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NAOKI NAKAMURA

An anti-locality requirement for extraposition from subject

ABSTRACT

Locality has long been regarded as a key factor constraining “non-local” syntactic dependencies. There has also been proposed another locality requirement, Anti-Locality, which prohibits “too-local” syntactic dependencies. This paper aims to account for the (im)possibility of extraposition from subjects in terms of Anti-Locality. Johnson (1985) observes that extraposition is only allowed from the D-structure object position. Put differently, extraposition from subjects of unergative/transitive predicates (henceforth, external subjects) is prohibited, whereas extraposition from subjects of unaccusative/passive predicates (henceforth, internal subjects) is allowed. We argue that this contrast is best explained by Erlewine’s (2020) Spec-to-Spec Anti-Locality Condition. Building on Fox – Nissenbaum’s (1999) QR-and-late-merger analysis of adjunct extraposition from objects, we propose that adjunct extraposition from subjects is derived via two distinct operations: parallel movement of host NPs (Chomsky 2008) and late-merger of adjuncts (Lebeaux 1988). A host subject NP undergoes covert focus A-bar movement and overt A-movement simultaneously, with an extraposed adjunct introduced in the derivation via late-merger. Under a cartographic view (Belletti 2004; Cruschina 2011), we propose that the landing site for the host NP’s covert focus A-bar movement is the Spec position of TP-internal Foc(us)P, and that extraposition from external subjects is ruled out precisely because covert focus A-bar movement of the host NP from Spec,vP to Spec,TP-internal FocP violates the Spec-to-Spec Anti-Locality Condition. The Anti-Locality analysis further predicts that when an additional XP—such as a sentence adverbial—intervenes in the host NP’s movement path, extraposition from external subjects should be permitted, avoiding Anti-Locality-violating configurations. We demonstrate that this prediction is borne out.

KEYWORDS

extraposition; anti-locality; subject island; TP-internal FocusP; late-merger

1. Introduction

It has been generally considered that extraposition from NPs is one of the movement phenomena, derived via rightward movement.

- (1) a. John read a book by Chomsky over the summer.
b. John read a book over the summer by Chomsky.

(Guéron 1980: 637)

In (1b), the PP *by Chomsky*, which modifies the object NP *a book*, occupies the sentence-final position, separated from its modiffee. As previous studies state, extraposition is strictly constrained by locality conditions (Ross 1967; Chomsky 1973; Baltin 1981; Johnson 1985, and others). For instance, Johnson (1985) observes that extraposition from subjects is not possible, and suggests, under the Unaccusative Hypothesis (Perlmutter 1978; Burzio 1986), that extraposition from subjects is only possible from D-structure object positions. In other words, extraposition from subjects of unaccusative/passive predicates (henceforth, internal subjects), is possible, whereas extraposition from subjects of unergative/transitive predicates (henceforth, external subjects), is not allowed. The contrast is illustrated in (2) and (3).

(2) *Extraposition from external subjects*

- a. * A man {whispered/screamed/conversed} from Niue.
b. * A man {ran/walked/jumped/drove} from the EPA.
c. * A man {saw/met/hit/remembered} me from Niue.
d. * A man put a picture on the table from the flea market.

(Johnson 1985: 109)

(3) *Extraposition from internal subjects*

- a. Men appeared from Tanzania.
b. A storm followed from the North.
c. A man was {seen/called/hired/freed} with green eyes.
d. A book was put on the table about Nicaragua.

(Johnson 1985: 111)

Johnson (1985) claims that, referring to the Subjacency Condition (Chomsky 1973, 1986), the ungrammaticality of extraposition from subjects in (2) results from the PPs crossing two bounding nodes or barriers, that is, NP and S. An object NP, on the other hand, is lexically governed by V (i.e. L-marking); thus, it is not regarded as a bounding node or barrier. In addition, this asymmetry can be accounted for in terms of Huang’s (1982) Condition on Extraction Domain (CED), which states that extraction is only possible out of properly governed domains. Within the theory of government, objects (complements) are properly governed, whereas subjects and adjuncts are not. Given the unaccusative hypothesis and the CED, we can explain that rightward extraction (i.e. extraposition) of PP modifiers from internal subjects is allowed because the rightward displacement takes place from an object position, a properly governed domain. In this way, the special status of the subject is accounted for.

In the current minimalist framework, the notion of government is dispensed with, and the locality condition is sometimes reduced to the phase theory and restricted by the Minimal Link Condition (MLC) and the Phase Impenetrability Condition (PIC), for instance. However, Chomsky et al. (2023) mention that “familiar mechanisms like the PIC are inadequate on their own to model islandhood; the PIC does not block extraction per se, just extraction beyond the phase edge (with extraction *through* the edge remaining possible)” (Chomsky et al. 2023: 65).

This paper aims to explain subject islandhood, without appealing to the traditional Specifier–Complement asymmetry. Instead, we argue, within the minimalist framework, that the asymmetric status of subjects and objects in islandhood follows from a locality requirement, known as *Anti-Locality*, which bans “too short” syntactic dependency (movement) (Abels 2003; Grohmann 2003; Brillman – Hirsch 2016; Bošković 2016; Douglas 2016, 2017; Amaechi – Georgi 2019; Deal 2019; Issah – Smith 2020; Branan 2023; and Erlewine 2014, 2016, 2020). Specifically, we propose that the ungrammaticality of extraposition from external subjects results from a violation of the Spec-to-Spec Anti-Locality Condition, proposed by Erlewine (2014; 2016; 2020). We further provide empirical evidence for the proposed analysis.

