Category Mismatches in Coordination Revisited

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We reexamine cases of coordinated elements that do not match in syntactic category. We show that these fall into two types. The first type includes predicates, modifiers in the clausal domain, and such modifiers apparently coordinated with arguments. We argue that these do not actually involve coordination of unlike categories. The second type involves coordinated arguments of different categories. With this type, unlike the first, noninitial conjuncts may violate selectional restrictions. To account for these violations, researchers have typically posited a special status for the first conjunct in a coordinate structure, such that it alone can determine the category of the coordinate phrase. We show that such accounts are untenable. First, the *final* conjunct can be what matters for selection, if it is closest to the selecting or selected element. Second, category mismatches are not free, but are extremely limited and exactly match those observed in ellipsis and displacement. This calls for a uniform account of these mismatches, not one specific to coordination. We spell out such an analysis, in which displacement, ellipsis, and coordination permit certain categories to behave as certain other categories through their effects on null syntactic heads.

Keywords: coordination, selection, category mismatches, ellipsis, linear order

1 Introduction

Over the years, numerous counterexamples to the claim that coordination can only conjoin elements of the same syntactic category have been adduced (e.g., Peterson 1981, 2004, Sag et al. 1985, Bayer 1996). We show here that these fall into two types, and propose analyses of both types. First, there are predicates and modifiers in the clausal domain, which can be of different categories when coordinated but cannot violate selectional restrictions. This is illustrated in (1) for coordinated predicates.

(1) a. Danny became a political radical and very antisocial. (NP and AP)
    b. *Danny became a political radical and under suspicion. (*became* selects NPs and APs but not PPs)

Second, there are arguments and prenominal modifiers, which *can* violate selectional restrictions, as Sag et al. (1985) have shown for arguments. For example, prepositions select NP complements and do not permit CP complements.

(2) a. You can depend on my assistant.
     b. *You can depend on that he will be on time.
        (Sag et al. 1985:165, (125b))

However, a CP and an NP can be coordinated as the object of a preposition, so long as the NP comes first.[1]

(3) a. You can depend on [[$_{NP}$ my assistant] and [$_{CP}$ that he will be on time]].
        (Sag et al. 1985:165, (124b))
     b. *You can depend on [[$_{CP}$ that my assistant will be on time] and [$_{NP}$ his intelligence]].

     We show here that both types of category mismatch are far more constrained than previous research has recognized. As noted above, category mismatches with predicates and modifiers in the clausal domain may not violate selectional restrictions. (From now on, we use the simple term *modifiers* to refer to modifiers in the clausal domain, and *nominal modifiers* for that specific type.) Following Sag et al. (1985), we propose that predicates and modifiers fall into "supercategories" of grammatical categories, namely, Pred(icate) and Mod(ifier). This means that for this type of apparent category mismatch, there is no actual mismatch: the two elements that are conjoined are of the same syntactic category, either Pred or Mod. Particular verbs (like *become* in (1)) may impose additional subcategory requirements, which must be met by all conjuncts. Additionally, apparent cases of modifiers conjoined with arguments turn out to involve coordination of larger categories plus ellipsis; hence, they actually involve coordination of identical categories, too. We maintain that there is a strict requirement that coordination can only target identical syntactic categories.

     As for arguments, where selectional restrictions can apparently be violated, all accounts of this pattern that we are aware of propose that the first conjunct enjoys a special prominence within the coordinate structure. This generally takes the form of positing a hierarchically more prominent position for the first conjunct. This prominence permits the first conjunct to percolate its own features to the coordination as a whole (e.g., Munn 1993, 1999, Johannessen 1996, 1998, Zhang 2010, Larson 2013). We show here that accounts like this are untenable, for two reasons. First, the final conjunct can be what satisfies selectional restrictions, if it is closest to the selecting or selected item. That is, it is the conjunct that is closest to the selecting/selected element that matters, not uniformly the first conjunct. Second, selectional violations are actually quite limited and exactly match those observed in displacement and ellipsis. Specifically, the only mismatches that are possible are (a) that a CP can act as though it is an NP, as in (3a), and (b) a non-*ly* adverb can act as though it is an AP when it is conjoined with an AP in prenominal position.

(4) a. *The Once and Future King* (book title)
     b. *the once king

CPs have been shown to be able to behave as NPs in both displacement (e.g., Higgins 1973, Kuno 1973, Kaplan and Bresnan 1982, Postal 1994, Alrenga 2005, Takahashi 2010) and ellipsis

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[1] Sag et al. (1985) note speaker variation on this judgment. The majority of speakers we have consulted actually find mismatches like those in (3a) marginal at best. We account for this judgment within our analysis in footnote 30.

(Merchant 2004, Arregi 2010). We show that non-*ly* adverbs like *once* are acceptable as nominal modifiers if they undergo short displacement to the left (or right). This means that all and only the category mismatches that are observed in ellipsis and displacement are observed also in coordination. This calls for a unified account, not an account that is specific to coordination.

For this second category of apparent mismatches in coordination, we propose again that coordinated elements must strictly match in syntactic category. CPs can sometimes be NPs, by virtue of being the complement of a null N head. In (3a), then, the CP coordinated with the NP is actually also an NP. A CP cannot be dominated by a null-headed NP when it occupies an argument position directly, as in (2b), but this becomes grammatical when the CP is removed from a direct relation with its selector through displacement, ellipsis, or coordination. We spell out an account of this phenomenon, which also explains why coordination patterns with ellipsis and not with displacement (CPs are only optionally NPs in ellipsis and coordination, but are obligatorily NPs in leftward displacement). We also explain the directionality effect that we document by spelling out how feature checking works in a left-to-right derivational model. The directionality effect falls out as a by-product of the order of the derivation. As for non-*ly* adverbs, we propose a similar explanation based on the presence of a null Adv head that can effectively be removed in displacement and coordinate ellipsis, leaving an adjective. The two cases (CPs and AdvPs) are related in that they involve null syntactic heads that interact with displacement, ellipsis, and coordination.

The overall conclusion of this study is that coordinated elements *do* have to match in syntactic category, after all. Apparent counterexamples are highly constrained, in such a way that they motivate analyses where they are not counterexamples at all.

We begin in section 2 by examining the first type of apparent mismatches, those observed with predicates and modifiers. The rest of the article is then concerned with the second type, involving arguments and nominal modifiers. Section 3 lays out the empirical facts regarding these. Section 3.1 documents the directionality effect, while section 3.2 shows that the only selectional violations that are permitted are those that are also allowed in displacement and ellipsis. This section further shows that conjuncts must be of the same syntactic category in coordination of arguments, even where selectional restrictions are met. Section 4 outlines our approach to CPs being treated as NPs in displacement, ellipsis, and coordination. Section 5 presents our analysis of non-*ly* adverbs. The conclusion, section 6, discusses further implications of the facts presented here, including the need to refer to linear order in the syntax.

2 Type 1 Mismatches: Predicates and Modifiers in the Clausal Domain

In this section, we examine the first type of category mismatches, those that occur with predicates and modifiers. Our main concern in this article is coordination of arguments, so this section will be rather cursory.

First, we divide this type into two subtypes. There is apparent coordination of arguments with modifiers, which we argue is actually coordination of larger categories plus ellipsis. Thus, there are no actual category mismatches with this subtype. Second, there is coordination of predicates with predicates and modifiers with modifiers. This subtype can genuinely involve different

syntactic categories. We suggest that cases of this subtype nevertheless involve a matching category in a sense that we spell out. Thus, we maintain that coordination can only target elements of the same syntactic category.

2.1 Type 1, Subtype 1: Arguments Conjoined with Modifiers

The literature has noted various cases where it appears that a modifier may be coordinated with an argument.

(5) a. John eats only pork and only at home.
     (Grosu 1985:232, (2a))
  b. John eats the strangest food and with the strangest companions.
     (Grosu 1985:232, (2d))
  c. John has stolen more watches and from more unsuspecting victims than anybody
     else ever will.
     (Grosu 1985:232, (2e))
  d. I eat neither meat nor at restaurants.
     (Zhang 2010:18, (7.24c), crediting Chris Wilder)

Slightly different examples of this type are the following:

(6) a. John read the book and quickly.
     (Progovac 1998:6, (xv))
  b. Robin knows Kim and intimately!
     (Zoerner 1995:94)

We contend that all examples of this type are elliptical. This is motivated initially by the semantic interpretation. In most of the above examples, the modifier clearly has the argument in its scope. For instance, sentence (5a) means that John eats his pork at home; in (5b), John eats his strange food with his strange companions. Similarly, in (5c) the unsuspecting victims have their watches stolen, not unnamed things that may or may not be watches. The two examples in (6) are best paraphrased as 'John read the book and he read it quickly' and 'Robin knows Kim and she knows her intimately' (Zhang 2010:186).

We therefore propose that apparent category mismatches involving arguments conjoined with modifiers actually arise from coordination of larger categories plus ellipsis. The larger categories that can be conjoined include VP and CP (strikethrough indicates ellipsis).

(7) a. John has [$_{VP}$ stolen more watches] and [$_{VP}$ ~~stolen them~~ from more unsuspecting
     victims] . . .
  b. I [$_{VP}$ eat neither meat] nor [$_{VP}$ ~~eat~~ at restaurants].
  c. [$_{CP}$ Robin knows Kim] and [$_{CP}$ ~~she knows her~~ intimately]!

Hence, there are no actual category mismatches with this type of coordination. (For analyses involving coordinate ellipsis, see Chaves 2008 and Hofmeister 2010.)

Note that this requires in (7b) that *neither* is in the wrong place on the surface. It should actually take scope over *eat*. We believe the constituency we have indicated in (7b) is correct;

in particular, *neither meat nor at restaurants* is not a constituent. It cannot be fronted, for instance, in contrast with two matching categories.

(8) a. *Neither meat nor at restaurants do I eat.
    b. Neither meat nor fish do I eat.

This may require that at LF, *neither* raises to the edge of the VP in (7b).

The other cases also fail tests for constituency. They cannot front.

(9) a. *The most unlikely things and at the most unlikely hours John eats.
    b. *More watches and from more unsuspecting victims though John has stolen, . . .
    c. *The book and quickly John read.

They also cannot form the pivot of a pseudocleft.

(10) a. *Only pork and only at home is what John eats.
     b. *More watches and from more unsuspecting victims is what John will steal.

