Height Matters: VP-Movement in Mandarin Chinese and the Williams Cycle

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§1 Overview. Mandarin Chinese has VP-movement to two positions in the clausal spine, peripheral or internal to the clause. Both kinds of VP-movement leave a copy of the verb in the base position, resulting in verb doubling. Crucially, we show that cross-clausal VP-movement to the lower, clause-internal position is possible out of a limited class of complement clauses, unlike VP-movement to the periphery. These movement restrictions motivate the Williams Cycle (e.g. Williams 2003, 2011; Poole 2022; Meadows 2024), and extend to VP-movement across multiple levels of embedding.

§2 Cross-Clausal Verb Doubling. In Mandarin two identical verbs can co-occur in one sentence, giving rise to *verb doubling* effects (Li and Thompson 1981; Tai 1999, Cheng 2007). Previous literature focuses on such phenomena within root clauses, where the doubled verb (phrase) can occur in either a clause-medial position (Cheng 2007; Lai 2021) or a clause-initial one (Meadows and Yan 2023). Little attention has been paid to cross-clausal verb doubling, like (1). Rather than appearing in the complement to *chángshì* 'try', the doubled VP *kàn nà-běn xiǎoshuō* 'read the novel' can surface in the matrix clause, either following the subject (1a) or preceding it (1b).

(1) a. Wassily **kàn nà-běn xiǎoshuō** chángshì [$_{FP}$ kàn ~~nà-běn~~ ~~xiǎoshuō~~ de hěn kuài.]
Wassily read that-CL novel try read that-CL novel DE very quickly
'Wassily tries to read the novel very quickly.' *'try'+low VP-mvt* ✓

b. **Kàn nà-běn xiǎoshuō** Wassily chángshì [$_{FP}$ kàn ~~nà-běn~~ ~~xiǎoshuō~~ de hěn kuài.]
read that-CL novel Wassily try read that-CL novel DE very quickly
'As for reading the novel, Wassily tries to read it quickly.' *'try'+high VP-mvt* ✓

We treat verb doubling as VP-movement plus partial deletion of lower VP-copy. VP-movement lands at [Spec,CP] in (1b) or [Spec,FP] (a proposed functional projection between TP and VoiceP) in (1a) (cf. Paul 2002; Lai 2021). We refer to these landing sites as high or low VP-movement, as schematised in (2). Identity effects between the doubled verbs (Lai 2021) and island/reconstruction effects (Meadows and Yan 2023) support this movement analysis. These restrictions cannot be accounted for adequately by base-generation approaches (cf. Tang 1990; Paul 2002; Bartos 2019).

(2) [$_{CP}$ [**VP**$_{High}$] [$_{TP}$ [DP$_{Subj}$] … [$_{FP}$ [**VP**$_{Low}$] [$_{VoiceP}$ [[$_{VP}$ V ~~DP~~$_{Obj}$] *de* AdvP]]]]]

§3 Improper Verb Doubling. The two positions for verb doubling differ as a landing sites for long-distance extraction. High VP-movement is generally permitted, but low VP-movement is highly restricted. The contrast does not appear in (1) where the matrix verb is *chángshì*, but it is apparent with two further groups of predicates. In (3), the matrix verb *rènwéi* 'think' does not permit verb doubling in the matrix clause-medial position (3a); unlike verb doubling in the matrix peripheral position (3b). This contrast also holds in (4) where the embedding verb is *qiǎngpò* 'force'.

(3) a.*Wassily **kàn nà-běn xiǎoshuō** rènwéi [$_{CP}$ Piet kàn de hěn kuài.]
Wassily read that-CL novel think Piet read DE very quickly
'Wassily thinks that Piet reads the novel very quickly.' *'think'+low VP-mvt* ✗

b. **Kàn nà-běn xiǎoshuō** Wassily rènwéi [$_{CP}$ Piet kàn de hěn kuài.]
read that-CL novel Wassily think Piet read DE very quickly
'As for reading the novel, Wassily thinks Piet reads it quickly.' *'think'+high VP-mvt* ✓

(4) a.*Wassily **kàn nà-běn xiǎoshuō** qiǎngpò [$_{TP}$ Piet kàn de hěn kuài.]
Wassily read that-CL novel force Piet read DE very quickly
'Wassily forces Piet to read the novel very quickly.' *'force'+low VP-mvt* ✗

b. **Kàn nà-běn xiǎoshuō** Wassily qiǎngpò [$_{TP}$ Piet kàn de hěn kuài.]
read that-CL novel Wassily force Piet read DE very quickly
'As for reading the novel, Wassily forces Piet to read it quickly.' *'force'+high VP-mvt* ✓

We propose that these verbs represent three groups of embedding predicates in Mandarin, which

take different *sizes* of complement clause, as summarised in (5) (see also Grano 2015; Huang 2022).

