Deriving the PF-Sensitivity of Chain Resolution without Look-Ahead

§1 Overview: Post-syntactic factors are implicated in partial realisation of the lower movement copies (e.g., Cheng 2007, van Urk 2018, Scott 2021, among many others). An implicit assumption in current research is that chain resolution actively facilitates (i.e. looks-ahead to) subsequent post-syntactic processes. We propose instead that the relevant processes precede chain resolution, and crucially, that partial realisation reflects chain resolution being unable to undo the effects of preceding processes. This 'myopic' approach is illustrated using VP-chains in Mandarin Chinese.

§2 Empirical puzzle: We focus on instances of clause-initial verb doubling, recently discussed by Meadows and Yan (2023, to appear). This phenomenon is profitably analysed VP-movement to Spec,CP, in light of a range of island and reconstruction effects. The puzzle is that instead of a gap, what is found in the base position is the form of moved lexical verb. The doubled verb is required in presence of a number particles, including modificational *de* (1) and aspectual *le* and *guo* (2).

(1) [$_{\text{CP}}$ [$_{\text{VP}}$ **Kàn nà-běn xiǎoshuō**] Piet [$_{\text{VoiceP}}$ [$_{\text{VP}}$ kàn ~~nà-běn xiǎoshuō~~] de hěn kuài]].
read that-CL novel Piet read DE very quickly
'As for reading the novel, Piet read it very quickly.' **clause-initial verb doubling + *de***

(2) [$_{\text{CP}}$ [$_{\text{VP}}$ **Kàn nà-běn xiǎoshuō**] Piet [$_{\text{VoiceP}}$ [$_{\text{VP}}$ kàn ~~nà-běn xiǎoshuō~~] le sān tiān]].
read that-CL novel Piet read le three day
'As for reading the novel, Piet read it for three days.' **clause-initial verb doubling + *le***

§3 Look-ahead problems and solutions: Proposals about PF-sensitive chain resolution commonly involves a look-ahead problem. For instance, Meadows and Yan (2023, to appear) propose that those particles share a similar linearisation requirement of being right-adjacent to the verbal head. Partial deletion, which targets the object in the lower VP copy, wins out among all the possible chain resolutions, seemingly so that the particles' linearisation-requirement can be met properly. The source of the look-ahead problem is the assumption that chain resolution precedes all other post-syntactic process. To derive any sensitivity it has to subsequent processes, look-ahead is inevitable. It isn't ultimately clear on these approaches why precisely chain resolution should 'care about' hosting requirements of particles. In what follows, we offer an explicit, 'myopic' way to capture PF-sensitivity of chain resolution without look-ahead, by pursuing the intuition in (3).

(3) **The core intuition:** Chain resolution may be preceded by certain PF processes, and these processes create environments which constrain the application of chain resolution.

§4 Chain resolution and linearisation: To execute the intuition in (3), we connect chain resolution to linearisation processes at PF. Following Nunes (2004), we assume that when the same syntactic object is merged more than once, there is the potential to create unlinearisable structures. In (1) and (2), the issue would be that the same VP would be read off as preceding *and* following the subject. Following Fox and Pesetsky (2005), we assume that the problem is ultimately that the linearisation system cannot tolerate contradictory information (4a), and has no way to remove it (4b).

(4) a. INTOLERANCE: Contradictory linearisation information crashes the PF derivation.
b. MONOTONICITY: Linearisation information cannot be deleted or undone.

The motivation for chain resolution is to allow for linearisable chains. We treat chain resolution as a kind of 'vacuous linearisation', which removes the linearisation problem of chains. Before the general procedure (5a) of generating *linearisation statements* (henceforth LS) from asymmetric c-command relations (Kayne 1994), one or more parts of a chain are vacuously linearised. This is achieved in (5b) by generating a negative LS, in the sense that it stipulates that nothing follows each constituent of the chain-part. Strictly speaking, this applies to as many constituents of the chain part as possible, which in simple cases means all of them. We return to this qualification below.

(5) a. GENERAL LINEARISATION: Generation of an LS, *X precedes Y*, for two categories X and Y where (i) X asymmetrically c-commands Y, and (ii) X and Y are not already associated with an LS.

b. VACUOUS LINEARISATION: Generation of two LS, for as many constituents as possible of a category XP that is part of a chain. This is informally stated as *X's constituent(s) precedes no category*.

The way we have defined GENERAL LINEARISATION, only applying to categories which haven't been linearised, is crucial. Since chain resolution is treated as a kind of linearisation which applies before GENERAL LINEARISATION, resolved chain parts with their special linearisation statements are effectively invisible to GENERAL LINEARISATION. We assume that the phonological silence of resolved chain-parts is a side effect of their vacuous linearisation.

The relevance of particles like *de* and *le* is that they realise categories which effectively come with their own LS (6a/b). We assume that such statements are generated before those related to vacuous or general linearisation (6c). Ordering the three types of linearisation may not be necessary. Intuitively they apply in environments of three degrees of specificity, and thus would be amenable to the Elsewhere Principle. There is a priority of application, however it is to be implemented.

(6) a. CATEGORY-SPECIFIC LINEARISATION: LS is generated by the presence of category X, regardless of its structural position.

b. Relevant LS: *V precedes* $X_{particle}$

c. EXTRINSIC ORDERING: Category-specific » Vacuous » General

§5 Deriving verb-doubling: When the lower VP copy is local to X_{particle}, the first LS to be established is *V precedes* $X_{particle}$ by the ordering in (6c). The next step should be to apply VACUOUS LINEARISATION to the lower VP copy's constituents, V and DP_{Object}. Crucially, however, this cannot apply to V, since an LS has already been established about it which would contradict an LS of the type in (5b). An acceptable outcome is to just vacuously linearise DP_{Object}, adding the LS DP_{Object} *precedes no category*, ultimately leading to phonological silence of just DP_{Object}. This is because, according to (5c), only as many as possible of the constituents (rather than all) have to be dealt with. GENERALISATION LINEARISATION subsequently handles unlinearised objects. The key idea is simply that CATEGORY-SPECIFIC LINEARISATION bleeds complete chain resolution. The bleeding effect specifically hinges on treating chain resolution as a kind of linearisation.

§6 Cross-linguistic extension: VP-fronting has been observed to leave copies/residue in a number of languages. In Hebrew, for example, as detailed by Landau (2006), the lower copy is a verb fully inflected for tense/agreement, whereas the higher verb takes an infinitive form. Landau's intuition is that the doubling comes from the STRAY AFFIX FILTER: tense and agreement need to be hosted. In the present system, we would say that T in Hebrew, like X_{particle} in Mandarin Chinese, comes with its own LS: *V precedes T*. Once this LS is established, VACUOUS LINEARISATION can only apply to part of the lower VP-copy. It may be necessary to assume cycles of linearisation, to ensure that T follows the lower V and not the higher one. The general point is that not just any PF-process can influence chain resolution: only category-specific LS matters. This is empirically sufficient to derive exceptions to the general pressure to resolve chains. That they are exceptions, rather than the rules, comes down to crucially myopic character of linearisation.

Selected References: Fox, D. & Pesetsky, D. 2005. Cyclic linearization of syntactic structure. *Theo Ling*. **Meadows, T. & Yan, Q. C.** 2023. Verb doubling in Mandarin Chinese as PF-driven lower copy pronunciation. *Proceedings of SICOGG24*; to appear. The syntax and post-syntax of verb doubling in Mandarin Chinese. *Proceedings of WCCFL41*.