This is expected if the conjuncts do not form a constituent, but involve coordination of VPs plus ellipsis.

Trying to use pro-forms with these instances of coordination requires a VP pro-form; other types of pro-forms are unacceptable.

(11) a. A: He eats the most unlikely things and at the most unlikely hours!
        B: *He has always eaten them/such.
        B: He has always done so.
     b. A: She drinks nothing but bourbon and only alone.
        B: *It's kind of sad to drink that/them.
        B: It's kind of sad to do that.

We take this to support a coordinate ellipsis account, which does not posit a constituent for the apparent coordinates. What is coordinated is actually VP.

The coordinate ellipsis analysis is further supported by the fact that apparent coordination of modifiers and arguments is impossible if they are not final.

(12) a. *Xander steals only jewelry and only at night from rich people.
     b. *Xander bestows only small amounts and only reluctantly upon unattractive suppli-
        cants.
     c. *Xander eats only fish and only at home raw.
        (cf. Xander eats only fish raw and only at home.)

If coordination were free, the position of the coordinate should not matter. It does not matter if two arguments are conjoined, for instance.

(13) Xander bestows only small amounts and only small bills upon unattractive supplicants.

In the coordinate ellipsis analysis, the nonfinal coordination in (12) would require ellipsis in both conjuncts simultaneously.

(14) *Xander [$_{VP}$ steals only jewelry ~~from rich people~~] and [$_{VP}$ ~~steals it~~ only at night from rich people].

We assume that coordinate ellipsis can only target material in *one* conjunct.[2] In the cases under consideration, it may only delete initial material in the second conjunct.

Additionally, apparent coordination of arguments with modifiers exhibits a directional asymmetry.

(15) a. *John sang beautifully and a carol.
         (Peterson 1981:449, (2))
     b. John sang a carol and beautifully.

This follows if in such cases, the second conjunct must include a null pronoun anaphoric on the NP in the first (*John sang a carol and ~~sang it~~ beautifully*). Such a pronoun requires its antecedent to precede it, as is evident when it is actually pronounced.

(16) a. *John sang it$_1$ beautifully and sang a carol$_1$.
     b. John sang a carol$_1$ and sang it$_1$ beautifully.

All of the evidence presented above shows that apparent cases of arguments coordinated with modifiers actually involve coordination of larger categories plus ellipsis. Thus, they are not actually instances of mismatched categories being coordinated.

2.2 Type 1, Subtype 2: Conjoined Predicates and Conjoined Modifiers

One of the main sets of data on category mismatches in coordination involves predicates. These seem to be able to mismatch freely in coordination. The following examples illustrate the main predicate of a tensed clause:[3]

(17) a. It's five o'clock and getting dark already. (NP & VP)
         (Peterson 1981:451, (14))
     b. Pat is a Republican and proud of it. (NP & AP)
         (Sag et al. 1985:117, (2b))
     c. Pat is healthy and of sound mind. (AP & PP)
         (Sag et al. 1985:117, (2c))

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[2] Wilder (1997) analyzes numerous cases of coordination as involving deletion in more than one conjunct. We differ from Wilder in taking coordinate ellipsis to apply in a much more restricted range of circumstances (Wilder analyzes almost every instance of coordination as involving some form of ellipsis). We will leave for future work showing that ellipsis cannot take place in more than one conjunct.

[3] It should be noted that there is a semantic restriction independent of syntactic category. A predicate cannot be coordinated with a referential NP, even when they are of the same syntactic type.

(i) a. *He is stupid and John.
        (Higginbotham 1987:52)
    b. *He is a war vet and John.

We assume that there is a requirement that coordinates match in semantic type in addition to syntactic type, but we do not address this further here (see Munn 1993).

    d. That was a rude remark and in very bad taste. (NP & PP)
      (Sag et al. 1985:117, (2d))

    e. Bill could be a plumber and making a fortune. (NP & AP)
      (Peterson 2004:647, (8c))

    f. John is in town and itching for a fight. (PP & AP)
      (Peterson 2004:647, (8d))

Small-clause predicates can also differ in category. The examples in (18) show small clauses in argument position, and those in (19), small clauses in modifier positions.[4]

(18) a. I consider John crazy and a fool. (AP & NP)
      (Bowers 1993:605, (23a))

    b. I consider that a rude remark and in very bad taste. (NP & PP)
      (Sag et al. 1985:118, (3b))

    c. I imagined John a convicted felon and imprisoned for life. (NP & AP)
      (Peterson 2004:648, (8g))

    d. John found Bill in a state of shock and staggering on the edge of the cliff. (PP & AP)
      (Peterson 1981:454, (24))

    e. I made them angry and enemies for life. (AP & NP)

    f. Pat has become a banker and very conservative. (NP & AP)
      (Sag et al. 1985:118, (3a))

    g. He became sympathetic and a friend for life. (AP & NP)

(19) a. John ran down the path, a marked man and desperately afraid. (NP & AP)
      (Peterson 2004:650, (16a))

    b. In jeans and a T-shirt and sporting two days' growth on his chin, John presented a less than inspiring figure. (PP & AP)
      (Peterson 2004:650, (16b))

    c. Anyone under threat of deportation and afraid to contact the police should call the following number instead. (PP & AP)

The first observation we make about these category mismatches is that selectional restrictions cannot be violated.[5]

(20) a.   Danny became a political radical and very antisocial. (NP & AP)

    b. *Danny became a political radical and under suspicion. (*became* selects NPs and APs but not PPs)

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[4] As instances of mismatching categories, Peterson (2004) presents numerous examples with verbal participles in *-ing* and *-en/ed* conjoined with adjectives. He assumes that such participles head VPs. We think they head APs, as they have the distribution of APs. Hence, they are not instances of mismatching categories when they are conjoined with other APs. To avoid the issue, we simply do not discuss any such examples.

[5] In (20d), the participle *awarded* is a passive of a double object verb, and so must be a verb rather than an adjective (Wasow 1977, Bruening 2014b). As a verbal passive, it cannot combine with *become*.

    c. *Danny became courageous and in front of the hostages.

    d. *Chris became a Republican and awarded a prize.
        (Sag et al. 1985:143, (67d))

(21) a. I made the children more polite and better hosts. (AP & NP)

    b. *I made the children more self-sufficient and out of the house. (*make* selects APs and NPs but not PPs)

    c. The sergeant made the guards alert and better marksmen.

    d. *The sergeant made the guards alert and on top of the wall.

(22) a. The sergeant got the guards alert and on top of the wall. (AP & PP)

    b. *The sergeant got the guards alert and better marksmen. (causative *get* selects APs and PPs but not NPs)

(This is only relevant for small-clause predicates in argument position, since those in modifier positions are not selected.)

    In addition to predicate modifiers, modifiers of other types may be conjoined even when they are not of the same syntactic category. For instance, AdvPs and NP modifiers may be conjoined with PPs.

(23) a. We walked slowly and with great care.
        (Sag et al. 1985:140, (57))

    b. They wanted to leave tomorrow or on Thursday.
        (Sag et al. 1985:143, (69a))

    c. John plays at night and every Sunday.
        (Moltmann 1992:25, (29b))

    One response to the coordination of unlike categories with predicates is to posit a containing category, PredP (Bowers 1993), that is actually coordinated. (One could similarly propose a "ModP" for modifiers, as in Rubin 2003.) As Bayer (1996) points out, this would leave unaccounted for the fact that predicate-selecting verbs can select for different categories. As we noted above, *consider* selects NP, AP, and PP, while *make* only allows AP and NP and does not select PP categories. If all predicates were PredP, these different selection patterns could not be captured, since selection is strictly local (i.e., it is not possible to say that a verb selects a Pred that itself selects a certain category). Hence, this is not a viable analysis.

    Another possibility is that, with predicates and modifiers, there is simply no category restriction on coordination. That is, coordinated elements are free to be of any syntactic category, so long as they are compatible semantically. In the case of selected predicates, every conjunct would also have to satisfy the selectional requirements of the selecting head.

    We find this unsatisfying, because it requires that the restrictions on coordination differ between predicates/modifiers and arguments. As we will show in subsequent sections, arguments are *not* free to mismatch in syntactic category. The category mismatches that are permitted are actually quite limited. For instance, if it were true that the only restriction was that two conjuncts be semantically compatible, and if it were true (as it sometimes seems to be) that only the conjunct

closest to the selector has to satisfy its selectional requirements, then we would expect something like the following to be acceptable:

(24) *The invaders destroyed the castle and of the surrounding town.

The preposition *of* is generally viewed as semantically contentless in nominals like *destruction of the surrounding town*. In (24), the NP *the castle* and the PP *of the surrounding town* should then be semantically compatible, and the coordination should be licit since the conjunct immediately following the verb is of the right syntactic category. It should not matter that the second conjunct is not.

Moreover, as we will show, mismatching categories are not allowed with coordinated arguments even when the selecting element permits both categories.

(25) *She's speaking nonsense and with Sarah.

Both *She's speaking nonsense* and *She's speaking with Sarah* are grammatical, but still NP and PP cannot be conjoined with this verb. We will argue in detail in subsequent sections that conjoined arguments *do* need to match in syntactic category. We therefore think that the best analysis holds that *all* conjuncts need to match in syntactic category, even predicates and modifiers. The issue is of particular concern for predicates that are also arguments, such as the small-clause complements of verbs like *consider*. We can see no reason why they would differ from the complements of verbs like *destroy* and *speak*, and we would expect them to behave alike.

Now, we could make the same proposal that we made for the first subtype of category mismatches—namely, that all of these cases also involve coordination of larger categories plus ellipsis. This does not seem to be correct, because unlike those cases, coordinated modifiers and coordinated predicates do seem to form a single constituent. Peterson (1981, 2004) shows this for predicates with the main verb *be*.

(26) a. A plumber and making a fortune though Bill may be, he's not going to be invited to my party.
b. Stupid and a liar Paul undoubtedly is, but he is still my friend.
c. In town and itching for a fight is the scourge of the West, Zitty Zeke.
(Peterson 2004:648, (10a–c))

(27) a. Bill is a plumber and making a fortune, and so is John.
(Peterson 2004:648, (11a))
b. Pat is a Republican and proud of it. So is Brendan.

Conjoined mismatching categories can be fronted as a constituent (26), and they can be resumed with the pro-form *so* (27).

