The Syntax and Post-syntax of Verb Doubling in Mandarin Chinese

Tom Meadows and Qiuhao Charles Yan

1. Introduction

In this paper, we argue that post-syntactic processes can give rise to multiple spell-outs on the basis of verb doubling effects in Mandarin Chinese (cf. Cheng 2007, 2017). In a variety of languages, predicate fronting can create verb copying constructions (for instance, Russian (Abels 2001), Classical Hebrew (Harbour 1999), Haitian (Harbour 2008), Modern Hebrew (Landau 2006), among many others), where a higher VP is pronounced in the clausal left periphery, and another VP is spelled out in a lower position.

In Mandarin Chinese there exists a similar kind of verb copying construction, triggered by VP-internal particles in the context of VP-fronting. We term such a construction *long verb doubling* (henceforth LVD)[1], as exemplified in (1). (1-a) is an instance of Manner LVD, where the lower VP is followed by a particle *de* and a manner adverbial *hěn kuài* 'very quickly'. By comparison, (1-b) instantiates a case of Duration LVD, in which the lower VP is followed by a tense and aspect marker (TAM) *le* and a temporal expression *sān tiān* 'three days'.

(1) a. **Kàn** xiǎoshuō tā **kàn** de hěn kuài.
read novel he read DE very quickly
'As for reading novels, he read them very quickly.' **Manner LVD**

b. **Kàn** diànyǐng tā **kàn** le sān tiān.
watch movie he watch LE three day
'As for watching movies, he watched them for three days.' **Duration LVD**

The key question here is how verb doubling effects are derived in constructions above. We argue that derivations of both kinds of LVD can be accounted for in a uniform way, under the two PF constraints proposed by Landau (2006) (i.e., *P-Recoverability* (PR) and *Economy of Pronunciation* (EP)). We propose that all LVD constructions involve the same phrasal movement to the clausal left periphery, where the higher VP gets completely realised at PF. Rather than being completely deleted as lower copies often are, in cases of verb doubling the lower VP-copy undergoes partial deletion (cf. Scott 2021, van Urk 2018). Full deletion of the lower VP-copy is blocked in order to satisfy requirements of both *de* and *le* to be morphosyntactically hosted by the lower V.

Our proposal is fleshed out in the following sections. Section 2 presents evidence for the phrasal movement of VP to the clausal left periphery. Section 3 focuses on properties of the lower VP as well as the post-verbal particles *de* and *le*. Section 4 outlines the derivation of verb doubling effects. Section 5 is the conclusion.

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[1] The more discussed verb copying constructions in the literature of Mandarin Chinese are what we term *short verb doubling* (henceforth SVD), where the higher VP ends up in the clause-medial position between the subject and lower VP. For reasons of space, SVD is not included in this paper. But we do think the proposal put forward here can account for the derivation of SVD as well. See relevant discussions in Cheng (2007, 2017) and references therein.

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2. Evidence for the higher VP-copy movement

We first demonstrate that VP-fronting in Mandarin Chinese is derived via movement (cf. Bartos 2019, Tang 1990). The first diagnostic comes from island effects. As shown in (2) and (3), neither Manner LVD nor Duration LVD is possible across a range of island contexts (cf. Huang et al. 2009), which is unexpected if the fronted VPs are adjuncts base-generated in the left periphery.

(2) *Island effects with Manner LVD*

a. *__Kàn xiǎoshuō__ wǒ xiǎng zhīdào [shénme shíhòu tā **kàn** de hěn kuài.]
read novel I want know what time he read DE very quickly
'I wonder when he reads novels very quickly.' *Wh*-Island

b. *__Kàn xiǎoshuō__ wǒ jùjué [tā **kàn** de hěn kuài de shuōfǎ.]
read novel I reject he read DE very quickly DE claim.
'I reject the claim that he reads novels very quickly.' Complex NP Island

c. *__Kàn xiǎoshuō__ tā bù zhīdào [tā **kàn** de hěn kuài] ràng wǒ fēicháng jīngyà.
read novel he NEG know he read DE very quickly make me very surprised
'He doesn't know that he reads novels very quickly makes me so surprised.'
Subject Island

d. *__Kàn xiǎoshuō__ wǒ chóngbài tā [yīnwèi tā **kàn** de hěn kuài.]
read novel I worship him because he read DE very quickly
'I worship him because he reads novels very quickly.' Adjunct Island

