In defense of cyclic coordination structures: The view from German

Luise Schwarzer, NTNU
marie-luise.schwarzer@ntnu.no
Philipp Weisser, Leipzig
philipp.weisser@uni-leipzig.de

NELS 54 MIT – 27 January 2024

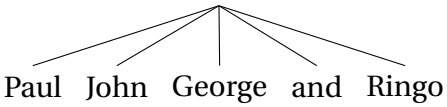
The talk in a nutshell:

- Two recent papers looking into coordination with 3+-conjuncts have called asymmetric coordination analyses into question and argued that coordination is syntactically flat.
- Based on German data, we present two kinds of arguments against this view and for a hierarchical, asymmetric structure:
  - The first argument comes from deletion in compounds, which always applies cyclically from the lowest conjunct upwards regardless of the direction of deletion.
  - The second argument comes from various configurations of adversative coordination with 3+ conjuncts
- We discuss two possible conclusions from these arguments and explore the stronger claim that coordination is universally asymmetric.
- We propose a uniformly asymmetric analysis which employs the notion of cycles/phases (rather than hierarchy) to account for instances of subgrouping.

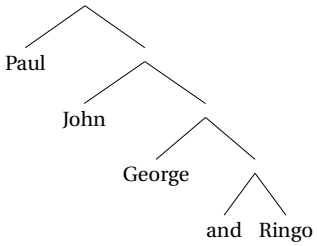
1 Introduction: Two syntactic structures for coordination

- The literature contains a long-standing discussion about the question as to whether coordination is symmetrical/flat or asymmetric/hierarchical in nature.
  - A flat structure has been proposed/argued for by Chomsky (1965); Dik (1968); Borsley (2005)
  - A hierarchical structure has been proposed by Munn (1993); Zoerner (1995); Johannessen (1996); Zhang (2010); Weisser (2015)

(1)



(2)



➤ More recently, a number of arguments for a hierarchical structure have been disputed/refuted.

① Johannessen's (1996) arguments coming mainly from case assignment and agreement have been argued to be untenable and can, more plausibly be attributed to independent morphological processes such as allomorphy (Weisser 2020):

(3) Chuaigh se-isean agus e-isean 'na bhaile.
go.PAST 3SG.SUBJ-CONTR and 3SG.OBJ-CONTR home
'He and he went home.' Irish, McCloskey (1986)

② In a recent paper (Ke et al. 2023), the frequently cited binding examples have been argued to be misanalyzed and that they should be seen as instances of logophoricity:

(4) Every man$_i$ and his$_i$ dog Munn (1993)

↛ Proper variable binding is also possible with inanimate participants (Charnavel 2021) but logophoricity is not.

(5) *They couldn't stop thinking about the castle$_i$ and the pictures of itself$_i$.
Ke et al. (2023)

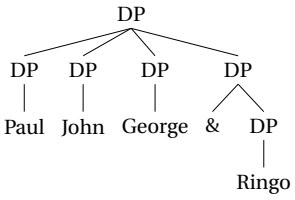
③ Neeleman et al. (2023) argue that asymmetries in agreement and in particular the existence of first-conjunct-agreement vs the apparent non-existence of last-conjunct-agreement (Nevins & Weisser 2019) does not provide an argument for an asymmetry.

2 Neeleman et al. (2023)

➤ Neeleman et al. (2023) assume that coordination is an instance of mutual adjunction of coordinands and as such flat and not necessarily binary.

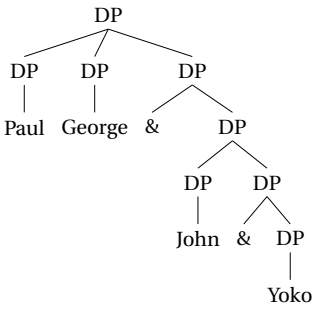
➤ The coordinator is a functional head attached to the last coordinand in the flat coordination sequence:

(6)



➤ But since syntax is recursive, nothing prohibits the generation a **subgrouping** structure of (7) in addition to (6)

(7)



➤ The structures differ in the presence of a second conjunction indicating double embedding and that's how Neeleman et al. (2023) diagnose these structures.

➤ The difference is that the coordination consists of three conjuncts in (7) and of four conjuncts in (6).

↳ This means that processes referencing the number of conjuncts should distinguish between the flat and recursive, hierarchical structures.

