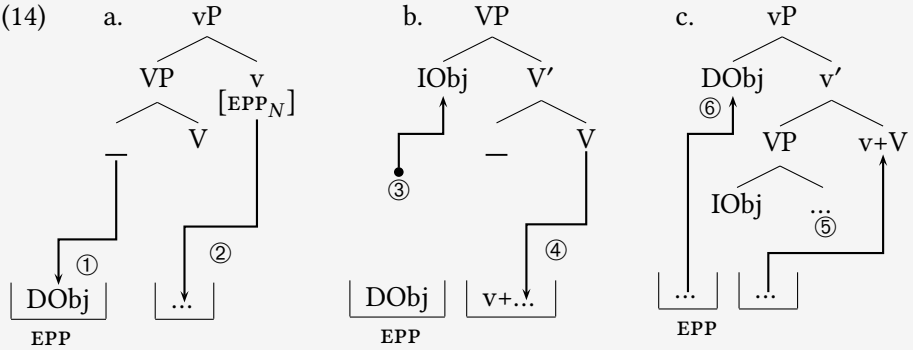
3 Analysis

3.1 Short scrambling

I begin with short scrambling (Subj > DObj > IObj), which does not reconstruct. As already illustrated in section 2.5, short scrambling cannot be triggered by [EF_N] as this would force the DObj to move on, deriving the order DObj > Subj (cf. the derivations in (15) and (16) discussed below). Therefore v must bear [EPP_N]. As discussed in section 2.2, the DObj cannot move directly across the IObj because of the MLC. I would like to suggest that the solution to this problem consists in delaying Merge of the IObj. This means that the DObj is attracted by [EPP_N] on v to a WSP before the IObj is even merged (see step ① in (14)).

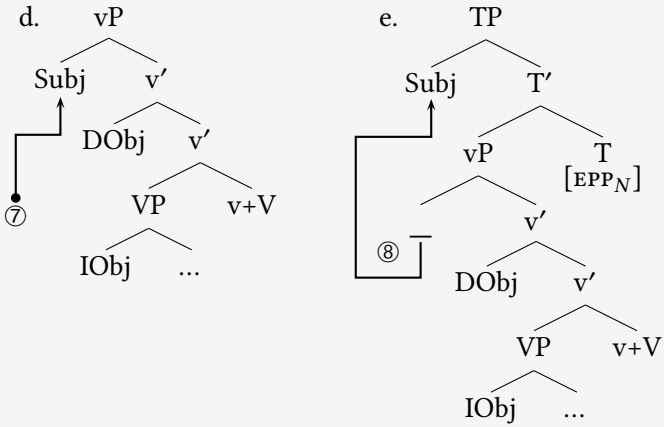
In order for V-to-v movement to be able to apply in agreement with the EC, the v-head is first removed and stored in a separate WSP (step ②) (cf. Bobaljik 1995a, Bobaljik & Brown 1996). Since v has been removed, and since there are no specifiers requiring vP to be maintained, vP ceases to exist (cf. Heycock & Kroch 1993, Takano 2000). What remains is a VP. Consequently, late Merger of the IObj to SpecV can now apply in conformity with the EC (see step ③). Next, V joins v in the WSP to form a complex head, and head-movement is completed by remerging the v+V complex to the current tree (steps ④, ⑤), thereby re-establishing a vP.

(14) a. b. c.



Finally, the DObj is remerged in Specv (step ⑥ in (14c)), and the Subj is merged in an outer Specv and, possibly, moves to SpecT (see ⑦, ⑧ in (14d,e)).

(14) d. e.



Crucially, at no point of the derivation in (14a-e) does the IObj c-command the DObj. Therefore, there is no reconstruction effect with short scrambling of the DObj relative to the IObj. Note that it must not be the case that v bears two instances of [EPP$_N$], each attracting one of the objects: this would lead to the order DObj > IObj via leapfrogging at the vP level (recall (12a)), wrongly avoiding a violation of the MLC without deriving the lack of reconstruction.

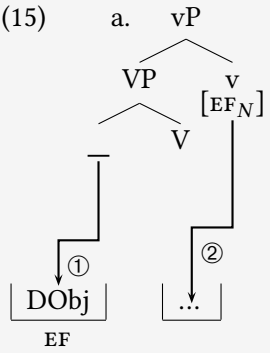
3.2 Intermediate Scrambling

I turn to intermediate scrambling (DObj > Subj > IObj). There are two groups of speakers: group A (minimal reconstruction) and group B (total reconstruction).

