Slightly less flat coordinate structures

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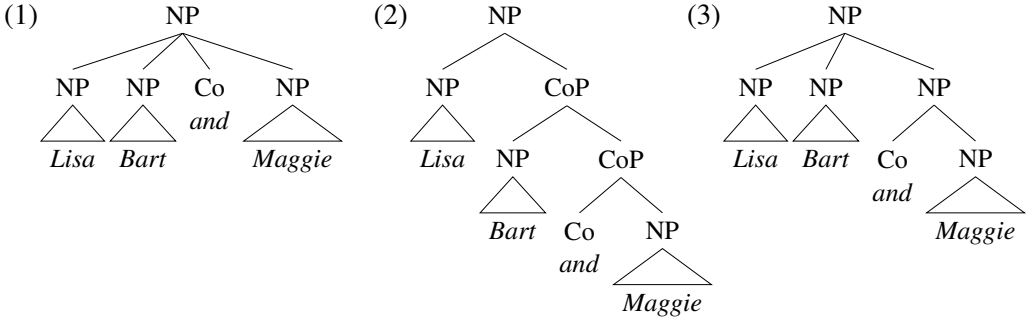
Abstract

The aim of this paper is to argue that the constituency structure of coordination is slightly less flat than commonly assumed in LFG and to show this does not (have to) impact the resulting functional structures.[†]

1 Introduction

LFG assumes completely flat coordinate structures, as in (1), where other theories assume either strictly binary structures, as in (2), or at least slightly less flat structures, in which the coordinator (conjunction) forms a constituent with the following coordinand (conjunct), as in (3).[1,2]



Completely flat structures such as (1) have been universally assumed in LFG ever since the early 1980s (Peterson 1982, 1986: 248, Kaplan & Maxwell 1988, ..., Dalrymple et al. 2019: ch. 16, Patejuk 2023) and no alternatives have ever been seriously considered, with the exception of a brief discussion in Hristov (2012: §2.2.1), taken up in §3 below.

Similarly, binary structures have almost universally been assumed in Chomskyan linguistics ever since the late 1980s (e.g., Munn 1987; Collins 1988, ..., Zhang 2023), mostly for theory-internal reasons (X′-theory in GB, binary Merge in Minimalism), with the particular instantiation in (2) proposed in Munn (1993: 24).

Finally, the almost flat structure in (3) has been assumed in HPSG (e.g., Pollard & Sag 1994: §4.6.1, Abeillé & Chaves 2024) and, earlier, in GPSG (e.g., Sag et al. 1985), as well as in early transformational work (especially Ross 1967: 162–165). Interestingly, it has recently been revived within Chomskyan linguistics (Neeleman et al. 2023). Unlike in (2) and other strictly binary variants, the coordinator is *not* a projecting head in (3), but rather a marker, so that the [Co X] constituent has all the features of X, including its category.

[†]For useful feedback, I am grateful to the reviewers and audience of the LFG 2025 conference and, especially, to the reviewers and editors of LFG 2025 proceedings. This paper is dedicated to the memory of John Robert "Haj" Ross (7 May 1938–13 May 2025), whose terms we all use, whether we talk about coordination (*coordinate structure constraint*, *gapping*), or other phenomena (*syntactic islands*, *heavy NP shift*, *sloppy identity*, *sluicing*, *pied-piping*...). Work reported in this paper was carried out within the NCN OPUS-25 project 2023/49/B/HS2/02546 "Coordination: Symmetric or Asymmetric?" financed by the National Science Centre, Poland.

[1]I use here terms promoted by Martin Haspelmath (e.g., 2007) as less ambiguous than *conjunction* (does it include or exclude disjunctions?) and *conjunct* (does it include or exclude disjuncts?).

[2]I am agnostic about the NP/DP/KP issue and mark all nominal maximal projections as NPs.

The aim of this paper is to present and extend arguments – mostly voiced before but largely ignored in LFG so far – for the slightly less flat coordination structure in (3). While perhaps none of the arguments adduced in §2 is decisive alone, they collectively show that this structure is crosslinguistically much more likely than the completely flat structure (1) assumed in LFG. I also perform an easy but necessary exercise of demonstrating in §4 that modifications of recent LFG analyses of coordination needed to accommodate such less flat c-structures are trivial and do not affect resulting f-structures.

2 Arguments for slightly less flat coordinate structures

I will not argue here against binary structures such as (2) or the many variants functioning within Chomskyan linguistics, as convincing arguments against such always binary structures are offered in Borsley (1994, 2005) and in Neeleman et al. (2023) (see also Hristov 2012: §2.2.1).[3] Most of these arguments are irrelevant for the issue at hand, i.e., for deciding between structures (1) and (3).