This paper is structured as follows: Section 2 overviews Erlewine’s (2020) Spec-to-Spec Anti-Locality analysis and observes how the so-called Complementizer-trace effect (henceforth, Comp-trace effect) is accounted for in terms of Anti-Locality. Section 3 observes Fox – Nissenbaum’s (1999) analysis of adjunct extraposition from object NPs, which we employ in this

study. Section 4 proposes the derivation of extraposition from subjects and shows that extraposition from external subjects is not allowed precisely because it violates the Spec-to-Spec Anti-Locality Condition. Furthermore, we provide data that independently supports the proposed analysis. Section 5 concludes the paper.

2. Spec-to-Spec Anti-Locality

As far as I know, the idea of Anti-Locality requirements has not been seriously pursued in the tradition of a generative study of syntax with some exceptions, including Abels (2003) and Grohmann (2003). They focused on some specific linguistic phenomena from the viewpoint of Anti-Locality and attempted to identify a proper domain of local movements, unifying their own and traditional insights.¹ Erlewine (2014, 2016, 2020) also develop the idea of Anti-Locality, and propose the Spec-to-Spec Anti-Locality Condition, which we are mainly concerned with in this paper. The Spec-to-Spec Anti-Locality Condition is defined as follows:

(4) *Spec-to-Spec Anti-Locality* (Erlewine 2016, 2020):

Movement of a phrase from the Specifier of XP must cross a maximal projection other than XP.

Erlewine's Spec-to-Spec Anti-Locality regulates A-bar movement from Spec,TP to Spec,CP, as illustrated in (5).

(5) a. Movement from Spec,TP to Spec,CP is “too short”:

* [_{CP} *subject* [_{TP} — ...

1 The link between “too short” movement and specific linguistic phenomena was also reported in studies preceding Abels (2003) and Grohmann (2003). For instance, Fukui (1993), Bošković (1997), – Saito and Murasugi (1999) argue that the impossibility of subject extraction/topicalization can be attributed to a condition disallowing “too short” movement that does not induce any drastic effects on PF. In this regard, Chomsky's (1986) Vacuous Movement Hypothesis—which posits that a movement operation without an effect on PF output may be suspended—is potentially related to the concept of Anti-Locality. See also George (1980), Agbayani (2000, 2006) for more discussion of the Vacuous Movement Hypothesis.

b. Movement to Spec,CP from lower is long enough:

✓ [_{CP} *non-subject* [_{TP} ... [... __

(Erlewine 2020: 1)

The Spec-to-Spec Anti-Locality Condition blocks movement from Spec,TP to Spec,CP in (5a) as the movement path does not cross any XP other than TP. By contrast, movement from a non-subject position (e.g. Complement,VP) does cross VP in addition to TP, satisfying the Spec-to-Spec Anti-Locality Condition.

According to Erlewine (2020), Comp-trace effects can be accounted for by the Spec-to-Spec Anti-Locality Condition. Perlmutter (1968) first observes that long-distance movement of embedded subjects, but not embedded objects, requires the declarative complementizer *that* always to be null in English, as shown in (6).1F1F²

- (6) a. What did he say [_{CP} (that) Laura hid __]?
 b. Who did he say [_{CP} (*that) __ hid the rutabaga]?

(Perlmutter 1968: 214)

Since Chomsky (1977), it is generally assumed that the sentence in (6) is derived via successive-cyclic A-bar movement of *who* through the intermediate clausal edge (i.e. embedded Spec,CP), a step required to avoid violating the PIC in Minimalism. When the embedded complementizer merges at the phase head C, TP is spelled out, and thus the PIC excludes any operation that accesses the TP domain. According to Erlewine’s (2020) analysis, the asymmetrical status of subject and object in (6) is explained by the Spec-to-Spec Anti-Locality Condition. In (6a), successive-cyclic A-bar movement of *what* from the embedded object position is possible without violating the Spec-to-Spec Anti-Locality Condition, because movement of *what* from the Spec position of vP to the Spec position of the embedded CP does cross TP other than vP, as illustrated in (7).

- (7) What did he say [_{CP} ↑ [_{C'} that [_{TP} Laura [_{vP} ↑ [_{v'} v [_{vP} hid __]]]]]] ? (= (6a))
-

2 Comp-trace effects are also observed in Arabic (Kenstowicz 1983, 1989), Swedish (Boef – Franco 2012), and other languages.

In contrast, successive-cyclic movement of *who* is not allowed in (6b) because movement to the intermediate clausal edge from Spec,TP violates the Spec-to-Spec Anti-Locality Condition; the movement path does not cross any XP other than TP. This is illustrated in (8)

- (8) * Who did he say [_{CP} [_C that [_{TP}] hid the rutabaga]]? (= (6b))
-
- Violation of the Spec-to-Spec Anti-Locality Condition

When the position of the embedded C-head is null, Erlewine assumes that *who* in the inner Spec,TP does not move to the intermediate landing site, the inner Spec,CP. More precisely, following Erlewine (2018), he assumes that CP and TP can be bundled as a single head, CT. According to his framework, T-head bears [PROBE: D] which Agrees with the subject, facilitating ϕ -agreement, nominative case assignment, and EPP movement; and C-head bears [PROBE: \bar{A}] to facilitate intermediate movement. Erlewine argues that a unified head CT combines the probes on C and T into a single [PROBE: \bar{A} +D], which searches for a goal bearing both [\bar{A}] and [D] features, thereby disallowing partial matches. For more related discussions, see Giorgi – Pianesi (1997), Fukui – Takano (2000), Shimada (2008), Kitada (2011), Bošković (2014), Martinović (2015), Hsu (2021), Branan – Erlewine (2024), and others.