3.2.1 First derivation: minimal reconstruction

The DObj must reach a position to the left of the Subj. As before (cf. section 2.2 and section 3.1), it cannot move directly across the IObj because of the MLC. Therefore, Merge of the IObj is delayed. The derivation proceeds almost exactly as in (14), the only differences being a) that both DObj and Subj ultimately undergo multiple scrambling to SpecT, triggered by two instances of [EPP$_N$] on T (leapfrogging steps ⑧, ⑨ in (15e)), and b) that the DObj is attracted by an EF in (15a).[5]

(15) a.



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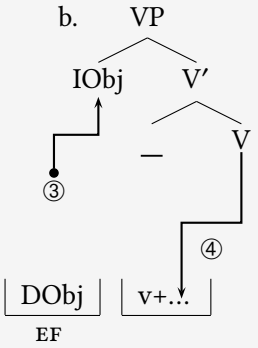
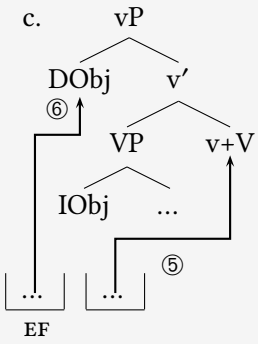
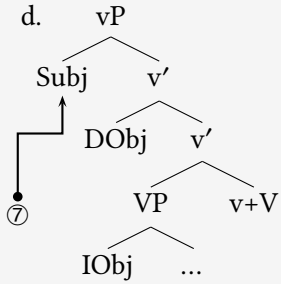


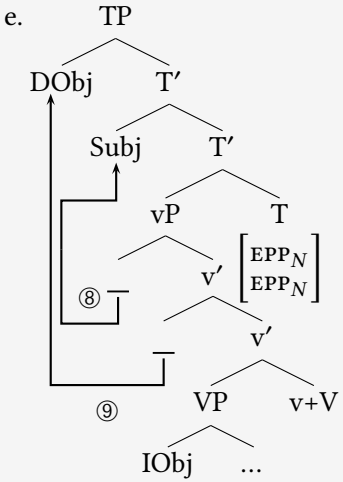
c.



(15) d.



e.



Note that since there is a point in the derivation (15a-e) where the Subj c-commands the DObj (namely before both move to SpecT, see (15d)), binding into the DObj by

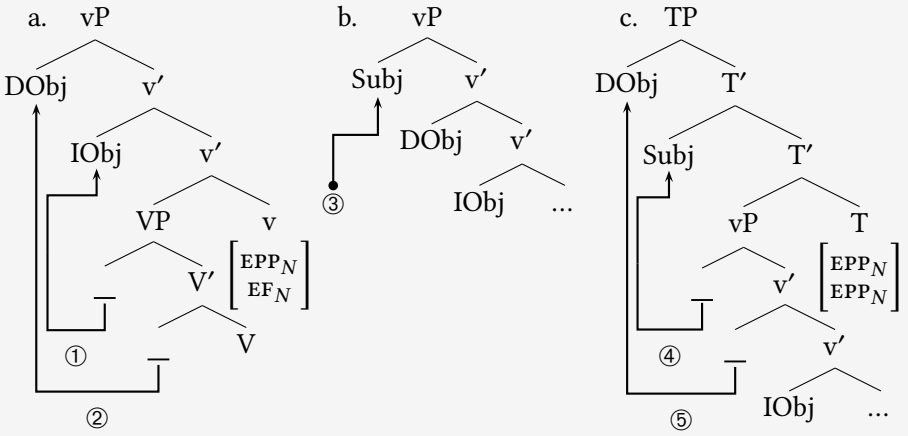
[5] In fact, the DObj could be attracted by an EPP-feature instead (unless one assumes so-called Criterial Freezing in the sense of Rizzi 2006). Thus, the distinction between EF and EPP is irrelevant in this case, but cf. section 3.2.2.

the Subj (reconstruction of the DObj relative to the Subj) is derived. Moreover, since the IObj is merged only after the DObj has already been moved, there is no point in (15a-e) where the IObj c-commands the DObj. Thus, there is no reconstruction of the DObj relative to the IObj: reconstruction is minimal (group A).

