

Facilitator effects in Mandarin topicalization: Evidence for a crossing-based view of antilocality*

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1 Introduction

- A major inquiry in Minimalist syntax concerns how movement is constrained; in particular, *anti-locality* constraints rule out movement that is *too local* (Abels 2003; Grohmann 2003; Erlewine 2016, 2020; Newman 2020; Zyman 2021; Branan 2022, *i.a.*).
- Much of the literature defines anti-locality as a *requirement of crossing* which depends on specific STRUCTURAL POSITIONS from which and to which movement occurs:¹

- (1a): *Comp-to-Spec anti-locality*
- (1b): *Spec-to-Spec anti-locality*

(Abels 2003; also Pesetsky and Torrego 2001)
(Erlewine 2016, 2020; Bošković 2016; Deal 2019; Branan 2022, *i.a.*)

(1) POSITION-based anti-locality

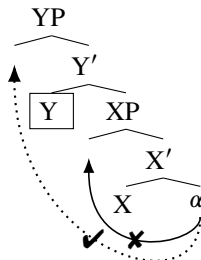
a. *Comp-to-Spec anti-locality*

Movement of a phrase from Comp, X must cross a head other than X.

→ Rules out movement from Comp, X to Spec, XP.

→ Allows movement from Comp, X to Spec, YP,

... crossing \boxed{Y} .



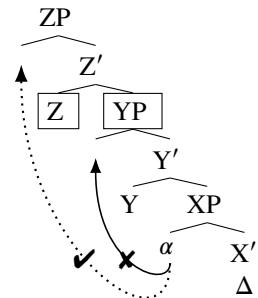
b. *Spec-to-Spec anti-locality*

Movement of a phrase from Spec, XP must cross a maximal projection other than XP.

→ Rules out movement from Spec, XP to Spec, YP.

→ Allows movement from Spec, XP to Spec, ZP,

... crossing \boxed{YP} (also \boxed{Z}).



- Recently, Newman (2020) proposes a unified CROSSING-based definition of anti-locality in (2), without resorting to specific positions, to account for *facilitation effects* in middles (cross-linguistically).

(2) CROSSING-based anti-locality

(Newman 2020:6)

a. *Anti-locality*: A moving constituent α must cross a constituent distinct from the closest X^0 that c-commands it.

b. *Crossing*: Mvt. from a position α to a position β crosses a constituent γ iff γ asymmetrically c-commands α but not β .

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1. See also:

- a. Saito and Murasugi (1999) and Bošković (1994, 1997) for Spec-to-Adj(unct) anti-locality;
- b. Grohmann (2003) for Domain-based anti-locality (CP-TP-VP domains);
- c. Zyman (2021) for Phasal anti-locality on subextraction from phasal edges; and
- d. Grohmann (2011) and Richards (2022) for overviews.

★ **This paper:** We present novel evidence that topicalization in Mandarin exhibits the following *facilitator effects*:

- (3) a. *IP-internal topicalization in non-finite clauses: banned without facilitators*
 *Lisi bipo wo [zhe-jian shi diaocha ___].
 Lisi force 1SG this-CL matter investigate
 Int.: ‘Lisi forced me to investigate this matter.’
- b. ... *amelioratable by crossing a high facilitator (e.g., temporal adverb)*
 Lisi bipo wo [zhe-jian shi mingtian diaocha ___].
 Lisi force 1SG this-CL matter tomorrow investigate
 Lit.: ‘Lisi forced me to, this matter, investigate (it) tomorrow.’
- c. ... *amelioratable by crossing a low facilitator (e.g., manner adverb)*
 Lisi bipo wo [zhe-jian shi toutou diaocha ___].
 Lisi force 1SG this-CL matter secretly investigate
 Lit.: ‘Lisi forced me, this matter, secretly investigate (it).’

★ **This paper:** We argue that facilitator effects in Mandarin topicalization support a *unified CROSSING-based view of anti-locality*, conditioned by the *Principle of Minimal Compliance*.

- New generalization: Mandarin topicalization may involve *two* movement steps that violate POSITION-based anti-locality: (i) Comp-to-Spec and (ii) Spec-to-Spec, but only requires *one* facilitator on *either* movement path.
- Proposal: We argue that facilitator effects in Mandarin topicalization arise from the combination of ❶ and ❷:
 - ❶ The CROSSING-based anti-locality (Newman 2020), which *unifies* Comp-to-Spec and Spec-to-Spec anti-locality.
 - ❷ The Principle of Minimal Compliance (Richards 1998), which allows anti-locality to be *evaluated only once* for a successive-cyclic movement chain.
 - The PMC not only applies to locality constraints (e.g., the PIC), but also to *anti-locality* constraints.
- Extension: Mandarin focalization exhibits the same facilitator effects and should be analyzed with anti-locality.
- Contribution on Chinese linguistics: We will also demonstrate how anti-locality resolves long-standing puzzles/debates on topicalization and focalization in Mandarin.

● **Road map:**

- | | |
|--|----------------|
| §2: Facilitator effects in Mandarin topicalization | §5: Conclusion |
| §3: Proposal | §6: Appendices |
| §4: Extension to focalization | |

2 Facilitator effects in Mandarin topicalization

2.1 A primer on topicalization

- (4): In Mandarin, topicalization can target either an IP-internal (“internal” for short) or IP-external (“external” for short) position, either below or above the subject in Spec, IP (see e.g., Qu 1994; Shyu 1995; Ting 1995; Paul 2002, 2005; Kuo 2009; Chen 2023).

