

# Category Mismatches in Coordination Vindicated

Agnieszka Patejuk<sup>1,3</sup> and Adam Przepiórkowski<sup>1,2,3</sup>

<sup>1</sup>Institute of Computer Science, Polish Academy of Sciences

<sup>2</sup>Institute of Philosophy, University of Warsaw

<sup>3</sup>Faculty of Linguistics, Philology and Phonetics, University of Oxford

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**Comments welcome!**

agnieszka.patejuk@gmail.com

przepiorkowski.adam@gmail.com

## Category Mismatches in Coordination Vindicated

The view that only the same grammatical categories may be conjoined (Chomsky 1957: 36), elevated to the status of a universal law (Williams 1981: §2), has been repeatedly questioned (e.g., Sag *et al.* 1985, Bayer 1996). At present, a more frequent view – concisely expressed in the following quote from *The Cambridge Grammar of the English Language* (CGEL) – seems to be that any constituents may be coordinated, as long as each is licensed in the syntactic position occupied by the coordinate structure:

- (1) *If (and only if) in a given syntactic construction a constituent X can be replaced without change of function by a constituent Y, then it can also be replaced by a coordination of X and Y.* (Huddleston and Pullum 2002: 1323)<sup>1</sup>

Any apparent “sameness” requirements result from the fact that each conjunct must satisfy the constraints imposed on the syntactic position occupied by the coordinate structure. These constraints may be rigid, resulting in the sameness of categories of all conjuncts. However, when such constraints are underspecified or disjunctive, each conjunct may satisfy these in a different way, leading to category mismatches.

In a recent paper, Bruening and Al Khalaf (2020) deny the possibility of coordination of unlike categories. In order to reanalyse category mismatches in coordination as involving the same categories, they (henceforth B&K) use three mechanisms: conjunction reduction (CR), supercategories (SCs), and empty heads (EHs).

B&K use CR – coordination of larger constituents and subsequent ellipsis – for coordination of arguments with modifiers, as in (2a), where the coordination of an NP (*meat*) and a PP (*at restaurants*) is claimed to actually involve two VPs, as shown in (2b), contrary to what the placement of *neither... nor...* might suggest.

- (2) a. I eat neither meat nor at restaurants. (Zhang 2009: 187, (7.24c))  
b. I [<sub>VP</sub> [<sub>VP</sub> eat neither meat] nor [<sub>VP</sub> eat at restaurants]].

B&K do not have much to say about CR; instead, they concentrate on SCs and EHs.

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<sup>1</sup>(1) is a variant of the so-called “Wasow’s generalisation”: *If a coordinate structure occurs in some position in a syntactic representation, each of its conjuncts must have syntactic feature values that would allow it individually to occur in that position* (Pullum and Zwicky 1986: 752–753, (4)).

B&K introduce two supercategories (SCs): Pred (inspired by PredP; Bowers 1993) for predicative phrases, as in (3), and Mod (inspired by ModP; Rubin 2003) for modifiers, as in (4). Such predicative or modifier constituents have complex categories consisting of an SC and the usual basic category (NP, AP, etc.), e.g., Pred: NP or Pred: AP. In such cases, the identity of the SCs is sufficient for coordination to be licensed.

- (3) a. Pat is a Republican and proud of it. (Sag *et al.* 1985: 117, (2b))  
 b. Pat is [<sub>PRED: {NP,AP}</sub> [<sub>PRED: NP</sub> a Republican] and [<sub>PRED: AP</sub> proud of it]].
- (4) a. We walked slowly and with great care. (Sag *et al.* 1985: 140, (57))  
 b. We walked [<sub>MOD: {ADV,PP}</sub> [<sub>MOD: ADV</sub> slowly] and [<sub>MOD: PP</sub> with great care]].

B&K use empty heads (EHs) in subcategorisation violation examples such as (5a), where one conjunct is a CP, even though the verb subcategorises for the preposition ON followed by an NP (see (5b)), and not a CP (see (5c)). On the analysis of B&K in (6),  $\emptyset_N$  is a phonetically and semantically empty nominal head, converting a CP into an NP.

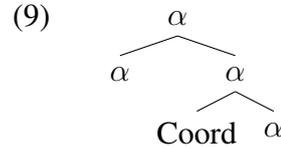
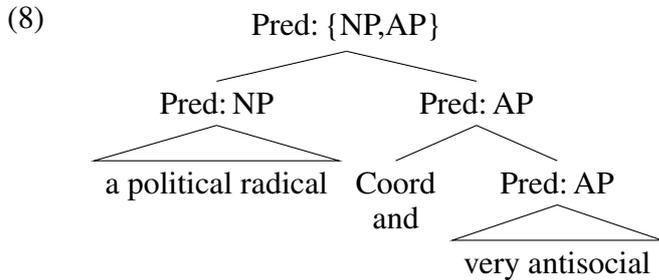
- (5) a. You can depend on my assistant and that he will be on time.  
 (Sag *et al.* 1985: 165, (124b))  
 b. You can depend on my assistant.  
 c. \*You can depend (on) that he will be on time.
- (6) You can depend on [<sub>NP</sub> [<sub>NP</sub> my assistant] and [<sub>NP</sub>  $\emptyset_N$  [<sub>CP</sub> that he will be on time]]].

In §§1–2, we show that both strategies, SC and EH, face numerous empirical, technical, and methodological problems. These problems suffice to reject B&K’s proposal. In §3, we further refute B&K’s empirical arguments against unlike category coordination and present new data from English supporting the coordination of unlike categories, in accordance with the CGEL quote (1). Additionally, the Appendix provides arguments of a very different kind, from the coordination of unlike grammatical functions in languages such as Russian and Polish.

## 1 Supercategories

Consider (7)–(8) (Bruening and Al Khalaf 2020: 25, (85) and (84), respectively); (8) represents coordination in (7a) and the representation of (7b) would be analogous.

- (7) a. Danny became<sub>C: NP/AP</sub> [<sub>PRED: {NP,AP}</sub> a political radical and very antisocial].  
 b. \*Danny became<sub>C: NP/AP</sub> [<sub>PRED: {NP,PP}</sub> a political radical and under suspicion].



The “C: NP/AP” index on *became* indicates that this verb c-selects an NP or an AP. This requirement is satisfied in (7a), as each of the base categories within the complex category  $\text{Pred: \{NP,AP\}}$  is either an NP or an AP, but not in (7b), because of the violating base category PP. So, for the purpose of categorial selectional restrictions, base categories do count as syntactic categories. By contrast, if SCs are present, base categories do not count as syntactic categories for the purpose of same category coordination schema in (9) (Bruening and Al Khalaf 2020: 24, (82)); e.g.,  $\text{Pred: NP}$  and  $\text{Pred: AP}$  in (8) are taken to be the same category  $\alpha$  in (9).

### 1.1 Technical Problems: Complexity, Vagueness, and Inconsistency

The deceptively simple schema in (9) hides this underlying complexity of B&K’s analysis. It faithfully reflects only the situation where the same simple categories are coordinated, but in the case of SCs, as in (8), it must rather be interpreted the following way:<sup>2</sup> 1) supercategories of all constituents apart from Coord must be the same (see Pred in (8)); 2) the complete complex categories of the sister of Coord and its mother must be the same (see Pred: AP); 3) the set of base categories within the complex category of the coordination contains exactly the base categories of its daughters (see {NP,AP}).

Unfortunately, it is not clear what theoretical mechanism makes it possible to collect base categories into sets, nor is it clear what theoretical properties complex categories such as  $\text{Pred: \{NP,AP\}}$  have. The theoretical vagueness surrounding complex categories

<sup>2</sup>A fully explicit rendering of B&K’s view would be even more complex, as it would have to take into account the fact that, in nested coordination, base categories may be sets, not atoms.

is striking, given that the proposed mechanisms are completely new and crucial for B&K's claim that there are no categorial mismatches in coordination. Also, the fact that base categories within such complex categories do count as syntactic categories for the purpose of categorial selectional restrictions of the verb, but at the same time do not count as syntactic categories for the purpose of the claim that coordination involves the same categories, smacks of internal conceptual inconsistency.