We note that this is also true of predicative small clauses with verbs like *consider*.

(28) a. A political radical and very antisocial though he may become . . .
b. An outsider and unwelcome you may well consider Paul . . .

(29) a. A: I found him boring and a bit of a cad.
B: I've always found him so.

     b. A: What did she say that she considers him?
          B: An outsider and unwelcome.

Such coordinated predicates can also form the pivot of a pseudocleft.

(30) a. A political radical and very antisocial is what he may become.
      b. A political radical and very antisocial is what I consider him.

Coordinated modifiers of mismatching categories also behave as constituents. They can front, for instance, or form the answer to a question or the pivot of a pseudocleft.

(31) a. Slowly and with great care they picked their way across the battlefield.
      b. Tomorrow or on Thursday they will send around a memo.

(32) a. A: How did they cross the broken glass?
          B: Slowly and with great care.
      b. A: When will they send around a memo?
          B: Tomorrow or on Thursday.

(33) a. Slowly and with great care is how one must cross broken glass.
      b. Tomorrow or on Thursday is when you should send around the memo.

Coordinate ellipsis does not appear to be the right analysis for these cases, then. We propose instead that there was something right about the PredP analysis (Bowers 1993) and the ModP analysis (Rubin 2003). That is, XPs used as predicates are all of the same category in some sense, as are modifiers. However, this is not because they are all headed by a null head of category "Pred" or "Mod." Rather, we follow Sag et al. (1985) and propose that all predicates share a category *feature* [Pred], and all modifiers share a category feature [Mod]. In our conception, an XP of any syntactic category, if it is to head a predicate, must have a privative [Pred] feature merged with it. Similarly for XPs that are going to be used as modifiers. We conceive of the [Pred] feature and the [Mod] feature as being of the same type as the syntactic category features N, A, P, V, and so on. That is, they are also syntactic categories, what we will call a *supercategory*. XPs that belong to the supercategories Pred and Mod will also be specified for the regular categories AP, NP, PP, and the like.

    Now, coordination is restricted to conjoining only elements of the same syntactic category. However, if there is a supercategory, that is all coordination cares about. If one element to be conjoined is of supercategory Pred, for instance, then it can be conjoined with another element of supercategory Pred. Coordination only cares about the topmost level of syntactic category. Selection, in contrast, can be more selective, so that a given verb can select for Pred:NP or Pred:AP, for instance, and disallow Pred:PP. Predicates can then differ in syntactic category, but all conjuncts must satisfy the selectional requirements of the selecting verb.

(34) a. Danny became [$_\text{Pred:NP}$ a political radical] and [$_\text{Pred:AP}$ very antisocial]. (*become* allows both NP and AP)
      b. *Danny became [$_\text{Pred:NP}$ a political radical] and [$_\text{Pred:PP}$ under suspicion]. (*become* selects NPs and APs but not PPs)

(We will say more in section 4.3 about how selection is checked in coordinate structures.)

The same is true of modifiers. Coordination only cares about the supercategory if there is one, so different syntactic categories can be conjoined if they are all Mod.

(35) a. We walked [[$_{Mod:AdvP}$ slowly] and [$_{Mod:PP}$ with great care]].
   b. [[$_{Mod:PP}$ In jeans and a T-shirt] and [$_{Mod:AP}$ sporting two days' growth on his chin]], John presented a less than inspiring figure.

(Modifiers that are also predicates, as in (35b), could have the feature [Pred] in place of or in addition to [Mod].)[6]

In this proposed analysis, predicates and modifiers that appear to be of different syntactic categories are actually not, as they all belong to a single supercategory. This analysis therefore maintains the restriction on coordination to the effect that it can only coordinate elements of the same syntactic (super)category.

2.3 Note: Coordinate Ellipsis Is a Possibility

As we have shown, coordination of larger categories plus ellipsis does not seem to be generally correct for coordinated modifiers and coordinated predicates. However, there are examples that suggest that coordinate ellipsis is also a possibility. Consider the following examples, where *either* takes scope over the verb:

(36) a. She either considers John crazy or a fool.
   b. She will either make them furious at each other or friends for life.
   c. She either said to work slowly or with great care.

The scope of disjunction here includes the verbs *consider*, *make*, and *say*. Hofmeister (2010) argues that the best analysis of such cases is VP-coordination plus ellipsis.

(37) a. She either [$_{VP}$ considers John crazy] or [$_{VP}$ ~~considers John~~ a fool].
   b. She will either [$_{VP}$ make them furious at each other] or [$_{VP}$ ~~make them~~ friends for life].
   c. She either [$_{VP}$ said to work slowly] or [$_{VP}$ ~~said to work~~ with great care].

If all that is coordinated is *[crazy or a fool]* (for example), it is unclear how the correct interpretation can be achieved.

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[6] Note that with predicative modifiers, it is possible to add *being*.

(i) a. Being in jeans and a T-shirt and sporting two days' growth on his chin, John . . .
   b. Anyone being under threat of deportation and afraid to contact the police . . .

An alternative analysis is that such phrases are actually of some other category—say, some kind of nonfinite Tense, whose head is either null or optionally realized as *being*. Under this analysis, such examples are also not actual examples of mismatching categories.

This will be relevant below. If coordination of larger categories plus ellipsis is a possibility, then we expect that more apparent instances of mismatching coordinates will be permitted (but the apparent conjuncts will not form a constituent).

2.4 Summary

We have shown here that Type 1 category mismatches fall into two subtypes. The first subtype involves apparent coordination of modifiers with arguments, which we analyzed as coordination of larger (like) categories plus ellipsis. The second subtype involves coordinated predicates and coordinated modifiers. These do seem to genuinely involve unlike syntactic categories, but we suggested that they actually involve coordination of two elements of the same category, a supercategory Pred or Mod.

3 Type 2 Mismatches: Arguments and Nominal Modifiers

In this section and following ones, we turn to the second type of mismatching conjuncts, those observed with arguments and with nominal modifiers. In this case, selectional restrictions can apparently be violated. As stated in section 1, all existing analyses of this effect posit a privileged status for the first conjunct. In this section, we document two problems for such analyses: first, the final conjunct can be what violates selectional restrictions, if the coordination precedes the element it enters into a selectional relation with; and second, category violations are quite limited. In subsequent sections, we present our analyses.

3.1 Directionality

We begin with the first issue, the fact that the final conjunct can also apparently determine the category of the coordinate phrase as a whole. This is incompatible with theoretical accounts that advocate a uniformly prominent position for the first conjunct.

In coordination, two coordinated elements Y and Z may enter into a relation with some element X. They may either follow X or precede X.

(38) a. X [Y & Z]
     b. [Y & Z] X

The existing literature has only looked at the first case, where the coordinated elements follow X. Such examples were first introduced by Sag et al. (1985) and have been further discussed by Johannessen (1996, 1998), Zhang (2010), and numerous others. As illustrated in (3), in pattern (38a) only the first conjunct (Y) must satisfy the selectional requirements of the head X. More examples follow:

(39) a.   We talked about [[$_{NP}$ Mr. Colson] and [$_{CP}$ that he had worked at the White House]].
          (Sag et al. 1985:165, (124a))
     b.   We talked about [$_{NP}$ Mr. Colson].
     c. *We talked about [$_{CP}$ that he had worked at the White House].
          (Sag et al. 1985:165, (125a))

d. *We talked about [[$_{CP}$ that Mr. Colson had worked at the White House] and [$_{NP}$ his numerous ties to Wall Street]].

Examples of pattern (38b) have not, to our knowledge, been noted before. Subjects in English make a good test case, since they precede the selecting predicate. There are some predicates that select NP subjects and do not permit CP subjects.

(40) a. *[$_{CP}$ That he was late all the time] resulted in his being dismissed.
    (based on Pollard and Sag 1987:131)
  b. [$_{NP}$ His constant harassment of coworkers] resulted in his being dismissed.

Some speakers of English may find the CP subject in (40a) acceptable. They are not relevant here. Speakers who do find (40a) degraded compared with (40b) nevertheless find a CP acceptable as the first member of a coordinate subject, if the second member is an NP.[7]

(41) a. [[$_{CP}$ That he was late all the time] and [$_{NP}$ his constant harassment of coworkers]] resulted in his being dismissed.
  b. *[[$_{NP}$ His constant harassment of coworkers] and [$_{CP}$ that he was late all the time]] resulted in his being dismissed.

The same pattern can be found with other predicates that do not permit CP subjects—for instance, the predicate *be incoherent*, which for many speakers also does not allow a CP subject.

(42) a. [[$_{CP}$ That images are waterproof] and [$_{NP}$ the claim made by the Redactionist sect]] are both incoherent.
  b. *That images are waterproof is incoherent.
    (Pollard and Sag 1987:131)
  c. The claim made by the Redactionist sect is incoherent.
  d. *[[$_{NP}$ The claim made by the Redactionist sect] and [$_{CP}$ that images are waterproof]] are both incoherent.

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[7] In an informal poll of approximately seven speakers, two had the pattern of judgments described here. The others permitted CPs by themselves. One of them permitted CPs with the examples in the text, but gave the following pattern of judgments with some other predicates:

(i) a. *That we invested when we did made us rich.
      (Pollard and Sag 1987:131)
  b. ?That we invested when we did and the insider knowledge that we had made us rich.

(ii) a. *That he was going bald drove him to drink.
      (Pollard and Sag 1987:131)
  b. ?That he was going bald and complete lack of respect from his children drove him to drink.

This speaker also judges examples like *You can depend on my assistant and that he will be on time* to be marginal. None of the individuals polled has indicated disagreement regarding the non-*ly* adverbs described below, nor has anyone with whom we have discussed this phenomenon.

This pattern can also be found when the selector is a postposition. For instance, a coordinate phrase consisting of an NP and a CP is a possible dependent of *notwithstanding* as long as the *final* conjunct is an NP.

(43) a.   That she got third place and her injury in the final round notwithstanding, she felt good about her performance in the Olympics.
  b.   Her injury in the final round notwithstanding, . . .
  c.   *That she got third place notwithstanding, . . .

(Again, some speakers may find a CP acceptable as the complement of *notwithstanding*; the important fact is that some speakers do not allow one by itself but do allow it when it is coordinated with an NP.)