(5)

	High VP-Mvt	**Low VP-Mvt**	**Similar Predicates**
Group 1: 'think'+[$_{CP}$ . . .]	✓	✗	*juéde* 'feel', *zhīdào* 'know'
Group 2: 'force'+[$_{TP}$ . . .]	✓	✗	*bī(pò)* 'force', *yǐnyòu* 'lure'
Group 3: 'try'+[$_{FP}$ . . .]	✓	✓	*dǎsuan* 'intend', *jìhuà* 'plan'

Support for these clause-structure distinctions comes from *object shift* (Shyu 1995; Chen 2023). The moved object can occur either before or after the embedded subject (6). Following Chen (2023), we regard these positions as specifiers of topic phrases either above or below the TP. That both projections are available in Group 1 complements follows our assumption that they are CP-sized.

(6) Wassily rènwéi [$_{CP}$ **<nà-běn xiǎoshuō>** Piet **<nà-běn xiǎoshuō>** kàn de hěn kuài].
Wassily think that-CL novel Piet that-CL novel read DE very quickly
'Wassily thinks that Piet reads THAT NOVEL quickly.'

By contrast, as shown in (7), only TP-internal topicalisation is permitted within the Group 2 complements, suggesting that they can only be built as big as TP. Furthermore, the same topicalisation is prohibited within the Group 3 complements, suggesting that they are built smaller than TP.

(7)

	TP-External Topic	**TP-Internal Topic**	**Clause Size**
Group 1 comp. clauses	✓	✓	CP-sized
Group 2 comp. clauses	✗	✓	TP-sized
Group 3 comp. clauses	**N/A**	✗	FP-sized

§4 The Williams Cycle. The restriction on VP-movement follows from the GENERALISED BAN ON IMPROPER MOVEMENT (8) (Williams 2003, 2011). The GBOIM prevents movement landing in a position lower in the clausal functional sequence (*fseq*) than the edge of clause being extracted from. Movement to higher positions in the *fseq* is 'more unbounded' than movement to lower ones.

(8) **GBOIM** (Williams 2003, 2011; Poole 2022; Meadows 2024): Movement to [Spec,XP] cannot proceed from [Spec,YP] or across YP, where Y is higher than X in the functional sequence.

The GBOIM highly constrains cross-clausal VP-movement to the lower position [Spec,FP], because FP is lower in the *fseq* than the top category of several complement clause types. Cross-clausal VP-movement to [Spec,CP] is less restricted because no complements are bigger than CP.

(9) a.*[$_{CP}$ [$_{TP}$ [$_{FP}$ **VP** [$_{VoiceP}$ . . . [$_{CP/TP}$ . . . **t** . . .]]]]] *forbidden low VP-mvt in Group 1 & 2 in (5)*
b. [$_{CP}$ [$_{TP}$ [$_{FP}$ **VP** [$_{VoiceP}$ . . . [$_{FP}$ . . . **t** . . .]]]]] *permitted low VP-mvt in Group 3 in (5)*

There are several proposals to derive the GBOIM from more fundamental ingredients. These include conditions on Agree (Keine 2019, 2020), the timing of clausal embedding and movement (Williams 2003, 2011; Poole 2022; Meadows 2024), or conditions on Merge (Müller 2014). All of them capture the pattern in (5): varying the final landing's location affects the locality of movement.

§5 Predictions and Extensions. We predict that the same contrast between the high/low VP-movement should hold across multiply-embedded clauses. If a Group 1 or 2 predicate is embedded under a Group 3 one, the low VP-movement from the CP/TP-sized complement clause to [Spec,FP] would be restricted (10a). However, if a Group 3 predicate is embedded under another Group 3, we do not expect the restriction since the clauses are the same size (10b). This is borne out empirically.

(10) a.*. . . [$_{FP}$ **VP** [$_{VoiceP}$ GROUP 3 [$_{FP}$ GROUP 1/2 [$_{CP/TP}$ . . . **t** . . .]]]]
b. . . . [$_{FP}$ **VP** [$_{VoiceP}$ GROUP 3 [$_{FP}$ GROUP 3 [$_{FP}$ . . . **t** . . .]]]]

We will show that cross-clausal TP-internal object shift is restricted like clause-medial VP-movement: impossible out of Group 1 complements. The GBOIM thus affects *both* VP and DP movement.

Selected References: Cheng, L. L.-S. 2007. Verb copying in Mandarin Chinese. **Grano, T.** 2015. *Control and Restructuring.* **Lai, Y. K.** 2021. The nature of the postverbal field in Mandarin Chinese. UChicago Diss. **Meadows, T & Yan, Q. C.** 2023. Verb doubling in Mandarin Chinese as PF-driven lower copy pronunciation. Proceedings of SICOGG24. **Paul, W.** 2002. Proxy categories in Phrase Structure Theory and the Chinese VP. CLAO. **Poole, E.** 2022. Improper case. NLLT. **Tai, J. H.-Y.** 1999. Verb copying in Chinese revisited. CLL. **Williams, E.** 2003. *Representation Theory*