## 1.2 Empirical Problem: Semantically Specified Arguments

Let us consider some attested examples (from the English Web 2015 corpus<sup>3</sup>) involving the verbs TREAT (in (10)–(11)), WORD (in (12)–(13)), and BEHAVE (in (14)–(17)).

- (10) Do you treat the four museums [[<sub>ADV</sub>P individually] or [<sub>PP</sub> as a collective]]?
- (11) ... not all of us treat our animals [[<sub>PP</sub> with respect] and [<sub>ADV</sub>P humanly]]!
- (12) While we agree that the reply from the Ministry could have been worded [[<sub>ADV</sub>P differently] and [<sub>PP</sub> in the way CAA suggested]],...
- (13) ... information... worded [[<sub>ADV</sub>P clearly] and [<sub>PP</sub> in a straightforward manner]].
- (14) Just a day of behaving [[<sub>ADV</sub>P carefully] and [<sub>PP</sub> with restraint]].
- (15) ... individual components may behave [[<sub>PP</sub> in unforeseen ways] and [<sub>ADV</sub>P even maliciously]] either intentionally or not.
- (16) WIP reserves the right to disqualify any entrant who... behaves [[<sub>ADV</sub>P inappropriately] or [<sub>NP</sub> a way that is not consistent with the Code of Conduct]].
- (17) We all have worked with people who feel \*they\* are the professional but who behave [[<sub>NP</sub> any way] but [<sub>ADV</sub>P professionally]].

All these verbs take an argument expressing manner. In all three cases it is clear that the relevant dependent is an argument, not a modifier: it is obligatory, i.e., without it the sentence becomes ungrammatical or the verb changes its meaning.<sup>4</sup> While the argument/modifier distinction is notoriously murky, it is generally accepted that obligatory

<sup>3</sup>Accessible via SketchEngine (<http://www.sketchengine.eu>; Kilgarriff *et al.* 2008, 2014).

<sup>4</sup>Also Bruening and Al Khalaf 2020: 16 explicitly state that BEHAVE “selects an adverb”.

dependents are arguments.<sup>5</sup> This manner argument may bear various syntactic categories: not just AdvP (e.g., *humanly*), but also at least PP (e.g., *with respect*) and NP (*any way*). As the examples above show, manner phrases of different categories may be coordinated in these argument positions. How could B&K account for such examples?

The EH strategy – postulating an empty nominal head converting a CP into an NP, discussed in §2 – is unavailable, as such manner arguments are not canonically nominal and, besides, there are no CPs in these examples that could be analysed as NPs.<sup>6</sup> The CR strategy also fails here; for example, (17) cannot be analysed as elliptical with the underlying structure in (17') because (17') does not have the same meaning as (17).

(17') We all have worked with people who feel \*they\* are the professional but who  
[[<sub>VP</sub> behave any way] but [<sub>VP</sub> behave professionally]].

Moreover, many of these examples are clearly non-elliptical according to B&K's tests because coordinate structures behave as constituents and, in particular, may form the pivot of (inverted) pseudoclefts, for example:

(11') ... [[<sub>PP</sub> with respect] and [<sub>ADV<sub>P</sub></sub> humanly]] is not how all of us treat our animals!

(13') ... [[<sub>ADV<sub>P</sub></sub> clearly] and [<sub>PP</sub> in a straightforward manner]] is how the information provided is worded.

So the only possibility left is to use the SC strategy. Unfortunately (for B&K), these manner arguments are not predicates, nor are they modifiers. However, given that the functional projection MannerP has been postulated in the literature (e.g., in Scott 2002: 104 and Alexeyenko 2012), one might – slightly modifying a statement in Bruening and Al Khalaf 2020: 10 – “propose that there was something right about the MannerP analysis” and introduce a new supercategory, Manner.

Similarly, predicates like RESIDE take obligatory locative arguments, including NP

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<sup>5</sup>The following quotes are typical (we assume that *modifier* and *adjunct* are synonyms): “[C]omplements tend to be obligatory, whereas adjuncts are always optional.” (Borsley 1999: 67); “[I]n contrast to arguments, adjuncts are never obligatory.” (Ackema 2015: 264).

<sup>6</sup>The EH strategy could be extended by postulating a variety of empty heads “converting” one category into another (say, an empty Adv combining with an NP or a PP and making it an AdvP), but – as discussed in §2.4 – this move would make such an account unfalsifiable.

and PP arguments, as in pseudocleft examples in (18)–(19) (from English Web 2015):

(18) [<sub>NP</sub> Cleveland] is where my heart resides.

(19) [<sub>PP</sub> Behind these shops] is where many families reside.

(20) [[<sub>NP</sub> That place] and [<sub>PP</sub> behind these shops]] is where many families reside.

Given that a coordination of such locative NP and PP arguments may form a pivot in pseudoclefts, as in (20), this is a genuine case of coordination of unlike categories by B&K's standards, one that is not covered by the analysis of B&K – unless yet another SC mimicking a functional projection (e.g., LocP in Kim 2019: ch. 4) is assumed.

The same argument can be made on the basis of predicates which select for durative arguments, such as *LAST*, as in the following attested (English Web 2015 and Google) examples illustrating various combinations of categorially unlike conjuncts:

(21) I feel like my stay in Vienna lasted [both [<sub>ADV</sub> forever] and [<sub>NP</sub> no time at all]]

(22) Immunity may last [[<sub>NP</sub> 10 years] or [<sub>ADV</sub> longer]].

(23) A chronic disease lasts [[<sub>PP</sub> for months] or [<sub>ADV</sub> longer]].

(24) Bouts in the early rounds will last [either [<sub>NP</sub> three minutes] or [<sub>CP</sub> until someone scores five points]].

(25) ... this promotion will only last [[<sub>PP</sub> for 3 days] or [<sub>CP</sub> until all stocks run out]].

Again, it is possible to construct corresponding pseudocleft sentences (so that CR is not applicable) and to reverse the order of conjuncts (so that EH is not applicable). And again, B&K's approach may be rescued by postulating yet another SC inspired by a functional projection (e.g., DurativeP in Kratzer 2004: 412).

### 1.3 Methodological Problem: Unfalsifiability

A methodological problem with the SC strategy is that, once SCs loosely inspired by functional projections are generally admitted, the claim that only same categories may be coordinated becomes unfalsifiable. The reason is this. While – as we endeavour to demonstrate in this paper – there is no requirement that only same categories may be coordinated, conjuncts are “same” by virtue of occupying the same syntactic pos-

ition: they bear the same grammatical function, the same semantic role, or – in some constructions – at least the same information structural status. Given the multitude of functional projections proposed since 1980s, there is a good chance that for any grammatical, semantic, or pragmatic property that unlike category conjuncts can share there exists a corresponding functional projection. If so, another “supercategory” may be postulated, loosely inspired by that functional projection, which “explains” the “apparent” coordination of unlike categories.

Hence, unless the applicability of this strategy is limited in a principled way, B&K’s claim that there are no categorial mismatches in coordination becomes unfalsifiable and, as such, of limited scientific value (Popper 1935). For this reason, in what follows, we assume that SC strategy is limited to Pred and Mod. But then (10)–(17) and (20)–(25) in §1.2 constitute genuine counterexamples to the analysis of B&K.

#### 1.4 Empirical Problem: Modifier *and* Argument

Consider the verbs DIE and RESIDE. DIE takes one argument (the subject), and any locative phrase is an optional modifier, so – for B&K – *in Rome* in (26) has the complex category Mod:PP. By contrast, RESIDE takes two obligatory arguments (*\*St. Peter did reside* is ungrammatical), so *in Rome* in (27) has the simple category PP.