The Spec-to-Spec Anti-Locality Condition can further explain the obviation of Comp-trace effects by high adverbs. Bresnan (1977) and Culicover (1993) observe that the addition of high adverbials between the inner C and the inner Spec,TP obviates Comp-trace effects, as in (9).

- (9) a. Who did she say [_{CP} __ that *(tomorrow) __ would regret his words]?
(Bresnan 1977)
- b. Which doctor did you tell me [_{CP} __ that *(during an operation) __ had had a heart attack]?
(Bresnan 1977)
- c. Robin met the man [_{RC} {that/who} Leslie said [_{CP} __ that *(for all intents and purpose) __ was the mayor of the city]].
(Culicover 1993: 557)

Moreover, as Rizzi (1997: 311) notes, the obviation effects are observed only with *high adjuncts*, such as the epistemic adverb *fortunately*, but not with *low adjuncts*, such as the manner adverb *quickly*.

(10) a. Who did John say [_{CP} __ that [_{AdvP} fortunately [_{TP} __ ran to the store]]]?

b. * Who did John say [_{CP} __ that [_{TP} __ [_{AdvP} quickly ran to the store]]]?

(Brillman – Hirsch 2016: 78)

Erlewine (2020) argues that the obviation of Comp-trace effects by high adjuncts is explained by the Spec-to-Spec Anti-Locality Condition, assuming that the high adjuncts in (9) and (10a) themselves constitute independent functional projections between TP and CP, labeled as AdvP.2F2F³ Thus, A-bar movement of the embedded subject *wh*-phrases can be implemented without violating the Spec-to-Spec Anti-Locality Condition, with the additional AdvP intervening in the movement path. This is illustrated in (11).

(11) a. ✓ ... [_{CP} ↑ that [_{AdvP} adverb [_{TP} ↑ ...



b. * ... [_{CP} ↑ that [_{TP} ↑ ... [_{AdvP} adverb ...



(Erlewine 2020: 7)

3. The QR and late-merger approach

Before we move onto our proposal, we first observe Fox – Nissenbaum’s (1999) analysis of adjunct extraposition from object NPs. As we have seen in Introduction, extraposition has been considered one of the rightward movement phenomena. Previous studies have noted several differences between leftward and rightward movements. For instance, leftward movement never allows extraction of an NP-modifying adjunct *wh*-phrase, whereas rightward movement does, as shown in (12).

(12) a. *?? [From where/*??By whom] did you see [a painting *t*]?

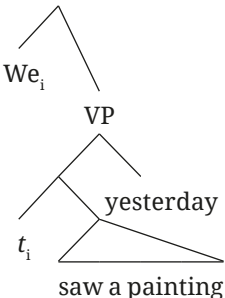
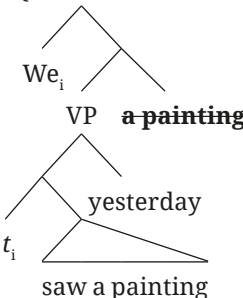
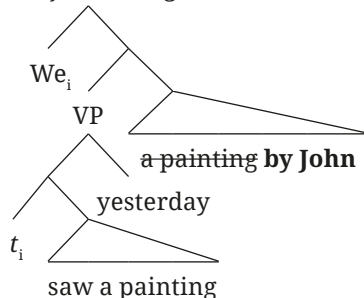
b. We saw [a painting *t*] yesterday [from the museum/by John].

(Fox – Nissenbaum 1999: 3)

3 Erlewine (2020: 7) notes that functional projections are only projected in the clausal spine if they contribute to the interfaces morpho-phonologically, interpretationally, or by hosting material such as specifiers, following Giorgi – Pianesi (1997: 13–17), Rizzi (1997: 314–315), and Erlewine (2016: 457).

The current minimalist framework does not posit an independent rightward movement operation, and syntactic structures are built based on not a linear word order but hierarchical structures derived through “Merge” (Chomsky 1995, 2000, et seq.). Therefore, such an asymmetrical status of adjunct extraction between leftward and rightward movements is a theoretical challenge.

Fox – Nissenbaum (1999) argue that rightward movement of an adjunct itself is not involved in extraposition. In fact, extraposition of adjuncts is derived by the two independent operations, namely, QR and Late-merger (cf. Lebeaux 1988)³⁴. Fox – Nissenbaum propose that the derivation of extraposition of adjuncts proceeds as follows.

- (13) a.  b. QR ('covert')  c. adjunct merger ('overt') 
- (Fox – Nissenbaum 1999: 3)

In (13a), (i) the host NP of extraposition *a painting* is base-generated in the object position. Subsequently, (ii) the host NP undergoes QR (covert movement) to the VP-adjoined position, as shown in (13b); finally, (iii) the adjunct PP *by John* is late-merged to *a painting* at the VP-adjoined position. The extraposed adjunct is thus a base-generated element.

This analysis is supported by several syntactic diagnostics. Here, we observe the most crucial data involving the Condition C. Consider the following data.

- (14) a. I gave him_i a picture yesterday [from John_i's collection].
 b. I gave him_i an argument yesterday [that supports John_i's theory].

(Fox – Nissenbaum 1999: 8)

4 Fox – Nissenbaum (1999) aim to capture the complement–adjunct asymmetry in rightward movement, employing Lebeaux's (1988) analysis of complement–adjunct asymmetrical status of *wh*-extraction.

In (14), the indirect object *him* can refer to the R-expression *John* in the extraposed constituent. This is possible only when the extraposed constituent is base-generated above the indirect object. This binding relation is predictable under the QR-and-late-merger analysis.