As can be seen from these examples, when the coordinate phrase precedes the selecting head, it is the *final* conjunct that matters for categorial selection, not the initial one. This is incompatible with the class of analysis that posits a special prominence for the first conjunct, such that it alone can determine the category of the coordinate phrase as a whole.

Another possible source of data for this pattern involves adjectives and adverbs. As adjuncts, these categories are typically not thought of as entering into selectional relations (but see Pollard and Sag 1994, Bruening 2010a, 2013). However, there are clear categorial restrictions on adjectives and adverbs. Only APs may occur as prenominal modifiers, while adverbs modify other categories. Given this, examples like the well-known book title in (44a) become relevant to the issue of categorial mismatches in coordination.

(44) a.   *The Once and Future King*
  b.   *the once king
  c.   the future king
  d.   *the future and once king

This is an example of pattern (38b): two coordinated elements, here an AdvP and an AP, occur in a relation with a category that follows them (call it N′). In this case, it is not entirely clear which element is the selected element and which the selecting one; Pollard and Sag (1994) and Bruening (2010a, 2013) argue that it is the modifier (the adverb or the adjective) that selects the category it modifies. We will tentatively adopt this hypothesis; but regardless, there is a clear category restriction on prenominal modifiers, and so these cases are relevant to the current inquiry. In this example, only *future* is compatible with the N′ headed by *king*. *Once* is not an adjective and may not appear by itself in prenominal position. It is an adverb and can in general only modify VPs (or other clausal constituents), as in *He was once king* or *He was king once.* The book title is grammatical and in fact unremarkable because only the coordinated element that is closest to N′ needs to match that phrase in category. Here, the closest element, *future*, is an AP, which can combine with an N′.

One might object to the above example as a fixed expression, not representative of a general pattern in the language. However, investigation reveals that it is in fact representative of a larger pattern. *Det Adv and Adj N*, where *Det Adv N* is ungrammatical, is actually common, with different

choices for Adv, Adj, and N (and Det), so long as the Adv is not marked with *-ly.* Some attested examples follow:

(45) a. . . . in the once and future world . . .[8] (*the once world)
  b. The Once and Future Library[9] (*the once library)

(46) a. the twice and future Caesar[10] (*the twice Caesar)
  b. the twice and future president[11] (*the twice president)
  c. the twice and future prime minister[12] (*the twice prime minister)
  d. . . . that expression can be applied to the thrice-and-future prime minister of Israel . . .[13] (*the thrice prime minister)

More examples of the *Det Adv and Adj N* pattern are listed in (48) and (49), with adverbs other than *once, twice, thrice.* Attested examples are numerous.

(47) a. . . . cataclysmic events were pointing to the soon and coming return of the Lord for His church.[14] (*the soon return)
  b. The Soon and Coming King[15] (*the soon king)
  c. A Soon and Distant Christmas[16] (*a soon Christmas)

(48) a. *The Now and Future Kingdom* (book title)[17]
  b. The Now and Future Caliphate[18]
  c. The now and future world of restricted work hours for surgeons[19]
  d. the now and future winners[20]
  e. Hillary: The now and future Democrat[21]
  f. *the now kingdom/caliphate/world/winners/Democrat

It therefore appears that examples like *the once and future king* are common. A non-*ly* adverb can productively be conjoined with an AP in prenominal position, if the AP comes last. (-*ly* adverbs cannot: **the efficiently and clever worker.*) This is a pattern in the synchronic grammar that needs to be captured by any adequate analysis.[22]

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[8] https://books.google.com/books/about/The_Once_and_Future_World.html?id=uevWiPTDm14C
[9] http://www.hermanmiller.com/research/research-summaries/the-once-and-future-library.html
[10] http://www.risingshadow.net/library/book/47397-the-twice-and-future-Caesar
[11] http://www.heritage.org/constitution/#!/amendments/22/essays/184/presidential-term-limit
[12] http://www.csmonitor.com/World/Asia-South-Central/2013/0512/The-twice-and-future-prime-minister-Nawaz-Sharif-garners-big-Pakistan-vote
[13] http://www.lobelog.com/too-clever-by-half-netanyahu-strengthens-obamas-hand/
[14] https://books.google.com/books?isbn=1602661790
[15] https://www.youtube.com/watch?v=mVj7D1Ic3D4
[16] http://www.nature.com/nature/journal/v504/n7480/full/504476a.html
[17] http://www.americancatholic.org/Newsletters/JHP/aq0506.asp
[18] http://townhall.com/columnists/carterandress/2014/12/31/the-now-and-future-caliphate-n1937283/page/full
[19] http://www.ncbi.nlm.nih.gov/pubmed/12874571
[20] http://mocoloco.com/a-design-awards-competition-the-now-and-future-winners/
[21] http://www.chicagotribune.com/news/opinion/commentary/ct-perspec-hillary-0916-20140915-story.html
[22] Anecdotal support for the same conclusion comes from one author showing the book *The Once and Future King* to a 10-year-old who had never seen it before, and asking if there was anything odd about the title. The answer was no (and puzzlement at even being asked). This shows that accepting the phrase does not depend on having seen it before, as it would if it were a synchronically unacceptable but fixed phrase (like *till death do us part*).

To sum up this section: It is not the case that only the first conjunct of a coordinate phrase must meet selectional requirements. Linear order is what matters. Whichever conjunct is *closest* in linear order to the element the coordinate phrase as a whole combines with is the one that must meet selectional or categorial requirements.

3.2 Categorial Violations Are Limited

The second issue for theories that posit a distinguished role for the first conjunct is that categorial violations in coordination are actually quite limited. Moreover, they precisely match those observed in displacement and ellipsis. Specifically, the only mismatches that are possible are the two that we noted above: a CP can be coordinated with an NP where only NPs are allowed, and a non-*ly* adverb can be coordinated with an AP where only APs are allowed. Other selectional violations are not permitted. For instance, verbs like *think*, *hope*, and *boast* that only permit CPs do not permit an NP as the second conjunct.

(49) a. *She thinks [[$_{CP}$ that the world is flat] and [$_{NP}$ another discredited thing]].
     b. *She hopes [[$_{CP}$ that the defending champs will win] and [$_{NP}$ a good result for the host country]].
     c. *She boasted [[$_{CP}$ that she had won the Pulitzer Prize] and [$_{NP}$ her other accomplishments]].

This is a striking minimal pair with the converse case above, where a verb or preposition that does not permit a CP does permit a CP if it is conjoined with an NP. If all that mattered was the initial conjunct, or the conjunct that was closest to the verb, these cases should be acceptable.

Similarly, a PP is not permitted as a second conjunct with a verb that only allows NPs.

(50) a. *The Spartans ate [[$_{NP}$ wheat] and [$_{PP}$ on parched corn]]. (cf. The Spartans dined on parched corn.)
     b. *She idolizes [[$_{NP}$ her mother] and [$_{PP}$ to her father]]. (cf. She looks up to her father.)
     c. *The Persians destroyed [[$_{NP}$ Babylon] and [$_{PP}$ of Nineveh]]. (semantically contentless P)

Again, this pattern should be acceptable if what determined the category of the whole coordinate phrase were simply the first conjunct, or even the closest conjunct to the selector. In these cases, the first conjunct does satisfy selectional requirements.

Additionally, a verb that selects an adverb does not allow an adjective as a second conjunct,[23] and a verb that selects an adjective does not permit an adverb as a second conjunct.

(51) a. *She was behaving [[$_{AdvP}$ naturally] and [$_{AP}$ nonchalant]].
     b. *She became [[$_{AP}$ unnerved] and [$_{AdvP}$ distractedly]].

---

[23] For many speakers, *behave* does permit adjectives; but even so, adverbs and APs cannot be coordinated together.

Clearly, it is not good enough for the first (or closest) conjunct to satisfy selectional requirements of the selecting element. The only mismatches that are actually grammatical are those documented in section 3.1.

Moreover, the two documented mismatches are exactly those that are found in displacement and ellipsis. First, CPs have long been known to be able to behave as NPs in displacement (e.g., Higgins 1973, Kuno 1973, Kaplan and Bresnan 1982, Postal 1994, Bresnan 1995, Alrenga 2005, Takahashi 2010). For example, CPs may not be complements of prepositions, as we showed above, but they can be if they are topicalized.

(52) a. I convinced Frank (*of) that Sonia was very competent.
     b. That Sonia was very competent, I couldn't convince Frank *(of).
        (Postal 1994:70, (22b,d))

(53) a. This assumption accounts for *(the fact) that these nouns behave differently.
        (Alrenga 2005:185, (35c))
     b. That these nouns behave differently, this assumption accounts for.

In fact, CPs can only be related to NP positions when they topicalize, so that the above examples *require* the preposition.

CPs can also behave as NPs in ellipsis. Merchant (2004) has shown this for fragment answers (54), and Arregi (2010) has shown it for split questions (55).

(54) a. Q: What is she ashamed of?
        A: That she left him in the lurch.
     b. *She is ashamed of that she left him in the lurch.

(55) a. What is she ashamed of, that she left him in the lurch?
     b. *She is ashamed of that she left him in the lurch.

Hence, one of the two mismatches that we observe in coordination, CPs behaving as NPs, is also well-documented in displacement and ellipsis.

The other mismatch that we observed, non-*ly* adverbs being able to coordinate with APs in prenominal position, has not been noted in the literature on displacement or ellipsis. However, non-*ly* adverbs are acceptable in prenominal position if they undergo short displacement to the left (longer displacement is impossible in English).

(56) a. *I was expecting a soon visit.
     b. How soon a visit are you expecting?
     c. I wasn't expecting that soon a visit.

Adverbs with -*ly* do not permit this.

(57) a. *We want to hire an efficiently worker.
     b. *How efficiently a worker do you want to hire?
     c. *We weren't expecting that efficiently a worker.

Non-*ly* adverbs are also significantly improved if they are displaced to a postnominal position, in contrast with -*ly* adverbs.

(58) a. A visit so soon would be wonderful.
    b. A visit right now would be wonderful. (cf. *a (right) now visit)
    c. A sneer so condescending(*ly) would be insulting.

Our two observed mismatches in coordination are therefore both also observed in displacement. One is also observed in ellipsis, but it does not appear to be possible to construct examples that would strand non-*ly* adverbs in prenominal position with ellipsis, so we cannot tell if they would also be well-formed in ellipsis contexts.

Furthermore, the same mismatches that we found to be unacceptable in coordination are also unacceptable in displacement and ellipsis. For instance, while CPs may be related to NP positions, NPs may not be related to CP positions.