- (4) a. *IP-internal topicalization*
 [_{IP} Lisi [zhe-jian shi]_i diaocha-le ____i].
 Lisi this-CL matter investigate-PRF
 Lit. ‘Lisi, this matter, investigated (it).’
- b. *IP-external topicalization*
 [Zhe-jian shi]_i [_{IP} Lisi diaocha-le ____i].
 this-CL matter Lisi investigate-PRF
 ‘This matter, Lisi investigated (it).’

★ Two movement steps: Gapped internal and external topicalization involve successive-cyclic movement into the low IP area and left periphery respectively.

- (5a) **Step I**: Obj moves from Comp, V to Spec, vP.
- (5b) **Step II**: Obj moves from Spec, vP to Spec, TopP, which may be either above or below IP.

(5) Two movement steps of object topicalization

- a. ... [_{TopP} [_{TopP} Top-∅ ... [_{vP} Obj_i [_v v+V [_{VP} t_v ____i ...]]]] (Step I: intermediate Obj mvt.)
- b. ... [_{TopP} Obj_i [_{TopP} Top-∅ ... [_{vP} ____i [_v v+V [_{VP} t_v ____i ...]]]] (Step II: terminating Obj mvt.)

2.2 Facilitator effects

- Internal topicalization as a diagnostic of finiteness/clause size? It has long been noted that internal topicalization is *unavailable* within a control/restructuring verb complement, as in (13). Internal topicalization has been taken to indicate ...
 - ... Finiteness (e.g., C.-T. J. Huang 1982, 1989; Y.-H. A. Li 1990; T.-C. Tang 2000; Lin 2011, 2012, 2015; a.o.); or
 - ... IP/TP clause size (e.g., Grano 2012, 2015; C.-T. J. Huang 2022).

(13) *Internal topicalization in non-finite clauses*

- a. *Lisi {xiang/ dasuan/ changshi/ yuanyi/ keyi/ daying wo} [zhe-jian shi diaocha ___]. (subject control)
 Lisi want plan try be.willing may promise 1SG this-CL matter investigate
 Int.: ‘Lisi wanted/planned/tried/was willing/was allowed/promised me to investigate this matter.’
- b. *Laoshi {quan/ rang/ pai/ bipo/ mingling} wo [na-men ke xuan ___]. (object control)
 teacher urge let send force order 1SG that-CL class choose
 Int.: ‘The teacher forced/ordered/urged/let/sent me to take this course.’

★ New generalization: The ill-formedness of (13) may be ameliorated by an *additional element* on the movement path:

- A *high facilitator*, between Spec, vP and Spec, TopP
- A *low facilitator*, between Comp, V and Spec, vP (terms from Newman 2020)

- Internal topicalization always necessitates either a high or a low facilitator.
- External topicalization always has a high facilitator – the subject in Spec, IP (hence does not require additional facilitator).

- Our position: Internal topicalization is *not* a test of finiteness, nor IP/TP clause size.

- **#1: High facilitators:** N. Huang (2018), C.-T. J. Huang (2022), among others, have observed that internal topicalization in a non-finite clause becomes available with the presence of a high facilitator, such as a temporal adverb or negation, e.g., (14).
 - They propose that the topicalization necessitates IP/TP clause size (as opposed to, e.g., restructuring vP).

(14) *Internal topicalization in non-finite clauses*

- a. ... *amelioratable by crossing a high facilitator* (e.g., *temporal adverb*)
 Lisi {dasuan/ bipo wo} [zhe-men ke ming-nian xuan ___].
 Lisi plan force 1SG this-CL class next-year choose
 Lit. ‘Lisi planned/forced me to, this class, next year take (it).’
- b. ... *amelioratable by crossing a high facilitator* (e.g., *negation*)
 Lisi {dasuan/ bipo wo} [zhe-men ke bu xuan ___].
 Lisi plan force 1SG this-CL class NEG choose
 Lit. ‘Lisi planned/forced me to, this class, not take (it).’ (adapted from C.-T. J. Huang 2022: ex. 77-78)

- **#2: Low facilitators:** We further observe that internal topicalization in non-finite clauses *also* becomes available with the presence of a low facilitator (on VP layers): a pre-verbal manner adverb (15a), or a post-verbal degree modifier (15b).⁴
 - Internal topicalization does *not* require an IP layer (pace C.-T. J. Huang 2022).
 - (15b) additionally shows that facilitators need *not* linearly precede the object’s launching site.

(15) *Internal topicalization in non-finite clauses*

- a. ... *amelioratable by crossing a low facilitator* (e.g., *manner adverb*)
 Lisi dasuan/bipo wo/changshi/yuanyi/keyi [zhe-jian shi toutou diaocha ___].
 Lisi planned/force 1SG/try/be.willing/be.allowed this-CL matter secretly investigate
 ‘Lisi planned/forced me/tried/was willing/was allowed to, this matter, secretly investigate (it).’
- b. ... *amelioratable by crossing a low facilitator* (e.g., *degree modifier*)
 Lisi dasuan/bipo wo/changshi/yuanyi/keyi [kafei [he-de ___] [DegreeP de kuai yi-dian]].
 Lisi planned/force 1SG/try/be.willing/be.allowed coffee drink-DE fast a-bit
 ‘Lisi planned/forced me/tried/was willing/was allowed to, coffee, drink (it) a bit faster.’