(3) *Island effects with Duration LVD*

a. *__Kàn diànyǐng__ wǒ xiǎng zhīdào [wèishéme tā **kàn** le sān tiān.]
watch movie I want know why he watch LE three day
'I wonder why he watched movies for three days.' *Wh*-Island

b. *__Kàn diànyǐng__ wǒ jùjué [tā **kàn** le sān tiān de shuōfǎ.]
watch movie I reject he watch LE three day DE claim.
'I reject the claim that he watched movies for three days.' Complex NP Island

c. *__Kàn diànyǐng__ tā bù zhīdào [tā **kàn** le sān tiān] ràng wǒ fēicháng jīngyà.
watch movie he NEG know he watch LE three day make me very surprised
'He doesn't know that he watched movies for three days makes me so surprised.'
Subject Island

d. *__Kàn diànyǐng__ wǒ bù lǐjiě tā [yīnwèi tā **kàn** le sān tiān.]
watch movie I NEG understand him because he watch LE three day
'I don't understand him because he watched movies for three days.' Adjunct Island

The second diagnostic relies on binding and reconstruction effects. (4) and (5) are examples of Principle A reconstruction effects: as shown in (4-a) and (5-a), the anaphor *tāzìjǐ* 'himself' is able to precede the subject *méi rén* 'no one' linearly and receive the bound interpretation at the same time. The bound reading between the anaphor and the subject suggests that the higher VPs (which contain anaphors) need to be reconstructed to a lower position, as if they were obeying Principle A like (4-b) and (5-b).

(4) *Principle A reconstruction with Manner LVD*

a. Huà tāzìjǐ$_{i/*j}$ de xiàoxiàng méi rén$_i$ huà de hěn kuài.
draw himself DE portrait NEG people draw DE very quickly
'No one$_i$ draws the portrait of himself$_{i/*j}$ very quickly.'

b. Méi rén$_i$ huà tāzìjǐ$_{i/*j}$ de xiàoxiàng huà de hěn kuài.
NEG people draw himself DE portrait draw DE very quickly
'No one$_i$ draws the portrait of himself$_{i/*j}$ very quickly.'

(5) *Principle A reconstruction with Duration LVD*

a. Huà tāzìjǐ$_{i/*j}$ de xiàoxiàng méi rén$_i$ huà le sān tiān.
draw himself DE portrait NEG people draw LE three day
'No one$_i$ drew the portrait of himself$_{i/*j}$ for three days.'

b. Méi rén$_i$ huà tāzìjǐ$_{i/*j}$ de xiàoxiàng huà le sān tiān.
NEG people draw himself DE portrait draw LE three day
'No one$_i$ drew the portrait of himself$_{i/*j}$ for three days.'

(6) and (7) are another set of examples showing Principle C reconstruction effects: as seen in (6-a) and (7-a), the referential object *Piet* cannot be coreferential with the subject *tā* 'he'. The fronted object (which is contained by the VP) behaves c-commanded by the subject as in (6-b) and (7-b), demonstrating the Principle C effects. Again, the similarities suggest that the higher VPs in (6-a) and (7-a) undergo reconstruction.

(6) *Principle C reconstruction with Manner LVD*

a. *Huà Piet$_i$ de xiàoxiàng tā$_i$ huà de hěn kuài.
draw Piet DE portrait he draw DE very quickly
*'He$_i$ draws the portrait of Piet$_i$ very quickly.'

b. *Tā$_i$ huà Piet$_i$ de xiàoxiàng hěn kuài.
he draw Piet DE portrait very quickly
*'He$_i$ draws the portrait of Piet$_i$ very quickly.'

(7) *Principle C reconstruction with Duration LVD*

a. *Huà Piet$_i$ de xiàoxiàng tā$_i$ huà le sān tiān.
draw Piet DE portrait he draw LE three day
*'He$_i$ drew the portrait of Piet$_i$ for three days.'

b. *Tā$_i$ huà le Piet$_i$ de xiàoxiàng sān tiān.
he draw LE Piet DE portrait three day
*'He$_i$ drew the portrait of Piet$_i$ for three days.'

We conclude, based on the diagnostics presented above, that the higher VPs in LVD are derived via phrasal movement.

3. Properties of the lower VP-copy and its interaction with post-verbal particles

There are several similarities and distinctions between Manner LVD and Duration LVD in terms of their basic properties, which can be attributed to the syntactic structures of their own VP-lower copy interacting with different post-verbal particles. Thus, we adopt two different structures for manner *de* and duration *le*.