(59) a. *A totally discredited thing, she thinks.
    b. *Her many accomplishments, she boasted.
    c. *A good result, she is hoping.

(60) a. *What does she think, a totally discredited thing?
    b. *What is she boasting, her many accomplishments?
    c. *What is she hoping, a good result?

PPs may not be related to NP positions, nor may NPs be related to PP positions.

(61) a. *It was on parched corn that the Spartans ate. (PP where only NP allowed)
    b. *It was parched corn that the Spartans dined. (NP where only PP allowed)

(62) a. Q: What did the Spartans eat?
      A: *On parched corn.
    b. Q: What did the Persians destroy?
      A: *Of Babylon.

Adverbs may not be related to adjective positions.

(63) a. *Distractedly is what she became.
    b. *What did she become, distractedly?

All of these data indicate that there are exactly two category mismatches that are allowed in coordination, and both of them are also allowed in displacement and ellipsis. Category mismatches that are not allowed in displacement and ellipsis are also not allowed in coordination.

So far, all of the examples of mismatching categories in coordination have involved a conjunct that does not meet the category requirements of its context. We can further observe that different categories are not allowed in coordination, even when the verb subcategorizes for both.

(64) a. *She met Bill and with Sarah.
    b. *She's speaking nonsense and with Sarah.
    c. *She agreed to leave and with Sarah.
    d. *She splashed wine and on Sarah.
    e. *He believes that Santa exists and in fairy creatures.

    f. *He believes her claim and in fairy creatures.
    g. *She fights tyranny and against injustice.
    h. *I've never heard his stories or of him.
    i. *She lost the match and to an underdog.

There is a complication here, however: namely, that coordination of larger categories with ellipsis may be possible for some speakers and in some circumstances. Some speakers have suggested that (64e–i) are not as unacceptable as some of the other examples. We believe that this is because they can be parsed like the section 2 cases of apparent coordination of a modifier plus an argument. If this is a possibility, then we expect that such examples will be acceptable, but only with the kind of intonation and interpretation that occurred with the examples from section 2. For instance, (64i) becomes much more acceptable with a slight pause and exclamative intonation.

(65) She lost the match, and to an underdog!

So, some such examples may be acceptable to some speakers, but only to the extent that they allow coordination of larger categories plus ellipsis. This means that no speaker should permit such coordinations being dislocated or forming the pivot of pseudoclefts, and this seems to be correct.

(66) a. *Her claim and in fairy creatures, he believes.
     b. *Tyranny and against injustice, she fights.
     c. *His stories and of him, I've never heard.
     d. *The match and to an underdog, she lost.

(67) a. *Her claim and in fairy creatures is what he believes.
     b. *Tyranny and against injustice is what she fights.
     c. *His stories and of him is what I've never heard.
     d. *The match and to an underdog is what she lost.

We conclude from this that coordinated arguments must strictly match in syntactic category. It is not possible to coordinate two different syntactic categories, even if both categories are selected by the selecting verb. The only mismatch that is allowed is CPs and NPs, the same mismatch that we noted earlier.

(68) a. Pat remembered [[$_{NP}$ the appointment] and [$_{CP}$ that it was important to be on time]]. (Sag et al. 1985:165, (123a))
     b. Pat forgot [[$_{NP}$ his resumé] and [$_{CP}$ that you should dress up for interviews]].

Here, *remember* and *forget* can both take both NP and CP complements. However, note that variants of these examples with the NP and CP reversed are less acceptable.

(69) a. ??Pat remembered [[$_{CP}$ that it was important to be on time] and [$_{NP}$ his resumé]].
     b. ??Pat forgot [[$_{CP}$ that you should dress up for interviews] and [$_{NP}$ his resumé]].

Both of the examples in (69) are much more acceptable with a nonfinite clause in place of the NP (*to bring his resumé*).

These data show that it is simply not good enough for each conjunct to be of a selected category (contra Bayer 1996); in fact, all conjuncts must be of the same category. We take the contrast between (68) and (69) to indicate that a CP is allowed to be treated as an NP *only when it is a conjunct that is separated from the selecting element by another conjunct that is of category NP*. The CP in (69) cannot be treated as an NP because it is the one that is adjacent to the selecting verb (see section 3.1). This is an important generalization that we will attempt to capture here.[24]

3.3 Summary

To sum up this section: The only category mismatches and selectional violations that we see in coordination are exactly the two that are found in displacement and ellipsis: namely, a CP can be treated as an NP, and a non-*ly* adverb can be treated as an adjective. This leads us to conclude that we need a unified analysis of selectional violations in coordination and displacement/ellipsis. Moreover, directionality matters, such that CPs and non-*ly* adverbs can behave as other categories only when they are separated from the phrase they combine with by another conjunct. Finally, in argument position, all conjuncts must be of the same category. Mismatching categories are not allowed even when all categories are selected. In the next two sections, we construct an analysis that captures these facts.

4 CPs as NPs

Our analysis will unite the two cases by positing a crucial role for null syntactic heads. We begin with the phenomenon of CPs being able to act as NPs in certain contexts; we discuss non-*ly* adverbs in section 5.

4.1 The Distribution of CPs in Displacement, Ellipsis, and Coordination

Let us start by looking at the full distribution of CPs when they are displaced, stranded by ellipsis, or coordinated. Our findings are as follows:

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[24] With questions and exclamatives, it appears that the order of a CP and an NP may be freer, at least in some cases.

  (i) a.   John asked the time and where the bathroom was.
          (Munn 1993:118, (3.24c))
     b. ??John asked where the bathroom was and the time.

 (ii) a.   It's amazing how tall he is and the things he can do.
          (Munn 1993:118, (3.24a))
     b. It's amazing the things he can do and how adaptable he is.

(iii) a.   John knows neither the murderer nor where the body is.
          (Munn 1993:121, (3.31a))
     b. Poirot knows neither where the body is nor the time of death.

We tentatively hypothesize that the NPs in these cases, being concealed questions or concealed exclamatives, might actually be syntactically of category CP. Alternatively, the CPs are actually of category NP (question CPs can serve as objects of prepositions, for instance). If the two coordinates are actually of the same category, either both NPs or both CPs, then their reversibility is expected.

(70) *The distribution of CPs*
    a. CPs in argument position must be CPs and may not be NPs.
    b. CPs that are stranded in ellipsis may be either CPs or NPs.
    c. CPs that are in a conjoined phrase such that another conjunct separates them from their selector may be NPs or CPs.
    d. CPs that are displaced to the left can only be NPs.
    e. CPs that are displaced to the right must be CPs and may not be NPs.

Regarding displacement, previous literature has shown that CPs displaced to the left can only be related to positions where NPs are allowed. For example, they are ungrammatical with verbs like *boast* and *hope* that only permit CPs, but are grammatical with verbs or prepositions like *reject* and *for* that only permit NPs.

(71) a. *That she won the Pulitzer Prize, she is boasting. (cf. She is boasting (*the fact) that she will win the Pulitzer Prize.)
    b. *That she will win, she is hoping. (cf. She is hoping (*the fact) that she will win.)

(72) a. That nouns and verbs are not distinct, we absolutely reject. (cf. We absolutely reject *(the claim) that nouns and verbs are not distinct.)
    b. That she will win, we are all hoping for. (cf. *We are all hoping for that she will win.)

Displacement to the right shows a very different pattern. It appears that in such cases, CPs can only be related to CP positions, not to NP positions (Bruening 2018).

(73) a. She was boasting over and over again that she would win the Pulitzer Prize.
    b. She hopes for all our sakes that she can defeat them.

(74) a. *We can attribute to magic that CPs can behave as NPs.
    b. *We reject without equivocation that nouns and verbs are not distinct.

We suggest that displacement to the right is actual displacement of the CP, and we will explain the facts in section 4.5. As for displacement to the left, we suggest that CPs displaced to the left must be base-generated in an Ā-position and are related to a null operator of category NP that is what actually moves, as in Alrenga 2005 and Moulton 2013. This is why CPs dislocated to the left can only be related to positions that allow NPs.[25] We will not attempt to explain here why CPs dislocated to the left must be base-generated. We will leave that to future research (see Takahashi 2010 and Moulton 2013 for some ideas, but note that the fact that displacement to the right behaves very differently is problematic for existing proposals). Instead, our focus will be on ellipsis and coordination, since they pattern alike in showing optionality. Previous literature has shown that, in ellipsis, CPs *may* be related to NP positions (Merchant 2004, Arregi 2010).

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[25] Regarding sentential subjects, we side with Davies and Dubinsky (2009) in holding that CPs can occur in subject position, but they must be NPs with a null N head when they do (see section 4.2). Otherwise, we see no way of accounting for the fact that some predicates do not allow CP subjects (see section 3.1). We account for such predicates by saying that they have selectional requirements in addition to category, which the null N head cannot satisfy (see section 4.2). Other predicates only require category N and so are satisfied by the null N that combines with CPs.

(75) a. Q: What is she ashamed of?
          A: That she left him in the lurch. (fragment answer)
     b. What is she ashamed of, that she left him in the lurch? (split question)

We note that, unlike in leftward displacement, when CPs are stranded in ellipsis they can still be related to positions that only permit CPs.

(76) a. Q: Is she boasting that she won an Olympic medal?
          A: No, that she was nominated for the Pulitzer Prize. (fragment answer)
     b. What does she think, that she can play basketball against professional players? (split question)
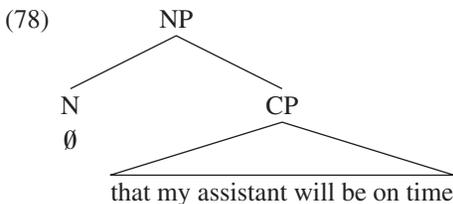
The analyses of fragment answers and split questions in Merchant 2004 and Arregi 2010 posit leftward movement of the remnant CP, followed by ellipsis of the category moved out of. If this were correct, then we would expect that CPs could only be related to NP positions, since this is what we observe with leftward displacement of CPs outside of ellipsis. We will therefore pursue a different account, one that does without movement.[26] Importantly for the topic of concern here, CPs in coordination that are separated from the selector by another conjunct can also be related to positions that only permit CPs.

(77) a. She is boasting that she won an Olympic medal and that she won the Pulitzer Prize.
     b. She is hoping that the defending champions will win and that the home team will place second.

