Improper Verb Doubling in Mandarin Chinese and Its Implications*

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1 Introduction

- The theory of movement in Transformational-Generative linguistics is largely formulated on the basis of properties of nominal phrases.
  - For instance, as to the the characteristics of A versus Ā-movement, Travis and Massam (2021) claim :

  "…it is the movement of *dependents* of the predicate that receive the most attention (we will refer to this sort of movement as *limb movement*), while movement of the predicate and its projections are largely ignored (we will refer to this sort of movement as *spinal movement*)."
- In this talk, I will show that spinal movement makes (at least) the same contributions to our understanding of displacement in natural languages as limb movement does.
  - To be specific, I focus on *verb doubling* (or *verb copy construction*) in Mandarin Chinese (Li and Thompson, 1981; Tai, 1999; Cheng, 2017), which I analyse as a type of spinal movement.
  - Different from previous work, I investigate movement patterns of verb doubling in bi-clausal contexts.
- The majority of the relevant literature only concern verb doubling effects in mono-clausal constructions.
  - (1) illustrates both cases where verb doubling effects are attested in either a clause-medial/post-subject position (1a) or a clause-initial/pre-subject one (1b).
  - For convenience sake, I treat the distinction as VP-fronting to a lower or higher position in the clause (henceforth VP-L(ow)F(ronting) or H(igh)F(ronting)) throughout the talk.

(1) a. Piet **kàn nà-běn xiǎoshuō** kàn de hěn kuài.
Piet read that-CL novel read DE very quickly
'Piet reads the novel quickly.' **(VP-)LF within the root clause**

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b. **Kàn nà-běn xiǎoshuō** Piet kàn de hěn kuài.
read that-CL novel Piet read DE very quickly
'As for reading the novel, Piet reads it quickly.' **(VP-)HF within the root clause**

- A lot of discussion centre around the derivation of verb doubling constructions.
  - ▷ Non-movement approaches include base-generation (Tang, 1990; Paul, 2002; Hsu, 2008, 2013; Bartos, 2019), adjunction (Huang, 1982), and coordination (Fang and Sells, 2007).
  - ▷ By contrast, movement approaches differ in the nuances of movement type adopted therein (Gouguet, 2006; Cheng, 2007; Yu, 2017; Lai, 2021; Meadows and Yan, 2023, to appear).
- Another key problem is concerned with multiple spell-outs of verb phrases.
  - ▷ All relevant studies evoke some constraint or requirement at PF to derive the doubling effects.
  - ▷ See, e.g., Cheng (2007); Lai (2021); Yin (2022); Meadows and Yan (2023, to appear), among many others, for discussion in detail.

► As far as I know, very little attention has been paid to cross-clausal verb doubling.

- Examples are given in (2), where the matrix predicate *xiǎngyào* 'want' takes a clause-like complement.
- The VP *kàn nà-běn xiǎoshuō* 'read the novel', which gives rise to the doubling effect with the identical predicate in the complement clause, ends up in the matrix clause-medial position (2a) and the matrix clause-initial one (2b), unlike what we have seen in (1).

(2) a. Piet **kàn nà-běn xiǎoshuō** xiǎngyào [kàn de hěn kuài].
Piet read that-CL novel want read DE very quickly
'Wassily wants to read the novel quickly.' **(VP-)LF to the matrix clause**

b. **Kàn nà-běn xiǎoshuō** Piet xiǎngyào [kàn de hěn kuài].
read that-CL novel Piet want read DE very quickly
'As for reading the novel, Wassily wants to read it quickly.' **(VP-)HF to the matrix clause**

- However, it is not always the case that the doubled VP can freely enter the matrix clause: high fronting to the matrix peripheral position is generally permitted, but low fronting to the matrix clause-medial position is highly restricted by the choice of embedding predicates.
- I term those ungrammatical cross-clausal patterns *improper verb doubling*, since they are reminiscent of improper movement in the Chomskyan sense (1973; 1977; 1981) (also see May, 1979; Müller, 1995; Müller and Sternefeld, 1993; Abels, 2007, 2009, 2012a,b, among many others).

► I argue that improper verb doubling can be accounted for adequately if we adopt the following ideas that

(i) the embedding predicates in Mandarin Chinese take complement clauses with different sizes (Grano, 2012, 2015, 2017), as with other languages (Wurmbrand, 1998, 2001; Cinque, 2004, 2006);

(ii) verb doubling effects in general derive from phrasal movement regardless of clausal construction (Meadows and Yan, 2023, to appear), but differ in their landing sites along the clausal spine (in the sense of Starke, 2001);

(iii) phrasal movement is subject to the GENERALISED BAN ON IMPROPER MOVEMENT (GBOIM) (Poole, 2022), i.e., the *Williams Cycle* (Williams, 1974, 2003, 2011).