4. Proposals

As we observed in Introduction, Johnson (1985) argues that extraposition from external subjects is not allowed due to a violation of the Subjacency Condition or the CED, unlike extraposition from internal subjects, as illustrated in (2) and (3), repeated here as in (15) and (16).

(15) *Extraposition from external subjects*

- a. * A man {whispered/screamed/conversed} from Niue.
- b. * A man {ran/walked/jumped/drove} from the EPA.
- c. * A man {saw/met/hit/remembered} me from Niue.
- d. * A man put a picture on the table from the flea market.

(16) *Extraposition from internal subjects*

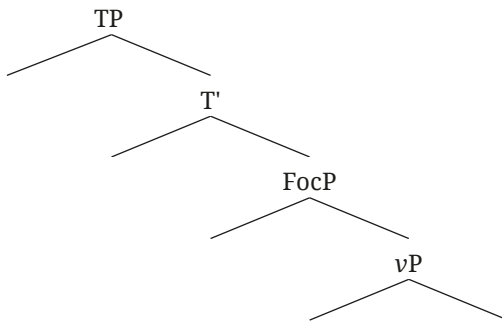
- a. Men appeared from Tanzania.
- b. A storm followed from the North.
- c. A man was {seen/called/hired/freed} with green eyes.
- d. A book was put on the table about Nicaragua.

As discussed in Section 3, Fox – Nissenbaum (1999) have provided an analysis of extraposition from object NPs. So, in this section, we extend Fox – Nissenbaum’s analysis and propose that the external–internal subject asymmetry shown by (15) and (16) is explained by the Spec-to-Spec Anti-Locality Condition. In Section 4.1, along the lines of Fox – Nissenbaum’s assumptions, we show that extraposition from subjects can be derived via the parallel movement and late-merger of adjuncts. In Section 4.2, we argue that the notion of Spec-to-Spec Anti-Locality provides a possible way out to account for the difference in extractability between external subjects and internal subjects.

4.1 Derivation of extraposition from subjects

Fox – Nissenbaum’s analysis does not specify the category of the landing site of QR. They simply assume that host NPs adjoin to VP. We propose that the landing site for the covert movement of host NPs in the sense of Fox – Nissenbaum (1999) is a Spec position of TP-internal FocusP, following the cartographic assumptions. Rizzi (1997) and subsequent studies have conducted an in-depth investigation of the CP-periphery, a specialized domain for encoding information-structural relations within the cartographic approach. In addition to the CP-periphery, a variety of previous studies posit an articulated vP-periphery, where Focus Projection is also present (henceforth, TP-internal FocP) (see Belletti – Shlonsky 1995; Kayne 1998; Belletti 2001, 2004, 2009; Jayaseelan 2001, 2010; Butler 2004; Cruschina 2006, 2011; Bošković 2014; Overfelt 2015; Nagata 2022, among others). With regard to TP-internal FocP, Belletti (2001, 2004) and Cruschina (2006, 2011) argue that it differs from the FocP in the CP-periphery: the former bears an informative, discourse-new interpretation, while the latter carries a contrastive interpretation.

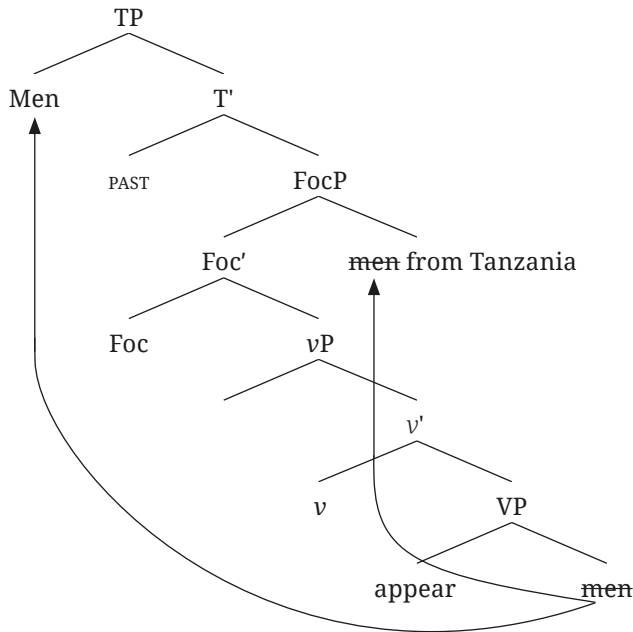
(17) *TP-internal FocP*



5 Cruschina (2006, 2011) argues that there are three discourse-related Focus projections. In a CP-periphery, there are Contrastive FocusP (CFocP), which induces contrastive connotations, and Information FocusP (IFocP), which induces a kind of Mirative interpretation (Emphatic IFoc). Notably, he distinguishes two types of IFocs in that IFoc in a vP-periphery purely expresses neutral informative interpretation (Neutral IFoc). We do not overview Cruschina’s argument for positing the two types of IFoc due to the limitation of this paper. See Cruschina (2006, 2011) and subsequent works.

In addition, we follow Chomsky (2001) in assuming that vP in active transitive and unergative sentences is a phase (i.e. strong phase; v^*P), whereas vP in passive and unaccusative sentences is not a phase (i.e. weak phase; vP). Utilizing these assumptions, I propose that the derivation of adjunct extraposition from internal subjects is derived as follows.

(18) Men arrived from Tanzania.