↳ Neeleman et al. (2023) use data from Borsley (2005) to argue that this is borne out:

(8) a. both Tom and Dick and Harry
b. *both Tom, Dick and Harry Borsley (2005)

➤ Neeleman et al. (2023) provide data from adverbial and adjectival modification with 3-conjunct coordinations to show that, with only one coordinator present, no non-trivial subconstituent can be in the scope of the adjective/adverbial.

(9) Mary will buy yellow crocuses, pansies and tulips.
a. [[yellow crocuses] pansies and tulips]
b. [[yellow crocuses, pansies and tulips]]
c. *[[yellow crocuses, pansies] and tulips]

(10) Mary will buy crocuses, yellow pansies and tulips.
a. [[crocuses, [yellow pansies] and tulips]
b. *[crocuses, [yellow pansies and tulips]]

➤ Does this mean that coordination structures with only one coordinator are always flat?

3 Arguments against flat *n*-ary coordination

3.1 Ellipsis in Compounding

- In a coordination of two compounded nouns in German, part of a compound can be deleted, (11a,b).
- This phenomenon is sometimes referred to as subword deletion, morphological brachylogy, or suspended affixation. We assume that this is a type of ellipsis, but remain agnostic regarding its details (see e.g., Booij 1985; Pounder 2006; Kenesei 2007; Müller in prep.).

(11) a. [Apfel-~~bäume~~ und Kirsch-bäume]
apple-trees and cherry-trees
"apple trees and cherry trees"

b. [Herren-gürtel und ~~Herren~~-schuhe]
gentlemen-belts and gentlemen-shoes
"belts and shoes for men"

- In 3-way coordinations, this deletion process can affect only two of the three conjuncts.

➤ The pattern we find is contrary to what we would expect for flat, *n*-ary coordinations. (12) contrasts with (10b) above:

(12) a. [Holunderbüsche, [Apfel-~~bäume~~ und Kirsch-bäume]]
elder.bushes apple-trees and cherry-trees
"elder bushes, apple trees and cherry trees"

b. [Damenhandtaschen, [Herren-gürtel und ~~Herren~~-schuhe]]
lady.handbags gentlemen-belts and gentlemen-shoes
"handbags, men's belts and men's shoes"

- Since there is only one overt coordinator, we should be dealing with a flat structure, where a deletion operation should affect either all or none of the conjuncts.
- But: there is a subconstituent consisting of the rightmost/innermost two nouns in (12) that the deletion process can pick out.
- Additionally, there is a left-right asymmetry: subword deletion can't apply to nouns at the left edge, (13).

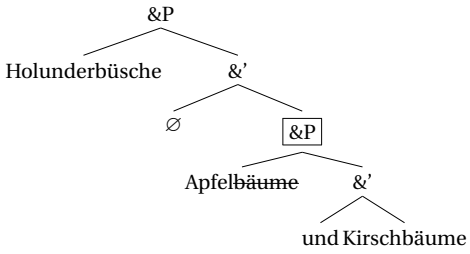
(13) a. *Apfel-~~bäume~~, Kirsch-bäume und Holunderbüsche
apple-trees cherry-trees and elder.bushes

b. *Herren-gürtel, -schuhe und andere Lederwaren
gentlemen-belts shoes and other leather.goods

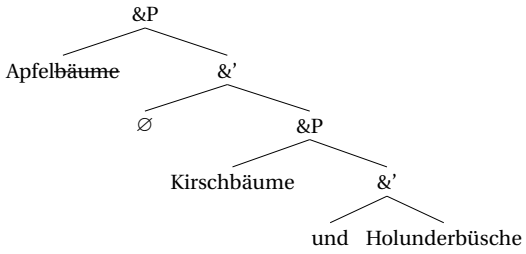
➤ This suggests that this deletion is not licensed by simple linear adjacency, but that it is sensitive to structural relations.

➤ The contrast between (12) and (13) can be explained in a binary-branching structure that is built up cyclically, where the deletion looks for a constituent from the bottom-up, see (14) and (15).

(14) ✓Ellipsis inside an XP (=(12a))

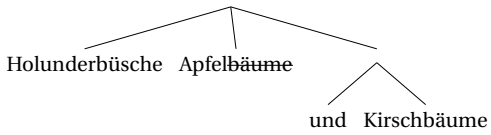


(15) ✗Ellipsis in a non-XP (=(13a))[1]

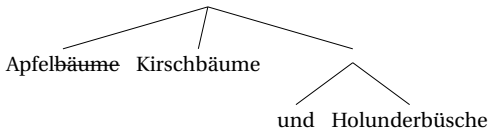


➤ A flat adjunction structure where no constituent c-commands another (Neeleman et al. 2023:59) would provide us with no handle to explain why (16) is grammatical but (17) is not:

(16)



(17) *



➤ Subword deletion in German compounds reveals that three-part coordinations with only one coordinator can have cyclic/ hierarchical properties.