(26) St. Peter did die [<sub>MOD:PP</sub> *in Rome*].

(27) St. Peter did reside [<sub>PP</sub> *in Rome*].

What is then the category of the shared dependent *in Rome* in (28): PP or Mod:PP?

(28) St. Peter did reside and die [<sub>???</sub> *in Rome*]. (English Web 2015)

Such examples provide another kind of empirical counterarguments against SCs.

#### 1.5 Empirical Problem: Coordination of Unlike Supercategories

Consider (29) (Bruening and Al Khalaf 2020: 11, (35b)), which involves coordination of two predicative modifiers. B&K mark conjuncts with the SC Mod, adding that they could perhaps be marked with the SC Pred “in place of or in addition to” Mod.

(29) [[<sub>MOD:PP</sub> *In jeans and a T-shirt*] and [<sub>MOD:AP</sub> *sporting two days’ growth on his*]

chin]], John presented a less than inspiring figure.

This is another place where B&K are vague about the exact properties of one of the two main mechanisms they invoke to claim that there are no category mismatches in coordination: it is left undecided whether the SC of predicative modifiers is Mod (as in (29)), Pred, or {Mod,Pred}. The last possibility seems most intuitive but it faces empirical problems.

Consider example (30)<sup>7</sup> involving coordination of two modifiers.

(30) Reluctantly and embarrassed, the white officer released the Black man. . .

The first modifier, *reluctantly*, is an unambiguous adverb and cannot predicate of the subject. By contrast, the other modifier, the adjective *embarrassed*, is predicative.<sup>8</sup> Hence, on the most intuitive interpretation of B&K's SC mechanism, the relevant constituent in (30) would have the structure in (31).<sup>9</sup>

(31) [<sub>{MOD,???PRED}</sub>: {ADV,AP} [<sub>MOD: ADV</sub> Reluctantly] and [<sub>{MOD,PRED}</sub>: AP embarrassed]]

However, (30) should be ungrammatical on this interpretation because the two conjuncts in (31) bear different supercategories, Mod and {Mod,Pred}, violating the rule in (9).<sup>10</sup>

Similarly, one of the two arbitrary possibilities mentioned in B&K, that of assigning just Pred to predicative modifiers, would also lead to coordination of unlike SCs:

(32) [???: {ADV,AP} [<sub>MOD: ADV</sub> Reluctantly] and [<sub>PRED: AP</sub> embarrassed]]

Only the second arbitrary possibility, that of assigning just Mod to predicative modifiers, leads to a grammatical structure (obeying the rule in (9)), shown in (33).

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<sup>7</sup>From the book "Spirit and Soul: Odyssey of a Black Man in America" by Theodore Kirkland.

<sup>8</sup>It is uncontroversial that *embarrassed* may act as a predicative adjective, as it may occur with verbs such as BECOME, SEEM, LOOK, and APPEAR. Other predicative adjectives may also be coordinated with adverbs, e.g., *Reluctantly and full of tears, I threw in the towel and got a cab...* (<http://endduchenne.co.uk/london2cambridge/>).

<sup>9</sup>On the approach of B&K, examples such as (30) must be analysed as involving SCs. CR is not viable, as the coordinate structure is a fronted constituent, i.e., not a result of ellipsis. EHs postulated by B&K are also not fit for the job: adverbial EH, turning APs into AdvPs, does not operate in syntax proper, but is confined to the lexical entries of adverbs which are not morphologically related to adjectives (as discussed in §2.6). The adverb *reluctantly* is morphologically related to the adjective *reluctant*.

<sup>10</sup>One way to defend the structure in (31) is to loosen the requirement of the identity of SCs and only require that they be compatible (i.e., have non-empty intersection). This, however, would further complicate the account and make the schema in (9) even more at odds with the actual analysis.

(33) [<sub>MOD: {ADV,AP}</sub> [<sub>MOD: ADVP</sub> Reluctantly] and [<sub>MOD: AP</sub> embarrassed]]

Still, nothing in the analysis of B&K predicts that the coordinate constituent in (30) has structure in (33) rather than (31) or (32) – another assumption is needed to ensure this.<sup>11</sup>

### 1.6 Theoretical Weakness: Lack of Independent Motivation

The final problem with the SC strategy is its lack of independent motivation. When proposing the SCs Pred and Mod, B&K refer to Bowers 1993 and Rubin 2003, respectively. However, the SCs Pred and Mod have little in common with the original functional projections PrP (henceforth, PredP) and ModP, and arguments for those functional categories do not automatically carry over to the similarly named supercategories. In fact, some of the original empirical arguments *for* PredP and ModP can be interpreted as arguments *against* the SCs Pred and Mod. In particular, both functional heads – usually phonetically empty – were argued to have lexical realisations in some constructions in some languages (see Bowers 2001: §1.6 on Pred and Rubin 2003: §3 and references therein on Mod). If so, the original functional projections PredP and ModP may be properly – lexically – larger than the embedded predicates or modifiers of category NP, PP, AP, etc. This should be contrasted with the supercategories Pred and Mod, which are co-extensive with the underlying NPs, PPs, APs, etc.

Also, as made clear in the extensive critique of PredP in Matushansky 2019, the original *theoretical* arguments for this functional projection are void in current versions of mainstream generative grammar; on the contrary, theoretical arguments may be constructed against the usefulness of PredP in contemporary linguistic theory. Similarly, a recent critique of the original motivation for ModP may be found in Song 2020: §3. Hence, the original functional projections PredP and ModP do not provide either empirical or theoretical motivation for the SCs Pred and Mod proposed by B&K. Since B&K do not adduce any independent motivation for these SCs, we conclude that such

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<sup>11</sup>It could be said that all three variants are in principle possible, i.e., that predicative modifiers may bear any of the three SCs: Mod, Pred, or {Mod,Pred}. This, however, would lead to spurious ambiguities in examples such as (29), which would receive three synonymous and homophonous structures.

SCs are a completely new mechanism, motivated solely by the use to which it is put in Bruening and Al Khalaf 2020 – to work around unlike category coordination.

## 2 Empty Heads

To avoid unlike category coordination, B&K also posit two EHs whose effect is to “convert” one category into another: a null N converting (within syntax proper) CPs into NPs and a null Adv (present only in the lexicon, apparently inactive in syntax proper) converting adjectives into adverbs. The EH strategy is invoked in the analysis of unlike category coordination of arguments, where the argument further from the head violates this head’s selectional restrictions, i.e., for situations schematically shown in (34).

- (34) a. H [A<sub>1</sub> Coord A<sub>2</sub>] (where H A<sub>1</sub> is acceptable, but H A<sub>2</sub> is not)  
 b. [A<sub>1</sub> Coord A<sub>2</sub>] H (where A<sub>2</sub> H is acceptable, but A<sub>1</sub> H is not)

B&K provide (5a) (Sag *et al.* 1985: 165, (124b)), repeated below as (35), as an example of (34a), and (36) (Bruening and Al Khalaf 2020: 14, (43a)) as an instance of (34b).

(35) You can depend on [A<sub>1</sub> my assistant] and [A<sub>2</sub> that he will be on time].

(36) [A<sub>1</sub> That she got third place] and [A<sub>2</sub> her injury in the final round] notwithstanding, she felt good about her performance in the Olympics.

In both examples, the CP is reanalysed as an NP headed by the semantically and phonetically empty  $\emptyset_N$  (cf. (6)).

### 2.1 Methodological and Empirical Problem: Subcategorisation Violations

The main methodological problem with this part of B&K’s argumentation is that it is limited to – and draws far-reaching conclusions from – the very narrow range of data related to subcategorisation violations, a phenomenon which “has nothing to do with coordination per se” (Bayer 1996: 585, fn. 7). But, even focusing on unlike category coordination in non-predicative argument positions, for which the EH strategy was designed, the vast majority of cases involve coordination of unlike category arguments which do satisfy selectional restrictions and which may occur in any order within coordinate structures (subject to general restrictions such as the weight of conjuncts).