- **#3: Non-facilitators:** Internal topicalization cannot be facilitated by a *non-facilitator* outside its movement path:
 - In (16a), the post-verbal ResultP is in Comp, V, structurally lower than the gap, hence fails to facilitate topicalization.
 - cf. (15b), where the post-verbal DegreeP is a VP-level adjunct, structurally higher than the gap, thereby facilitating topicalization.

4. The in-situ counterpart for (15b) requires so-called verb-copying, i.e., two copies of the verb, one before the object and one before the degree modifier headed by *-de*, as in V_i-O-V_i -DegreeP (see e.g., C.-T. J. Huang 1982; Gougnet 2006; Cheng 2007). We suggest that when the object stays in-situ, an additional copy of the verb is required before the degree modifier in order to host the enclitic *-de* (cf. Meadows and Yan 2023).

(16) *Internal topicalization in non-finite clauses*

a. ... *not amelioratable by a non-facilitator* (e.g., *resultative*)⁵

*Lisi dasuan/bipo wo [na-ge haizi_i ma-de ___ [ResultP de PRO_i da ___ ku]].

Lisi plan/force 1SG that-CL child scold-DE loudly cry

INT: 'Lisi planned/forced me to, that child, scold (him) as a result of which (he) would cry loudly.'

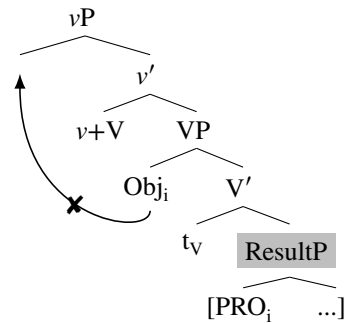
b. ... *amelioratable by crossing a (high) facilitator* (e.g., *temporal/aspectual adverb*)

Lisi dasuan/bipo wo [na-ge haizi_i jinkuai ma-de ___ [ResultP de PRO_i da ___ ku]].

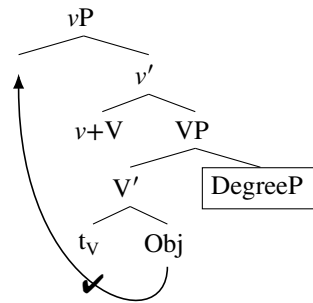
Lisi plan/force 1SG that-CL child ASAP scold-DE loudly cry

Lit. 'Lisi planned/forced me to, that child, scold (him) as a result of which (he) would cry loudly, ASAP.'

(17) a. ResultP fails to facilitate topicalization



b. DegreeP facilitates topicalization



- #4: Facilitator effects in finite clauses: We argue that the same facilitator effects carry over to (generic) finite clauses without AspP, where we observe the contrast between internal and external topicalization (18) (cf. the lack of such a contrast in (4)).⁶

→ Within finite clauses, internal topicalization also requires the presence of either a high facilitator, such as an aspect marker (4a), a temporal adverb (19a), negation (19a), or a low facilitator, such as a VP modifier (19b).

→ By contrast, external topicalization is licit without any of the aforementioned facilitators (18b). We suggest this is because the subject in Spec, IP serves as a high facilitator.

(18) *Context: Who drinks coffee (habitually)?*

a. *Internal topicalization in finite clauses*

*Lisi kafei he ___.

Lisi coffee drink

INT: 'Lisi, coffee, drinks (it).'

b. *External topicalization in finite clauses*

Kafei, Lisi he ___.

coffee Lisi drink

'Coffee, Lisi drinks (it).'

(19) *Internal topicalization in finite clauses*

a. ... *amelioratable by crossing a high facilitator* (e.g., *temporal adverb/negation*)

Lisi kafei mei-tian/bu he ___.

Lisi coffee every-day/NEG drink

'Lisi, coffee, every day/does not drink(s) (it).'

b. ... *amelioratable by crossing a low facilitator* (e.g., *degree modifier*)

Lisi kafei [he-de ___] [DegreeP de hen kuai].

Lisi coffee drink-DE very fast

'Lisi, coffee, drinks (it) fast.'

- If you're thinking about *apparent* counter-examples like (20) ...

→ (20) has a high facilitator Pol(P) licensed by verum focus, see Appendix §6.1 (cf. Appendix §6.2 for other cases).

(20) *Context: Does Lisi drink coffee?*

Lisi kafei [PolP (BU) HE ___].

Lisi coffee NEG drink

'Lisi, coffee, does (not) drink (it).'

5. Although both DegreeP and ResultP are headed by *-de* in Mandarin, it is conceivable that *-de* does not spell out the same head. Evidence comes from Cantonese, where a DegreeP is headed by *-dak1* while a ResultP is headed by *dou3*. Furthermore, note that the in-situ counterpart for (16) does *not* require verb-copying; we suggest that this is because in (17a) (but not in (17b)), V c-commands the enclitic *-de*, enabling it to directly suffix to V. These provide further support for a structural difference between DegreeP and ResultP.

6. We assume that the generic operator Gen attaches high to the clausal level, rather than in the AspP. Evidence comes from impersonal pronouns like *one eats pasta in Italy* or *you eat pasta in Italy*, where the subject at Spec, IP receives a generic reading (IP, Chierchia 1995; CP, Soares 2021). Gen in Chinese has also been argued to occupy an IP-external position to account for generic subjects (Tsai 2001, 2003, 2015a; generic *tense* in Tsai's term, rather than generic *aspect* Lin 2004's term).

