Structural Syncretism and the Binarity Constraint on Merge

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PUZZLE: Across-the-Board **(ATB)** constructions are well-known to be ill-formed if the wh-phrase is extracted from non-parallel positions (1a-b); Williams (1978) attributes it to factorization; Franks (1995) to thematic prominence; Woolford (1987) to ECP; Pesetsky (1982) to Path Containment Condition.

(1) a. *I know a man **who**$_i$ Bill saw t_i and t_i likes Mary. (Williams 1978: 34)

b. ***Koji klub**$_i$ mediji kritiziraju t_i a t_i ipak osvaja prvenstvo? *Croatian*
which team media criticize and still wins championship
Lit. 'Which team do the media criticize and is still winning the championship?'

We revisit the ill-formedness of non-parallel ATB extraction in light of (to the best of our knowledge) a novel observation that analogous lack of parallelism in Right-Node-Raising **(RNR)** is grammatical. We first discuss English locative inversion, where the subject is postverbal (e.g. Into the room walked *John*). This ensures that if the subject is the shared element in RNR (the pivot), it obeys the Right Edge Restriction, which requires the pivot to be right-peripheral in all conjuncts (Wilder 1999; Sabbagh 2007, a. o.). We show that the pivot, bolded in (2), can occupy non-parallel positions in the two conjuncts.

(2) Everyone expected__, and into the room walked__, **a guy in a blue suit.**

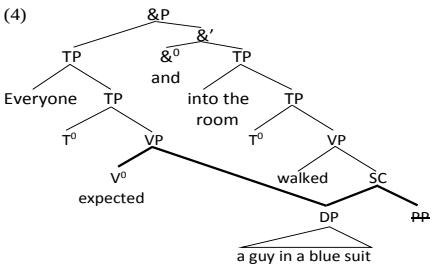
We next show that in Croatian and Polish, which allow postverbal subjects more generally (without any transitivity restrictions) RNR behaves similarly, as illustrated in (3) for Croatian.

(3) Mediji kritiziraju __ , a __ prvenstvo svejedno osvaja, **nogometni klub iz Rijeke**. *Croatian*
media criticize and championship nevertheless wins soccer team from Rijeka
Lit. 'The media criticize but the championship still wins the soccer team from Rijeka.'

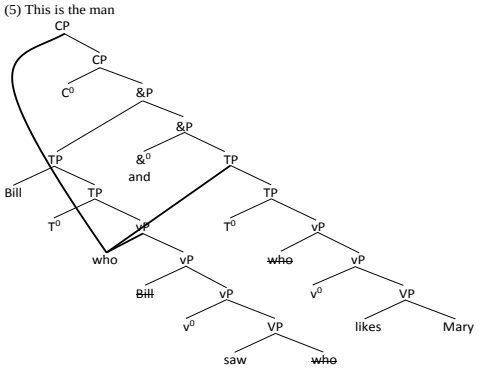
PROPOSAL: The contrast between non-parallel ATB questions and RNR is mysterious if RNR involves movement (Postal 1998, Sabbagh 2007, a.o.) but is less so if it involves a multidominant structure (Wilder 1999, De Vries 2012, Bachrach and Katzir 2009, 2017). We derive the contrast between ATB and RNR from an independent constraint on Merge, which ***prevents Merge from relating more than two positions within a single derivation.*** We dub this constraint the *Binarity Constraint on Merge* (**BiCoM)**.

In RNR (4), the pivot is shared only by means of Parallel Merge (Citko 2005), which inserts it simultaneously into *two separate derivations*; the two TPs in (4) become part of a single derivation *only* when they are conjoined. By contrast, in ATB constructions (5), when the shared wh-phrase is internally merged with C, the two TPs are *already* conjoined, so the movement takes place *within a single derivation*. Thus, in the well-formed RNR examples, Merge relates only *two positions at the time within a derivation* leading to a well-formed structure, while in non-parallel ATB questions, Merge relates *three positions at a time within a single derivation* ([Spec, vP], [Spec TP], [Spec CP]). However, if BiCoM is real, we would expect *all* ATB questions to be impossible, since they always involve Internal Merge of a parallel-merged constituent, relating three syntactic positions, in violation of BiCoM. Yet, parallel ATB questions are well-formed:

(4)



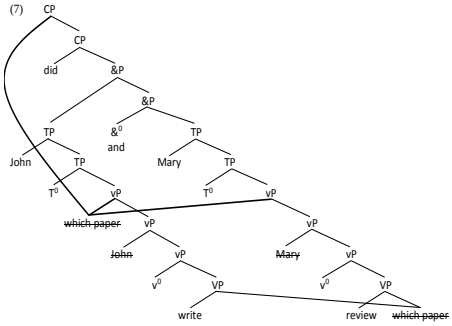
(5) This is the man



(6) **Which paper** did John write and Mary review?