One case in point are the arguments expressing manner, location, or duration, discussed in §1.2. It is also easy to find examples of coordination of NP and CP arguments, which are similar to (35), but which do not violate any subcategorisation requirements, e.g., arguments of WISH (see (37)), UNDERSTAND (see (38)), and SHOW (see (39)), among many other verbs; all these examples come from English Web 2015.

(37) We wish you [[<sub>NP</sub> success] and [<sub>CP</sub> that you stay connected]].

(38) I understand [[<sub>NP</sub> those concerns] and [<sub>CP</sub> that they are sincerely held]].

(39) This boycott would show [not only [<sub>NP</sub> unity] but [<sub>CP</sub> that there is a price to pay for killing us]].

Since conjuncts in these examples are non-predicative arguments, the SC strategy is inapplicable here. What speaks against the CR analysis of (39) is not only the placement of *not only... but...*, but also the possibility to form a pseudocleft:<sup>12</sup>

(40) [Not only [<sub>NP</sub> our great unity in the face of oppression] but also [<sub>CP</sub> that there is a price to pay]] is what this boycott would show.

Crucially, what speaks against the EH analysis and thus makes such sentences genuine counterexamples to B&K's analysis is the possibility to change the order of conjuncts:

(41) This boycott would show [not only [<sub>CP</sub> that there is a price to pay] but also [<sub>NP</sub> our great unity in the face of oppression]].

Many more examples involving coordination of categorially unlike arguments are provided presently in §2.2, as well as in in §3.

## 2.2 Empirical Problem: Order of Conjuncts

B&K's analysis predicts that whenever coordination of an NP and a CP is possible, and it cannot be accounted for via CR or SCs, only one order of conjuncts is possible, with the "true" NP closer to the selecting head. For example, while (42) (Sag *et al.* 1985: 165, (123a)) is fine, (43) (Bruening and Al Khalaf 2020: 19, (69a)) is judged by B&K as "less acceptable" and dismissed without closer scrutiny.

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<sup>12</sup>Some modifications were introduced in (40)–(41) to balance weights of conjuncts.

(42) Pat remembered [[<sub>NP</sub> the appointment] and [<sub>CP</sub> that it was important to be on time]].

(43) ??Pat remembered [[<sub>CP</sub> that it was important to be on time] and [<sub>NP</sub> his resumé]].

We agree that it is less acceptable, but we claim that it is still fully grammatical. The diminished acceptability is a matter of relative weights of the two conjuncts. For example, Sag *et al.* 1985: 167, fn. 34, cite (44)–(45) (their (i)–(ii)), where the two conjuncts are of similar weights, as both acceptable:

(44) I didn't remember until it was too late [[<sub>NP</sub> John's inability to get along with Pat], and [<sub>CP</sub> that he had no background in logic]].

(45) I didn't remember until it was too late [[<sub>CP</sub> that he had no background in logic], and [<sub>NP</sub> John's inability to get along with Pat]].

Sag *et al.* 1985: 167, fn. 34, note that their theory (just like B&K's account) would predict grammaticality of (45) only under the ellipsis analysis, which would in turn predict the impossibility of topicalisation of (45) (in contrast to (44)). They construct topicalised versions of (44)–(45), mark the latter with one question mark, and ask the readers to “assess for themselves the accuracy of this prediction.” However, it is well known that – “outside of some very well-rehearsed examples such as *Beans, I like*” (Davies and Dubinsky 2009: 122) – topicalisation structures are often less acceptable than their non-topicalised versions for processing reasons, and it is difficult to compare acceptability of sentences which are not fully acceptable to begin with, so let us consider pseudocleft versions of these examples:

(46) [[<sub>NP</sub> John's inability to get along with Pat] and [<sub>CP</sub> that he had no background in logic]] is what I didn't remember until it was too late.

(47) [[<sub>CP</sub> That John had no background in logic] and [<sub>NP</sub> his inability to get along with Pat]] is what I didn't remember until it was too late.

(46)–(47) are both acceptable and, if (47) seems a little more awkward, this is expected given that it is syntactically more ambiguous and so more difficult to process.<sup>13</sup>

<sup>13</sup>At the point of reaching *and his*, the NP can be hypothesised to be conjoined with the noun *logic*.

In summary, contrary to B&K’s claim, any order of NP and CP conjuncts within the propositional argument of REMEMBER is possible. This, combined with the pseudocleft facts in (46)–(47) and with the lack of appropriate supercategories in this case, means that none of B&K’s strategies is available. That is, verbs such as REMEMBER, selecting for an NP or a CP (or a coordination thereof), contradict B&K’s analysis.

### 2.3 Empirical Problem: Overgeneration

Probably the starkest empirical problem that this part of B&K’s analysis faces is overgeneration. The analysis predicts that any predicate which combines with an NP will also combine with the coordination of an NP and a CP, even if it does not combine with a CP directly. That is, every such predicate behaves like *DEPEND (ON)* in (5).

This prediction is wrong: verbs such as *WITHDRAW* and *STRENGTHEN* select for an NP that may express a proposition, and yet this NP cannot be coordinated with a CP:

(48) {He withdrew/This strengthens} {this claim / the claim that Homer is a genius}.

(49) \*{He withdrew/This strengthens} that Homer is a genius.

(50) \*{He withdrew/This strengthens} this claim and that Homer is a genius.

This is a known issue, pointed out in Bayer’s (1996: 585–586) critique of Sag *et al.* 1985, which makes the same wrong prediction: “Even allowing for semantic restrictions, this prediction is incorrect. The preposition *DESPITE*, for example, permits NP complements which denote facts or propositions, but not [CP] complements, and conjuncts containing [CP] are disallowed as well.” Examples in (51) are Bayer’s (25):

- (51) a. Despite LaToya’s intransigence, Michael signed the contract.  
 b. Despite the fact that all the musicians quit, Michael signed the contract.  
 c. \*Despite that all the musicians quit, Michael signed the contract.  
 d. \*Despite LaToya’s intransigence and that all the musicians quit, Michael signed the contract.

“If we require the complement of *DESPITE* to be an NP, and reject any attempts to compromise this requirement, the ungrammaticality of [(51d)] follows immediately.”

While B&K refer to Bayer 1996, they do not address this problem. We see no way of accounting for such examples within B&K’s set of assumptions.

#### 2.4 Methodological Problem: Multiple Nominalising EHs and Unfalsifiability

As mentioned above, the nominal EH crucial for B&K’s account is semantically empty; it cannot bear any s-features, so it cannot head an argument that is semantically selected. However, in fn. 27, B&K also admit the existence of other – semantically contentful – nominal EHs. One such EH should be responsible for nominalising question CPs; since they may occur as objects of prepositions, including the object of (DEPEND) ON (see (52)), the EH nominalising such CPs cannot be semantically empty.

(52) The price and the quality depend on how desperate you are. (English Web 2015)

This semantically contentful EH would be the second null head responsible for the coordination of NPs and CPs, namely for cases involving question CPs, as in (53) (Bruening and Al Khalaf 2020: 20, fn. 24).<sup>14</sup>

(53) It’s amazing how tall he is and the things he can do. (Munn 1993: 119, (3.24a))

In fn. 25, B&K also assume that “CPs can occur in subject position, but they must be NPs with a null N head when they do”. In this context consider (54)–(55) (Bruening and Al Khalaf 2020: 13, (40a), (41a)).

(54) \*[<sub>CP</sub> That he was late all the time] resulted in his being dismissed.

(55) [[<sub>CP</sub> That he was late all the time] and [<sub>NP</sub> his constant harassment of coworkers]] resulted in his being dismissed.

B&K’s unacceptability marking of (54) is misleading: in fn. 7 they say that “[i]n an informal poll of approximately seven speakers, two had the pattern of judgements described here,” while five accepted (54). If so, is the nominalising EH at work in (54) in the language of the five speakers who accept it the same as the EH at work in (55) in the language of the two speakers who accept (55) but not (54)?