TODAY'S ROADMAP

- Section 2 demonstrates the full paradigm of verb doubling effects in bi-clausal contexts, and offers empirical evidence for the varying size of embedded clauses.
- Section 3 argues for the phrasal movement approach to verb doubling in Mandarin Chinese.
- Section 4 illustrates how the Williams Cycle-approach can account for improper verb doubling.
- Section 5 shows a prediction with respect to verb doubling across multiple levels of embedding on the basis of GBOIM.

2 Cross-Clausal Verb Doubling

► In this section, I display distinct patterns of verb doubling in bi-clausal constructions, justifying what I mean by improper verb doubling.

- According to their syntactic behaviours, the embedding predicates are first classified into three groups.
- I argue that these groups of embedding predicates vary in the size of complement clauses they take.

2.1 Full paradigm of improper verb doubling

► The first group of embedding predicates is represented by *rènwéi* 'think' in (3).

- When verb doubling occurs in the embedded clause taken as complement by *rènwéi*, the doubled VP is able to show up in either the clause-medial position (3a) or the clause-initial one (3b).
- The contrast arises once the doubled VP enters the matrix clause, where it cannot stay in the post-subject position (3c). Verb doubling in the matrix left periphery is still available. (3d).
- Other embedding predicates that give rise to identical patterns include *shuō* 'say', *zhīdào* 'know', etc.

(3) a. Wassily rènwéi [Piet **kàn nà-běn xiǎoshuō** kàn de hěn kuài].
Wassily think Piet read that-CL novel read DE very quickly
'Wassily thinks that Piet reads the novel quickly.' **'think' + embedded LF ✓**

b. Wassily rènwéi [**kàn nà-běn xiǎoshuō** Piet kàn de hěn kuài].
Wassily think read that-CL novel Piet read DE very quickly
'Wassily thinks, as for reading the novel, Piet reads it quickly.' **'think' + embedded HF ✓**

c. *Wassily **kàn nà-běn xiǎoshuō** rènwéi [Piet kàn de hěn kuài].
Wassily read that-CL novel think Piet read DE very quickly
'Wassily thinks that Piet reads the novel quickly.' **'think' + matrix LF ✗**

d. **Kàn nà-běn xiǎoshuō** Wassily rènwéi [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' + matrix HF ✓**

► The representative of the second group of embedding predicates is *qiǎngpò* 'force' in (4).

- Contrary to we have seen in (3a) and (3b), the clausal complements taken by *qiǎngpò* demonstrate the distinction with respect to verb doubling: though it is still possible to front the doubled VP clause-medially (4a), it is impossible to have the same constituent clause-initially (4b).
- As with (3c) and (3d), the contrast still holds in the matrix 'force'-clause. That is, the doubled VP cannot be sandwiched between the matrix subject and the embedding predicate (4c), whereas it is not prevented from ending up in the matrix left periphery (4d).
- This group of embedding predicates consists of *mìnglìng* 'mandate', *yāoqiú* 'require', and so on.

(4) a. Wassily qiǎngpò [Piet **kàn nà-běn xiǎoshuō** kàn de hěn kuài].
Wassily force Piet read that-CL novel read DE very quickly
'Wassily forces Piet to read the novel quickly.' **'force' + embedded LF ✓**

b. *Wassily qiǎngpò [**kàn nà-běn xiǎoshuō** Piet kàn de hěn kuài].
Wassily force read that-CL novel Piet read DE very quickly
'As for reading the novel, Wassily forces Piet to read it quickly.' **'force' + embedded HF ✗**

c. *Wassily **kàn nà-běn xiǎoshuō** qiǎngpò [Piet kàn de hěn kuài].
Wassily read that-CL novel force Piet read DE very quickly
'Wassily forces Piet to read the novel quickly.' **'force' + matrix LF ✗**

d. **Kàn nà-běn xiǎoshuō** Wassily qiǎngpò [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' + matrix HF ✓**

► As given in (5), *xiǎngyào* 'want' stands for the third group of embedding predicates.

- The embedded clause taken as complement by *xiǎngyào* displays an evident characteristic that it contains one and only available position for hosting the doubled VP (5a) due to the absence of an overt embedded subject.
- Another interesting characteristic of *xiǎngyào* is that its embedding clause allows verb doubling to occur in both the clause-medial (5b) and clause-initial (5c) positions.
- Other members of the same type of embedding predicates are, for instance, *kāishǐ* 'begin', *shèfǎ* 'try', among many others.