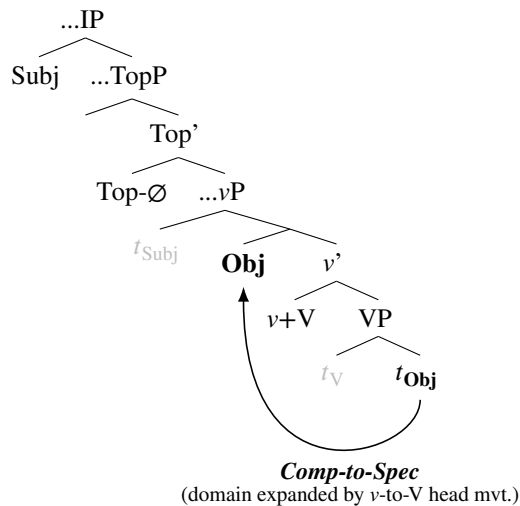
3 Towards an anti-locality account

- We argue that the ungrammaticality of topicalization *without* facilitators is a result of *anti-locality* violations.
- We propose that the facilitator effects can be captured by the combination of :
 - ① a **unified crossing-based anti-locality** (Newman 2020) and ② the **Principle of Minimal Compliance** (Richards 1998).
 - Anti-locality does *not* track specific structural positions.
 - Anti-locality may be evaluated *only once* for a successive-cyclic movement chain.

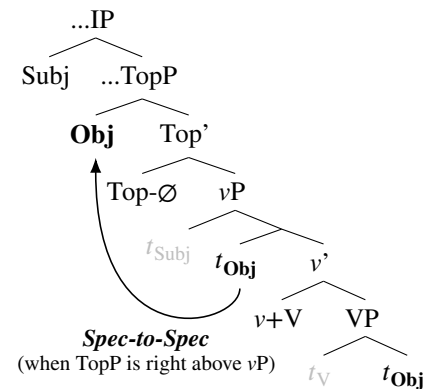
3.1 The requirement of crossing and the Principle of Minimal Compliance

- Problem under the POSITION-based view: Each of the **two** movement steps of topicalization violates a *different* kind of anti-locality (i.e., Comp-to-Spec and Spec-to-Spec). However, only **one** facilitator is needed to obviate the violations.
 - **Step I**: Obj moves from Comp, V to Spec, vP.⁷ → this violates **Comp-to-Spec** anti-locality (due to v-to-V head mvt, see (23)).
 - **Step II**: Obj moves from Spec, vP to Spec, TopP, → this violates **Spec-to-Spec** anti-locality, if TopP is adjacent to vP.

(21) a. *Step I*



b. *Step II*



- Not about positions: Why can compliance to Comp-to-Spec anti-locality ameliorate violation of Spec-to-Spec anti-locality? (vice versa)
- Not every movement step is evaluated: How can one facilitator ameliorate two violations?
- On an analytical level, we need ...
 - (i) a **unified** formulation of anti-locality *without* resorting to specific positions → The **CROSSING-based view**!
 - (ii) the anti-locality to be evaluated **only once** for the whole chain → The **Principle of Minimal Compliance**!
- Two main ingredients:
 - (i) **Crossing-based anti-locality**, which unifies Comp-to-Spec and Spec-to-Spec anti-locality, deeming it as *just* a requirement of crossing (Newman 2020);⁸
 - We also assume with Newman (2020) that head movement expands the anti-locality domain.

- (22) CROSSING-based anti-locality (Newman 2020:6)
- A moving constituent α must cross a constituent distinct from the closest X^0 that c-commands it;
 - Movement from a position α to a position β crosses a constituent γ iff γ asymmetrically c-commands α but not β .
- (23) Head movement expands the anti-locality domain (adapted from Newman 2020:21)
- If a head X moves to a head Y, and X was the closest element that c-commanded an object ZP, then Y is no longer distinct from X that c-commands ZP in the calculation of (22).

7. In internal topicalization, the object lands at an inner Spec, vP, below the subject trace, while in external topicalization, it lands at an outer Spec, vP, above the subject trace (Chen 2023). This distinction is irrelevant here, as traces do not count as facilitators, at least in Mandarin topicalization. Otherwise, the subject trace in Spec, vP should serve as a high facilitator in internal topicalization, contrary to fact.

