



## 1. INTRODUCTION

- I argue for the deletion of ordering statements as a repair mechanism for linearization.
- This proposal provides an account of:
  - parallel structures such as right node raising (RNR)
  - the overt-covert movement distinction
  - scattered deletion

## 2. FORMALIZING LINEARIZATION

- We can model the output of linearization as a binary relation, i.e., a set of ordered pairs (Kayne 1994, Chomsky 1995).
- I call the output of linearization the **precedence relation**.
- I refer to the elements of the precedence relation as **ordering statements** (cf. Fox & Pesetsky 2005).
- For a precedence relation to be interpretable by the SM interface, it must be a **linear order**, i.e., transitive, total, and asymmetric (Kayne 1994).
  - Transitive:  $\langle a, b \rangle \in R \wedge \langle b, c \rangle \in R \rightarrow \langle a, c \rangle \in R$
  - Total:  $a \neq b \rightarrow (\langle a, b \rangle \in R \vee \langle b, a \rangle \in R)$
  - Asymmetric:  $\langle a, b \rangle \in R \rightarrow \neg \langle b, a \rangle \in R$
- Asymmetry entails irreflexivity:  $\langle a, a \rangle \notin R$

## 3. PROBLEMS OF LINEARIZATION

- Treating movement as Merge leads to reflexivity and symmetry in syntax.
- Consider (1):
  - $[_{CP} \text{ what}_i \text{ did } [_{TP} \text{ you } [_{VP} \text{ see what}_i]]]$
  - In (1), *what* c-commands itself (reflexive c-command).
  - In (1), *what* both c-commands and is c-commanded by *did*, *you*, and *see* (symmetric c-command).
  - In general, reflexivity and symmetry in syntax lead to reflexivity and symmetry in linearization, precluding a linear order (Nunes 2004).
  - There are two types of approaches to this problem:
    - Repair approaches:** Introduce a repair mechanism to eliminate violations of asymmetry.
    - Redefinition approaches:** Define the linearization algorithm (or the primitives on which it is based) so that reflexive and symmetric ordering statements do not arise in the first place.

- Repair approaches are strongly associated with the copy theory of movement, where copies of a displaced constituent are deleted to resolve asymmetry violations (e.g., Nunes 2004).
- Authors who assume multidominance tend to adopt redefinition approaches:

	Copy theory	Multidominance theory
Repair	Nunes 2004 and others	Belk et al. 2023
Redefinition	Sheehan 2013	Wilder 1999, Fox & Pesetsky 2005, Vries 2009, Gračanin-Yuksek 2013, Bachrach & Katzir 2017, Johnson 2020

## 4. PROPOSAL

- Flexible Cyclic Linearization (FCL):** ordering statements can be deleted *in the phase in which they arise* as necessary to linearize a structure (Malanoski forthcoming).
- Linearization is subject to **Order Preservation** (Fox & Pesetsky 2005: ordering statements established in a prior phase cannot be modified).
- FCL takes a repair approach, unlike the original Cyclic Linearization (Fox & Pesetsky 2005), which takes a redefinition approach (redefining c-command so that only the most recent Merge counts).

## 5. LINEARIZING SHARING: RIGHT NODE RAISING

- FCL can linearize parallel structures.
- Consider (2).
  - I use co-indexation to represent sharing (multidominance or sideward movement) and ignore displacement other than RNR. This does not affect the points under discussion.
- (2) Darius found and Jasmine took the book.
 
$$[_{CP} [_{\&P} [_{TP} \text{ Darius } [_{VP} \text{ found } [\text{the book}]_i]]] \& \text{ and } [_{TP} \text{ Jasmine } [_{VP} \text{ took } [\text{the book}]_i]]]]]$$
- Spell-out of the  $[_{VP} \text{ found } [\text{the book}]]$  will produce the ordering statements:  $\langle \text{found}, \text{the} \rangle$ ;  $\langle \text{found}, \text{book} \rangle$ ; and  $\langle \text{the}, \text{book} \rangle$ .
- Spell-out of  $[_{VP} \text{ took } [\text{the book}]]$  will produce the ordering statements:  $\langle \text{took}, \text{the} \rangle$ ;  $\langle \text{took}, \text{book} \rangle$ ; and  $\langle \text{the}, \text{book} \rangle$ .