The main focus of our analysis will therefore be explaining the optionality of NP status for CPs in conjuncts separated from the selector and in ellipsis. We will also explain the facts of rightward displacement of CPs, but will have nothing more to say about leftward displacement here.

4.2 A Null N Head

We propose that CPs can optionally combine with a null N head that turns them into NPs (e.g., Davies and Dubinsky 1998, 2009).

(78)

```
              NP
             /  \
            /    \
           N      CP
           ∅     /  \
                /    \
   that my assistant will be on time
```

---

[26] If one posited rightward movement instead, one would expect that CPs could only be related to CP positions, contrary to fact. If one wished to maintain a movement analysis of fragment answers and split questions, then one would have to permit either leftward or rightward movement, which would have the desired result of category optionality. We will not pursue this approach, because we believe there are independent reasons to prefer ellipsis without movement (see, e.g., Bruening 2015).

This must not be possible in argument position; otherwise, CPs would always be able to appear in NP positions.

(79) *You can depend on that my assistant will be on time.
       (Sag et al. 1985:165, (125b))

We propose that this is because selecting heads (verbs and prepositions, primarily) have particular selectional features that need to be checked against the category that merges with them. These particular selectional features are not features like person, number, gender, and category (which the null N does have); rather, they are semantic features that are typically relevant in semantic selection (animacy, sentience, moral reasoning, etc.). We will call these *S-features*. The null N head is not able to check these types of features, because it is semantically contentless and is therefore incapable of bearing any of them.[27] The sentence in (79) is therefore ungrammatical because the selecting P (or V + P) has unchecked selectional S-features.

We further propose that the selectional S-features on the selecting head are PF features, that is, features that are uninterpretable at PF (Chomsky 1993). This is because they are semantic features that play no role at PF. They must therefore be checked before Spell-Out; otherwise, they will cause the derivation to crash at the PF interface. However, if the selecting head is deleted at PF by an ellipsis process, then any unchecked features on that head are no longer visible and do not cause the derivation to crash. This is what we suggest happens in fragment answers and split questions. The CP does not move anywhere; instead, we adopt Griffiths, Güneş, and Lipták's (2018) proposal that, when a constituent XP is elided, F(ocus)-marked constituents within XP are not elided. Fragment answers are F-marked, and so they can survive ellipsis in situ.

(80) a. Q: Is she boasting that she won an Olympic medal?
          A: No, [~~$_{XP}$ she is boasting~~ [$_{CP[F]}$ that she was nominated for the Pulitzer Prize]].
      b. Q: What is she ashamed of?
          A: [~~$_{XP}$ She is ashamed of~~ [$_{NP[F]}$ ∅ [$_{CP}$ that she left him in the lurch]]].

In this analysis, ellipsis targets a constituent, XP, but it fails to elide F-marked constituents. It elides all of XP minus anything that is F-marked.

This enables a CP to actually be an NP, by virtue of being the complement of the null N head. In (80b), the selecting predicate *ashamed of* has unchecked S-features, but since they are deleted at PF, all grammatical constraints are satisfied. (In (80a), the CP is capable of checking the S-features of the verb *boast*, which selects CPs.)

We also conceive of category selection (c-selection) as feature checking, following Adger (2003) and Bruening (2013). However, in this case the selectional features are not PF features; instead, they are visible throughout the derivation, and deleting the selecting category cannot remedy a violation. This is why the only selectional violations found in ellipsis involve CPs being treated as NPs.

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[27] We emphasize that the null N head's inability to bear S-features has nothing to do with its being null, and everything to do with its being semantically contentless. Other null Ns are perfectly capable of bearing S-features.

(81) Q: What did the Spartans eat?
      A: *[$_{XP}$ ~~The Spartans ate~~ [$_{PP}$ on parched corn]]~~.~~

In (81), the PP is incapable of checking the c-selectional feature of *ate*, and eliding *ate* does not fix the problem. Back in (80b), the null N head *is* of category N, and so it does satisfy the c-selectional feature of *ashamed of*.

4.3 Coordination

Turning to coordination, the idea will be that if one conjunct can check the S-features of the selecting element, then it does not matter if other conjuncts have null N heads, because the conjunct that has a contentful N head will be able to satisfy the selector. That is, so long as one conjunct is headed by a contentful N head, then other conjuncts can be headed by the null N head.

   Now, matters are slightly more complicated because of the directionality effect noted in section 3.1. Additionally, we showed in section 2.2 that, when two predicates are coordinated, *both* conjuncts must satisfy selectional restrictions; it was not enough for the closest conjunct to do so.
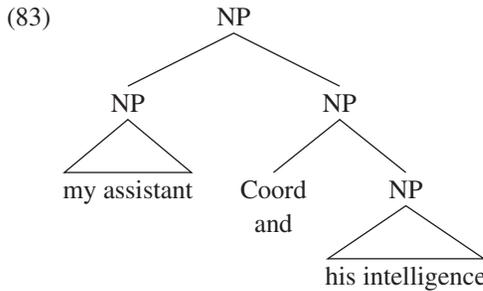
   We suggest that the difference between predicates and arguments resides in the difference between features being PF features and features being features that persist and need to be satisfied throughout the derivation. We said that c-selection features are not PF features and must be satisfied throughout the derivation. In contrast, S-features are PF features and just need to be checked before Spell-Out. This makes the required distinction.

   At this point, we need to make some assumptions about how coordination works. We will adopt a set of assumptions simply to be concrete, but note that our proposal should work with other sets of assumptions as well (e.g., positing an &P that takes conjuncts as complements and specifiers). First, we assume that coordinators are adjuncts that adjoin to noninitial conjuncts and do not affect their category (see, e.g., Moltmann 1992, Al Khalaf 2015). Coordinators are instead elements that select something of category α and merge with it to project another category α; this category must then merge with something else of category α, and again project something of category α.[28]
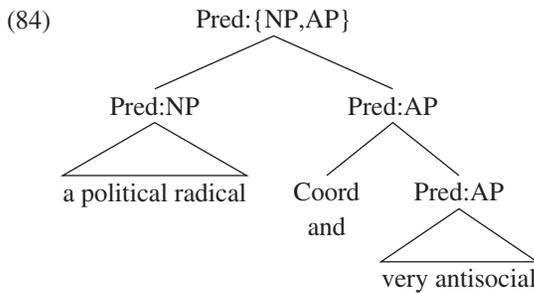
(82)

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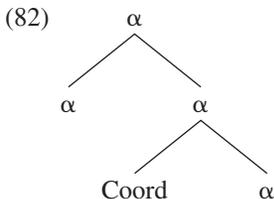
[28] That a coordinator selects the category of its conjuncts can be seen in many languages, such as Chinese, in which some coordinators select for particular categories and not others. See Zhang 2010.

To take a concrete example, conjoined NPs look as follows:[29]

(83)

```
                    NP
                 /      \
               NP        NP
              / \       /    \
        my assistant  Coord   NP
                      and    /  \
                        his intelligence
```

This is why coordination requires identical categories: Coord is specified as selecting category α and producing something that itself selects category α (and itself is of category α). In the case of predicates and modifiers from section 2, what is selected is the supercategory Pred or Mod.

(84)

```
                 Pred:{NP,AP}
                /            \
           Pred:NP          Pred:AP
           /   \           /        \
    a political radical  Coord     Pred:AP
                         and       /      \
                              very antisocial
```

We further propose that the coordinator collects other features of the coordinates into sets, as shown here for the subcategories of Pred, AP and NP. This will also be true for features like person, gender, number, and the S-features that are relevant for the null N head. Note that the coordinate structure is exocentric and that no conjunct serves as head within the coordinate phrase. Instead, the category of the whole is the combination of the conjuncts.

Now, c-selectional features of a selecting head will be checked pointwise against every member of the set. Consider (85).

(85) a. Danny became$_{C:NP/AP}$ [$_{Pred:\{NP,AP\}}$ a political radical and very antisocial].
     b. *Danny became$_{C:NP/AP}$ [$_{Pred:\{NP,PP\}}$ a political radical and under suspicion].

Since *became* selects both NP and AP, its c-selectional features are satisfied in (85a) but not in (85b). In (85a), *became*'s features are checked first against NP and then against AP; both match. In (85b), they are checked first against NP and then against PP; the latter does not match and the derivation crashes.
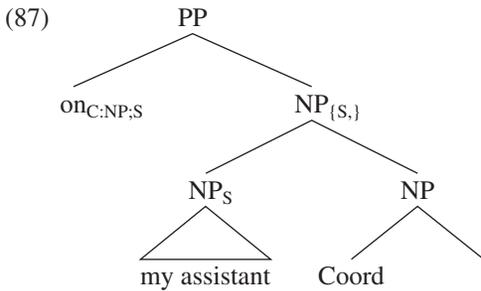
S-features are different in that they are uninterpretable features that simply need to be checked before Spell-Out. They do not persist. We take this to mean that as soon as they are checked,

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[29] We do not adopt the DP hypothesis, as it is incompatible with the view of the locality of selection that we adopt. See Bruening 2009, Bruening, Dinh, and Kim 2018.
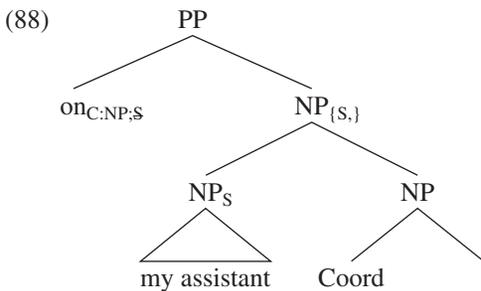
they delete. C-selectional features, in contrast, persist and must be satisfied at every level of the derivation. We now suggest that the directionality effect we documented in section 3.1 is a result of the directionality of tree construction. Following Phillips 1996, 2003, Richards 1999, Bruening 2010b, 2014a, 2016, Al Khalaf 2015, Osborne and Gross 2017, and Bruening and Al Khalaf 2018, among other works, we assume that syntactic structures are put together in a left-to-right rather than bottom-up fashion. To take a concrete example, consider the following:

(86) You can depend on my assistant and his intelligence.

The syntax will begin with the subject, merging it in Spec,TP and creating a TP with head T. This will merge with a ModalP for the modal *can*, and so on to the VP headed by *depend*. After *on* is merged, the syntax will begin building the coordinated object, starting with the left conjunct.