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<sup>14</sup>The alternative mentioned in the same footnote, namely, that NPs such as *the things he can do* in (53) are of category CP, is not viable, as they may – bearing the same meaning – occur as subjects, which B&K assume to be uniformly NPs (see immediately below). It would also leave (52) unexplained.

B&K seem to assume (in the same footnote) that these are the same EHs, i.e., that there is just one – semantically empty – nominal null head able to convert a CP[*that*] into an NP. But, combined with the assumption that all subject CPs are really NPs, this means that such subjects cannot be semantically selected; in particular, they cannot be specified as [–animate] or [–sentient]. This is counterintuitive and, hence, should be carefully justified; B&K do not provide such a justification.

The alternative is that the five speakers (the majority) accepting (54) have another – semantically contentful – nominalising EH. But then, given that this EH behaves differently from the EH that nominalises question CPs (question CPs, but not declarative CPs, may be objects of prepositions), this would be yet another – third – EH crucial in B&K’s attempt to get rid of unlike category coordination, one that is not constrained by the various properties assumed by B&K, not correlated with short answers, etc. This would take us one step forward on the slippery slope towards the possibility of postulating “category converting” EHs at will, i.e., towards unfalsifiability.

## 2.5 Technical Problems: Complexity, Vagueness, and Inconsistency

In their analysis, B&K assume that the tree is built from left to right rather than bottom-up. For example, there is a stage of derivation of (35) where a partial tree for *You can depend on* is constructed, and another stage, corresponding to *You can depend on my assistant*, with only partial representation of the coordinate structure. While we find this part of the proposal unobjectionable and quite intuitive from the perspective of analysis (but not synthesis),<sup>15</sup> B&K make a number of non-standard and vague assumptions about features, resulting in a rather complex analysis.

First, features are divided into syntactic and semantic. The nominal EH at work in (35)–(36) may bear syntactic features (number, gender, etc.), but not semantic features (animacy, sentience, etc.). Second, when a coordinate structure is built, features of particular conjuncts – it is not clear, whether only semantic features or all features<sup>16</sup> – are

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<sup>15</sup>In fact, an entire grammatical framework was built on this assumption (Kempson *et al.* 2001).

<sup>16</sup>This is important for B&K’s analysis: if all features are within the same stack, additional mechan-

collected into a stack, rather than set. At any stage of the derivation the root of the coordinate structure contains the current stack. Third, the lack of semantic features on the EH does not mean that no features are added to the stack, but rather that a special element (feature?) “—” is added. Fourth, semantic features are checked “as early as possible” and, if checking fails at this vague point, derivation crashes.

Let us see how this analysis is intended to work. Consider first (35). The preposition ON (or perhaps the combination DEPEND ON; B&K are not clear on this) syntactically selects an NP and has semantic features to check. According to Bruening and Al Khalaf 2020: 26, semantic features are checked when the coordinate structure contains the first conjunct: at this point the root of this structure contains the stack  $\langle S \rangle$ ,<sup>17</sup> and the (verb plus) preposition checks its semantic features. When the second conjunct – headed by the semantically contentless empty  $\emptyset_N$  – is merged, the root contains the stack  $\langle S, \text{—} \rangle$  (assuming that the top of the stack is on the right). At this stage, the preposition sees the lack of semantic features (—), but this is not an issue because its semantic features have already been checked. If the order of the conjuncts were different, i.e., if the clausal NP were the first conjunct, then at the crucial point the stack would be  $\langle \text{—} \rangle$ , and checking would fail. The fact that the stack would change to  $\langle \text{—}, S \rangle$  once the whole coordinate structure is built does not matter because the derivation has already crashed.

In (36), when the left-to-right derivation reaches the postposition NOTWITHSTANDING, the coordinate structure is fully built and its root contains the stack  $\langle \text{—}, S \rangle$ . As S is the top of the stack, the postposition can check its s-features. If the order of conjuncts were reversed, the stack at that point would be  $\langle S, \text{—} \rangle$ , and the derivation would crash.

For this analysis to work, it is crucial which parts of the structure are built exactly when. For example, assuming that a single (i.e., connected) partial tree is present at each stage,<sup>18</sup> a skeletal coordinate structure is built for (35) at the stage of *You can depend on*

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isms are necessary to make sure that semantic features are always on top, above any syntactic features.

<sup>17</sup>S seems to stand for a number of semantic features, but it is not clear whether they are a single element of the stack (as a bundle), or if particular semantic features are successive elements of the stack.

<sup>18</sup>If not, i.e., if partial trees can be built before they are merged, then it should be possible to build a tree for the whole coordinate structure, with S at the top of the stack, before it is merged with the tree

*my*, when only a part of the first conjunct is constructed. Presumably, this is the earliest stage when s-features of the selector may – and, thus, must – be checked. But are the semantic features of the first conjunct already in the root stack at that stage, even though the source of such features, the noun, is not present yet? It would seem that at that point the stack at the root should still be empty, so the derivation should crash. Unfortunately, the presentation of the B&K analysis is too vague to decide this matter.

However, it is relatively clear that “s-feature checking at the earliest opportunity” leads to inconsistency, given that B&K bind their analysis of coordination with short answers. Consider the dialogue (56), involving a short answer *That he will be on time*.

(56) Q: What can you depend on?

A: [~~You can depend on~~ [<sub>NP</sub>  $\emptyset_N$  [<sub>CP</sub> that he will be on time]]]

On B&K’s analysis, (56) is acceptable because the selector is elided before PF, so the fact that its s-features have not been checked by then does not matter. But, according to B&K’s set of assumptions, unchecked s-features lead to a crash not at PF, but much earlier: when the selector has the first opportunity to check its s-features and fails to do so. Clearly, in the case of (56), this opportunity arises when the CP is merged into the tree, before ellipsis takes place. But, given that this CP is really an NP headed by a semantically contentless EH, i.e., given that the stack of this CP is  $\langle \_ \rangle$ , the selector cannot check its s-features, so the derivation crashes. This means that B&K’s analysis does not account for subcategorisation violations in short answers, despite their claims.

On the other hand, if s-feature checking could wait until PF, there is no reason why (35) with the order of conjuncts reversed is unacceptable – s-feature checking could wait until the full coordinate structure is built, with the resulting stack  $\langle \_, S \rangle$ . In short, there is a conflict between B&K’s analysis of coordination and their analysis of short answers – the two phenomena that they strive to account for in a uniform manner.

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containing the selector; this would invalidate B&K’s analysis.

## 2.6 Non-ly Adverbs

B&K extend the EH analysis to cases such as the following (Bruening and Al Khalaf 2020: 14–15, (44a), (48b), (47c)): *The Once and Future King*; *The now and future Caliphate*; *A soon and distant Christmas*. The first example receives the analysis in (57) (Bruening and Al Khalaf 2020: 31–32):

(57) the [<sub>N'</sub> [<sub>N'</sub> [<sub>ADV</sub> [<sub>ADJ</sub> once]  $\emptyset_{\text{Adv}}$ ] [<sub>N'</sub> king]]] and [<sub>N'</sub> [<sub>ADJ</sub> future] [<sub>N'</sub> king]]]

This analysis is based on the assumption that – like *-ly* adverbs (e.g., *crucially*), which are composed of an adjective (e.g., *crucial*) and the Adv head *-ly* – non-*-ly* adverbs such as *once* also contain an adjective and an Adv head, but this head is semantically and phonetically empty (see  $\emptyset_{\text{Adv}}$  in (57)), so it may be elided, as shown in (57).