3.2.2 Second derivation: total reconstruction

Again, the DObj must get past the IObj (and the Subj), which is not directly possible due to the MLC. Suppose now that speakers of group B do not delay Merge of the IObj. Rather, the IObj first scrambles to Specv, triggered by an [EPP$_N$]-feature on v (see step ①). Next, the DObj undergoes successive-cyclic movement to Specv triggered by an [EF$_N$] on v (see step ②).[6] This results in a change of the relative order of the objects (leapfrogging). In what follows, the Subj is merged to the outermost Specv (step ③). Finally, both the DObj and the Subj undergo multiple scrambling to SpecT, triggered by two instances of [EPP$_N$] on T (steps ④, ⑤), again involving leapfrogging.

(16)



Since there is a point in the derivation (16a-c) where the IObj c-commands the DObj (namely before both move to Specv, see (16a)), binding into the DObj by the IObj (reconstruction) with intermediate scrambling is possible. In this way, the derivation accounts for speakers of group B, for whom reconstruction may be total. Of course, speakers of group B also allow for minimal reconstruction because at point (16b) of the derivation the Subj c-commands the DObj.

[6] As noted in section 3.1, the desired derivation for short scrambling requires that v must not bear two independent EPP-features. This forces an analysis as the one in (16), where the DObj moves to Specv by means of an [EF$_N$].

Note that the derivation in (16) requires the option of adding [EF$_N$] to the beginning of v's feature array *after* its [EPP$_N$] has been eliminated (i.e. after v has entered the syntax). This is reflected in (16a) (somewhat opaquely) by the fact that [EPP$_N$] shows up preceding [EF$_N$] in the feature array (in (16a): on top of the feature structure). I assume that this is an option only for speakers of group B, and therefore is exactly the parameter that sets apart group B from group A.

4 Floating Quantifiers in Japanese

As already mentioned in section 1, Japanese also shows the reconstruction asymmetry between short and intermediate scrambling. The following examples (from Miyagawa 1997) illustrate. (17a) shows reconstruction for Principle C with intermediate scrambling. (Miyagawa 1997 himself analyzes (17a) involving a violation of Rizzi 1986's Chain Condition.) (17b) illustrates that Principle C is not violated if the necessary c-command is lacking (because the reciprocal is embedded).

(17) a.???*John-to* *Mary-o*$_i$ *otagai*$_i$*-ga* _ *mita.*
John-and Mary-ACC$_i$ each other$_i$-NOM saw
lit. 'John and Mary, each other saw.'

b. *John-to* *Mary-o*$_i$ *otagai*$_i$*-no* *sensei-ga* _ *mita.*
John-and Mary-ACC$_i$ each other$_i$-GEN teachers-NOM _ saw
'John and Mary, each other's teachers saw.'

Next, (18a) shows that short scrambling does not reconstruct for Principle A. Furthermore, (18b) illustrates that short scrambling also does not reconstruct for Principle C.

(18) a.???*John-ga* *otagai*$_i$*-no* *tomodati-o*$_j$ *Hanako-to* *Mary*$_i$*-ni* _
John-NOM each other$_i$-GEN friends-ACC$_j$ Hanako-and Mary$_i$-DAT
syookaisita.
introduced
'John introduced each other's friends to Hanako and Mary.'

b. *John-ga* *Hanako-to* *Mary*$_i$*-o* *(paatii-de)* *otagai*$_i$*-ni* _
John-NOM Hanako-and Mary$_i$-ACC (party-at) each other$_i$-DAT
syookaisita.
introduced
'John introduced Hanako and Mary to each other at the party.'

4.1 Floating quantifiers and reconstruction

Japanese shows an interesting complication to the overall pattern: A DObj that undergoes short scrambling suddenly does show reconstruction effects (here: for Principle C) if it associates with a floating quantifier (19a). (Floating quantifiers are indicated by amber.) (19b), where the reflexive pronoun is embedded and thus does not c-command the base position of the R-expression, shows that the problem with (19a) arguably is a Principle C effect.