(5) a. Wassily xiǎngyào [**kàn nà-běn xiǎoshuō** kàn de hěn kuài].
Wassily want read that-CL novel read DE very quickly
'Wassily wants to read the novel quickly.' **'want' + embedded H/LF ✓**

b. Wassily **kàn nà-běn xiǎoshuō** xiǎngyào [kàn de hěn kuài].
Wassily read that-CL novel want read DE very quickly
'Wassily wants to read the novel quickly.' **'want' + matrix LF ✓**

c. **Kàn nà-běn xiǎoshuō** Wassily xiǎngyào [kàn de hěn kuài].
read that-CL novel Wassily want read DE very quickly
'As for reading the novel, Wassily wants to read it quickly.' **'want' + matrix HF ✓**

2.2 Sizes of embedded clauses

► To capture the differences in clausal behaviour above (i.e., improper verb doubling), I make an important use of the idea that such differences in fact reflect differences in clause size.

- In Mandarin Chinese, this idea has been proposed and discussed in Xue and McFetridge (1996, 1998), Grano (2012, 2015, 2017), and Huang (2022) (cf. N. Huang, 2018).
- Such an idea has also been pursued and developed cross-linguistically. See, e.g., Aissen and Perlmutter (1976), Rizzi (1978), Wurmbrand (1998, 2001), Cinque (2004, 2006), among many others.
- Note that some discussion on clause size overlap finiteness and/or tense of clauses in the Mandarin literature. Since these topics are orthogonal to the focus in this talk, I will not touch on them in the following discussion. See, e.g., Lin (2011, 2015), Grano (2017), Huang (2022), and references therein.

2.2.1 FP-sized embedded clauses

► Let's start off with the third type of embedding predicates, i.e., *xiǎngyào* 'want' as seen in (5).

- The absence of an overt embedded subject implies that the embedded clause taken by *xiǎngyào*, in principle, can be smaller than those taken by other predicates.
- Meanwhile, the matrix subject is interpreted as some theta-role assigned by the embedded predicate, suggesting that a null element, such as PRO, needs to exist in the embedded clause to establish such an interpretation.
- I first postulate that the embedded clause taken by *xiǎngyào* contains at least a VoiceP, and that the subject-controlled PRO is base-generated in Spec,VoiceP (Kratzer, 1996).
- I further postulate that verb doubling is a consequence of VP-movement to a higher Spec position along the extended projection (in the sense of Grimshaw (1991, 2000, 2005)).
- Verb doubling in (5a) indicates that the embedded clause taken by *xiǎngyào* has to be bigger than VoiceP. In this case, I simply posit that the doubled VP moves to the specifier position of F(unctional)P, which is higher than VoiceP but lower than TP in terms of hierarchy, in line with van Urk (2022).
- The structure of (5a) is briefly illustrated in (6).

(6) ... xiǎngyào [$_{\text{FP}}$ VP_1 [F [$_{\text{VoiceP}}$ PRO_{subj} [Voice VP_2]]]]

► With the structure (6) in mind, it is worth paying attention to the contrast in (7).

- In (7a), a co-referential pronoun is unable to show up in the embedded clause of *xiǎngyào*. Assuming that Spec,TP hosts the surface subject in Mandarin Chinese (as with in English)[1], the situation in (7a) can be directly ruled out since FP is posited to be smaller than TP. That is, there is no available position in the embedded clause to host an overt subject.
- However, if we apply the same idea to (7b), then such a case cannot be accounted for properly, where the non-co-referential pronoun in the embedded clause is able to co-occur with the matrix subject. As I will argue soon, *xiǎngyào* in (7b) in fact belongs to the second type of embedded predicates, as with *qiǎngpò* 'force'. This can be borne out by testing all the patterns of verb doubling in such a construction, which I will not show here for the sake of space. The main point then is that the size of the complement clause in (7b) is actually bigger than FP, rendering the occurrence of the embedded subject possible.

(7) a. *Wassily$_i$ xiǎngyào [*tā$_i$* **kàn nà-běn xiǎoshuō** kàn de hěn kuài].
Wassily want 3SG read that-CL novel read DE very quickly
'Wassily wants to read the novel quickly.'

[1] The position of subject in Mandarin Chinese has some controversies. See Lin (2011) and discussion therein.

b. Wassily$_i$ xiǎngyào [*tā*$_j$ **kàn nà-běn xiǎoshuō** kàn de hěn kuài].
Wassily want 3SG read that-CL novel read DE very quickly
'Wassily$_i$ wants him$_j$ to read the novel quickly.'

► There are two pieces of further evidence demonstrating that the FP-sized embedded clause taken by *xiǎngyào* is smaller than TP.

- As shown in (8a), the embedded clause cannot contain a duration/frequency verb doubling construction with a tense/aspect marker, such as *le* or *guò*. Given that the embedded clause is FP-sized, it is not surprising that a marker of the TP/AspP-sized clause cannot show up within it.
- As shown in (7b), *qíshí* 'in fact', which is regarded as a sentence-level adverb in Mandarin Chinese (Ernst, 2014; Paul, 2017), is unable to modify the FP-sized embedded clause. The result is expectable, as the size of the embedded clause is not as big as full-fledged, CP-sized sentences.