(87)

$$\text{PP} \rightarrow \text{on}_{C:NP;S} \quad \text{NP}_{\{S,\}} \rightarrow [\text{NP}_S \text{ (my assistant)}] \quad [\text{NP} \text{ (Coord)}]$$

The preposition has c-selectional features and S-features. Both need to be satisfied. The topmost node of the coordinate phrase collects features of the coordinates into a set, as described above. Here, *my assistant*, being a contentful NP, has S-features. These are put into the set. The second conjunct has not yet been merged, and so the set is at this point incomplete. However, the syntax can now begin checking features, pointwise in the case of a set. C-selectional features are met so far, but again they must be met throughout the derivation. The S-features can also be satisfied, since the first member of the set has the relevant features. At this point, then, the S-features on the preposition can be checked and deleted.

(88)

$$\text{PP} \rightarrow \text{on}_{C:NP;\cancel{S}} \quad \text{NP}_{\{S,\}} \rightarrow [\text{NP}_S \text{ (my assistant)}] \quad [\text{NP} \text{ (Coord)}]$$
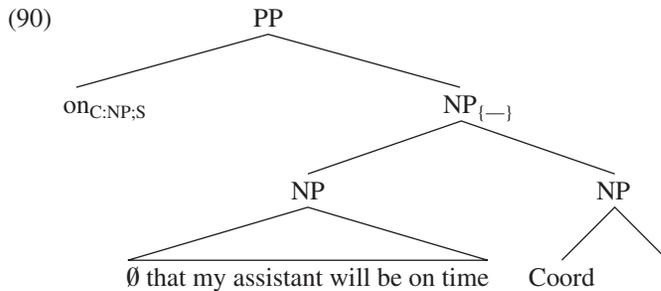
The S-features on the selector are now satisfied and do not need to be checked against the remaining conjunct. At this point of the derivation, there is only one member of the set of features, so checking the S-features succeeds.

Let us now show how this accounts for the facts by examining the data in (89).

(89) a. *You can depend on that my assistant will be on time.
      b.   You can depend on [[$_{NP}$ my assistant] and [$_{NP}$ Ø [$_{CP}$ that he will be on time]]].
      c. *You can depend on [[$_{NP}$ Ø [$_{CP}$ that my assistant will be on time]] and [$_{NP}$ his intelligence]].

As explained above, (89a) is ungrammatical because either the CP is a CP and selectional restrictions are violated (i.e., c-selectional features are not checked), or it is an NP headed by the null N, but this null N cannot check the S-features of *depend on*. In (89b), however, there is a stage of the derivation that looks like (87), and so the S-features of *depend on* are satisfied and deleted, as in (88). Both conjuncts are also of category NP, and so c-selectional features are also satisfied.[30] In contrast, in (89c), at the stage of the derivation corresponding to (87), the topmost node of the coordination does not have any S-features, because the leftmost conjunct does not have them.

(90)

```
                          PP
             _____/      _____
            /                            \
       on_{C:NP;S}                      NP_{—}
                              _____/        _____
                             /                         \
                           NP                          NP
                    _____/    _____            ____/  \____
                   /                   \          /            \
           Ø that my assistant will be on time  Coord
```

The S-features of *depend on* cannot be satisfied at this point. They could be satisfied if feature checking could wait until the second conjunct was built and the features were collected at the topmost node. Apparently, this is not possible. We suggest that feature checking must take place at every point where it can. In particular, it must take place as soon as it can. Thus, it cannot wait until the entire coordinate phrase is built, but must take place at the stage shown in (90). At this stage, checking fails, and the derivation crashes. This accounts for the linear asymmetry observed in (89b–c). (In the case of c-selectional features, these persist, and so they are checked at *every* point where they can be, so first at the stage shown in (90), and then again once the second conjunct is added.)
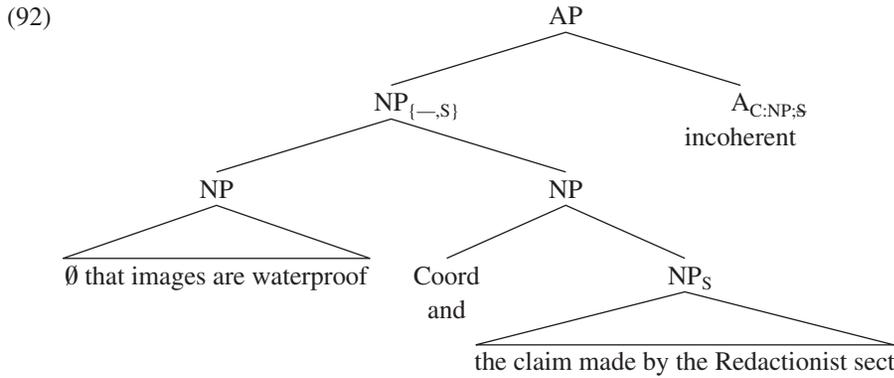
Additionally, in both (89b) and (89c), if the CP is a CP and not an NP, then the derivation crashes for two reasons: (a) coordination cannot succeed, because Coord can only combine elements of the same syntactic category; and (b) the c-selectional features of *depend on* will be violated when they are checked pointwise against the set {NP,CP} of the coordinate phrase.

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[30] As noted earlier, many speakers find examples like (89b) marginal (or even unacceptable). We suggest that for such speakers, the S-features do not delete immediately but persist long enough to be checked against all conjuncts. Perhaps, for such speakers, features do not delete until the completion of the current phase. Note that this will only have an effect with coordination; even these speakers find null-N-headed CPs acceptable in ellipsis and displacement, and this follows from the analysis. Note furthermore that this will also have no effect in the analysis we propose in section 5 for non-*ly* adverbs, accounting for why there is no variation in those judgments.

Now consider cases where the coordinate phrase *precedes* the selector, as in (91).

(91) a. *That images are waterproof is incoherent.
         (Pollard and Sag 1987:131)

   b. [[_{NP} Ø [_{CP} That images are waterproof]] and [_{NP} the claim made by the Redactionist sect]] are both incoherent.

   c. *[[_{NP} The claim made by the Redactionist sect] and [_{NP} Ø [_{CP} that images are waterproof]]] are both incoherent.

In (91a), again either the CP is a CP and selectional restrictions are violated, or the CP is an NP headed by a null N. In the latter case, the null-N-headed NP cannot check the S-features of *be incoherent*, and the sentence crashes at PF. In (91b), the coordinate phrase is built before it ever merges with the selector. Hence, there is no intermediate stage of the derivation where only one conjunct is present and feature checking can take place. The first time feature checking can take place is when the main predicate is merged. We assume that a null copy of the subject is merged in the specifier of the main predicate, and it is in that position that feature checking takes place.

(92)

$$
\begin{array}{c}
\text{AP} \\
\diagup \qquad \diagdown \\
\text{NP}_{\{-,S\}} \qquad\qquad \text{A}_{\text{C:NP;}S} \\
\qquad\qquad\qquad\qquad \text{incoherent}
\end{array}
$$

AP
- NP$_{\{-,S\}}$
  - NP
    - Ø that images are waterproof
  - NP
    - Coord
      - and
    - NP$_S$
      - the claim made by the Redactionist sect
- A$_{C:NP;S}$
  - incoherent

   We assume that sets of features are ordered not inherently but by recency, as in Müller 2010. They can be viewed as a stack, with the most recent on top. Hence, only the most recent is accessible at first. This has the result that the features {—,S} on the topmost NP node are ordered such that S is more prominent and will be checked first, since they were added last in the course of the left-to-right derivation. The S-features of *incoherent* can then be checked, satisfied, and deleted, as shown.

   Viewing sets of features in this way has the consequence that in (91c), the missing features ("—" in {S,—}) must be checked first, since they were the most recently added. Checking fails, and the derivation crashes immediately. (Alternatively, the CP is just a CP, and selectional restrictions are violated.)

   As can be seen, the proposed null-N-headed NP, along with the analysis of coordination and feature checking adopted here, successfully accounts for all of the data where CPs may and may not occupy NP positions in coordination. The view that syntactic derivations are built left to right also accounts for the directionality effect that we have documented.

4.4 Against a Coordinate Ellipsis Alternative

Rather than the analysis we have proposed, one could posit coordinate ellipsis. This would reduce category mismatches in coordination to category mismatches in ellipsis. The idea is that coordination might be conjunction of larger categories—say, CPs or VPs—with ellipsis of shared material.

(93)   a.   You can [$_{VP}$ depend on my assistant] and [$_{VP}$ ~~depend on~~ that he will be on time].
     b.   [$_{CP}$ That images are waterproof ~~is incoherent~~] and [$_{CP}$ the claim made by the Redactionist sect are both incoherent].

This would be allowed, in the same way that fragment answers and split questions allow CPs in NP positions. Directionality would then follow from whatever ensures that ellipsis in the right conjunct targets material that is initial in the conjunct (93a), while ellipsis in the left conjunct targets material that is final in the conjunct (93b). One would not need to adopt all of the proposals we made in section 4.3 for feature checking and the directionality of tree construction.

Unfortunately, we see no way for a coordinate ellipsis analysis to explain agreement and floating quantifiers in examples like (93b). On a coordinate ellipsis analysis, each conjunct would only have a singular subject, as shown. The predicate would be elided in the first conjunct. The plural agreement and the floating quantifier *both* would not be licensed in the second conjunct, because the subject of the second conjunct is a singular NP on this analysis.

We conclude that there is no way to reduce all examples of mismatching categories in coordination to coordinate ellipsis. There must be examples of CPs conjoined with NPs that are not part of larger categories. Therefore, what is needed is an analysis of the type outlined above, with all of the proposals regarding feature checking and directionality of tree construction.

Note furthermore that our null-N-headed NP dominating a CP must be computed in number resolution in coordination, as (93b) shows. This means that the null N head is not incapable of bearing features in general. We suppose that it bears third person singular nonhuman features by default. Two singulars in coordination resolve to a plural (in English, which lacks a dual). This is why we proposed above that the features the null N head is incapable of bearing are actually of a different type (semantically contentful features). In terms of the proposed analysis, number (and person and gender) features are collected as a set, as described above, and they are resolved for agreement according to language-particular rules (see, e.g., Dalrymple and Kaplan 2000, Corbett 2006).