On this analysis, all non-*-ly* adverbs should pattern with ONCE, NOW, and SOON. However, this prediction is false – many non-*-ly* adverbs behave differently:

(58) \*the here and very expensive shop (cf. *the local and very expensive shop*)

(59) \*a there but reasonable shop (cf. *a distant but reasonable shop*)

(60) \*the well and wise man (cf. *the good and wise man*)

(61) \*a perhaps but not certain outcome (cf. *a possible but not certain outcome*)

(62) \*the together and equal liability (cf. *the joint and equal liability*)

The analysis of B&K also predicts a strong correlation between coordination and displacement: (63) (Bruening and Al Khalaf 2020: 31, (96)) shows that non-*-ly* adverbs, even though they apparently cannot occur immediately prenominal (we will refute this claim of B&K forthwith), are acceptable as nominal modifiers when displaced (while *-ly* adverbs can never be understood as nominal modifiers, even when displaced):

- (63) a. \*I was expecting a soon visit.  
 b. How soon a visit are you expecting?  
 c. I wasn't expecting that soon a visit.  
 d. A visit so soon would be wonderful.

However, this presumed correlation breaks down in the case of other non-*-ly* adverbs,

such as *HERE* and *THERE*, which cannot occur prenominally and cannot be coordinated with an adjective (see (58)–(59)), yet may occur postnominally:

(64) A visit there is all Bart wants.

(65) A war here is not what Springfield needs.

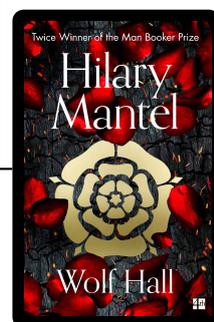
B&K’s analysis is also based on the wrong assumption that *ONCE*, *NOW*, *SOON*, etc., cannot occur immediately prenominally; attested counterexamples abound, e.g.:

(66) The Once-King of Penn State (The New York Times)

(67) Twice Winner of the Man Booker Prize (“Wolf Hall” front cover)

(68) The release of the now Caliphate Al Baghdadi (The Economist)

(69) They call him the thane of glamis, thane of cawdor, and the soon king (Google)



These empirical problems are fatal for the part of B&K’s analysis that is concerned with non-*ly* adverbs. But on top of that, their analysis is also based on a number of non-standard assumptions, in addition to those concerning nominal EH.

First, adverbs such as *ONCE*, *NOW*, and *SOON* are prefabricated syntactic trees projected from  $\emptyset_{Adv}$  in the lexicon. Second,  $\emptyset_{Adv}$  is assumed to be active *only* within the lexical entries of non-*ly* adverbs, i.e., it does not occur in the lexicon on its own: it is not active in syntax proper because, if it were, it could turn any adjective into an adverb so that any adjective could occur in strictly adverbial positions. This distinguishes  $\emptyset_{Adv}$  from  $\emptyset_N$ , which operates only in syntax proper. Third, as shown in (57), ellipsis does not just make parts of the structure phonetically unrealised, but instead it non-monotonically alters the structure already built, so that now the remaining constituent  $[_{ADJ} \text{once}]$  – rather than  $[_{ADV} [_{ADJ} \text{once}] \emptyset_{Adv}]$  – is an immediate constituent of  $N'$ . Fourth, B&K posit a special constraint, (70) (Bruening and Al Khalaf 2020: 31, (99)), which must be checked only at PF, as it is violated in (57) before ellipsis applies.<sup>19</sup>

<sup>19</sup>Let us note here that this constraint would also be satisfied by the ellipsis of the first  $[_{N'} \text{king}]$  alone, as the remaining  $N'$  would then have the structure  $[_{N'} \text{Adv}]$ , which would not violate (70). But then a similar analysis, with the ellipsis of  $[_{N'} \text{king}]$  alone, would license any Adv constituents under  $N'$ , including *-ly* adverbs, so the analysis would predict the grammaticality of, say, *\*the formerly and future king*. A simple way to repair this aspect of B&K’s analysis is to reformulate (70) by saying that an Adv cannot be an immediate constituent of the  $N'$  (regardless of the presence of other immediate constituents).

(70) \*<sub>[N' Adv N']</sub>

Fifth, B&K must assume that the ellipsis of <sub>[N' king]</sub> may extend to the Adv head only because it is semantically and phonetically empty. Otherwise, the same analysis would be available for *-ly* adverbs, whose head is not phonetically empty.

In brief, B&K's analysis of constructions such as *the once and future king* is based on wrong empirical generalisations and makes wrong empirical predictions, on top of making controversial and insufficiently justified assumptions. Hence, it does not provide independent evidence for an analysis of unlike category coordination in terms of EHs.

### 3 Empirical Arguments

In the previous two sections we rejected B&K's analysis on empirical, technical, and methodological grounds. In this section, we provide further arguments for what we consider to be the standard view – summarised in the CGEL quote (1) – and refute what may be interpreted as B&K's arguments against this standard view.

Surprisingly, B&K never actually refer to this standard view. Instead, they provide arguments against a superficially similar claim, namely, that it should be sufficient for a selecting element to permit a coordination of X and Y if it permits X and Y separately (Bruening and Al Khalaf 2020: 9, 18–19). This putative claim significantly differs from that of CGEL: it lacks the key requirement that X and Y have the same function. Without this requirement, the claim considered by B&K is obviously false. For example, while GIVE may combine with a theme and a goal, these two arguments cannot be coordinated, even if they have the same categories, simply because they bear different functions:

- (71) a. Marge gave <sub>[NP Homer]</sub> <sub>[NP a donut]</sub>.  
b. \*Marge gave [<sub>[NP Homer]</sub> and <sub>[NP a donut]</sub>]. (\* on the intended reading)

Nevertheless, some of the examples provided by B&K are more subtle and might be interpreted as potential counterexamples to the CGEL position, so it is important to show that they do not contradict the view expressed in (1). The complete list of such counterexamples – B&K's (64) – is given in (72) (in a different order, reflecting ensuing

discussion, but retaining B&K's unacceptability judgements).

- (72) a. \*She splashed wine and on Sarah.  
b. \*She lost the match and to an underdog.  
c. \*She's speaking nonsense and with Sarah.  
d. \*She agreed to leave and with Sarah.  
e. \*She met Bill and with Sarah.  
f. \*She fights tyranny and against injustice.  
g. \*I've never heard his stories or of him.  
h. \*He believes her claim and in fairy creatures.  
i. \*He believes that Santa exists and in fairy creatures.

Examples (72a–b) are similar to (71b): an attempt is made to coordinate two different grammatical functions of the same verb; compare:

- (72') a. She splashed wine on Sarah.  
b. She lost the match to an underdog.

Examples (72c–g) are of a different nature: as confirmed by general and valency dictionaries, they involve two different meanings of the verbs SPEAK, AGREE, MEET, FIGHT, and HEAR, so an attempt to coordinate their arguments results in zeugma. For example, in the case of SPEAK in (72c) – an example important for B&K, as it is cited twice in the paper (their (25) and (64b)) – *A Valency Dictionary of English* distinguishes four general senses of this verb, with *speaking nonsense* exemplifying sense A and *speaking with Sarah* – sense C (Herbst *et al.* 2004: 790–792); relevant senses of SPEAK are also distinguished by online valency dictionaries such as VerbNet, FrameNet, and PropBank (all accessible at [https://uvi.colorado.edu/uvi\\_search](https://uvi.colorado.edu/uvi_search)) and by general dictionaries (e.g., meanings 12–13 and 3 in <https://www.dictionary.com/>).<sup>20</sup>

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<sup>20</sup>It seems that some speakers of English have yet another, more idiomatic, meaning of SPEAK (not recorded in the dictionaries we consulted), which allows for both *nonsense* and a PP[*with*] argument:

- (i) Whereas it informs when we speak nonsense with someone we love, we can imply that speaking nonsense with someone we do not love has no point. (Google)

In such cases, *nonsense* and PP[*with*] have different functions, so their coordination is ruled out for the same reason as in the case of (72a–b).

When meanings are sufficiently close, the zeugma effect is weak – or perhaps some speakers do not perceive the meanings as distinct – and so examples of the kind considered by B&K to be ungrammatical may be found in corpora. This is true of HEAR, see (73), but also FIGHT, see (74); both examples are from the English Web 2015 corpus.