(8) a. Wassily xiǎngyào [**kàn nà-běn xiǎoshuō** kàn (**le*) sān tiān].
Wassily want read that-CL novel read PFV three days
'Wassily wanted to read the novel for three days.'

b. Wassily xiǎngyào [(**qíshí*) **kàn nà-běn xiǎoshuō** kàn de hěn kuài].
Wassily want in.fact read that-CL novel read DE very quickly
'Wassily wanted to read the novel quickly (in fact).'

2.2.2 TP-sized embedded clauses

► Let's move on to the second type of embedding predicates, i.e., *qiǎngpò* 'force' as given in (4), and the size of complement clauses they take.

- Following the argumentation in the last subsection, I regard the appearance of the embedded subject as the sign of TP contained in the clausal spine.
- Therefore, I give (4a) the structure in (9), which is in effect a TP-sized clause.
- The ungrammaticality of (4b) can be accounted for immediately, since the high VP-fronting needs to land into the clausal left-periphery (Rizzi, 1997), e.g., Spec,CP (Meadows and Yan, 2023, to appear).

(9) ... qiǎngpò [$_{\text{TP}}$ DP_{Subj} [T [$_{\text{FP}}$ VP_1 [F [$_{\text{VoiceP}}$ ~~DP_{Subj}~~ [Voice VP_2]]]]]]

► The diagnostics applied previously also support the idea that *qiǎngpò* takes TP-sized clausal complements.

- As seen in (10a), the tense/aspect marker *le* is licensed to occur in the embedded verb doubling construction, since the complement clause itself is TP-sized.
- However, as seen in (10b), the TP-sized embedded clause is still unable to be modified by the sentence-level adverb *qíshí* 'in fact'.

(10) a. Wassily qiǎngpò [Piet **kàn nà-běn xiǎoshuō** kàn *le* sān tiān].
Wassily force Piet read that-CL novel read PFV three days
'Wassily forced Piet to read the novel for three days.'

b. Wassily qiǎngpò [(**qíshí*) Piet **kàn nà-běn xiǎoshuō** kàn de hěn kuài].
Wassily force in.fact Piet read that-CL novel read DE quickly
'Wassily forced Piet to read the novel quickly (in fact).'

2.2.3 CP-sized embedded clauses

- In the end, I concentrate on the first type of embedding predicates, i.e., *rènwéi* 'think' as shown in (3).
  - Based on the previous argumentation, the grammatical (3a) denotes that the size of the embedded clause is at least as big as TP.
  - (3b) provides further evidence that the embedded clause taken by *rènwéi* is in fact larger than its TP-sized counterpart. It is plausible to argue that the embedded clause here is CP-sized, and the entire VP halts in Spec,CP.
  - The structure of the embedded clause in (3a) is illustrated as below.

(11) $\ldots$ rènwéi [$_{CP}$ C [$_{TP}$ DP_{Subj} [T [$_{FP}$ VP_1 [F [$_{VoiceP}$ $\overline{\text{DP}_{\text{Subj}}}$ [Voice VP_2]]]]]]]

- Applying the two diagnostics we have seen above to the embedded clause taken by *rènwéi*, the results lead to the conclusion that those predicates that belong to the same first type all take CP-sized complements.
  - As given in (12a), the existence of the tense/aspect marker *le* does affect the verb doubling effects in the embedded clause.
  - As given in (12b), the embedded clause can be modified by *qíshí*, indicating that it is indeed a full-fledged, CP-sized clause.

(12) a. Wassily rènwéi [Piet **kàn nà-běn xiǎoshuō** kàn *le* sān tiān].
Wassily think Piet read that-CL novel read PFV three days
'Wassily thought that Piet read the novel for three days.'

b. Wassily rènwéi [*qíshí* Piet **kàn nà-běn xiǎoshuō** kàn de hěn kuài].
Wassily think in.fact Piet read that-CL novel read DE very quickly
'Wassily thought that in fact Piet read the novel quickly.'

2.3 Interim summary

- The complete paradigm of bi-clausal verb doubling plus the varying size of embedded clauses are summarised in (13).
  - I have argued that all the distinctions related to clausal complements reflect differences in clause size.
  - However, I have not touched on the verb doubling effects in embedding clauses. The account of those improper verb doubling will be offered in section 4.
  - Before we introduce the theoretical approach to these patterns (i.e., the Williams Cycle), we need to set up the idea of verb doubling as a result of phrasal movement.

(13)

	Matrix HF	**Matrix LF**	**Embedded HF**	**Embedded LF**
(i) 'think'+[$_{CP}$ $\ldots$]	✓	✗	✓	✓
(ii) 'force'+[$_{TP}$ $\ldots$]	✓	✗	✗	✓
(iii) 'want'+[$_{FP}$ $\ldots$]	✓	✓	✓	

3 Verb Doubling as Spinal Movement

► In this section, I present two pieces of evidence, arguing that verb doubling effects in Mandarin derive from VP-movement in general.