The arguments for the slightly less flat coordinate structure in (3) presented in the following subsections are based on a number of typologically diverse languages, with arguably the strongest arguments provided by relatively "exotic" non-Indo-European languages. Given that, in LFG, f-structure rather than c-structure is the locus of crosslinguistic constancy, it is logically possible that only some – more "exotic" – languages have the slightly less flat c-structure, while others – like English – have the fully flat c-structure universally assumed in LFG hitherto. However, as I am not aware of any language-specific arguments *against* the less flat structure advocated here, and some of the arguments given below *for* the less flat structure do apply to run-of-the-mill Indo-European languages, I adopt Occam's razor and make the strong claim that such a slightly less flat structure of coordination is valid crosslinguistically.

2.1 Prosody

Some arguments for the coordinator forming a constituent with the following coordinand, as in (3), were originally given in Ross (1967). One of these arguments concerns prosody. Ross (1967: 164–165) notes that sentences such as (4) have the prosodic structure as indicated in (5a), and not as in, for example, (5b–c).[4]

(4) Tom, and Dick, and Harry all love watermelon.

(5) a. (Tom (and Dick) (and Harry)) all love watermelon.
b. #((Tom) (and) (Dick) (and) (Harry)) all love watermelon.
c. #((Tom and) (Dick and) Harry) all love watermelon.

Prosody is also considered to be a good indicator of the syntactic structure of coordination in *The Cambridge Grammar of the English Language* (Huddleston & Pullum 2002: 1276), as well in a chapter on coordination in a typological survey of linguistic phenomena (Haspelmath 2007: 8).

[3] Attempts to refute some of Borsley's arguments may be found in de Vries (2005) and in Zhang (2009: §3.6.3).

[4] I use # to signal prosodic or semantic unnaturalness rather than syntactic ungrammaticality.

It is easy to dismiss this argument by citing the common belief that prosody is a poor indicator of constituency, but Wagner (2005, 2010) argues at length that this common belief is largely unjustified. In particular, while he does not argue directly that coordinators form constituents with immediately following coordinands, he demonstrates that prosody very strongly correlates with interpretive possibilities. This is readily explained if prosody indicates constituency, on the common assumption that constituency provides a backbone for semantic composition.

One class of arguments for the direct correspondence between constituency structure and prosodic structure is in fact based on coordinations involving more than two coordinands. Wagner notes that apparently ternary coordinations as in (6) may have three kinds of prosodic profiles: one "flat", as in (7a), where the two prosodic boundaries, marked as |, are of equal strengths, and two "nested", as in (7b–c), where one of the boundaries, marked as ||, is stronger.

(6) Lysander and Demetrius and Hermia

(7) a. Lysander | and Demetrius | and Hermia

b. Lysander | and Demetrius || and Hermia

c. Lysander || and Demetrius | and Hermia

While in many contexts the meaning of (6) would be the same regardless of the particular prosodic profile in (7a–c), some contexts reveal interpretative differences. For example, as a reply to the question in (8), (9a) is not felicitous given that exactly two apples were involved, while (9b–c) are felicitous, but they differ in which two people shared an apple: Lysander and Demetrius in (9b) and Demetrius and Hermia in (9c).

(8) Two apples were give out, but I don't know to who. Who was given an apple?

(9) a. #Lysander | and Demetrius | and Hermia respectively.

b. Lysander | and Demetrius || and Hermia respectively.

c. Lysander || and Demetrius | and Hermia respectively.

Similarly, as also discussed in Borsley (1994, 2005), *both* can precede a string such as (6) only when it is interpreted as a nested coordination, which is indicated by one of the prosodic boundaries being stronger than the other one:

(10) a. #both Lysander | and Demetrius | and Hermia

b. both Lysander | and Demetrius || and Hermia

c. both Lysander || and Demetrius | and Hermia

See Wagner (2010: §2) for many more examples of prosody correlating with interpretation in apparently *n*-ary coordinations.

Wagner (2010: §6) also convincingly argues that at least some apparent mismatches between constituency and prosody are not mismatches at all, but rather involve constituency that is different than commonly assumed. One such mismatch discussed in the literature involves relative clauses. For example, it has been long known (Chomsky 1965: 13, Chomsky & Halle 1968: 372) that (11) might have prosodic breaks as in (12a) despite the commonly assumed constituency in (12b).

(11) This is the cat that caught the rat that stole the cheese.

(12) a. This is the cat | that caught the rat | that stole the cheese.

b. This is [the cat that caught [the rat that stole the cheese]].

However, Wagner (2010) points out that it has also been long known that relative clauses – even restrictive relative clauses – may occupy positions outside of the nominal constituent, as in (13) and, especially strikingly, (14).