4.5 Rightward Displacement of CPs

We showed above that CPs that are displaced to the left can only be related to NP positions, and we proposed that this is because what actually occupies the argument position is a null operator of category NP. Rightward displacement behaves differently: a CP displaced to the right can only be associated with a CP position. This follows in our analysis, if rightward-displaced CPs are actually moved from the argument position. Take an example with a verb that only permits a CP, like *boast*.

(94) She was boasting over and over again that she would win the Pulitzer Prize.
    a.   She was boasting [~~CP~~ ~~that she would win the Pulitzer Prize~~] over and over again [CP that she would win the Pulitzer Prize].
    b.   *She was boasting [~~NP~~ ~~Ø~~ [~~CP~~ ~~that she would win the Pulitzer Prize~~]] over and over again [NP Ø [CP that she would win the Pulitzer Prize]].

If the CP really is a CP, as in (94a), with a null lower copy, all constraints are satisfied. The c-selectional requirements of *boast* are satisfied. The CP cannot instead be an NP, as in (94b), because *boast* only c-selects CPs.

    Now consider a verb that only allows NPs, like *reject.*

(95) *We reject without equivocation that nouns and verbs are not distinct.
    a.   *We reject [~~CP~~ ~~that nouns and verbs are not distinct~~] without equivocation [CP that nouns and verbs are not distinct].
    b.   *We reject [~~NP~~ ~~Ø~~ [~~CP~~ ~~that nouns and verbs are not distinct~~]] without equivocation [NP Ø [CP that nouns and verbs are not distinct]].

If the CP really is a CP, as in (95a), the c-selectional requirements of *reject* are not met. If it is instead an NP, as in (95b), the c-selectional features of *reject* are checked, but the selectional S-features are not. The null N head is incapable of checking those features, by hypothesis. The predicate is not elided (only the lower copy of the null-N-headed NP is), so the unchecked features remain. Note also that leaving the null N out of the lower copy, as we suggest below for adverbs, will not help: what would be in argument position would then be a CP, but *reject* requires NPs and does not allow CPs.

    Thus, our analysis explains why rightward dislocation of CPs can only take place from CP positions, if it is actual movement. We suggested that leftward dislocation of NPs is actually base-generation plus a null operator of category NP. Unfortunately, we do not have a good explanation at this point for why rightward and leftward dislocation differ in this way.

4.6 Summary

We have proposed that CPs can be NPs by virtue of merging with a null N head. This is not allowed in argument position, but is allowed when what selects the CP is elided or when the CP is coordinated with an NP. The directionality effect follows from our assumptions about feature checking plus the proposal that syntactic derivations are constructed in a left-to-right fashion. As for displacement, we suggested that CPs that are displaced to the left are base-generated and are related to null operators that are uniformly of category NP. In contrast, rightward displacement of a CP is movement of the CP itself, and our theory then explains why it cannot be related to an NP position.

5 Adverbs as APs

We turn now to examples like *The Once and Future King*, where an adverb is grammatical when it is coordinated with an AP.

5.1 Displacement

As shown above, non-*ly* adverbs modifying Ns are grammatical so long as they are displaced, to either the left or the right.

(96) 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.

We propose that in general, adverbs are derived from adjectives by merging them with an Adv head. This is clearly visible with most adverbs, which are adjectives plus the overt suffix *-ly*. Adverbs like *once*, *soon*, *now* have the same structure, but with a null Adv head.

(97)
```
        Adv
       /   \
     Adj    Adv
    soon     Ø
```
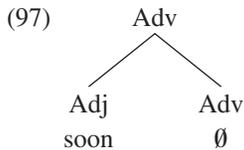
Semantically, the Adv is contentless. There is in general no difference between an adjective and the corresponding adverb.[31]

(98) a. She brilliantly discussed the issue of snake locomotion.
    b. her brilliant discussion of snake locomotion

Therefore, the fact that only adjectives are allowed in prenominal position, and the fact that only adverbs are allowed with other categories, must be a purely morphosyntactic restriction. We propose that there is a constraint against adverbs modifying N′ constituents.

(99) *[$_{N'}$ Adv N′]

(There is also a converse requirement that modifiers of VP and other categories include the Adv head, but this will not concern us here.)

We suggest that in displacement, the null Adv head can simply be left out of the null copy of the adverb in the position adjoined to N′.

(100) How [$_{Adv}$ [$_{Adj}$ soon] Ø] a ~~how [$_{Adj}$ soon]~~ visit are you expecting?

In our left-to-right model, the higher copy is built first; when the derivation gets to the position following the determiner, it only partially copies the moved phrase. The constraint against adverbs modifying N′ constituents is then not violated here. We assume that in the surface position of *how soon*, the adverbial phrase is adjoined to NP. This does not violate the constraint in (99).

Leaving out the null Adv head is only allowed because the null adverb head is both phonologically contentless (it is null) and semantically contentless. The overt *-ly* head cannot be left out, so this pattern obtains only with adverbs that lack *-ly*.

---

[31] There are a few exceptions to this generalization, but for the most part it holds.

(101) a. *She is an efficiently worker.
      b. *How efficiently a worker is she?
      c. *I wasn't expecting her to be that efficiently a worker.
      d. *A worker as efficiently as her would be wonderful.

As for rightward displacement, as in (96d) versus (101d), in a left-to-right syntax, the previously built structure will have to be adjusted once the displaced modifier is encountered. We assume that the syntax builds *a visit* first, with no prenominal modifier at all (since modifiers are not obligatory), and then has to add *so soon* in postnominal position. This requires a readjustment of previously built structure, with a modifier between the determiner and the noun. Once again, the copy of the modifier placed in this position is only partial, lacking the null Adv head. (Again, the contentful Adv head *-ly* cannot be left out.)

The null Adv head is part of the lexical content of adverbs like *soon* and *once*, so it must be present in at least one copy. This rules out such adverbs in immediately prenominal position, which we assume is the base position for a nominal modifier (**a soon visit*).[32]

5.2 Coordination

As for coordination, although we ruled out a coordinate ellipsis analysis for many cases of CPs conjoined with NPs, in this case we do propose coordinate ellipsis. Specifically, N′ categories are coordinated.

(102) the [$_{N'}$ [$_{N'}$ once ~~king~~] and [$_{N'}$ future king]]

The reason this is grammatical is that the null Adv head can be elided along with the head noun in the first conjunct.

(103) the [$_{N'}$ [$_{N'}$ [once ~~∅] king~~] and [$_{N'}$ future king]]

Again, this is only allowed because the null Adv head is both phonologically and semantically contentless. An overt *-ly* cannot be so elided.

We propose that the morphosyntactic constraint against adverbs modifying nominal categories in (99) is a PF constraint. Once again, removing offending material at PF by ellipsis removes any indication that the constraint has been violated. Without any constraint violation being registered, the structure is grammatical. In contrast, with an *-ly* adverb (**the wisely and benevolent*

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[32] Some researchers (see, e.g., Troseth 2009) have argued that degree inversion, as in *how soon a visit*, does not start from prenominal position, but from postnominal position. In this analysis, such adjectives are postnominal predicative adjectives. Adopting such an analysis, one might propose that non-*ly* adverbs are grammatical when "displaced" to the right or left simply because they can be predicative: *The visit is soon/now*. So *soon* and *now* are permitted when base-generated in postnominal position because they are predicative; they can then appear before the determiner in degree inversion because degree inversion starts from the permitted postnominal position. On this analysis, there would be no stage of the derivation where they occur in the banned position between the determiner and the noun.

This appears to be a viable analysis for the apparent displacement cases, but it will not help to explain the coordination cases, which occur in prenominal position where adverbs are banned outside of coordination. Additionally, adverbs like *once* can occur coordinated in prenominal position but cannot be used predicatively (**The king was once*). We therefore need a different analysis for coordination, like the one we propose in the text.

king), although the head noun is elided in the first conjunct, the Adv head is not. There is still an adverb modifying a nominal category, and the constraint is violated.[33]

5.3 Summary

We have proposed that non-*ly* adverbs have a null Adv head. This is similar to the null N head that combines with CPs, in that semantically and phonologically contentless elements behave unusually in ellipsis, displacement, and coordination. In this case, the null head can simply be left out of a lower copy in displacement, and it can also be elided in coordinate ellipsis, obviating a constraint violation.

6 Conclusion and Consequences

We have shown that category mismatches in coordination are not free but are actually quite constrained. We argued that this indicates that coordination really is limited to coordinating elements of the same syntactic category. We proposed analyses of the apparent counterexamples. Cases of modifiers apparently coordinated with arguments involve coordination of larger categories plus ellipsis. Cases of conjoined predicates and conjoined modifiers are coordination of the same supercatgories, Pred and Mod. As for arguments, category mismatches are limited to those that occur in ellipsis and dislocation. We have proposed accounts of these mismatches. Our accounts rely on the presence of unpronounced heads—specifically, null N and Adv heads. These behave unusually in coordination, ellipsis, and dislocation, precisely because they are phonologically and semantically contentless. To the extent that our analysis is successful, then, it argues for the presence of null elements in syntax, and against approaches to syntax that eschew null elements.

Additionally, we showed that linear order plays an important role in category mismatches in coordination. A consequence of this finding is that the syntax proper must include linear order. Attempts to relegate linear order to the phonological interface as in Kayne 1994, Chomsky 1995: 334–340, Fox and Pesetsky 2005, Reinhart 2006, Berwick and Chomsky 2011, Bobaljik and Wurmbrand 2012, and Idsardi and Raimy 2013, are then untenable. Even if one does not accept the need for a left-to-right derivational model, as we have argued for here, linear order will have to play a role in the syntax in order to capture the data presented in this article.

Finally, we would expect that head-final languages would show very different linear order effects with coordination. In particular, we would expect that the *final* conjunct of coordinated arguments before a selecting verb would have to be the one that satisfies selectional restrictions (if the language allows selectional violations at all in coordination). We have been unable to find literature on this topic and must leave it to future research.

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[33] A reviewer asks why these cases always refer to a single individual and cannot refer to two distinct individuals. This follows if there would have to be two definite articles in order for them to refer to two distinct individuals.

(i) *[the [$_{N'}$ [once ~~0~~] ~~king~~]] and [~~the~~ [$_{N'}$ future king]]

This would require ellipsis of material in both conjuncts simultaneously, something we pointed out in section 2.1 is not permitted.

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