(19) a. **John-ga* *gakusei-tati$_i$-o* *karera-zisini$_i$-ni* _ *futa-ri* *miseta.*
John-NOM students$_i$-ACC they-SELF$_i$-DAT 2-CL showed.
'John showed two students to themselves.'

b. *John-ga* *gakusei-tati$_i$-o* *karera-zisini$_i$-no* *sensei-ni* _ *futa-ri*
John-NOM students$_i$-ACC they-SELF$_i$-GEN teachers-DAT 2-CL
syookaisita.
introduced
'John introduced two students to their own teachers.'

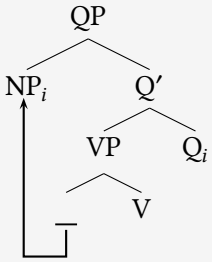
Miyagawa (1997), who analyzes the lack of reconstruction with short scrambling illustrated in (17) and (18) as a consequence of the idea that the order DObj > IObj may be base generated in Japanese, explains the surprising emergence of reconstruction effects with short scrambling in the context of floating quantifiers by assuming that the dissociated position of the floating quantifier enforces a movement analysis of the order DObj > IObj (which may then show the common reconstruction behavior of movement).

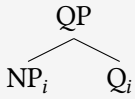
The question is: Can one also account for the fact that floating quantifiers in Japanese create a reconstruction effect with short scrambling within the present approach? As I will argue in the following section, this is indeed the case.

4.2 Analysis

I begin with my assumptions about floating quantifiers in Japanese. First, I assume that the quantifier is a head Q that takes VP (20) or NP (21) as its complement.

Second, if an NP is supposed to associate with a quantifier (here indicated by co-indexation), it must, at some point, be merged within its projection. This is achieved either by movement to SpecQ (which means that Q may bear [EPP$_N$]), see (20a), or by merging directly with the quantifier, see (20b).

(20) a. 

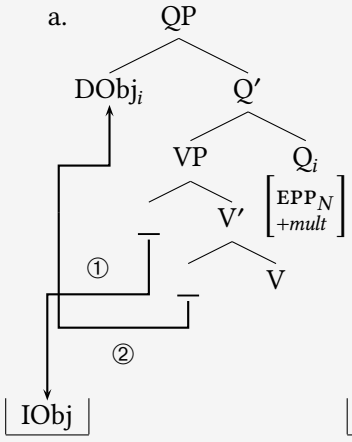
b. 

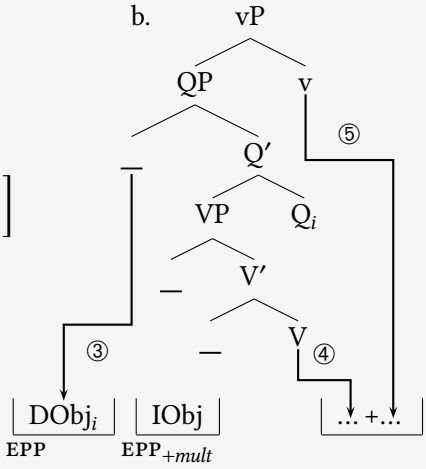
The first assumption is supposed to generate floating quantifiers that are dissociated from their antecedent (as in (19)), the latter assumption is used to generate cases such as (21), where the quantifier moves together with its antecedent:

(21) *John-ga gakusei-tati$_i$-o futa-ri otagai$_i$-ni* — *syookaisita.*
John-NOM students$_i$-acc 2-CL each other$_i$-DAT introduced
'John introduced two students to each other.'

A way to generate (19b) is by moving both objects to SpecQ via leapfrogging (Q bearing two [EPP$_N$]). However, then the IObj is closer to Q than the DObj within QP, possibly generating a reading where the IObj associates with the quantifier.

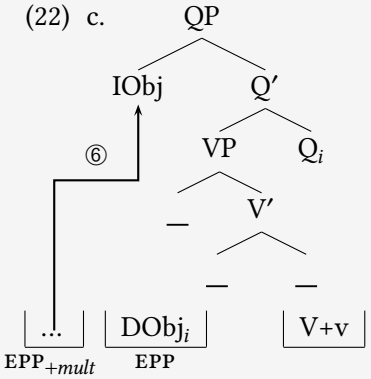
To avoid this issue, suppose Q bears [EPP$_{N/+mult}$], a feature able to attract multiple NPs. It first attracts the IObj to some WSP (step ① in (22a)), and then the DObj to SpecQ (step ②). From there, the DObj gets attracted by v (by a simple [EPP$_N$], step ③ in (22b)) after the v-head is merged.