(13) I saw [the cat]$_i$ yesterday [that caught [the rat]$_j$ on Monday [that had stolen the cheese on Sunday]$_j$]$_i$.

(14) [A man]$_i$ entered the room and [a woman]$_j$ went out [who were quite similar]$_{i+j}$. (Perlmutter & Ross 1970)

Given that (11) might have the structure made conspicuous by the insertion of temporal modifiers in (13), the prosody indicated in (12a) is expected, and does not constitute an example of syntax–prosody mismatch.

On the other hand, it seems relatively clear that some such mismatches do exist. A few are cited in Bögel et al. (2009), where a new architecture for the syntax–prosody interface is proposed. One of these examples, originally from Lahiri & Plank (2010: 374, 376), is (15a), with the constituent structure given in (15b) and phonological phrasing in natural rapid speech indicated in (15c).[5]

(15) a. Drink a pint of milk a day.

b. [Drink [a [pint [of milk]]] [a day]].

c. (Drink a) (pint of) (milk a) day.

Note that evidence for the syntax–prosody parallelism of the kind given in (13) is not readily available here: while *Drink a pint of milk a day next week* is acceptable and *Drink next week a pint of milk a day* seems at least marginally acceptable, **Drink a next week pint of milk a day* is clearly out on the intended meaning. Hence, (15) seems to be a genuine syntax–prosody mismatch.

In summary, Ross's (1967) observations concerning prosody in coordinate structures might provide a stronger argument for the advocated structure of coordination than it initially seems, but a better assessment of the strength of this argument must await a more comprehensive theory of the syntax–prosody interface and the kinds of mismatches that it permits.

2.2 Sentence-initial coordinators

Another argument of Ross (1967: 163) is that, when a coordinated sentence, e.g. (16), is broken into two, the coordinand always accompanies the second, as in (17a) (rather than (17b)):

(16) John left, and he didn't even say goodbye.

(17) a. John left. And he didn't even say goodbye.

b. *John left and. He didn't even say goodbye.

[5] I am grateful to an anonymous reviewer of LFG 2025 proceedings for pointing out this possible syntax–prosody mismatch to me. ((15b) corrects the constituent structure indicated in Bögel et al. 2009: 153, (8), and also the reference to the original source of (15) is corrected here.)

This argument may be understood as a variant of the previous one, about a natural place for a longer break, but it may also be understood as a more direct claim about the possibility of [Co X] constituents. Ross (1967: 164) makes such a claim more explicitly on the basis of (18), while Borsley (1994: 240) offers (19).

(18) Even Harold, and he is the smartest boy in our class, failed.

(19) The professor, and he's an expert, thinks the recession will continue.

In both, the sequence *and he…* is a parenthetical, and there is no preceding material that could be understood as the initial coordinand, so the parenthetical is best analysed as a [Co IP] constituent.

Examples (18)–(19) are constructed by linguists, but similar examples are easy to find *in vivo*, e.g. the following, involving literally parenthetical [Co IP]s.[6]

(20) The only caveat (and it's a big one) is that the pair has to be really old; over a century is a good starting point.

(21) If the measurement of a marker (and BP is simply a marker) is inaccurate, it follows that recommendations based upon it will be flawed.

(22) But (and I'm talking to myself here more than anyone) it's worth being precise about the establishment (if such it is) that we are trying to overturn.

(23) The premise of the book (and you don't have to read beyond the title to know this) is to report history through the eyes of THE PEOPLE.

(24) This means (and Sony has said as much) that Venom takes place outside of the MCU, and it definitely feels isolated from other superhero world events.

This is not just a quirk of English *and*; other conjunctive coordinators in other languages behave similarly, as the following attested examples from Polish illustrate:[7,8]

(25) *i* 'and' (ordinary conjunctive coordinator)

a. Poddani swoistemu praniu mózgu (i tu z pomocą
subjected.PL.M.NOM kind.DAT brainwashing.DAT and here with help
przyszedł tekst książeczki), omamieni wizją
came text.SG.M.NOM book.SG.F.GEN) deluded.PL.M.NOM vision.DAT
bogactw i rozlicznych uciech, szybko wpasowali się w
riches.GEN and multiple.GEN joys.GEN quickly adjusted.PL.M REFL into
rolę foteli dla dam. (Polish)
role.ACC armchachairs.GEN for ladies
'Subjected to a kind of brainwashing (and here the text of the booklet came to the rescue), deluded by visions of riches and various pleasures, they quickly fit into the role of armchairs for ladies.'

[6]Unless indicated otherwise, attested English examples come from the English Web 2021 corpus accessible via SketchEngine (www.sketchengine.eu; Jakubíček et al. 2013; Kilgarriff et al. 2014).