- The properties I show with respect to verb doubling can all be properly accounted for under a movement analysis rather than a base-generation approach.
- Following Travis and Massam (2021), I extend the A/$\bar{\text{A}}$ distinctions to spinal movement as well, proposing that verb doubling in different clausal positions in fact demonstrate different movement properties.

3.1 Diagnostic 1: Island effects

► It is not easy to apply island effects to verb doubling effects in mono-clausal contexts.

- Movement diagnostics usually require the target item to move out of the island and land in the clausal periphery. In Mandarin Chinese, that means the target item has to move across the surface subject.
- Nevertheless, canonical verb doubling shows up in the clause-medial/post-subject position, making it impossible to test whether the doubled VP derives from movement or not.
- By contrast, verb doubling in the clause-initial/pre-subject position does not face the same problem. As argued in Meadows and Yan (2023, to appear), those cases do demonstrate island effects, as well as reconstruction effects.

► Diagnosing island effects in bi-clausal contexts would not encounter the identical difficulties, since the constructions are 'big' enough for long-distance movement.

- Take *xiǎngyào* 'want' and its FP-sized clausal complements as instance.
- As illustrated in (14a), *xiǎngyào* takes a complex NP island as its complement, within which a verb doubling construction is contained.
- As long as the doubled VP enters the matrix clause, neither the clause-medial position (14b) nor the clause-initial one (14c) shows up verb doubling effects, contrary to (5b) and (5c) in section 2.

(14) a. Wassily xiǎngyào [$_{\text{CNP}}$ yī-gè **kàn Sāntī** kàn de hěn kuài de *lǐyóu*].
Wassily want one-CL read TBP read DE very quickly DE reason
'Wassily wants a reason to read the Three-Body Problem quickly.'

b. *Wassily **kàn Sāntī** xiǎngyào [$_{\text{CNP}}$ yī-gè kàn de hěn kuài de *lǐyóu*].
Wassily read TBP want one-CL read DE very quickly DE reason
'Wassily wants a reason to read the Three-Body Problem quickly.'

c. ***Kàn Sāntī** Wassily xiǎngyào [$_{\text{CNP}}$ yī-gè kàn de hěn kuài de *lǐyóu*].
read TBP Wassily want one-CL read DE very quickly DE reason
'As for reading the Three-Body Problem, Wassily wants a reason to read it quickly.'

► The contrasts in (14) are clearly island effects, suggesting that at least verb doubling entering the matrix clause is a consequence of movement.

- As I will argue soon below, I postulate that verb doubling effects in general are triggered by the same mechanism of movement, regardless of clausal construction.
- Such a uniform theorisation is always more economical, more elegant, and, thus, preferred.

- The ungrammatical (14b) and (14c) cannot receive an equivalently adequate account under the base-generation approach.

► It does not necessarily mean that verb doubling effects cannot be generated by base-generation at all.

- As exemplified in (15), the doubled VP *kàn Sāntī* 'read the Three-Body Problem' can be contained by a larger PP *duìyú . . . zhè-jiàn shì* 'regarding'.
- Though the PP still displays verb doubling effects somehow, the whole structure seems to be base-generated, since it does not trigger island effects in (15b) and (15c).
- The distribution of such a structure is quite restricted (at least from my viewpoint), which is why I label them as 'degraded' in (15a) and (15b).

(15) a. %Wassily xiǎngyào [$_{CNP}$ yī-gè *duìyú* **kàn Sāntī** (*zhè-jiàn shì*) kàn de hěn kuài
Wassily want one-CL regarding read TBP this-CL case read DE very quickly
de *lǐyóu*].
DE reason
'Wassily wants a reason to read the Three-Body Problem quickly, regarding reading it.'

b. %Wassily *duìyú* **kàn Sāntī** (*zhè-jiàn shì*) xiǎngyào [$_{CNP}$ yī-gè kàn de hěn kuài
Wassily regarding read TBP this-CL case want one-CL read DE very quickly
de *lǐyóu*].
DE reason
'Wassily wants a reason to read the Three-Body Problem quickly, regarding reading it.'

c. *Duìyú* **kàn Sāntī** (*zhè-jiàn shì*) Wassily xiǎngyào [$_{CNP}$ yī-gè kàn de hěn kuài
regarding read TBP this-CL case Wassily want one-CL read DE very quickly
de *lǐyóu*].
DE reason
'Regarding reading the Three-Body Problem, Wassily wants a reason to read it quickly.'

3.2 Diagnostic 2: Identity effects

► The second diagnostic evokes lexical identity effects in Mandarin Chinese (Lai, 2021)[2].