- Spell-out of the CP will produce the ordering statements in (3) [see handout].
- (3) is not asymmetric, and thus requires repair.
- First, the reflexive ordering statements must be deleted:  $\langle \text{the}, \text{the} \rangle$  and  $\langle \text{book}, \text{book} \rangle$ .
- Second, to satisfy Order Preservation, the ordering statements that contradict previously established ordering statements must be deleted:  $\langle \text{the}, \text{took} \rangle$ ;  $\langle \text{book}, \text{took} \rangle$ ; and  $\langle \text{book}, \text{the} \rangle$ .
- Resolving the remaining symmetry— $\langle \text{the}, \text{and} \rangle$ ;  $\langle \text{the}, \text{Jasmine} \rangle$ ;  $\langle \text{book}, \text{and} \rangle$ ; and  $\langle \text{book}, \text{Jasmine} \rangle$  vs.  $\langle \text{and}, \text{the} \rangle$ ;  $\langle \text{Jasmine}, \text{the} \rangle$ ;  $\langle \text{and}, \text{book} \rangle$ ; and  $\langle \text{Jasmine}, \text{book} \rangle$ —is a more complicated task. However, there is a unique solution:
  - The precedence relation contains  $\langle \text{the}, \text{and} \rangle$  and  $\langle \text{and}, \text{took} \rangle$  but not  $\langle \text{the}, \text{took} \rangle$  (which was deleted to satisfy Order Preservation), violating transitivity.
  - We cannot resolve this violation of transitivity by deleting  $\langle \text{and}, \text{took} \rangle$ , because then *and* would not be ordered with respect to *took*, violating totality.
  - Thus, to respect transitivity, we must delete  $\langle \text{the}, \text{and} \rangle$ .
  - To respect totality, we must keep  $\langle \text{and}, \text{the} \rangle$  instead.
  - The reasoning is parallel for the other pairs of symmetric ordering statements [see handout]. The only way to resolve the symmetry is to delete  $\langle \text{the}, \text{and} \rangle$ ;  $\langle \text{the}, \text{Jasmine} \rangle$ ;  $\langle \text{book}, \text{and} \rangle$ ; and  $\langle \text{book}, \text{Jasmine} \rangle$ .
- Deleting the indicated ordering statements leaves the ordering statements in (4), which corresponds to the surface order in (2).
- This proposal maintains a core insight of Sabbagh (2007)—that the Edge Restriction on RNR is Order Preservation—without the baggage of a movement approach to RNR (see Bachrach & Katzir 2017 and Larson 2018 for discussion) [see discussion of (5) on handout].

## 6. OPTIONALITY AND VARIATION

- This proposal also derives a multidominance-compatible implementation of Bobaljik's (2002) theory of covert movement as realization of a lower occurrence.
- Consider (6).
  - For expository purposes, I ignore head movement.
- (6) What did you see?
 
$$[_{CP} \text{ what}_i \text{ did you}_j [_{VP} \text{ what}_i \text{ you}_j \text{ see what}_i]]]$$

- Spell-out will produce the precedence relation in (7) [see handout], which is not asymmetric and thus requires repair.
- First, the reflexive ordering statement  $\langle \text{what}, \text{what} \rangle$  must be deleted.
- We then have to resolve the remaining symmetry:  $\langle \text{what}, \text{you} \rangle$  and  $\langle \text{what}, \text{see} \rangle$  vs.  $\langle \text{you}, \text{what} \rangle$  and  $\langle \text{see}, \text{what} \rangle$ .
- Crucially, no other factor determines whether to keep the former pair of ordering statements ( $\langle \text{what}, \text{you} \rangle$  and  $\langle \text{what}, \text{see} \rangle$ ) or the latter pair ( $\langle \text{you}, \text{what} \rangle$  and  $\langle \text{see}, \text{what} \rangle$ ).
  - Order Preservation plays no role, since this is an initial phase.
- I propose that the choice between ordering statements here is language-specific.
- Since English has overt wh-movement, we assume that it keeps  $\langle \text{what}, \text{you} \rangle$  and  $\langle \text{what}, \text{see} \rangle$ , giving (8) [see handout].
- Order Preservation will ensure that *what* is linearized before *you* and *see* in the CP phase as well, leading to its realization at the beginning of the sentence—i.e., to overt movement [see handout for fuller exposition].
- Based on the same proposal—when Order Preservation, transitivity, and totality are not at play, languages will vary in how they delete ordering statements—we can provide a multidominance-compatible account of scattered deletion [see handout for demonstration].

## 7. DISCUSSION

- FCL can linearize parallel structures and account for variation in where a constituent is realized.
- FCL is a multidominance-compatible repair approach.
- FCL avoids the potentially problematic consequences of many redefinition approaches (e.g., precluding multiple specifiers; Bachrach & Katzir 2017).

## REFERENCES

Bachrach, A. & R. Katzir. 2017. Linearizing structures. Belk, Z., A. Neeleman & J. Philip. 2023. What divides, and what unites, right-node raising. Bobaljik, J.D. 2002. A-chains at the PF interface: Copies and 'covert' movement. Chomsky, N. 1995. Bare phrase structure. Fox, D. & D. Pesetsky. 2005. Cyclic linearization of syntactic structure. Gračanin-Yuksek, M. 2013. Linearizing multidominance structures. Johnson, K. 2020. Rethinking linearization. Kayne, R. 1994. *The antisymmetry of syntax*. Larson, B. 2018. Right node raising and nongrammaticality. Malanoski, A. Forthcoming. Right node raising and Flexible Cyclic Linearization. Nunes, J. 2004. *Linearization of chains and sideward movement*. Sabbagh, J. 2007. Ordering and linearizing rightward movement. Sheehan, M. 2013. Some implications of a copy theory of labeling. de Vries, M. 2009. On multidominance and linearization. Wilder, C. 1999. Right node raising and the LCA.