Initially, the host NP *men* base-generated as a complement of V undergoes two types of movements—parallel movement (cf. Chomsky 2008): covert A-bar movement of *men* from the base-generated position to the Spec position of TP-internal FocP for the requirement of the focus feature; and overt A-movement from the Comp position of VP to the Spec position of TP for the requirement of the EPP feature.^{5F5F⁶} Subsequently, the adjunct PP *from*

6 A reviewer suggests that the subject NP *men* might first move to (right) Spec,FocP and then moves from Spec,FocP to Spec,TP. This derivation would be possible, without violating the Spec-to-Spec Anti-Locality Condition, if we follow Brillman – Hirsch (2016) and Erlewine (2014, 2016) in restricting Anti-Locality to A-bar movement (contrary to Deal 2019, who extends Spec-to-Spec Anti-Locality to A-movement). However, that derivation simultaneously creates a complex A-bar-A-chain (e.g. movement from Spec,FocP

Tanzania is late-merged to the covertly moved NP *men*. Thus, extraposition from internal subjects is derived by not rightward A-bar movement of adjuncts but late-merger of adjuncts to the covert copy at the Spec position of TP-internal FocP, bearing information focus with a focal stress. Note that we assume that the linearization of the specifier of TP-internal FocP to the right is due to a purely extra-syntactic process, namely externalization (Chomsky 2005). In this way, extraposition of adjuncts from internal subjects is derived.

The syntactic diagnostic dependent on the Condition C used by Fox – Nissenbaum (1999) supports the late-merger analysis of extraposition from internal subjects. Observe the following contrast.

- (19) a. ?? It seemed to her_i that a man had arrived that Mary_i knew from school.
 b. A man seemed to her_i to have arrived that Mary_i knew from school.

(Reeve 2011: 155)

Example (19) contains a raising verb *seem*. According to Reeve (2011), the unacceptability of the sentence in (19a) results from a violation of the Condition C; the coreferential reading of the pronoun *her* and *Mary* in the extraposed adjunct is not possible. However, when the host NP *a man* is raised to the matrix subject position, as in (19b), the sentence improves. The contrast in (19) suggests that the extraposed adjuncts attach to the different positions. In (19a), according to our analysis, the relative clause attaches to the copy that has already undergone covert movement to the Spec position of the TP-internal FocP within the embedded clause. However, such a derivation induces a violation of the Condition C because *Mary* in the embedded clause is bound by the coreferential matrix PP *to her*. In contrast, in (19b), the relative clause late-merges with the covertly moved copy of *a man* in the matrix clause, avoiding a violation of the Condition C. This is just what the late-merger analysis predicts.

to Spec,TP)—an instance of “improper movement” (May 1979; Chomsky 1981, 1986; Fukui 1993, etc.). In light of this, we remain neutral between these implementations and retain parallel movement (Chomsky 2008) solely to avoid improper-movement configurations and for expository clarity.

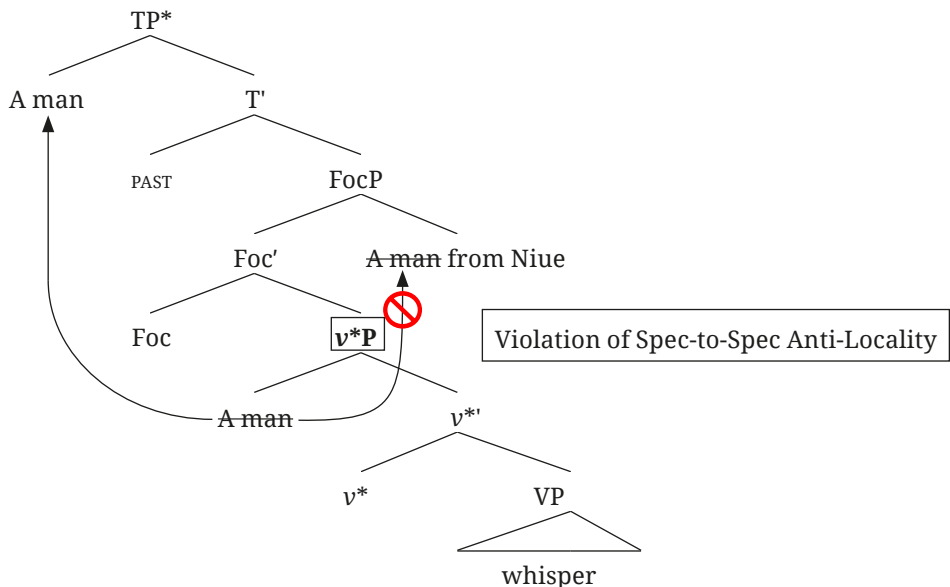
- 7 We do not further enter into the details of Reeve’s discussion, but the data presented in (19) might argue for the possibility of long-distance rightward movement. As Ross (1967) observes, rightward movement is more strictly regulated than leftward movement (i.e. Right-Roof Constraint), but this assumption is not compatible with the minimalist

4.2 Spec-to-Spec Anti-Locality prevents adjunct extraposition from external subjects

As discussed in the previous subsection, the late-merger analysis works for extraposition from internal subjects. Turning to extraposition from external subjects, however, we immediately face a serious problem. Extraposition from external subjects appears to be possible through a similar process. External subject host NPs, undergo a parallel movement and adjuncts are introduced through late-merger. Yet, as we have already observed, the resulting sentences are ungrammatical.

Our claim here is that the notion of Anti-Locality helps to differentiate the structures of extraposition from internal subjects and that from external subjects. According to the Spec-to-Spec Anti-Locality Condition, extraposition from external subjects is ruled out because movement of host NPs to the Spec position of FocP crosses only a single maximal projection. This is illustrated in (20).