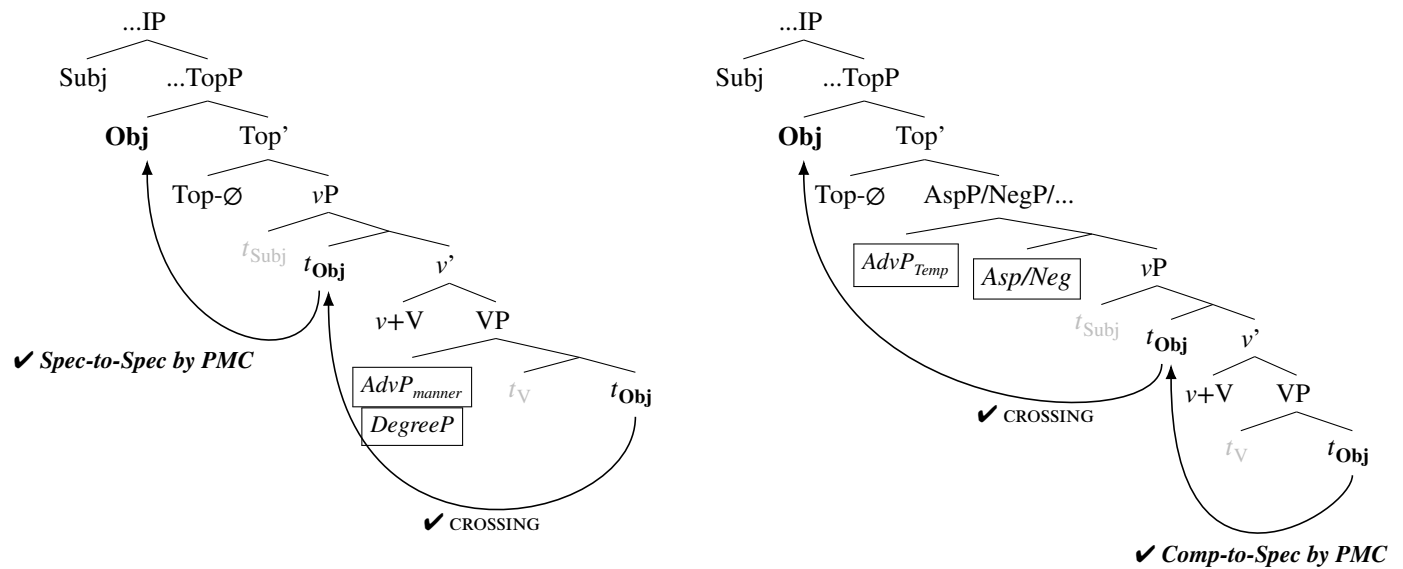
8. The notion “crossing” in (22b) is defined by c-command, which is different from that in Spec-to-Spec anti-locality with dominance (cf. Erlewine 2016, 2020).

- (ii) **The Principle of Minimal Compliance**, which, informally, suspends a constraint (for a given Goal) as long as it is satisfied once (with the given Goal). (Richards 1998)

(24) Principle of Minimal Compliance (Richards 1998:601)
 For any dependency D that obeys constraint C, any elements that are relevant for determining whether D obeys C can be ignored for the rest of the derivation for purposes of determining whether any other dependency D' obeys C.

- The PMC has been extremely successful in explaining obviation of locality constraints such as the Phase Impenetrability Condition (PIC), i.e., “phase-unlocking” (Rackowski and Richards 2005; van Urk and Richards 2015; Branan 2018; Halpert 2019; Carstens 2023; Lee and Yip 2024; *i.a.*)
 - We suggest that **the PMC applies to anti-locality** as well—to the best of our knowledge, this possibility is only explored in Toquero-Pérez (2022) (with a completely different implementation).⁹
- Deriving the facilitator effects in Mandarin topicalization
- * *Low facilitators*: In (25), the first movement step crosses a low facilitator (VP modifiers, e.g., manner adverb/degree modifier), thereby satisfying the CROSSING-based anti-locality in (22).
 - The second step from Spec, vP to Spec, TopP is exempted from anti-locality evaluation, by the PMC in (24).
 - * *High facilitators*: In (26), while the first movement step from Comp, V to Spec, vP) violates (22) ...
 - ... the second step crosses a high facilitator (e.g., Asp marker/temporal Adv/negation), thereby satisfying (22).
 - Since both movement steps share the same Goal (Obj), the PMC applies and the first movement step becomes licit.
 - In external topicalization, the second movement step from Spec, vP to Spec, TopP always crosses the subject in Spec, IP, which serves as a high facilitator.

(25) Low facilitators ameliorate Comp-to-Spec anti-locality (26) High facilitators ameliorate Spec-to-Spec anti-locality



9. Under Toquero-Pérez (2022, 171–175)’s revised version of the PMC in (i), as long as a head X has established an Agree relation with a Goal, the subsequent movement of the Goal to Spec, XP is not subject to anti-locality. He applies it to explain why subjects may move from Spec, vP to Spec, TP.

(i) If a head H with probes P_{[X], [Y]...} Agrees with a Goal G in a feature X, G is accessible to subsequent syntactic operations regardless of locality conditions with respect to probes on the same head H. (Toquero-Pérez 2022:171)

This implementation, however, departs from the original spirit of the PMC, where the same constraint only needs to be satisfied once (for a given Probe/Goal). Agree is not subject to anti-locality in the first place (because anti-locality only concerns movement). Under our implementation, since anti-locality is satisfied once for a movement step, other movement steps with the same Goal are “exempted” from anti-locality. We thus predict that agreement (which does not satisfy nor violate anti-locality) has no amelioration effects in topicalization. We leave further comparison of these two implementations of the PMC to future work.

3.2 Against one-fell-swoop movement

- Since one facilitator suffices, an intuitive alternative is to analyze topicalization as a *one-fell-swoop* movement.
→ Alternatives along this line, however, are *untenable* due to both empirical and theoretical problems.
- #1: Movement without landing on vP like (27) has three problems:

(27) One-fell-swoop object topicalization, ver.1 (to be rejected)

$$[_{IP} \text{Subj} \dots [_{TopP} \text{Obj}_i [_{Top'} \boxed{Top-\emptyset} \dots [_{vP} t_{Subj} [_{v'} v+V [_{VP} t_V _i] \dots$$