3.2 Interactions between adversative and neutral coordination

3.2.1 Non-identical interpretation of covert coordinators

- In general, a non-overt coordinator must be semantically identical to an overt coordinator.

(18) a. Ringo ∅ Paul and George
≠ Ringo **or** Paul and George

b. Ringo ∅ Paul or George
≠ Ringo **and** Paul or George

- In a flat structure account, the uniform interpretation follows automatically: there is only a single coordination.
- New observation: Adversative coordination with 3+ conjuncts shows exactly the opposite pattern:

(19) Ich habe Ringo ∅ Paul ∅ John aber nicht George getroffen.
I have Ringo Paul John but not George met
"I met Ringo, Paul, and John but not George.
≠ Ringo **but** Paul **but** John but not George
✓Ringo **and** Paul **and** John but not George

➤ Here, there is only one overt coordinator, but the interpretation is not that of a flat, *n*-ary branching structure.

➤ Instead, the interpretation suggests that adversative and conjunctive coordination structures are mixed.[2]

[1] See also appendix B.

[2] This is similar to what Wagner (2008) found for disjunctions under negation, (i). Since a polarity contrast is also involved in (19) but not (18), negation seems to play some role here. We leave this issue for future research.

(i) No weapons, no drugs or any money were found there.
≠ No weapons, or no drugs or any money were found there. (Wagner 2008:12)

3.2.2 Distribution of negation with corrective *but*

➤ Moreover, we note that, in 3+-adversative coordination, independent requirements on the conjuncts pattern exactly as we would expect in a cyclic approach.

- Horn (1989); Vicente (2010) note that corrective *but* requires sentential negation in the first conjunct.

(20) a. *This is improbable but merely possible.
b. This is not probable but merely possible. (Vicente, 2010, 384)

- The same holds for German (corrective *but* is lexicalized as *sondern*, while counter-expectational *but* is *aber*):

(21) a. Es ist nicht wahrscheinlich sondern lediglich vorstellbar.
It is not likely but merely imaginable
b. *Es ist unwahrscheinlich sondern lediglich vorstellbar.
It is unlikely but merely imaginable

- With 3+-conjuncts, the pattern is exactly as we would expect it from a cyclic approach. The requirement on the negation is introduced by the subconstituent which is headed by the corrective coordinator (*sondern*). This means that with 3+conjuncts, the requirement for a negation is on the second-to-last conjunct.

(22) a. Es ist [[etwas unplausibel], [$_{sondern\text{P}}$ [nicht wahrscheinlich] sondern [lediglich
It is quite implausible, not likely but merely
vorstellbar]]].
imaginable
b. *Es ist [[nicht wahrscheinlich], [$_{sondern\text{P}}$ [etwas unplausibel], sondern [lediglich
It is not likely, quite implausible but merely
vorstellbar]]].
imaginable.

➤ In a cyclic approach, this is completely expected as the second coordinand is (similarly to (21)) the first coordinand of the &P headed by *sondern*.

➤ In a flat approach, it is unclear why the second and not the first coordinand inherits the negation requirement.

Interim summary

- Subword deletion in compounds can pick out a subconstituent.
- Interpretation of the covert coordinator is not identical to the overt one in three-way adversative coordination.
- The distribution of negation with corrective *but/sondern* indicates a cyclic, bottom-up derivation.

4 Where to go from here

Two possible conclusions:

(1) Coordinations are **uniformly binary**. (Neeleman et al.'s (2023) approach is **wrong**.)

- "Flat" properties can be accounted for in a uniformly binary branching, cyclic analysis inspired by Wagner (2010).

(2) Coordinations can be **either flat or binary**. (Neeleman et al.'s (2023) approach is **right**.)

- Our observations about German actually only show that subgrouping is possible without a second coordinator. They don't refute a flat analysis per se. See appendix A.