(20) * A man whispered from Niue.

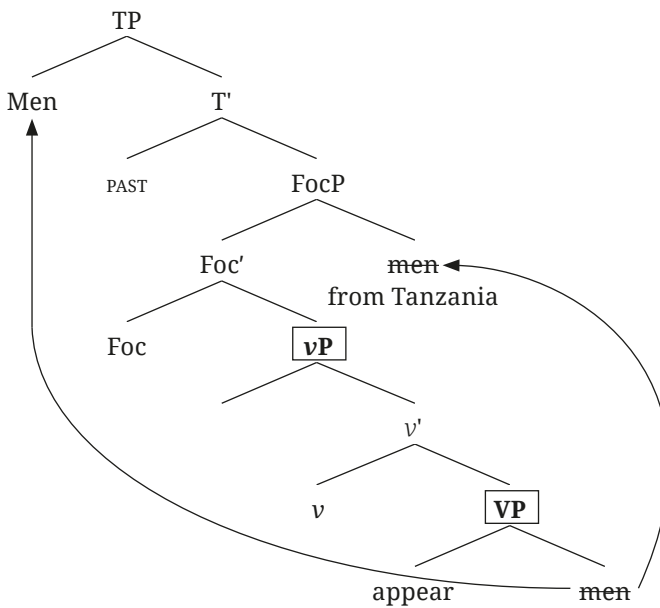


framework because it does not distinguish leftward and rightward movements. I will leave this issue open for future study.

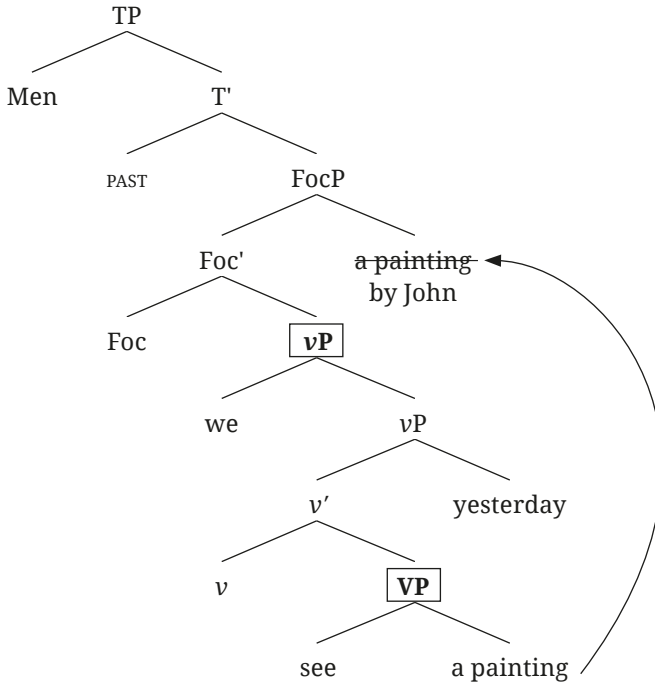
The host NP base-generated at the Spec position of vP undergoes covert A-bar movement to the Spec position of TP-internal FocP, but this movement is “too short” because the host NP does not cross extra projections other than vP . This movement violates the Spec-to-Spec Anti-Locality Condition, resulting in ungrammaticality.

In contrast, extraposition from internal subjects and objects does not violate the Anti-Locality Condition since the host NP does cross VP and vP . This is illustrated in (21) and (22).

(21) Men arrived from Tanzania.



(22) We saw a painting yesterday by John.



In this way, the subject–object asymmetry, more precisely, the asymmetry between external arguments and internal arguments in rightward movement, is accounted for.

The Anti-Locality analysis predicts that extraposition from external subjects is possible when an extra XP is added between vP and TP-internal FocP. This prediction is born out, supporting the proposed Anti-Locality analysis, as follows.

- (23) a. I heard that a man with green eyes escaped from the big cage yesterday.
- b. * I heard that a man escaped from the big cage yesterday with green eyes.
- c. ? I heard that a man **presumably** escaped from the big cage yesterday with green eyes.

- (24) a. A girl with blond hair jumped on the train yesterday.
- b. * A girl jumped on the train yesterday with blond hair.
- c. ? A girl **unexpectedly** jumped on the train yesterday with blond hair.

The (a)-sentences in (23) and (24) are the canonical sentences, with the PPs *with green eyes* and *with blond hair* modifying the external subjects of the unergative verbs *escape* and *jump*. In the (b)-sentences, the PPs are extraposed to the sentence-final position, and they are ungrammatical as we have observed. According to my informants, however, when we insert the sentence adverbs such as *presumably* and *unexpectedly* between the subjects and verbs, the sentences become more acceptable, as shown in the (c)-sentences.^{7F7F⁸} Assuming that sentence adverbs independently project AdverbP (henceforth, AdvP), following Erlewine (2020), such a maximal projection as AdvP intervenes between vP and TP-internal FocP, avoiding a violation of the Spec-to-Spec Anti-Locality Condition. This is illustrated in (25).