- **Problem #I:** Neither Comp-to-Spec nor Spec-to-Spec anti-locality is violated (Top head serves as the facilitator!).
→ One either should predict internal topicalization to be always licit, contrary to what we see in §2; or
→ One needs to reformulate an *ad-hoc* anti-locality constraint where movement must cross more than two heads.
- **Problem #II:** Clause-internal vP phase enforces successive-cyclic movement (Legate 2003; Aldridge 2008; van Urk 2015, 2018; cf. recent objections by Keine 2017; Thivierge 2021; Keine and Zeijlstra 2024; Halpert and Zeijlstra 2024; and revival by Pietraszko 2024).
- **Problem #III:** There is empirical evidence that the topicalized object did land on Spec, vP in the derivation (Chen 2023).
→ In (7), for the reflexive to be bound by the matrix subject locally, it must have landed at matrix Spec, vP1. (see more discussion in footnote 2)

- #2: Movement directly to vP or high facilitators like (28) circumvents Problem I, but still suffers from other problems.¹⁰

(28) One-fell-swoop object topicalization, ver.2 (to be rejected)
 a.
$$[_{IP} \text{Subj} \dots [_{vP} \text{Obj}_i t_{Subj} [_{v'} v+V \boxed{*(YP_{low-facilitator})} [_{VP} t_V _i] \dots$$
 (vP adjunction, low facilitators required)
 b.
$$[_{IP} \text{Subj} \dots [_{ZP} \text{Obj}_i \boxed{Z_{high-facilitator}} [_{vP} t_{Subj} [_{v'} v+V [_{VP} t_V _i] \dots$$
 (adjunction to high facilitators without passing vP)

- ✓ **Problem #I:** Movement to vP violates Comp-to-Spec antilocality, requiring a low facilitator (28a). High facilitator effects are captured by direct movement to Spec/adjunct of XP, crossing the high facilitator (28b).
- **Problem #II-III:** Yet, the derivation in (28b) still faces theoretical challenges from clause-internal vP phasehood, and empirical challenges from reconstruction for reflexive binding.
- **Problem #IV:** There is empirical evidence that topicalization targets a position *above* AspP (if present) and vP, see §2.

3.3 Comparison with Newman (2020)

- Newman (2020)'s motivating data for CROSSING anti-locality comes from facilitator effects in middles. For verbs like *cut* and *wash*, *either* a high or low facilitator is needed to form middles.¹¹

(29) a. *The bread cut. (Newman 2020:4,14)
 b. The bread cut easily/quickly/like molasses. ("facilitated" by low adverbs)
 c. The bread should/might/will/didn't cut. ("facilitated" by modals and negation)

- Newman proposes that middles have two movement steps: (i) from Comp, V to Spec, vP; (ii) from Spec, vP to Spec, TP
→ Similar problems with Mandarin topicalization: one facilitator ameliorates two steps?
- Newman's solution is to embed middles' internal argument in an XP, such that every movement step has a facilitator.
 - The step with a facilitator: pied-pipe the XP
 - The step without a facilitator: extraction from the XP → *X itself* is a facilitator

10. (28b) is a simplified derivation. To be precise, high facilitators may be indicative of a higher projection XP (e.g., IP; cf. C.-T. J. Huang 2022), and topicalization directly lands on XP without passing vP.

(i)
$$[_{IP} \text{Subj} \dots [_{XP} \text{Obj}_i \dots \boxed{high-facilitator} [_{vP} t_{Subj} [_{v'} v+V [_{VP} t_V _i] \dots$$
 (direct mvt. to Spec/adjunct of XP)

11. Newman (2020) also mentions three other cases: (i) verbs like *read* and *wear*, which require *low* facilitators; (ii) verbs like *steal* and *defeat*, which require *both* facilitators; (iii) verbs like *know* and *own*, which *cannot* form middles at all. There do not seem to be verbs that require high facilitators.

- She observes that *cai* is sometimes *optional*, and may be absent under two circumstances:

(i) When the landing site is before the subject (i.e., IP-external):

(34) *External focalization available without other facilitators (the subject serves as a facilitator)*

[**Zhiyou niurou**]_{F_i} Yuehan chi ____i.
 only beef John eat
 ‘Only BEEF does John eat’.

(Sun 2021:341)

(ii) Or, when the verb is not “bare”—with Asp markers, modals, negation, and/or quantification adverbs, as in (35a).

→ We add VP-level adjuncts such as manner adverbs and DegreeP in (35b):

(35) a. *Internal focalization available with high facilitators*

Yuehan [**zhiyou niurou**]_{F_i} {chi-guo/ hui chi/ mei chi/ jingchang chi} ____i.
 John only beef eat-EXP will eat NEG.PFV eat often eat
 ‘Only BEEF {did John eat /will John eat/did John not eat/does John often eat}.’

(Sun 2021:341)

b. *Internal focalization available with low facilitators*

Yuehan [**zhiyou niurou**]_{F_i} {yong-shou chi/ chi-de hen-kuai} ____i.
 John only beef use-hand eat eat-DE very-fast
 Lit.: ‘John, only BEEF, eats {using hands/ fast}.’

→ Sun (2021, 341) however admits that “it is not immediately clear” why *cai* is obligatory in (33b).¹²

- An anti-locality explanation: Equipped with anti-locality, it is immediately clear why *cai* is obligatory in (33b)!