(22) a. 

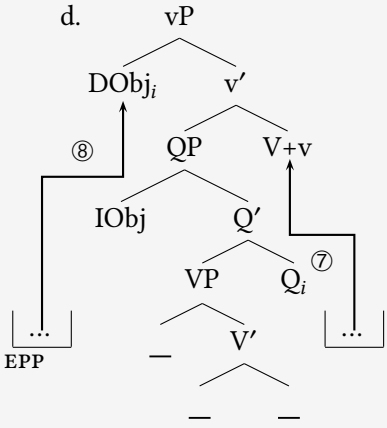
b. 

After v is removed (step ⑤) the IObj moves to SpecQ (⑥ in (22c)). Head-movement is completed, and the DObj is remerged in Specv (steps ⑦, ⑧ in (22d)), from where it can bind a reflexive within the IObj, satisfying Principle A.

(22) c.



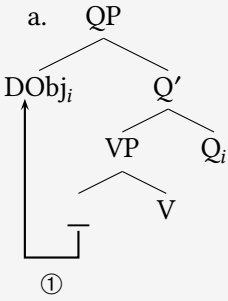
d.



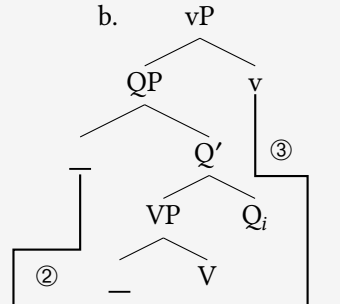
The same derivation cannot make use of two different EPP-features. The reason is that the EPP-feature that attracts the IObj occupies the beginning of Q's feature array. It is not removed unless the IObj is merged. This means that the EPP-feature attracting the DObj does not become active while the IObj remains in the WSP.

In order to derive the ban on (19a), every derivation generating it must be blocked. If (19a) is generated along the lines of (19b), then it incurs a Principle C violation: There is a point in (22a-d) where the IObj c-commands the DObj, namely at the very beginning (see (22a)); recall in this context that in contrast to (19b), the reflexive in (19a) is not embedded within the IObj, it *is* the IObj. Moreover, maneuvering the DObj past the IObj by merging the IObj late fails because the QP cannot be removed as it does not participate in head-movement. This is shown in (23):

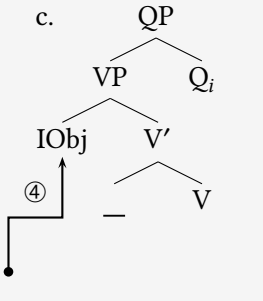
(23) a.



b.



c.



In (23b), v joins a WSP in order to participate in head-movement. This leads to the temporary disappearance of the vP-shell (see (23c)). Next, the IObj is remerged in SpecV (step ④ in (23c)). However, as the QP-shell is still present (due to its not participating in head-movement) , this derivation violates the EC. Assuming that these are the only options to generate (19a), its ungrammaticality is derived.

To briefly summarize, the re-emergence of reconstruction effects with respect to Principle C in the context of floating quantifiers in Japanese is reduced to the idea that the only way that a violation of Principle C could be avoided in this context is blocked by the EC, due to the presence of the floating quantifier. Reconstruction with respect to Principle A arises due to the quantifier's ability to attract multiple categories with a single feature.

5 Beyond scrambling: Topicalization in German

It is generally assumed that Ā-movement obligatorily reconstructs while A-movement does not (Mahajan 1990, Fox 1999, Takahashi & Hulsey 2009). So far, it was assumed that late Merger of the IObj is generally available, at least in some languages. This predicts anti-reconstruction of Ā-movement of the DObj with respect to the IObj .

Interestingly, Lechner (2019) observes the following contrasts, which suggest that the prediction is borne out for movement to the initial position of a V2 clause in German, so-called 'topicalization'. (Topicalization is usually analyzed as movement to SpecC, a bona fide instance of Ā-movement.)