To start off, (8-a) and (9-a) show that the particle *de* and the TAM *le* obligatorily occur in the LVD constructions. Furthermore, (8-b) and (9-b) reveal that the post-verbal arguments are unable to co-occur with the post-verbal particles in the lower VPs. In other words, only particles are allowed to occupy the post-verbal position within the lower VPs.

(8) a. Kàn xiǎoshuō tā kàn *(de) hěn kuài.
read novel he read DE very quickly
'As for reading novels, he read them very quickly.'

b. Kàn xiǎoshuō tā kàn de (*xiǎoshuō) hěn kuài.
read novel he read DE novel very quickly
'As for reading novels, he read them very quickly.'

(9) a. Kàn diànyǐng tā kàn *(le) sān tiān.
watch movie he watch LE three day
'As for watching movies, he watched them for three days.'

b. Kàn diànyǐng tā kàn le (*diànyǐng) sān tiān.
watch movie he watch LE movie three day
'As for watching movies, he watched them for three days.'

The main difference between Manner LVD and Duration LVD lies in the non-verb doubling constructions, for example, (10) and (11). (10) shows that either the particle *de* or the internal argument can occupy the post-verbal position preceding the adverbial, indicating that *de* and the argument are in a complementary distribution. By contrast, (11) demonstrates that the TAM *le* obligatorily occurs in constructions where no verb doubling effects arise, regardless of the occurrence of the internal argument.

(10) a. Tā kàn (*de) xiǎoshuō hěn kuài.
he read DE novel very quickly
'He read novels very quickly.'

b. Tā kàn de (*xiǎoshuō) hěn kuài.
he read DE novel very quickly
'He read very quickly.'

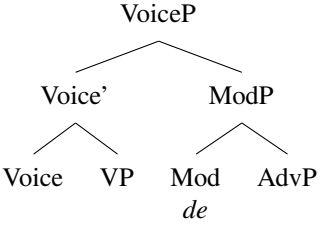
(11) a. Tā kàn *(le) tàitǎnníkèhào sān tiān.
he watch LE Titanic three day
'He watched Titanic for three days.'

b. Tā kàn le (tàitǎnníkèhào) sān tiān.
he watch LE Titanic three day
'He watched (Titanic) for three days.'

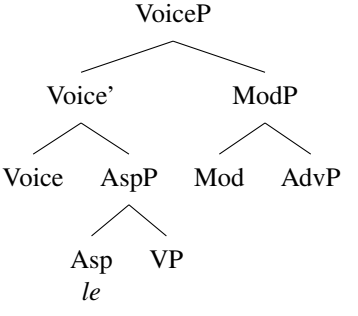
To capture the similarities and distinctions that we have seen above at the same time, we postulate two slightly different VP structures respectively for Manner LVD (12) and Duration LVD (13). To be precise, in both structures, we adopt the assumption that there exists an external structure out of the core VP, i.e., the VoiceP (Kratzer 1996). The VoiceP takes the Mod(ifier)P as its right-adjoined adjunct, whose location is outside the core VP. The particle *de* is assumed to realise the head of the ModP optionally, taking adverbials as its complement (Sybesma 1999). However, the TAM *le* is assumed to be base-generated within the verbal extended projections, always leaving covert the head of the ModP, which still takes adverbials as its complement.

Let us briefly summarise. The different distributions of the particle *de* and the TAM *le* can be supported empirically. In general, *le* can show up in cases where there is no post-verbal modifier. But the occurrence of *de* is more constrained: in principle, it only co-occurs with post-verbal modifiers. We will argue in the next section that the ways of *de* and *le* being adjacent to the V head are realised by distinct PF processes.

(12) *The lower VP in Manner LVD*



(13) *The lower VP in Duration LVD*



4. PF-sensitivity and partial deletion

4.1. Regulating copy deletion with the PF algorithm

In this section we set out our proposal that post-syntactic processes can drive multiple spell-outs. Below is the basic intuition we would like to implement.

(14) *The PF-sensitivity Intuition*
Copy deletion cannot completely apply if certain post-syntactic processes would otherwise apply to part of the lower copy.