– *Cai* ‘just’ is just another high facilitator

– Focalization patterns with topicalization: both require either high facilitators (=34/35a) or low facilitators (=35b)

→ Elements not on the movement path cannot serve as facilitators, as in (36) (i.e., “bareness” of the verbs doesn’t matter)

(36) *Internal focalization fails with non-facilitators*

a. *Henduo-ren [**zhiyou Lisi**]_{F_i} ma-de ____i [_{ResultP} de PRO_i da ku].¹³ (finite clauses)
 many-people only Lisi scold-DE loudly cry
 Int.: ‘Many people scolded only Lisi as a result of which (he) cried loudly.’

b. *Wo bipo Zhangsan [[**zhiyou Lisi**]_{F_i} ma-de ____i [_{ResultP} de PRO_i da ku]]. (non-finite clauses)
 1SG force Zhangsan only Lisi scold-DE loudly cry
 Int.: ‘I forced Zhangsan to scold only Lisi as a result of which (he) would cry loudly.’

- We propose that the above facilitator effects are a result of CROSSING **anti-locality modulo** the **PMC**.

→ Since *cai* is just one of the many facilitators, the exclusive focus should *not* move to *cai*P (*contra*. Hole 2017).

→ We follow Sun (2021) in assuming the focus to move to FocP. Further, we suggest that FocP*, like TopP, may project at any site higher than AspP.

(37) Deriving the facilitator effects in Mandarin focalization

a. *_{[IP Subj [_{FocP} **zhiyou-XP**]_{F_i} [_{Foc} Foc-Ø]_[ONLY] [_{VP} *t*_{Subj}]_i [_V v+V [_{VP} *t*_V]_i ...} (No facilitators)
 ↑ **✗** CROSSING (Spec-to-Spec) | **✗** CROSSING (Comp-to-Spec)

b. [_{[IP Subj [_{FocP} **zhiyou-XP**]_{F_i} [_{Foc} Foc-Ø]_[ONLY] [_{VP} *t*_{Subj}]_i [_V v+V [_{VP} Adv_{manner}/DegreeP] *t*_V]_i ...} (low facilitators)
 ↑ **✓** Spec-to-Spec by PMC | **✓** CROSSING

c. [_{[IP Subj [_{FocP} **zhiyou-XP**]_{F_i} [_{Foc} Foc-Ø]_[ONLY] [**cai**/Asp/Mod/Neg/Adv] [_{VP} *t*_{Subj}]_i [_V v+V [_{VP} *t*_V]_i ...} (high facilitators)
 ↑ **✓** CROSSING | **✓** Comp-to-Spec by PMC

- CROSSING anti-locality + PMC regulates multiple movement dependencies in Mandarin

→ The debate on focalization can be settled

→ We should pay more attention to the effects of anti-locality!

12. Though, Sun (2021, 341n12) relates it to the incompleteness effects (Tang and Lee 2000; Sun 2022).

13. Here, the quantifier subject, *henduo-ren* ‘many people’, resists topicalization; hence, this sentence cannot have a derivation where (i) the object undergoes IP-external topicalization, crossing the subject (which serves as a high facilitator), and (ii) the subject undergoes further topicalization to precede the object. See 6 for more discussion.

5 Concluding remarks

- ★ We have argued that facilitator effects in Mandarin movement dependencies support a *unified CROSSING-based view of anti-locality*, conditioned by the *Principle of Minimal Compliance*.
- **First**, we offered novel evidence where (i) topicalization and (ii) focalization in Mandarin violates both Comp-to-Spec and Spec-to-Spec anti-locality, but one facilitator is enough for amelioration.
→ Additional support for the CROSSING-based anti-locality (Newman 2020)!
 - **Second**, we proposed that the Principle of Minimal Compliance (Richards 1998) not only applies to locality constraints but also to *anti-locality* constraints.
→ Enabling anti-locality to be *evaluated only once* for a movement chain.
→ The PMC is general to (anti-)locality restrictions.
 - **Third**, we demonstrated how resorting to anti-locality *resolves long-standing puzzles* in the literature on Mandarin.
→ Mandarin (IP-)internal topicalization is *not* a test of finiteness, nor TP clause size (*pace* C.-T. J. Huang 1982, 1989; Y.-H. A. Li 1990; T.-C. Tang 2000; Lin 2011, 2012, 2015; Grano 2012, 2015).
→ Focalization with adfocal *zhiyou* ‘only’ lands on FocP, not a scalar *caiP* (supporting Sun 2021; *pace* Hole 2017).

6 Appendices

6.1 Verum focus

- In the presence of verum focus, no other (overt) facilitators seem to be required:

- (38) a. Lisi **kafei** HE __, **naicha** BU he __.
Lisi coffee drink milk.tea NEG drink
‘Lisi, coffee, drinks; milk tea, doesn’t drink.’
- b. Zhangsan dasuan **zhe-jian** shi DIAOCHA __, **na-jian** shi BU diaocha __.
Zhangsan plan this-CL matter investigate that-CL matter NEG investigate
‘Zhangsan plans to, this matter, investigate; that matter, not (to) investigate.’

- We suggest that there is indeed a high facilitator, Pol(P), which is null in the affirmative sentences [+Pol] but overt in the negative sentences as *bu* ‘not’ [-Pol].

- (39) $[_{IP} \text{Subj } [_{\text{TOPP}} \text{Obj}_i] [_{\text{TOP}} \text{Top-}\emptyset] [_{\text{POLP}} \text{Pol-}\emptyset_{[+Pol]}/\text{bu}_{[-Pol]}] [_{\text{VP}} \text{t}_{\text{Subj}} \text{ } _i] [_{\text{V}} \text{v+V}] [_{\text{VP}} \text{t}_{\text{V}} \text{ } _i] \dots$ (high facilitators)
- ↑
✓ CROSSING
✓ Comp-to-Spec by PMC

- Evidence comes from (40): when the polarity is on a modal higher than the topicalization landing site, it cannot serve as a facilitator.