(73) As always we look forward to hearing [[<sub>NP</sub> your feedback] and [<sub>PP</sub> of any bugs you find]]. . .

(74) He then stated a number of ways people can fight [[<sub>NP</sub> the intolerance] and [<sub>PP</sub> against those who twist religion to use it for evil]]. . .

Finally, in contrast to (72a–g), we consider examples (72h–i), involving the verb BELIEVE, to be grammatical: there is a meaning of BELIEVE associated with a valency frame in which one of the positions may be realised as a CP[*that*], an NP, or a PP[*in*].<sup>21</sup> Here are some relevant attested examples (all from the English Web 2015 corpus):

(75) . . . as long as you believe [[<sub>NP</sub> the right things] and [<sub>PP</sub> in absolute truth]]. . .

(76) Xenocrates. . . believed [[<sub>CP</sub> that stars are fiery Olympian Gods] and [<sub>PP</sub> in the existence of sublunary daimons and elemental spirits]].

(77) We all believe [[<sub>PP</sub> in positive energy] and [<sub>CP</sub> that what you give comes back]].

(78) There’s a comedic element to Kelvin, but the audience also has to believe [[<sub>NP</sub> his sincerity] and [<sub>CP</sub> that he really loves Kacie]].

Example (75) involves the same kind of unlike category coordination as in (72h), and yet it is fully acceptable. Similarly, (76) has the same structure as (72i), and it is spotless. The reversed order of PP and CP conjuncts is exemplified in (77). Finally, apart from the coordination of an NP and a PP or a CP and a PP, (78) illustrates the third possibility, i.e., coordination of an NP and a CP.

Bruening and Al Khalaf 2020: 19 admit that some of the examples in (72) may be acceptable to some speakers, but only with special intonation and interpretation suggesting ellipsis (i.e., the CR strategy). For example, (72b) may have the following structure

<sup>21</sup>The relevant entry in Herbst *et al.* 2004: 78 assumes that the NP and the CP have the same function, but also that the PP[*in*] realises a different function. Corpus examples below contradict this latter view.

(cf. Bruening and Al Khalaf 2020: (65) and §2.1):

(79) She [<sub>VP</sub> lost the match], and [<sub>VP</sub> lost it to an underdog]! (*it* = the match)

We agree that, to the extent that (72b) may be made acceptable, it is an instance of ellipsis with special intonation, as shown in (79). However, examples (75)–(78) are not amenable to such an interpretation: intonation observed in (79) is absent there and the input to ellipsis of the kind indicated in (79) is ungrammatical, e.g.:

(75') \*...as long as you [<sub>VP</sub> believe the right things] and [<sub>VP</sub> believe them in absolute truth], you are OK... (*them* = the right things)

(78') \*...the audience also has to [<sub>VP</sub> believe his sincerity] and [<sub>VP</sub> believe it that he really loves Kacie]. (*it* = his sincerity)

Another argument B&K advance for the CR analysis of such examples is that these coordinate structures do not behave like constituents: they cannot be fronted or form the pivot of pseudoclefts. (80)–(81) are B&K's (66a) and (67a), with their judgements.

(80) \*Her claim and in fairy creatures, he believes.

(81) \*Her claim and in fairy creatures is what he believes.

B&K do not state whether there are speakers who accept (72h) and fail to accept (80)–(81) – only then their argument could be valid. But even if so, there are good independent reasons for the diminished acceptability of (80)–(81). This is most clear in the case of the pseudocleft construction, which is unacceptable with just the PP conjunct:

(82) \*In fairy creatures is what he believes.

This, in line with the CGEL quote in (1), explains the ill-formedness of (81). As to (80), we have already noted (in §2.2) that topicalisation often results in awkwardness (especially out of context), so diminished acceptability of (80) is to be expected.

In fact, by B&K's standards, pseudoclefts provide evidence that coordinate structures in at least some of the examples (75)–(78) are constituents. Consider again (78). Each of the conjuncts there may form the pivot of a pseudocleft, so, as predicted by the CGEL condition (1), the coordination of NP and CP may also form such a pivot.

- (83) ... his sincerity is what the audience has to believe.
- (84) ... that he really loves Kacie is what the audience has to believe.
- (78'') There's a comedic element to Kelvin, but his sincerity and that he really loves Kacie is what the audience has to believe.

There are many other verbs like BELIEVE, whose argument may be realised as a CP[*that*], an NP, or a PP – or by a coordination of different subsets of these categories, in various orders; for example, THINK (examples from English Web 2015):

- (85) On the way there, I kept thinking [[<sub>NP</sub> positive thoughts] and [<sub>PP</sub> about how much fun I was having]].
- (86) When I think [[<sub>PP</sub> of my parents] and [<sub>CP</sub> that they have never been further East than Europe]], I can't help but feel guilty...
- (87) None of them thought [[<sub>PP</sub> about budgets] and [<sub>CP</sub> that money is limited]].

There are also many predicates that combine just with a CP or a PP (to the exclusion of an NP), some of them – HOPE, BOAST, and ASHAMED – discussed in a different context by B&K. For example, Bruening and Al Khalaf 2020: 16, (49b) give (88) as an illustration that subcategorisation violations are limited: according to B&K, predicates such as HOPE “only permit CPs”, so an NP cannot occur within coordination.

- (88) \*She hopes [[<sub>CP</sub> that the defending champs will win] and [<sub>NP</sub> a good result for the host country]].

They fail to mention, however, that HOPE also permits PPs, which may be freely coordinated with CPs, in any order, as the following examples (English Web 2015) show:

- (89) We hope [[<sub>PP</sub> for another good year], and [<sub>CP</sub> that we continue to grow]].
- (90) We hope [[<sub>CP</sub> that 2013 numbers are much higher] and [<sub>PP</sub> for better performance next year]].

Many other combinations of unlike categories may be found with other predicates. What can be particularly interesting from the point of view of theories of control is the case where one of the conjuncts is a controlled infinitival phrase (InfP), while the other

is an NP or a CP, as in the case of verbs such as WANT or TEACH (English Web 2015):

- (91) "But," as Besemov would conclude, "no one wanted [either [NP my information] or [INFP to open their eyes]]."
- (92) We teach them [[NP manners] and [INFP to be respectful]].
- (93) This class educates parents on the importance of water safety by teaching children [[INFP to float] and [NP other lifesaving techniques]].
- (94) You have taught me [[INFP to rest physically], and [CP that it is okay to work hard]].
- (95) You teach me [[CP that hard work pays off] and [INFP to never give up on a goal]].

Such examples provide a new argument against the movement theory of control (Hornstein 1999), based on the fact that, on that theory, control into a single conjunct would violate Ross's (1967: §4.2) Coordinate Structure Constraint (specifically, the 'element constraint' part of CSC; Grosu 1973), so all these examples should be ungrammatical.<sup>22</sup>

#### 4 Conclusion

While Bruening and Al Khalaf 2020 employ three different strategies to deal with what they consider to be only apparent unlike category coordination, their attempt still leaves many different cases of such coordination unaccounted for. These include predicates such as BEHAVE, RESIDE, and LAST, which impose mainly semantic restrictions on their arguments, but also such run-of-the-mill verbs as BELIEVE, HOPE, TEACH, etc. In the discussion of B&K's analysis, we also pointed out a number of methodological, technical, and empirical problems, which we consider to be fatal for their proposal.

Our conclusion is that the Law of the Coordination of Likes, as it is sometimes called, is a myth. Coordination does not impose any such constraint; rather, all conjuncts must satisfy any external restrictions on the syntactic position they occupy. In some cases such restrictions are rigid, resulting in categorial sameness; in other cases they are underspecified or disjunctive, resulting in category "mismatches".