4.1 Option 1: Uniform binary-branching structure

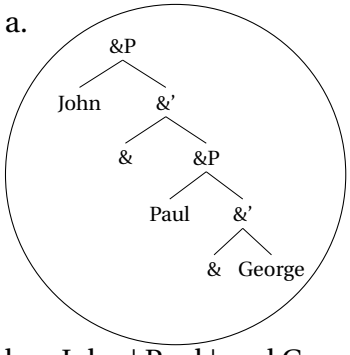
In a nutshell
Subgrouping is derived by derivational cycles rather than syntactic hierarchy.

- Wagner (2010) shows that the length of prosodic breaks (|) between conjuncts varies. Coordinations with one overt coordinator are associated with a flat prosody, i.e., the breaks between the conjuncts are equally long, (23a). If there is a second overt coordinator, there is a stronger prosodic boundary, i.e., a longer break, indicating embedding, (23b).

(23) a. A | ∅ B | and C = [A and B and C]
b. A || and B | and C = [A and [B and C]]
c. A | and B || and C = [[A and B] and C] (Wagner 2010:186)

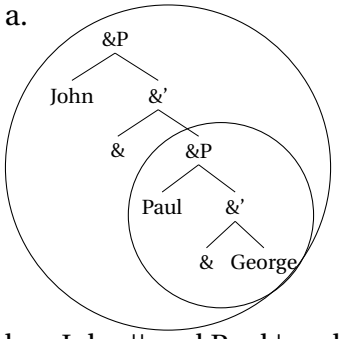
- Wagner (2010) argues that a flat prosody doesn't necessarily stem from a flat syntax.
- He proposes an analysis in which coordinate structures are obligatorily binary branching, and in which derivational cycles differentiate between flat/non-flat properties.

(24) Single-cycle derivation
⇒ flat prosody
a.



b. John | Paul | and George

(25) Two-cycle derivation
⇒ non-flat prosody
a.

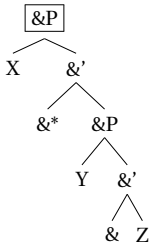


b. John || and Paul | and George

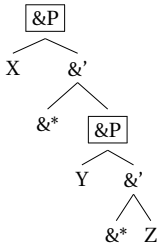
⇒ Coordination is always asymmetric/ binary-branching.

- Our proposal: Some coordination heads are cyclic (= &*): they trigger Spell-out of the &P they head.

(26) Single &*, single cycle



(27) 2&*s, 2 cycles



Accounting for "flat" properties

(1) How does this explain the data involving ***both*** that seem to count conjuncts?

(28) a. both Tom and Dick and Harry
b. *both Tom, Dick and Harry Borsley (2005)

↦ We would like to submit that what these elements do is they count *cycles* rather than conjuncts because these domains are interpreted as semantic units of some sort (Wagner 2010).

(2) How does this explain the **modification** data?

↦ In English, modifiers can only be adjoined to cyclic heads (i.e. &*; similar to the proposal in Zyman 2022); in German they can adjoin to every &P.[3]

(3) How does this theory explain the link between "flatness" and the **number of overt coordinators**?

↦ In English, the generalization seems to be that the lowest & within a cycle is pronounced. In a configuration with multiple stacked &Ps within the same cycle, all non-lowest &s remain unpronounced.

↦ We can formally model this with a simple allomorphy/impoverishment rule:

(29) & ⟶ ∅ / &P

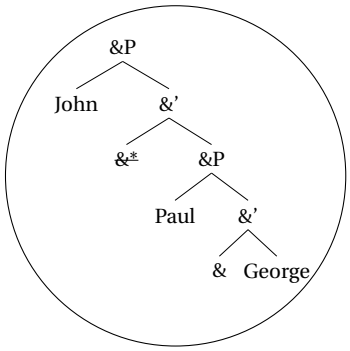
↦ It deletes a coordinator head whose sister is another &P. Note that, in multicyclic structures, this rule will not apply because the &P that was its own cycle is inaccessible.

[3]That predicts that examples like (9c) modifying a subconstituent should be grammatical in German. We have the impression that this is correct:

(i) *Context: Antonia is very specific about drinks. At her wedding, she will only allow three types of drinks on the menu.*

Auf der Hochzeit gibt es lediglich schwedischen Schnaps, bayrische Biere und Weine.
at the wedding will.be EXPL exclusively Swedish liquor Bavarian beers and wines
"At the wedding they will only serve Swedish liquor, Bavarian beers and Bavarian wines."