We assume that there exists a subset of post-syntactic processes which copy deletion is obliged to allow to apply. Landau (2006) effectively argues that the hosting of inflectional morphology in Hebrew is just such a process. As exemplified in (15), verbs in Hebrew are normally inflected for tense or agreement. When a VP is fronted into the left periphery (i.e., Spec,CP), the higher copy of the verb cannot display such an inflection. However, the inflection cannot go unrealised either. Copy deletion, thus, is obliged to not block the realisation of inflectional morphology. It follows that enough of the lower VP copy avoids deletion to host tense or agreement.

(15) [$_{CP}$ [$_{VP}$ liknot et ha-praxim] [$_{TP}$ hi [$_{VoiceP}$ kanta ~~et ha-praxim~~]]]
buy.INF ACC DET-flower.PLU she buy.PST.3SG.FEM
'As for buying flowers, she bought.' Landau (2006: ex. 8a)

Clearly, the size of copy deletion is not random. Instead, copy deletion is regulated by the PF algorithm (16) proposed by Landau (2006). P-Recoverability (PR) guarantees that the spell-outs of copies that satisfy certain post-syntactic requirements are obligatory, since these requirements can provide copies with novel PF content which, in theory, enables them to differ from other copies (with established PF content). Economy of Pronunciation (EP), by contrast, is an economy constraint, which in principle maximises deletion at PF. As we will see later, certain post-syntactic requirements can be linked to part of copies only instead of the entire ones. In this sense, copies are able to be deleted or spelled out partially at PF. We apply these two constraints in the derivation of Manner and Duration LVD in the following analyses.

(16) a. *P-Recoverability (PR)*
Copies associated with certain PF content must be pronounced.

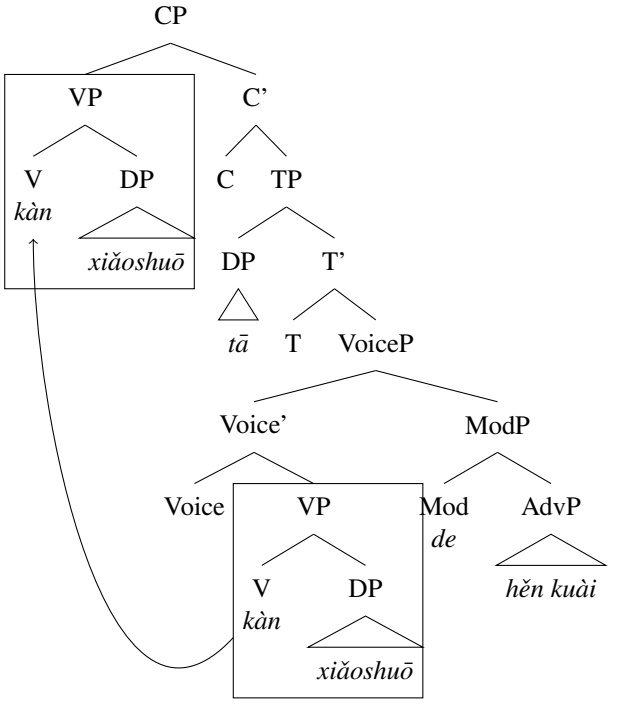
b. *Economy of Pronunciation (EP)*
Delete all copies not associated with certain PF content.

4.2. Derivation of Manner LVD

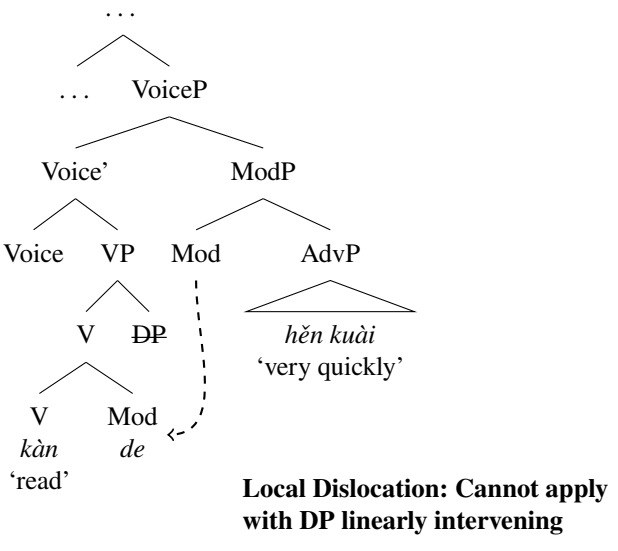
The entire syntactic structure of Manner LVD (1-a) is represented as in (17), and the post-syntactic process required by the particle *de* is schematised in (18). To start off, the higher VP-copy is merged in Spec,CP due to phrasal movement. Such a structural position assigns to the higher VP a contrastively topicalised interpretation, which is considered as certain PF content when the VP-copy is sent to be spelled out. Therefore, the higher VP-copy must be pronounced completely according to PR.