(24) a. **Ich brauchte ihm$_i$ diesen alten Freund von Karl$_i$ nicht vorzustellen.*
I needed him.DAT this old friend.ACC of Karl not to introduce
'I didn't need to introduce this old friend of Karl$_i$'s to him$_i$.

b. *Diesen alten Freund von Karl$_i$ brauchte ich ihm$_i$ _ nicht vorzustellen.*
this old friend.ACC of Karl needed I him.DAT not to introduce

(25) a. **Er$_i$ brauchte uns diesen alten Freund von Karl$_i$ nicht vorzustellen.*
he needed us.DAT this old friend.ACC of Karl not to introduce
lit. 'He$_i$ did not need to introduce to us this old friend of Karl$_i$'s.

b. **Diesen alten Freund von Karl$_i$ brauchte er$_i$ uns nicht*
this old friend.ACC of Karl needed he us.DAT not
vorzustellen.
to introduce

(24a) and (25a) are base lines. They show the expected Principle C effects arising when an IObj pronoun (24a) or a Subj pronoun (25a) c-commands a DObj containing an R-expression interpreted as co-referential with the pronoun. Both (24b) and (25b) involve topicalization of the DObj. According to Lechner (2019), (24b) is acceptable (but see Frey 1993 for an opposing view), meaning that topicalization of the DObj does not reconstruct below the IObj for Principle C. This contrasts with the ungrammatical (25b), suggesting that topicalization of the DObj does reconstruct below the Subj for Principle C. (Comparable facts appear to hold for *wh*-movement.)

In order to account for (24b), one may just assume in the present approach that successive-cyclic movement via Specv ending up in SpecC is triggered by the same feature that triggers successive-cyclic movement ending up in SpecT: [EF$_N$]. This assumption forces late Merger of the IObj in (24b) in order for the DObj to be able to move to Specv (and thus to remain PIC-accessible), thereby accounting for the lack of reconstruction of the DObj relative to the IObj.

Until now, the option of late Merger was envisaged only with respect to the IObj. However, it is, in principle, imaginable that late Merger also applies to the Subj. Therefore, the question arises whether one could not generate the string in (25b) by merging the Subj late, resulting in a lack of reconstruction of the DObj with respect to the Subj (contrary to fact, witness (25b)). As it turns out, there is a way that such a derivation could proceed, but only under the premise that there is also V(+v)-to-T movement taking place. In what follows, I will illustrate this in some detail.[7]

I begin with attempts that fail. First, if the Subj is merged to Specv before the DObj gets attracted by v, the former c-commands the latter, and reconstruction of the DObj with respect to the Subj arises. Second, if the DObj is attracted first and merged to (what ends up to be an inner) Specv right away, then the Subj is merged

[7]Somewhat simplifying, Lechner (2019)'s theory accounts for (24b)/(25b) (and for the asymmetry between short and intermediate scrambling with respect to reconstruction) by assuming a) that late Merger of the complement of the determiner of the DObj (containing the R-expression) is possible, and b) that such late Merger must not apply before the DObj has undergone short scrambling (if it scrambles).

to an outer Specv, a position from where it c-commands the DObj, again leading to reconstruction. Third, one may think of the following derivation: the DObj is attracted first by an [EF] on v and put into some WSP; next the Subj is merged to Specv, and finally, the DObj is remerged from the WSP to an outer Specv. If this were a viable derivation, then it could ultimately lead to the string in (25b) without implying a single representation where the Subj c-commands the DObj, hence falsely deriving a lack of reconstruction. However, such a derivation is blocked because the [EF] that attracts the DObj will not be removed from the beginning of v's feature array unless it has been fully satisfied, i.e., unless the DObj has been remerged to Specv. Assuming that external Merge is also feature-driven (see, e.g., Svenonius 1994, Collins 2002, Lechner 2004, Kobele 2006, Müller 2017, Stabler 2013, among others), it follows that the structure building feature which triggers external Merge of the Subj, and which is also part of v's feature array, cannot be accessed by the derivation as long as the DObj remains in the WSP.[8]

There is, however, one derivation of (25b) that merges the Subj late and thereby falsely predicts the lack of reconstruction. It runs as follows. Suppose the v-head was just merged with VP. In what follows, the DObj is first attracted by an [EF] on v and merged to Specv. Next, V-to-v movement applies in the usual manner. Instead of merging the Subj in the following step, the T-head is merged. Assuming that T bears [EPP$_N$], this feature attracts the DObj, putting it into some WSP. The T-head is removed, joining some WSP in order to participate in head-movement with the V+v complex. This makes the current tree, a TP, shrink and become a vP, again. Consequently, the Subj can now be merged into Specv, in agreement with the EC. The V+v-complex joins T in its WSP and the newly generated complex head V+v+T remerges with vP, restoring the current tree as a TP. Finally, the DObj is remerged from its WSP into SpecT (from where it will ultimately undergo Ā-movement). At no point of this derivation does the Subj c-command the DObj. Hence, there is no reconstruction effect of the DObj with respect to Subj.