- If two words have the same meaning but do not share the same form, it is possible for them to be interchangeable in many occasions in Mandarin Chinese.
- (16) exhibits such a case in which the question uses *kàn* 'read', but the answer uses *dú* 'read'.

(16) Q: Nǐ zài *kàn* shénme ya?
2SG PROG read what SFP
'What are you reading?'
A: Wǒ zài *dú* Sāntǐ ne.
1SG PROG read TBP SFP
'I am reading the Three-Body Problem.'

► In verb doubling constructions, however, it is obligatory for those two verbs to have exactly the same lexical form.

[2]The same requirement of lexical identity also holds in Cantonese (Lee, 2022), though the verb doubling patterns are not exactly identical.

- (17) exemplifies what I mean by identity effects. Note that swapping the positions of *kàn* and *dú* does not ameliorate the ungrammatical results in all of these cases.
- Within the Minimalist framework, lexical identity effects can be straightforwardly explained by the copy theory of movement (Chomsky, 1995; Nunes, 1995, 2004). That is, since Internal Merge creates a copy of the verb (phrase), these two, in principle, have to be identical from the very beginning.
- By contrast, for base-generation approach, the identity effects can only be considered as either a coincide between two words or a stipulation about forming doubling constructions.

(17) a. *Wassily xiǎngyào [***kàn*** **Sāntǐ** *dú* de hěn kuài].
Wassily want read TBP read DE very quickly
'Wassily wants to read the Three-Body Problem very quickly.'

b. *Wassily ***kàn*** **Sāntǐ** xiǎngyào [*dú* de hěn kuài].
Wassily read TBP want read DE very quickly
'Wassily wants to read the Three-Body Problem very quickly.'

c. ****Kàn*** **Sāntǐ** Wassily xiǎngyào [*dú* de hěn kuài].
read TBP Wassily want read DE very quickly
'As for reading the Three-Body Problem, Wassily wants to read it very quickly.'

3.3 Feature-triggered verb doubling and the A/Ā distinctions

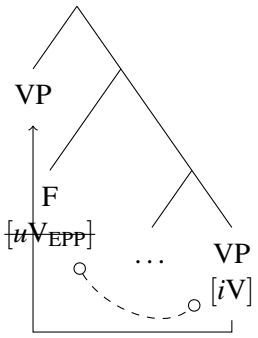
► I have shown that it is movement that gives rise to verb doubling effects. I sketch out some supplementary ideas here very briefly.

- Following Meadows and Yan (2023, to appear), I postulate that the entire VP moves to some Spec position along the clausal spine, leaving a VP-copy in its base position.
- Spell-outs of both VPs are subject to the PF algorithms proposed in Landau (2006).
  - ▷ The first VP gets spelt-out in its complete form because of its unique PF content.
  - ▷ The second VP undergoes partial deletion, and gets spelt-out together with the particle *de* due to its PF requirement that *de* has be adjacent to the verbal head.
  - ▷ See the detailed proposal in Meadows and Yan (2023, to appear).

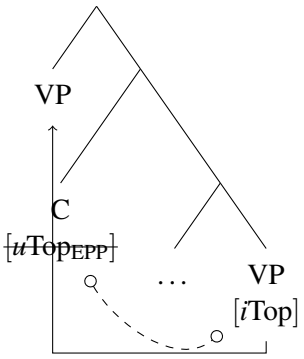
► I further posit that VP-movement is triggered by checking the uninterpretable feature on some functional head within the extended projection.

- For instance, in line with van Urk (2022), I postulate that there is an uninterpretable verbal feature [*u*V] on F, whereas the lexical VP itself contains the same interpretable feature [*i*V][3].
- Besides, there is an EPP-feature on [*u*V], which can be regarded either as a sub-feature (in the sense of Pesetsky and Torrego, 2001) or a second-order feature (in the sense of Adger and Svenonius, 2011).
- Once the Agree relation between F and VP is established, [*u*V] as well as the EPP-feature on the functional head F get checked together immediately, triggering the movement of VP to Spec,FP.
- In the case of VP-movement to the left periphery, I postulate that the movement-triggering feature becomes [*u*Top] on the functional head C. The rest of the mechanism remains the same.
- Verb doubling in the clause-meidal and clause-initial positions, thus, correspond to (18) and (19) below.