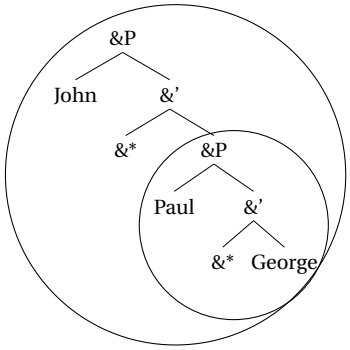
(30)



↦ In (30), the rule in (29) applies, deleting the coordinator:

(31) John, Paul and George

(32)



↦ In (32), the rule in (29) does not apply:

(33) John and Paul and George

- Remaining wrinkle: recall that German seems to allow subgrouping/double-cycle readings with a covert higher &. To account for the variation between German and English we have to assume that &Ps may remain accessible in German.

5 Conclusion

- The case for flat structures is not as straightforward as discussion in the recent literature makes it seem.
- Subword deletion and adversative coordination in German show that the three-conjuncts-and-one-coordinator configuration can be binary and cyclic. Languages can exhibit patterns of subgrouping that are unexpected in a flat-structure approach.
- We sketched two possible conclusions to this finding and explore the stronger one according to which a universally binary branching, cyclic structure can be made to accommodate the facts.

References

Ackema, Peter (2010): Gapping is always forward. In: J.-W. Zwart & M. de Vries, eds., *Structure preserved: studies in syntax for Jan Koster*. pp. 13–20.

Bartos, Huba (2001): Sound-form non-insertion and the direction of ellipsis, *Acta Linguistica Hungarica* 48(1), 3–24.

Booij, Gert (1985): Coordination Reduction in Complex wword: A case for Prosodic Phonology. In: H. van der Hulst & N. Smith, eds., *Advances in Nonlinear Phonology*. Dordrecht: Foris.

Borsley, Robert (2005): Against ConjP, *Lingua* 4(115), 461–482.

Charnavel, Isabell (2021): Logophoricity, Perspective and Reflexives, *Annual Review of Linguistics* 7, 131–155.

Chomsky, Noam (1965): *Aspects of the Theory of Syntax.*. MIT Press, Cambridge, MA.

Citko, Barbara (2018): On the relationship between forward and backward gapping, *Syntax* 21, 1–36.

Dik, Simon (1968): *Coordination. Its implications for the theory of general linguistics*. Amsterdam.

Horn, Laurence (1989): *A natural history of negation*. CSLI Publications.

Johannessen, Janne Bondi (1996): Partial agreement and coordination. Remarks and Replies, *Linguistic Inquiry* pp. 661–676.

Ke, Alan, Andrew McInnerney, & Yushi Sugimoto (2023): Lack of c-command in coordinate structures: Evidence from binding, *Presented at GLOW 45* .

Kenesei, István (2007): Semiwords and affixoids: The territory between word and affix, *Acta Linguistica Hungarica* (54), 263–293.

McCloskey, James (1986): Inflection and Conjunction in Irish, *Natural Language and Linguistic Theory* 4, 245–281.

Munn, Alan Boag (1993): *Topics in the Syntax and Semantics of Coordinate Structures*. Doctoral Dissertation: University of Maryland.

Müller, Stefanie (in prep.): Licitness factors in Suspended Affixation in German. PhD dissertation. Universität Leipzig.
Neeleman, A., J. Philip, M. Tanaka & H. van de Koot (2023): Subordination and Binary Branching, *Syntax* 26, 41–84.
Nevins, Andrew & Philipp Weisser (2019): Closest conjunct agreement, *Annual Review of Linguistics* 5, 219–241.
Pounder, Amanda (2006): Broken forms in morphology. In: C. Gurski & M. Radisic, eds., *Proceedings of the 2006 Annual Conference of the Canadian Linguistics Association.* pp. 1–16.
Vicente, Luis (2010): On the syntax of adversitive coordination, *Natural Language and Linguistic Theory* 28(2), 381–415.
Wagner, Michael (2008): And, or and ∅, *Snippets* 17, 11–12.
Wagner, Michael (2010): Prosody and recursion in coordinate structures and beyond, *Natural Language and Linguistic Theory* 28, 183–237.
Weisser, Philipp (2015): *Derived Coordination - A Minimalist Perspective on Clause Chains, Converbs and Asymmetric Coordination*. Berlin & Boston: de Gruyter.
Weisser, Philipp (2020): On the Symmetry of Case in Conjunction, *Syntax* 23(1), 42–77.
Zhang, Niina (2010): *Coordination in Syntax*. Cambridge: Cambridge University Press.
Zoerner, Ed (1995): Coordination: The Syntax of &P. PhD thesis, Irvine, CA: University of California, Irvine.
Zyman, Erik (2022): Phase-constrained obligatory late adjunction, *Syntax* 25, 84–121.