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<sup>22</sup>Kehler's (2002) analysis of some non-'across-the-board' violations of Ross's constraint in terms of discourse coherence relations is not applicable here, as conjuncts in most examples are discourse-parallel.

## Appendix: Grammatical Function Mismatches

Examples of unlike category coordination of the kind discussed in the main paper may be found in many languages, not just in English. But some languages – Slavic and certain neighbouring languages (including Hungarian and Romanian) – allow for coordination of a higher order of unlikeness: coordination of different grammatical functions. To the first approximation, the constraint on this construction is that the conjoined items are *wh*-phrases or certain quantificational expressions, as the following Russian examples illustrate (Paperno 2012: 76–77, (5), (1)–(3), the last three from the National Corpus of Russian):

- (96) Kto i kuda napravljaetsja? (Russian)  
who.NOM and where.to heads  
'Who is going where?'
- (97) Zdes vsem i vseгда kofe podavala ona sama. (Russian)  
here all.DAT and always coffee.ACC served.F.SG she.NOM self.NOM  
'Here she always served coffee herself to everyone.'
- (98) Vam nikto i ničego ne predlagal eščë (Russian)  
you.DAT nobody.NOM and nothing.ACC NEG offered yet  
'Nobody has offered you anything yet.'
- (99) Ponjal li kto-nibud' i čto-nibud'? (Russian)  
understood Q anyone.NOM and anything.ACC  
'Has anyone understood anything?'

Following Sannikov 1979, 1980 and Kallas 1993, who first provided dependency analyses of this construction in Russian and Polish, we call it lexico-semantic coordination (LSC). Unlike English constructions such as the headline in (100),<sup>23</sup> true LSC cannot be analysed with recourse to ellipsis: convincing arguments against such an analysis are

<sup>23</sup><https://www.verywellfit.com/what-to-eat-before-exercise-3120662>

adduced, e.g., in Kazenin 2001 (for Russian) and in Lipták 2003 (for Hungarian).<sup>24</sup>

(100) What and When to Eat Before Exercise

LSC is true coordination, as implicitly assumed in almost all work on this construction. One argument is that, in languages as different as Polish, Russian, Romanian, and Hungarian, it is always the conjunction that joins relevant phrases. Merchant 2017: §4, the only recent voice of dissent that we are aware of, claims that LSC is not coordination and that items such as the Hungarian *és* ‘and’ or the Slavic *i* ‘and’ are used as discourse markers.<sup>25</sup> Admittedly, *i* doubles as a discourse marker in many Slavic languages. However, not only *i* may be used in LSC in Slavic. For example, in Czech, the conjunction used to combine *wh*-phrases in LSC is *a* ‘and’, which does not have discourse uses, and not *i*, which does (Skrabalova 2007: §5.2.1). Further, Patejuk 2015: §5.3 provides attested examples of other coordinators used in LSC in Polish, apart from *i*: not only the conjoining *oraz* ‘and’, but also *ani* ‘nor’ and *lub* ‘or’; none of these doubles as a discourse particle. Moreover, also *contra* Merchant 2017: §17, ‘balanced’ versions of some conjunctions, repeated before each conjunct, can be used; this holds for *ani* ‘nor’ and *i* ‘and’, e.g. in (101) (Patejuk 2015: 83, (5.14), from the National Corpus of Polish, henceforth, NCP). Finally, it is also possible to find examples featuring preconjuncts, e.g., *nie tylko... ale i...* ‘not only... but also...’, as in (102) from NCP.<sup>26</sup>

(101) A jest i co, i gdzie eksportować. (Polish)

and is and what.ACC and where export.INF

‘There (certainly) is what to export and where to export it to.’

(102) Ważne jest nie tylko co, ale i jak pijemy. (Polish)

important is not only what.ACC but and how drink.1PL

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<sup>24</sup>For additional arguments see: Skrabalova 2007: §§2 and 5 on Czech, Gribanova 2009: 136–137 and Paperno 2012: 100–102 on Russian, Bîlbîie and Gazdik 2012: §3.3 on Hungarian, and Lipták 2011 for a typological overview.

<sup>25</sup>A similar claim about Serbo-Croatian *i* used in LSC may also be found in Penn 1999.

<sup>26</sup>See also Bîlbîie and Gazdik 2012: 22, (10a) and 27, (41) for a similar multitude of conjunctions in Romanian LSC, including ‘balanced’ conjunctions. (However, for them, this is an argument for the elliptical status of Romanian LSC, *contra* Comorovski 1996.) Moreover, Chaves and Paperno 2007: 49–50 provide further convincing arguments against treating Russian *i* in LSC as a discourse particle.

‘What is important is not only what, but also how we drink.’

Many instances of LSC involve coordination of different categories, e.g., nominal and adverbial in (96)–(97) and (101), but also nominal and prepositional, as in the Russian example (103) (Kazenin 2001: 1, (4)), nominal, adverbial, and prepositional, as in the Polish example (104) (Patejuk 2015: 140, (5.286), from NCP), or adverbial and adjectival, as in (105) (Patejuk 2015: 81, (5.5), from NCP), etc.

(103) Komu i o čěm ty rasskazyval? (Russian)  
who.DAT and about what.PREP you.NOM.SG told.SG.M

‘Whom did you tell about what?’

(104) Nie pije się byle czego, byle gdzie i z byle kim. (Polish)  
NEG drink REFL any sth.GEN any somewhere and with any sb.INS

‘You don’t drink just anything, anywhere, and with anybody.’

(105) Skąd i jakie otrzymujemy informacje? (Polish)  
whence and what.ADJ.ACC.PL.F receive.1PL information.ACC.PL.F

‘What information do we get and where from?’

As mentioned above, the CR (ellipsis) strategy of B&K is unavailable for such cases. Either of the other two strategies could in principle be applied, but allowing for new kinds of empty heads or new supercategories just to avoid unlike category coordination would make B&K’s account unfalsifiable, as pointed out in §1.3 and §2.4.

The only other mechanism that would result in a reanalysis of some cases of LSC as coordination of like categories that we are aware of is that of *bulk sharing* (Gračanin-Yüksek 2007), applied in Citko and Gračanin-Yüksek 2013, 2016 to the analysis of LSC involving fronted *wh*-elements (as in (96), (101), (103), and (105)). The idea of this mechanism is that such examples involve coordination of two (or more) different CPs, with separate [Spec,CP] positions filled by different *wh*-phrases, but with much of the rest of the structure shared between these CPs, as shown in Figure 1. Unfortunately (for B&K), it is not clear how to extend this analysis to examples such as

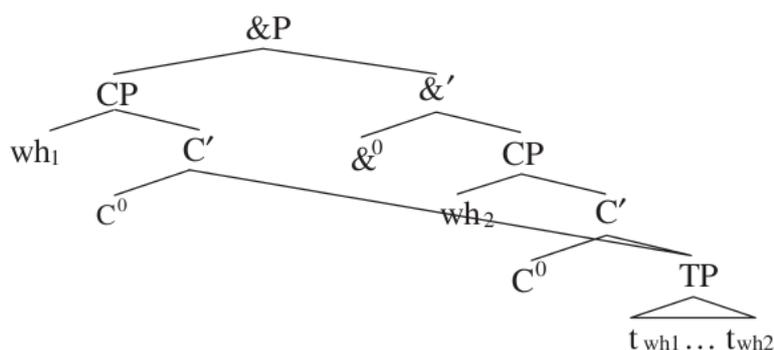


Figure 1: Bulk sharing structure (Citko and Gračanin-Yüksek 2013: 3, (6b))

(104), where much lower material is coordinated. Also, this analysis is based on a non-standard mechanism, Parallel Merge (Citko 2000, 2005), which is sometimes perceived as too costly for Universal Grammar (Chomsky 2007: 8). Finally, it is far from obvious whether such shared structures can be made compatible with B&K's left-to-right mechanism of tree construction. This means that LSC provides an additional class of empirical counterarguments against B&K's attempt to analyse away coordination of unlike categories.

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