(18)



(19)



- Given that VP-movement is triggered by feature, it is reasonable to ask whether verb doubling is A-movement or Ā-movement.
  - A similar question has been pursued in Travis and Massam (2021), where they apply the A/Ā-distinctions generalised in van Urk (2015) to spinal movement (i.e., VP-movement), and see whether these characteristics of movement type can still hold.
  - I follow the idea of Travis and Massam that spinal movement can be sub-grouped into A-type and Ā-type, as with limb movement. And I argue that verb doubling in Mandarin Chinese illustrates such a distinction of movement type.
  - To be more precise, I argue that verb doubling to the clause-medial position is A-movement, whereas the one to the clause-initial position is Ā-movement.
- For time sake, I would not be able to go through their distinctions in detail. Here is a simple comparison.
  - In terms of **locality**, within the mono-clausal contexts, A-type verb doubling is quite local, while Ā-type is able to move to the left periphery.
  - In terms of **information structure**, A-type verb doubling is information-neutral, whereas Ā-type is informationally marked.
    - This can be easily captured from the interpretation of each verb doubling constructions.
    - This also explains why only the former is able to answer a question in the out-of-the-blue context.

(20) *Out-of-the-blue context: What was your impression of Wassily?*

a. Tā **kàn Sāntǐ** kàn de hěn kuài.
3SG read TBP read DE very quickly
'He read the Three-Body Problem quickly.'

b. **#Kàn Sāntǐ** tā kàn de hěn kuài.
read TBP 3SG read DE very quickly
'As for reading the Three-Body Problem, he read it quickly.'

- The absence of **reconstruction effects** in verb doubling in the clause-medial position can now be accounted for as a property of A-movement. For the time being, however, I have to skip this discussion.

[3] According to the idea of Grimshaw (1991, 2000, 2005), each functional projection along the verbal extended projection inherits the same verbal feature from the lexical V. If that is the case, one might wonder why the probe on F does not attract other functional projections, which dominate VP, to Spec,FP. I assume that the verbal feature borne by VP has its own uniqueness, but I have to leave this for future study.

4 GBOIM and the Williams Cycle

► The restriction on cross-clausal VP-fronting follows from the GENERALISED BAN ON IMPROPER MOVEMENT (GBOIM) given in (21) (Williams, 2003, 2011; Poole, 2022). This idea is also often referred to as 'the Williams Cycle'.

(21) *Generalised Ban on Improper Movement*
Movement to [Spec,XP] cannot proceed from [Spec,YP] or across YP, where Y is higher than X in the functional sequence. Poole (2022, pp. 348)

- The GBOIM prevents movement landing in a position lower in the clausal functional sequence (fseq) (Starke, 2001) than the edge of clause being extracted from. Movement to higher positions in the fseq is thus more 'unbounded' than movement to lower ones.
- Furthermore, the GBOIM applies to movement whether or not it crosses a boundary between clausal extended projections. Analysing some embedded clauses with a specific size as part of the same extended projection as the embedding predicate (i.e., restructuring) would thus not affect the account given here.

► With the GBOIM at hand, all the improper verb doubling patterns we have seen above can now receive a fairly direct explanation.

- The overall account of improper verb doubling is schematised in (22).

(22) a. *$[_{CP}\ [_{TP}\ [_{FP}\ \mathbf{VP}\ [_{VoiceP}\ \ldots\ [_{CP/TP}\ \ldots\ \mathbf{t}\ \ldots\ ]]]]]$ **Forbidden VP-LF**
b. $[_{CP}\ [_{TP}\ [_{FP}\ \mathbf{VP}\ [_{VoiceP}\ \ldots\ [_{FP}\ \ldots\ \mathbf{t}\ \ldots\ ]]]]]$ **Permitted VP-HF**

- In the case of *rènwéi* taking a CP-sized complement, the doubled VP is unable to be fronted to the matrix clause-medial position, i.e., Spec,FP. Since VP-fronting starts within a CP-complement, and CP is higher than FP in the fseq, (23a) is ruled out.
- By contrast, if VP-fronting targets the left-periphery of the matrix clause (23b), i.e., Spec,CP, then extraction from another CP is allowed, since they are equally high in the fseq.

(23) *Case 1: rènwéi + CP-sized complement*

a. *Wassily $[_{FP}$ **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 quickly.' **'think' + matrix LF ✗**

b. $[_{CP}$ **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' + matrix HF ✓**

- In the case of *qiǎngpò* taking a TP-sized complement, the same reasoning can rule out VP-fronting to the clause-medial position (24a): since VP is extracted out of the TP-sized complement, it cannot land to Spec,FP, which itself is lower than TP in the fseq.
- By comparison, TP is lower than CP in the fseq. Therefore, VP is not prevented from being extracted out of TP to Spec, as given in (24b).

(24) *Case 2: qiǎngpò + TP-sized complement*

a. *Wassily [$_{FP}$ **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 quickly.' **'force' + matrix LF ✗**

b. [$_{CP}$ **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' + matrix HF ✓**

- The case of *xiǎngyào* with a FP-sized complement is different from the previous two: the extraction domain and the landing site of VP are both FP-sized. This accounts for why VP-fronting to the clause-medial position is licensed in (25a).
- The grammatical result of (25b) is not surprising, considering that the landing site CP is higher than the extraction domain FP in the fseq.