Contrary to the higher VP-copy, the lower one should in theory be totally deleted at PF, subject to EP, since it is not associated with specific PF content (e.g., contrastively topicalised interpretation as shown above). However, the particle *de* is postulated to have the hosting requirement of *local dislocation* (Embick 2007, Embick & Noyer 2001). As we have seen previously, *de*, as the head of ModP, must form a complex head with V under linear adjacency. Such a requirement of *de* supplies novel certain PF content to the lower VP. Correspondingly, deletions that preserve this PF content are prioritised by PR, i.e., by licensing the V head to escape deletion, thereby feeding local dislocation of *de*. Partial deletion (cf. Scott 2021, van Urk 2018), which targets the internal argument within the lower VP-copy, is selected as the prioritised PF-operation. That is, only the argument undergoes deletion according to EP, which in turn feeds the PF process of *de*. As a result, the 'lower V + *de*' sequence is spelled out, and verb doubling effect arises.

(17)



(18)



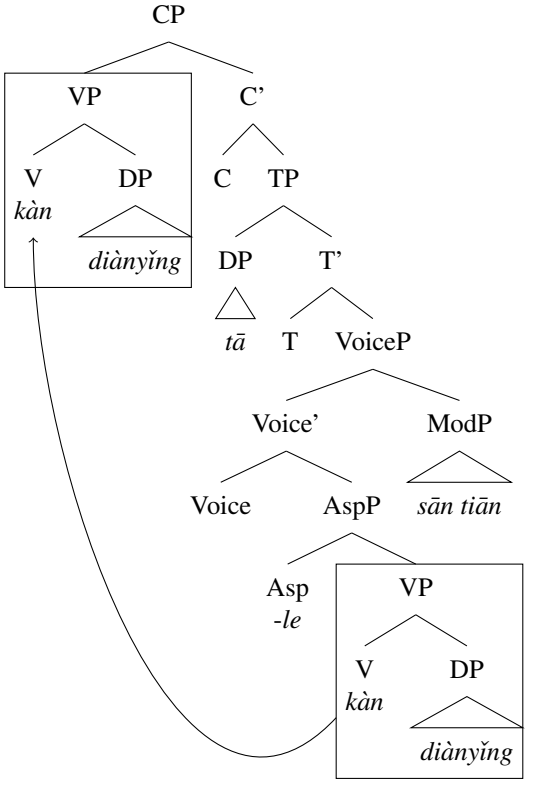
4.3. Derivation of Duration LVD

The syntactic structure of Duration LVD (1-b) is represented as in (19), and the post-syntactic process required by the TAM *le* is schematised in (20). As with the case in Manner LVD, the higher VP-copy here is also merged in Spec,CP due to the identical phrasal movement. Still, the higher VP-copy receives a contrastively topicalised interpretation in such a position, which means, certain PF content is determined by the clausal structure. Thus, the higher VP-copy is spelled out as a whole again according to PR.

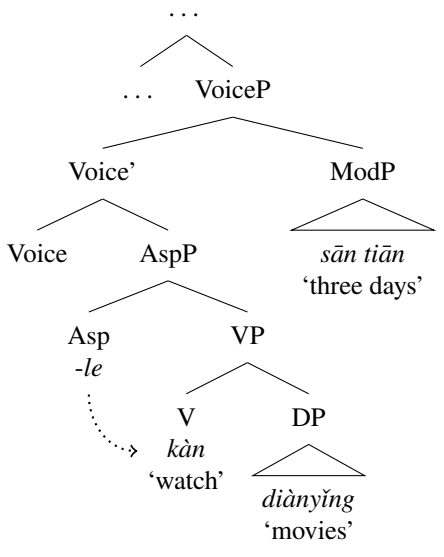
Similarly, the TAM *le* is posited to have some specific PF process in order to escape EP. Unlike the local dislocation requirement owned by *de*, *le*, which realises an Aspect head in the verbal extended projections, must appear right adjacent to the V head (without necessarily forming a complex head). Such

a requirement can be implemented by several methods, including *morphological lowering*, *PF movement*, etc. Remaining agnostic towards the nature of the PF process required by *le*, the lower VP can certainly be supplied with novel PF content as well. Once more, this implies that deletions preserving the PF content are prioritised by PR. In such a situation, partial deletion is again picked out as the prioritised PF-operation, from which spell-out of the 'lower V + *le*' sequence results, thereby giving rise to verb doubling effect.