In (6), a BiCoM violation is obviated because the shared phrase,

(7)

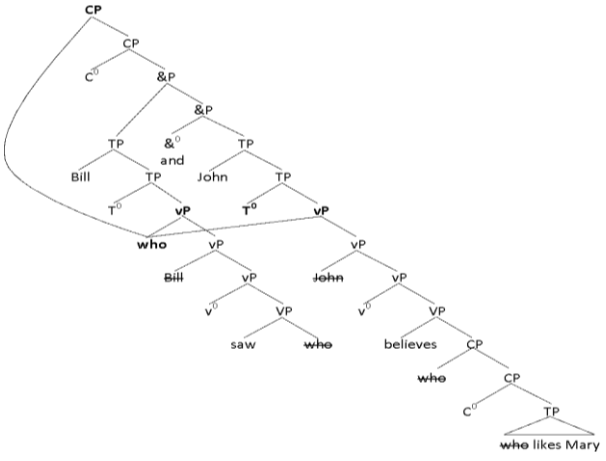


prior to being internally merged with the matrix C^0, occupies the *same* position ([Spec *v*P]) in both conjuncts (7), which counts as *one* for purposes of further operations of Merge. We propose that this is an instance of ***structural syncretism***; just as morphologically syncretic forms ameliorate case conflicts in ATB questions (Citko 2005 and the references therein), structurally syncretic configurations ameliorate violations of BiCoM: Merge treats two structurally identical positions as one.

CONSEQUENCES: Structural syncretism also explains why, as noted by Williams (1978), non-parallel, ungrammatical ATB questions improve if the subject extraction site is further embedded (8a). The highest occurrences of the shared wh-phrase occupy structurally syncretic positions: the edge of the vP in both conjuncts. This reduces them to a single occurrence for the purposes of subsequent re-merge with C^0(8b).

(8) a. Tell me **who**$_i$ Bill saw t_i and John believes t_i likes Mary.

b. Tell me



Contrary to appearances,successive cyclic movement (9) also doesn't violate BiCoM.

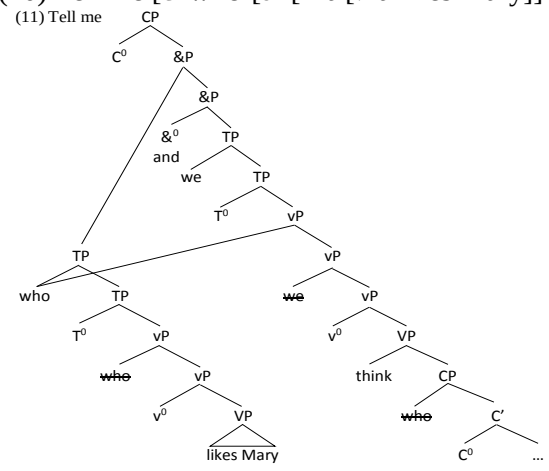
(9) **What**$_i$ did John t_i think t_i that Mary t_i said t_i?

In this case, the internally merged wh-phrase *what* occupies multiple, structurally non-parallel positions at every application of Internal Merge except for the very first one. However, in every instance, the search stops as soon as the most local occurrence of *what* is reached (Minimal Search, Chomsky 2005). Consequently, every application of Internal Merge treats the shared goal as occupying a single position, in accordance with BiCoM.

Finally, our proposal makes a prediction that ATB questions where the extracted wh-phrase is the subject in both conjuncts, but is deeper embedded in one conjunct than in the other, should be ill-formed due to a BiCoM violation. This is because the shared wh-phrase *who*, at the point when it is probed by the higher C^0, occupies different, non-syncretic positions: [Spec TP] in the first conjunct and [Spec vP] in the second. This prediction is, however, not borne out, as shown by the grammaticality of (10).

(10) Tell me [$_{CP}$ **who**$_i$ [$_{\&P}$ [$_{TP}$ t_i [$_{vP}$ t_i likes Mary]] and [$_{TP}$ we [$_{vP}$ t_i think [$_{TP}$ t_i should [$_{vP}$ t_i ask her out]]]]].

(11) Tell me



We propose that the grammaticality of (10) can be explained given the *Vacuous Movement Hypothesis* (George 1980, Chomsky 1986, Kasai 2004, a. o.), on which the highest wh-subject remains in [Spec TP], as shown in (11). In this configuration, BiCoM is not violated since a parallel-merged wh-phrase is not subsequently internally merged, so Merge never relates more than two positions in a derivation. To conclude, we argue that Merge is subject to BiCoM and that structural syncretism ameliorates BiCoM violations. This derives the contrasts observed in constructions that have been proposed to involve multiple dominance (RNR, ATB) and is compatible with successive cyclic movement viewed as multidominance.

Selected References: Bachrach, A. & R. Katzir. 2017. Linearizing Structures. Syntax 20:1-40; **Chomsky, N. 1986.** *Barriers.* Cambridge, MA: MIT Press. **Chomsky, N. 2005.** Three factors in language design. *Linguistic Inquiry* 36: 1-22; **Citko, B. 2005.** On the Nature of Merge: External Merge, External Merge and Parallel Merge. Linguistic Inquiry 36: 475–497. **Franks, S. 1995.** *Parameters of Slavic Morphosyntax.* New York: Oxford University Press. **George, L. M. 1980.** Analogical Generalization in Natural Language Syntax. PhD thesis, MIT; **Kasai, H. 2004.** Two Notes on ATB Movement. *Language and Linguistics* 5: 167-188. **Pesetsky, D. 1982.** Paths and Categories. PhD thesis, MIT. **Postal, P. 1998.** *Three Investigations of Extraction.* Cambridge, MA: MIT Press. **Sabbagh, J. 2007.** Ordering and Linearizing Rightward Movement. NLLT 25: 349-401; **Wilder, C.** 1999. Right Node Raising and the LCA. In Proceedings of WCCFL 18: 586-598; **Williams, E. 1978.** Across-the-board Rule Application. *Linguistic Inquiry* 9: 31–43. **Woolford, E. 1987.** An ECP Account of Across-the-Board Extraction. *Linguistic Inquiry* 18: 166-171.