(25) *Case 3: xiǎngyào + FP-sized complement*

a. Wassily [$_{FP}$ **kàn nà-běn xiǎoshuō** xiǎngyào [$_{FP}$ kàn de hěn kuài]].
Wassily read that-CL novel want read DE very quickly
'Wassily wants to read the novel quickly.' **'want' + matrix LF ✓**

b. [$_{CP}$ **Kàn nà-běn xiǎoshuō** Wassily xiǎngyào [$_{FP}$ kàn de hěn kuài]].
read that-CL novel Wassily want read DE very quickly
'As for reading the novel, Wassily wants to read it quickly.' **'want' + matrix HF ✓**

► Before we wrap up this section, it is worth mentioning a few relevant points regarding the Williams Cycle.

- The way I choose to interpret the GBOIM is simply based on the syntactic representations.
- However, Williams (2003, 2011) himself adopts a 'timing approach' to deriving the GBOIM, deploying **parallel derivation** of main and embedded clauses. See discussions in Meadows (2023) for details.
- There are other proposals to derive the GBOIM on the market, including:
  - ▹ conditions on Agree: Keine (2019, 2020)
  - ▹ conditions on Merge: Müller (2014a,b)
  - ▹ conditions on ordering of syntactic operations: Abels (2007); Neeleman and van de Koot (2010)
- The effects of GBOIM are also argued to be derived differently by intervention, for instance, Abels (2012b) and Halpert (2019).

5 Multiple Levels of Embedding

► Based on the GBOIM, one prediction we can make is that, even in the case of multiple levels of embedding, VP-fronting to the topmost left periphery is always licensed, whereas VP-fronting to the matrix clause-medial position might be restricted. This is borne out by (26).

- The baseline construction (26a) consists of three levels of embedding: the matrix predicate *xiǎngyào* 'want' takes a FP-sized (or evenn smaller-sized) complement clause introduced by *qiǎngpò* 'force', which in turn takes a TP-sized complement clause displaying verb doubling effects.
- As shown in (26b), the doubled VP, which orginates in the most embedded TP-sized clause, is unable to move to the matrix clause-medial position as it is in Spec,FP.

- By comparison in (26c), VP-fronting to the highest clausal periphery is grammatical, since Spec,CP is the topmost position along the clausal spine, and no functional projection can be higher than CP (if we abstract away from the articulated left periphery in the cartographic fashion).

(26) a. Wassily xiǎngyào [$_{FP}$ qiǎngpò [$_{TP}$ Piet **kàn nà-běn xiǎoshuō** kàn de hěn kuài]].
Wassily want force Piet read that-CL novel read DE very quickly
'Wassily wants to force Piet to read the novel quickly.'

b. *Wassily **kàn nà-běn xiǎoshuō** xiǎngyào [$_{FP}$ qiǎngpò [$_{TP}$ Piet kàn de hěn kuài]].
Wassily read that-CL novel want force Piet read DE very quickly
'Wassily wants to force Piet to read the novel quickly.'

c. **Kàn nà-běn xiǎoshuō** Wassily xiǎngyào [$_{FP}$ qiǎngpò [$_{TP}$ Piet kàn de hěn kuài]].
read that-CL novel Wassily want force Piet read DE very quickly
'As for reading the novel, Wassily wants to force Piet to read it quickly.'

- The representation of verb doubling with multiple levels of embedding is schematised in (27).

(27) a. *[$_{CP}$ [$_{TP}$ [$_{FP}$ **VP** [$_{VoiceP}$ want [$_{FP}$ force [$_{TP}$ ... **t** ...]]]]]] **Forbidden VP-LF in (26b)**
b. [$_{CP}$ **VP** [$_{TP}$ [$_{FP}$ [$_{VoiceP}$ want [$_{FP}$ force [$_{TP}$ ... **t** ...]]]]]] **Permitted VP-HF in (26c)**

6 Conclusion

► In this talk, I have demonstrated that cross-clausal verb doubling does not fare consistently, affected by

- the choice of embedding predicates, and
- the height of the landing site along the clausal spine.

► I have argued that improper verb doubling can be explained in a neat way once we adopt the ideas of

- complement clauses with different sizes,
- verb doubling as a result of VP-fronting, and
- the GENERALISED BAN ON IMPROPER MOVEMENT.

► The implications of improper verb doubling are twofold.

- On one hand, the variation of clause size is universal, even for languages that are lack of evident morphosyntactic markers.
- Spinal movement, as with limb movement, is subject to the same constraint, especially when it comes to long-distance movement.

► There are two general questions that still remain unclear to me.

- In terms of the A/Ā distinctions, what are the similarities and differences between spinal movement and limb movement?
- What is the result of the interaction between spinal movement and limb movement?

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