(19)



(20)



Lowering
PF movement
...

5. Conclusion

In this paper we propose that LVD constructions in Mandarin Chinese involve the interaction of (i) phrasal movement of VP to the clausal left periphery, (ii) different kinds of PF-processes underlying the distribution of post-verbal particles, and (iii) partial copy deletion (cf. Scott 2021, van Urk 2018) constrained by Landau (2006)'s PF algorithm. We apply this analysis to LVD cases with two different kinds of particles, manner *de* and duration *le*. The morphosyntactic hosting requirements of both particles, though differing from each other in certain respects, prevent full deletion of a lower VP-copy. The result of this partial deletion is doubling of the lexical verb. We suggest that other kinds of LVD, not examined so far, can be handled under the present analysis. One kind is Resultative LVD (21-a), which also contains a particle *de* and can be analysed as with Manner LVD. The other kind is Frequency LVD (21-b), which contains another TAM *guò* and can be analysed as with Duration LVD. Our proposal provides novel support for the view that copy deletion is sensitive to post-syntactic processes.

(21) a. **Kàn** zìmù tā **kàn** de hěn píbèi.
read subtitles he read DE very exhausted
'As for reading subtitles, he felt exhausted to read them.' **Resultative LVD**

b. **Kàn** yáyī tā **kàn** guò sān cì.
see dentist he see GUO three time
'As for going to the dentist, he went there three times.' **Frequency LVD**

References

Abels, Klaus. 2001. The predicate cleft construction in Russian. In Steven Franks & Michael Yadroff (eds.), *Formal Approaches to Slavic Linguistics 9*, 1–19. Bloomington, IN: Michigan Slavic Publications.

Bartos, Huba. 2019. The V-copy construction in Mandarin: A case temporarily reopened. In Jianhua Hu & Haihua Pan (eds.), *Interface in Grammar*, 167–205. Amsterdam/Philadelphia: John Benjamins.

Cheng, Lisa L.-S. 2007. Verb copying in Mandarin Chinese. In Norbert Corver & Jairo Nunes (eds.), *The copy theory of movement*, 151–174. Amsterdam/Philadelphia: John Benjamins.

Cheng, Lisa L.-S. 2017. Verb copying. In Rint Sybesma, Wolfgang Behr, Yueguo Gu, Zev Handel, C.-T. James Huang & James Myers (eds.), *Encyclopedia of Chinese Language and Linguistics, Vol. 4*, 488–490. Leiden: Brill.

Embick, David. 2007. Linearization and Local Dislocation: derivational mechanics and interactions. *Linguistic Analysis* 25. 303–336.

Embick, David & Rolf Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32. 555–595.

Harbour, Daniel. 1999. The two types of predicate clefts: classical Hebrew and beyond. *MIT Working Papers in Linguistics* 34. 859–175.

Harbour, Daniel. 2008. *Kilvaj predika*, or predicate clefts in Haitian. *Lingua* 118. 853–871.

Huang, C.-T. James, Y.-H. Audrey Li & Yafei Li. 2009. *The syntax of Chinese*. Cambridge: Cambridge University Press.

Kratzer, Angelika. 1996. Severing the external argument from its verb. In Johan Rooryck & Laurie Zaring (eds.), *Phrase structure and the lexicon*, 109–137. Dordrecht: Kluwer.

Landau, Idan. 2006. Chain resolution in Hebrew VP-fronting. *Syntax* 9. 32–66.

Scott, Tessa. 2021. Two types of resumptive pronouns in Swahili. *Linguistic Inquiry* 52. 812–833.

Sybesma, Rint. 1999. *The Mandarin VP*. Dordrecht: Kluwer.

Tang, C.-C. Jane. 1990. *Chinese phrase structure and the extended X'-theory*. Ithaca, NY: Cornell University dissertation.

van Urk, Coppe. 2018. Pronoun copying in Dinka Bor and the Copy Theory of Movement. *Natural Language and Linguistic Theory* 36. 937–990.

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