In fact, if the DObj does not undergo further Ā-movement, the above derivation derives a case of intermediate scrambling where reconstruction with respect to the Subj is not enforced. This, however, would predict the lack for reconstruction for Principle C with intermediate scrambling, contrary to fact (recall, e.g., the examples (3b) and (17) from Hindi and Japanese, respectively). For these reasons, this type of derivation must be blocked.

One can think of different ways to achieve this. First, one may simply stipulate that late Merger of the Subj (in contrast to late Merger of the IObj) is generally

[8] Cf. already section 4.2 for the same type of argument.

impossible. Second, as the above derivation is based on the application of V-to-T movement, one may prevent it by dropping this assumption (see, e.g., Haider 1993; 2010 for German). Third, if the language in question exhibits obligatory raising of the Subj to SpecT (not the case for German, cf. Grewendorf 1989, Diesing 1992, Haider 1993; 2010), then either a) the word order generated by the above derivation (Subj > DObj) does not instantiate a case of intermediate scrambling (DObj > Subj), or b) if the DObj undergoes a further movement step (deriving DObj > Subj after all), the obligatory reconstruction effect with respect to Principle C is reached at the TP-cycle. Finally, and perhaps most interestingly, one may assume that late Merger is a last resort strategy of the grammar, i.e., a repair that is only available if the way for a category to reach a certain position is blocked by an intervener. In the case of successive cyclic movement of a DObj across an IObj to Specv, the only way for the DObj to reach Specv is by merging the IObj late. In contrast, no such measure is required if the DObj crosses the Subj on its way to Specv, simply because the Subj (not being in the c-command domain of v) can be leapfrogged over. For now, I leave the question as to which way one should proceed for future research.[9]

6 Conclusion

It has been proposed in the literature that apparent violations of Minimality can be explained by different processes, among them a) leapfrogging or b) late Merger. In the present paper, I proposed that these processes can be distinguished by the effects they have on reconstruction. The empirical focus of the argument involved reconstruction asymmetries as they show up with scrambling in different languages (Hindi, German, Japanese, Korean).

The argument went as follows. Due to Minimality, short scrambling is not easily available (cf. Scandinavian object shift): It requires late Merger of the intervener (= IObj) at the vP-level. This derives the lack of reconstruction effects with respect

[9]Note that the present theory predicts a pattern for reflexivization (and variable binding) that is the mirror image of (24b)/(25b). Relevant examples involving reflexivization from German are given in (ia,b):

(i) a. **Diesen alten Freund von sich$_i$ brauchte ich ihm$_i$ _ nicht vorzustellen.*
this old friend.ACC of SELF needed I him.DAT not to introduce
b. *Diesen alten Freund von sich$_i$ brauchte er$_i$ uns _ nicht vorzustellen.*
this old friend.ACC of SELF needed he us.DAT not to introduce

At first sight, the prediction seems to go into the right direction (with similar results for variable binding).

to the IObj. In contrast, intermediate scrambling can be generated more directly by leapfrogging over the intervener (= Subj). To be precise, I proposed that intermediate scrambling involves late Merger at the vP-level and leapfrogging at the TP-level for group A speakers, resulting in minimal reconstruction, and leapfrogging at both the vP-level and TP-level for group B speakers, resulting in total reconstruction. The presence/absence of reconstruction effects may thus serve as a diagnostic to distinguish different ways to side step Minimality.

Next, I addressed floating quantifiers in Japanese, a context where a) a leapfrogging derivation is possible and b) late Merger of the intervener may not apply due to the Extension Condition. Both a) and b) are tied to the presence of a QP-shell, which is headed by the floating quantifier. As a result, obligatory reconstruction effects with short scrambling exceptionally show up with floating quantifiers in Japanese. Finally, I briefly addressed the case of reconstruction with respect to topicalization in German, also alluding to the possibility that late Merger may be a (language specific) repair operation (subject to further restrictions), which is only available if Minimality would otherwise prevent a certain movement from applying.

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