Appendix

A. Option 2: Flat or hierarchical structures

- The other analytical possibility is that German can generate the same coordinate structures as English, both flat and hierarchical.
- The difference is: the absence of an overt coordinator diagnoses flatness in English, but not in German: German allows hierarchical structures without a second overt coordinator.
- What regulates the (c)overtness of the coordinator?

➤ Crucially, in Neeleman et al.'s system the distribution of coordinators is achieved by an OT-calculus that refers exclusively to the relation of conjuncts to one another *and* their respective position

  ↛ But, to account for the German case, they would need to refer to the fact as to whether one of the conjuncts is internally complex (i.e. whether there is subgrouping). This does not seem to be possible in their system without making it much more powerful.

➤ But if the German pattern does not follow from general distributional rules of coordinators, which process is at play then?

➤ Not ellipsis:

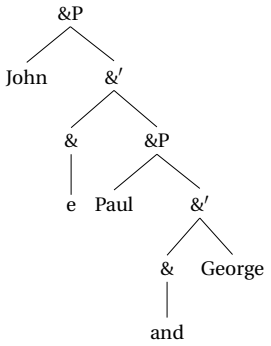
  – It could be possible that a coordinator deletes in the context of an identical one.
  – But: the coordinator always surfaces on the rightmost conjunct, so the ellipsis would have to be *backwards* (= ellipsis site preceding semantic antecedent).
  – Backward ellipsis usually deletes material at the right periphery of a certain domain (Bartos 2001), but coordinator ellipsis is different: the coordinator (in English and German) is a proclitic, i.e., not at the right edge. Plus: many researchers regard backward ellipsis not to be ellipsis at all (e.g., Ackema 2010; Citko 2018).
  – The usual tests for ellipsis (extraction out of and agreement into the ellipsis site, relational modifiers, vehicle change etc.) can't be applied here.

  ➤ No evidence for ellipsis.

➤ Is it movement?

  – Zoerner 1995 proposes a coordinate structure like (34), in which the coordinator undergoes covert movement.
  – Apart from the fact that this movement doesn't really behave like canonical (head) movement, it's not clear along what parameter English and German should vary.

(34)



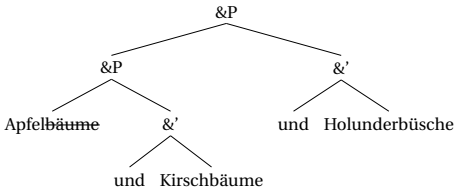
B. Subword deletion

- In principle, examples like (13a) above could also have a structure like (36).
- Subword deletion is only possible if both coordinators surface overtly, (35).
- This follows from the allomorphy rule in (29): no &-head can be deleted, since none of them has a &P sister.

(35) a. *Apfel-~~bäume~~ ~~und~~ Kirsch-bäume und Holunderbüsche
apple-trees cherry-trees and elder.bushes

b. Apfel-~~bäume~~ und Kirsch-bäume und Holunderbüsche
apple-trees and cherry-trees and elder.bushes
'apple trees and cherry trees and elder bushes'

(36)



C. Open-endedness

➤ Neeleman et al. (2023) note that mere juxtaposition of conjuncts without a coordinator can sometimes be grammatical when it allows for a so-called open-endedness reading:

(37) He had brought [gifts, flowers, chocolates, champagne] and yet he felt unwelcome.
Neeleman et al. (2023:74)

➤ This means that we have to control for such an open-endedness reading in our examples.

↦ We believe that this is not an issue for our arguments as the finite set of the Beatles allows no implicit alternatives.

↦ The same holds for the corrective coordination argument as correctives only seem to have exactly two alternatives, a positive one and a negative one.

↦ Finally, we note that the argument coming from ellipsis in compounds is also possible with a context that rules out an open endedness-reading.

(38) *Our garden designer insisted that we have a maximum of three different kinds of plants in our garden:*
Wir haben uns für Holunderbüsche, Apfel- und Kirschbäume entschieden.
we have us for elder.bushes, apple- and cherry.trees decided
''We opted for elder bushes, apple trees and cherry trees."