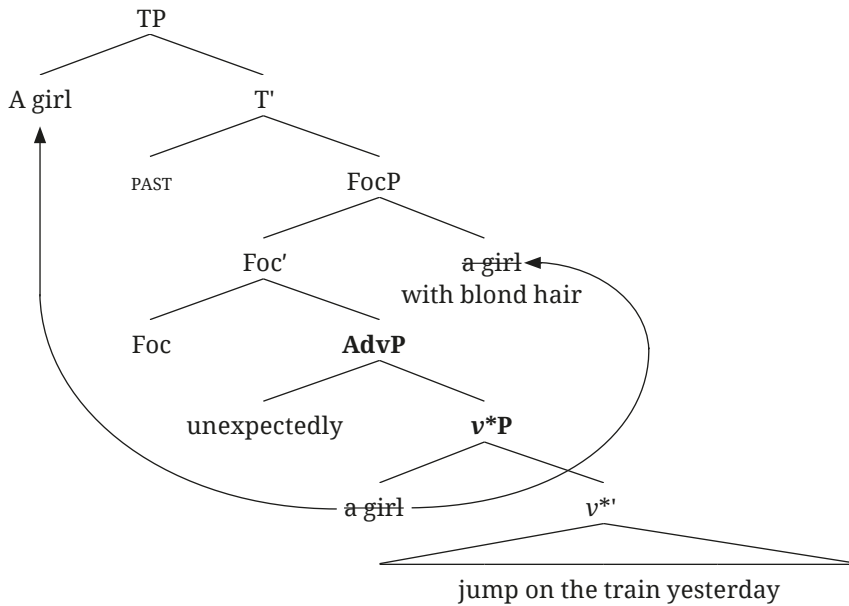
8 We assume that clause-oriented adverbs such as *presumably* (epistemic) and *unexpectedly* (evaluative) may adjoin either to TP or to vP. Notably, these clause-oriented adverbials can appear not only the sentence-initial/final positions but also in central positions—before/after auxiliary positions—(Pullum – Huddleston 2002: 576–578).

- (i) a. *Luckily*, Chris had forgotten it.
 b. Chris, *luckily*, had forgotten it.
 c. Chris had, *luckily*, forgotten it.
 d. Chris had forgotten it, *luckily*.

(Pullum – Huddleston 2002: 578)

The examples in (i) indicate that the clause-oriented adverb *luckily* (an evaluative adverbial) can occur in several positions. In particular, *luckily* may appear before the auxiliary *had* as in (i-b) and it may appear between the auxiliary *had* and the past participle *forgotten* in (i-c). This suggests that *luckily* can occupy either a TP-adjoining position or a position below T (i.e. a vP-adjoining position). On this view, the relevant amelioration effects indeed depends on structural height (TP-adjunction vs. vP-adjunction): (a) Comtrace effects are obviated when the adverb is TP-adjoined, whereas (b) extraposition from external subjects is improved when a clause-oriented adverb is vP-adjoined, as illustrated in (23)–(25). Consequently, the amelioration effects can be accounted for in both Comtrace effects and extraposition from external subjects, without violating the Spec-to-Spec Anti-Locality. While reviewers of *Linguistica Brunensia* have noted that it would be valuable to specify which classes of adverbials yield such amelioration, a more thorough investigation and analysis is required; consequently, we do not address these details in the present paper.

(25) A girl unexpectedly jumped on the train yesterday with blond hair.



A-bar movement of *a girl* to the Spec position of TP-internal FocP crosses the extra maximal projection AdvP other than *vP*; hence, this movement respects Spec-to-Spec Anti-Locality.⁹

Regarding the judgments of examples in (23) and (24), I consulted three native speakers of English—two from the United States and one from the United Kingdom. One American speaker, who is a generative linguist, and

9 Note further that we assume in this paper that the PPs *in the train* and the temporal adverb *yesterday* are in the VP domain, following Larson (1988). Larson (1988) argues that locative and temporal adverbials are generated as obliques and located within the verb's immediate projection, assuming the following hierarchy of thematic relations.

- (i) AGENT > THEME > GOAL > OBLIQUES (manner, location, time, ...) (Larson 1988: 382)

For example, the structure of the sentence containing the temporal adverbial *on Tuesday* in (ii) can be illustrated as in (iii).

- (ii) John visited Sally on Tuesday. (Baltin 2007: 26)

- (iii) [CP C [TP PAST [vp [DP John] v [VP [DP Sally] visit [pp on Tuesday]]]]] (Baltin 2007: 27)

For more discussion of the position of adverbials, see Jackendoff (1977), Larson (1988), Cinque (1999), Baltin (2007), and others.

the British speaker both reported the amelioration effects. However, the other American speaker did not detect any difference in acceptability, implying that not all native speakers of English consistently agree with these judgments. It should be noted that a reviewer of *SinFonIJA 16* completely agreed with the judgment, whereas a reviewer of *Linguistica Brunensia*, presumably a native speaker of British English, reported no such improvement, unlike with Comp-trace effects.

Given these mixed judgments, I conducted an additional investigation to test the amelioration effects. Thirty-five tokens were collected via Amazon Mechanical Turk (AMT). 34 were native speakers of American English, and 1 was a native speaker of Indian English. Table 1 presents the participant information:

Tab. 1. Information regarding participants

Dialects	Number of Participants
American English	34
Indian English	1
Age Range	
0–19	0
20–29	1
30–39	8
40–49	7
50–59	11
60–69	8
70 and above	0
Total	35

The participants were asked to rate the target examples—originally presented in (23) and (24) and repeated here as (26) and (27)—on a seven-point scale (7 = Grammatical, 4 = Weird but still acceptable, 1 = Ungrammatical). Table 2 summarizes the average judgments for each example.^{10,11}

10 For explanatory purposes, we use the following abbreviations: canonical/non-extraposed sentence (CA); extraposed sentence (EX); with sentence adverb (ADV); and without sentence adverb (NO).