- (40) *Lisi HUI **kafei** he __, BU-hui **naicha** he __.
Lisi will coffee drink NEG-will milk.tea drink
Int.: ‘Lisi will drink coffee; won’t drink milk tea.’

- Note that focus does not always amount to such a null facilitator. If the focus is on the object itself, topicalization remains unavailable without other facilitators, such as the contrastive focus in (41).¹⁴

- (41) *Context: Does Lisi drink tea?*
*Lisi **KEFEI** he __, bu-shi **naicha**.
Lisi coffee drink NEG-COP milk.tea
‘Lisi, COFFEE, drinks; not milk tea.’

14. Contrastive focus on both the focus and the verb, however, makes other facilitators not necessary (Mitcho Erlewine p.c.).

- (i) Zhangsan dasuan **zhe-jian** shi DIAOCHA __, **na-jian** shi FANGQI __.
Zhangsan plan this-CL matter investigate that-CL matter give.up
‘Zhangsan plans to, this matter, investigate; that matter, give up.’

It seems that “parallel structures” often recuse cases of otherwise unavailable topicalization, even in the case of additive focus. We leave this issue to future research.

- (ii) a. *Lisi **kafei** he __, haiyou **naicha**.
Lisi coffee drink also milk.tea
Int.: ‘Lisi, coffee, drinks; as well as milk tea.’
- b. Lisi **kafei** he __, **naicha** ye he.
Lisi coffee drink milk.tea also drink
‘Lisi, COFFEE, drinks; milk tea also drinks.’

6.2 Topichood vs. subjecthood

- Apparent counterexample? In (matrix) finite clauses, very often IP-internal topicalization/focalization is possible even without an obvious facilitator, e.g., (42).
→ Alternative derivation: We suggest that such apparent counterexamples have an alternative derivation where (i) the embedded object undergoes IP-external topicalization to precede the matrix subject, and (ii) the matrix subject undergoes further topicalization to precede the embedded object.¹⁵
- Quantifier subjects: As expected, ungrammaticality (due to the lack of facilitators) are observed in (43).
→ This is because the alternative derivation is not possible with these quantifier subjects that resist topicalization.

<p>(42) <i>Apparent lack of facilitator effects</i></p> <p>a. Lisi kafei (bu) he ma? Lisi coffee NEG drink Q Lit. ‘Does Lisi, coffee, (not) drink (it)?’</p> <p>b. Wo daishu (bu) xihuan. 1.SG algebra NEG like Lit. ‘I, algebra, (not) like (it).’</p> <p>c. Wo zhiyou daishu (bu) xihuan. 1.SG only algebra NEG like Lit. ‘I, only algebra, (not) like it.’</p>	<p>(43) <i>Reappearance of facilitator effects</i></p> <p>a. {Meiyou-ren/ (You) henduo-ren} kafei *(bu) he ma? no-person have many-people coffee NEG drink Q Lit. ‘Does no one/ Do many people, coffee, *(not) drink (it)?’</p> <p>b. {Meiyou-ren/ (You) henduo-ren} daishu *(bu) xihuan. no-person have many-people algebra NEG like Lit. ‘No one/ many people, algebra, *(not) like(s) (it).’</p> <p>c. {Meiyou-ren/ (You) henduo-ren} zhiyou daishu *(bu) xihuan. no-person have many-people only algebra NEG like Lit. ‘No one/ many people, only algebra, *(not) like(s) (it).’</p>
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6.3 PMC on other anti-locality cases

- Open questions: What else follows from the PMC?
- Complementizer-trace effects (i.e., *that*-trace effects) are often analyzed with anti-locality: movement from Spec, TP to Spec, CP involves Spec-to-Spec violations (Bošković 2016; Amaechi and Georgi 2019; Erlewine 2020; Toquero-Pérez 2022).

(44) [CP₁ **Who**_i did she say [CP₂ _i that *(tomorrow) [TP _i would regret his words]? (adapted from Erlewine 2020:6)

- However, quite a few languages/dialects do not have Comp-trace effects: apart from Romance languages, varieties of Dutch, English, German, and Norwegian (Pesetsky 2017), which are *counter-examples* to anti-locality
- If we assume the evaluation domain of PMC may vary,
→ Domain = Root node: *no* Comp-trace effects, movement to matrix CP always has facilitators
→ Domain = CP phase: Comp-trace effects
- Further work is needed, but introducing PMC to the domain of anti-locality opens up a number of possibilities!

15. There seem to be factors beyond anti-locality that determine whether internal topicalization is possible, such as the number of syllables of the verb. Tsao (1989) observe a contrast between monosyllabic and disyllabic verbs in ((i)):

<p>(i) a. *Wo daishu ai ____. 1SG algebra love Int.: ‘I love algebra.’</p>	<p>b. Wo daishu xihuan ____. 1SG algebra like ‘I like algebra.’</p>	<p>(Tsao 1989:171)</p>
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We suggest that the unnaturalness of ((i)a) is due to an independent prosodic constraint. In Mandarin, the rightmost phrase receives nuclear stress (Feng 2019). Following Feng’s idea that prosodic weight is measured by the number of syllables, we suggest that a monosyllabic verb is too “light” to carry nuclear stress, and thus the unnaturalness of (i)a. In contrast, (i)b is available because of satisfaction of this constraint, as well as subject topichood (which allows post-subject topics to be IP-external) as we have seen in (42)-(43).

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