11 Values are expressed to two decimal places, with further digits rounded off.

- (26) a. I heard that a man with green eyes escaped from the big cage yesterday.
 b. I heard that a man escaped from the big cage yesterday with green eyes.
 c. I heard that a man presumably escaped from the big cage yesterday with green eyes.
- (27) a. A girl with blond hair jumped on the train yesterday.
 b. A girl jumped on the train yesterday with blond hair.
 c. A girl unexpectedly jumped on the train yesterday with blond hair.

Tab. 2. Means of grammaticality judgments

	(a) CA_NO	(b) EX_NO	(c) EX_ADV
(26)	6.43	3.43	4.00
(27)	5.80	3.60	3.94

As Table 2 shows, the canonical examples (i.e. non-extraposed sentences) in the (a)-pattern receive high scores. However, once extraposition occurs, as in the (b)-pattern, the scores significantly drop. By contrast, adding sentence adverbs between the subject and the verb in extraposed sentences, as in the (c)-pattern, raises the scores relative to those in (b), which lack sentence adverbs. Although the score for (c) does not appear to indicate “strong” amelioration, it remains near 4, suggesting a “weird but still acceptable” judgment. Since the mean values alone do not clearly indicate whether the difference is significant, we conducted a t-test on (b) and (c) to assess statistical significance. If the resulting p-value is less than 0.05, we conclude there is a significant difference.

Tab. 3. T-test results

	Mean	SD	T-test (paired)
(26b): EX_NO	3.43	1.58	
(26c): EX_ADV	4.00	1.75	
			$p = 0.0230 (<0.05)$
(27b): EX_NO	3.60	1.46	
(27c): EX_ADV	3.94	1.68	
			$p = 0.0163 (<0.05)$

As Table 3 shows, the differences between (b) and (c) in (26) and (27) are significant in this investigation. This suggests that the amelioration effects in question exist in English. In addition, it is important to examine whether the amelioration effects occur at an individual level. Table 4 illustrates how each participant's grammatical judgments shift from (b) to (c).

Tab. 4. Grammatical shift from (b) to (c) (Individual)

	(26)	(27)
Improve	12	13
Same	18	18
Worse	5	4

Table 4 indicates that 12 participants (for (26)) and 13 participants (for (27)) detected the amelioration effects between (b) and (c), while 18 participants reported no difference in grammaticality. We exclude from the discussion those who find (c) less acceptable than (b), as they appear to experience processing difficulties with the stimuli. What is important to discuss here is that the largest group of participants detects no difference between (b) and (c), while there is observed statistical significance. It is worth noting that 5 of the 18 such participants in (26) and 7 of the 18 in (27) commented that inserting adverbs does improve acceptability, though they answered the same number between (b) and (c). This suggests that the amelioration effect indeed occurs but may be masked by additional factors.

One potential factor is the disjoint modification relation introduced by extraposition. Our investigation, as in Table 5, shows that not all native speakers of English fully accept extraposition from internal subjects although there is a discernible difference between extraposition from internal subjects and that from external subjects, as Johnson (1985) observes. The target examples of extraposition from external subjects and internal subjects are illustrated in (28) and (29).

(28) *Target example 1: extraposition from **internal** subjects*

- a. Men appeared from Tanzania.
- b. A man arrived at the store with blond hair.

(29) *Target example 2: extraposition from external subjects*

- a. A man whispered with blond hair.
- b. A girl screamed yesterday with blue eyes.

Tab. 5. Means of grammaticality judgments

	Mean
(28a)	5.00
(28b)	4.40
(29a)	3.14
(29b)	2.77

Table 5 presents the mean grammaticality judgments for each example, confirming the difference in grammaticality noted by Johnson (1985). Furthermore, Table 5 suggests that even extraposition from internal subjects is not fully accepted by the participants. This may be due to the fact that disjoint modification relations are sometimes no easier to process than *wh*-movement, as observed in Comp-trace effects. Nevertheless, our statistical analysis reveals a significant grammatical distinction between (28) and (29). In other words, though processing complexity arising from disjoint modification relations may interfere with the amelioration effects in (26) and (27), we can conclude from the above discussion that the amelioration produced by the insertion of sentence adverbs is nonetheless evident.

Another potential factor is that there are two groups of participants: one that observes the amelioration effects and the other that does not. We do not exclude the possibility of inter-speaker variation; yet our results confirm that the amelioration effects in question are present in at least one group of native speakers of English.

Based on these discussion, we can conclude that the amelioration effects observed in (26) and (27) are indeed present in English, lending strong support to the Anti-Locality analysis of PP extraposition from subjects.

5. Concluding remarks

This paper has explored the Anti-Locality hypothesis, which restricts “too short” movement, and argued that the Subject–Object asymmetry obser-

ved in a rightward movement phenomenon *extraposition from NPs*, is properly accounted for by the Spec-to-Spec Anti-Locality Condition. More precisely, adopting the cartographic view that a discourse-related (information) FocusP is available within a TP-internal domain (Belletti 2001, 2004; Cruschina 2006, 2011), we have proposed that extraposed adjuncts are base-generated in the Spec position of TP-internal FocP, with their host NPs undergoing covert Focus A-bar movement to that position. On this view, extraposition from external subjects is impossible precisely because the Focus A-bar movement of a host NP from Spec,vP to Spec,TP-internal FocP violates the Spec-to-Spec Anti-Locality Condition. Furthermore, the Anti-Locality analysis is independently supported by the observation that extraposition from external subjects becomes acceptable when an additional XP (e.g. AdvP) intervenes, lengthening the movement path and avoiding a too-local syntactic dependency.

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An anti-locality requirement for extraposition from subject

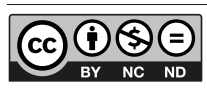
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