[7]Unless indicated otherwise, attested Polish examples come from the 300-million-token balanced subcorpus of the National Corpus of Polish (nkjp.pl; Przepiórkowski et al. 2012).

[8]Morphosyntactic annotations follow the conventions of Leipzig Glossing Rules; additional abbreviations are defined as and when needed.

b. Powiedziałem (i była to jedna z tych bzdur, które brzmią w
said.1SG.M and was.3SG.F this one of these humbugs which sound in
ludzkich uszach prawdopodobnie), że Azef nie mógł działać sam...
human ears plausible that Azef NEG could act alone
(Polish)
'I said (and it was one of those nonsenses that sound plausible to people's ears) that Azef could not have acted alone...'

(26) *a* 'and, while' (contrastive adversative coordinator)

a. Leszek Lu odruchowo (a odruch był szybszy niż świadoma myśl)
Leszek Lu instinctively and instinct was faster than conscious thought
ukrył się za drzewem. (Polish)
hid REFL behind tree
'Leszek Lu instinctively (and the instinct was faster than conscious thought) hid behind a tree.'

b. Któryś z nich (a może było ich wielu) przeszedł tędy tysiąc lat
one of them and perhaps were they many) passed here thousand years
temu... (Polish)
ago
'One of them (or perhaps there were many of them) passed through here a thousand years ago...'

(27) *ale* 'but' (mirative adversative coordinator)

a. Gadamy jedząc, popijając (ale czy to przeszkadza?), siedząc przy stole...
talk.1PL eating drinking but Q this disturbs sitting at table
(Polish)
'We talk while eating, drinking (but does it bother us?), sitting at the table...'

b. A jeśli przypadkiem (ale któż wierzył w takie przypadki!) usiadła na
and if accidentally but who believed in such accidents sat.3SG.F on
statku, stawała się złowróżbnym zwiastunem nieszczęścia...
ship became.3SG.F REFL ominous harbinger misfortune
(Polish)
'And if by chance (but who believed in such chances!) she sat on a ship, she became an ominous harbinger of misfortune...'

While it is more difficult to find similar examples with disjunctive coordinators, the translation of (26b) contains one, and a few attested examples are given below.

(28) Now, the beginning of this Cold War Part II (or should it be called Part III?) is not bad either: the Taliban are no more and Osama is on the run.

(29) My grandfather had very little schooling, and when he would receive letters, apparently one of his officers (or perhaps it was just a buddy) would read his letters to him.

(30) Bare-tube (or maybe you have heard the more old-school term, "bare-bulb,") means nothing more than having your flash tube sitting out there in open space pushing its light out into (nearly) a 360-degree sphere of coverage.

The opposite situation, of coordinators occurring without the *following* coordinand, only happens with very specific kinds of intonation, inviting the addressee to finish an obviously incomplete sentence or suggesting that the list could be continued, e.g.:

(31) In what foreign countries did he live on consulting assignments? Mexico, Chile, United Kingdom and. . . ?

(32) Are there two individuals from the 19th century who had more of an effect on human history (however one might choose to assess that) than Lincoln and Darwin? Can't think of any offhand (Marx and. . . ?).

Note the similarity of (31)–(32) to other cases of incomplete sentences used as questions, e.g.:[9]

(33) The laughter pleased the archeologist, who swiftly produced a fourth bouquet with a grin. 'And that's for. . . ?' – Melinda asked with amusement.

(34) And you did that because. . . ?

But just as examples such as (33)–(34) do not provide evidence that prepositions or complementizers form constituents with preceding elements to the exclusion of following constituents, examples such as (31)–(32) do not make a case for coordinators forming constituents with preceding coordinands.

In summary, various coordinators may co-occur with the following coordinand in constructions that do not involve any other coordinands, so at least in such constructions they must form a constituent.

Single-coordinand coordination is an interesting phenomenon, one that apparently has not been analysed in any depth so far. It might seem that it provides an at most suggestive argument for less flat coordinate structures. This is because, at the c-structural level, it can apparently be easily described with a slight modification of the usual rule responsible for the completely flat structures, namely, by replacing the Kleene plus ("1 or more") in rules such as (35) with the Kleene star ("0 or more"), as in (36).[10]

(35) $\text{XP} \rightarrow \underset{\downarrow \in \uparrow}{\text{XP}^{+}} \quad \text{Co} \quad \underset{\downarrow \in \uparrow}{\text{XP}}$

(36) $\text{XP} \rightarrow \underset{\downarrow \in \uparrow}{\text{XP}^{*}} \quad \text{Co} \quad \underset{\downarrow \in \uparrow}{\text{XP}}$

However, the effect of this straightforward analytical modification would be that all phrases could be optionally preceded by a coordinator, so for example sentences such as the following should in principle be grammatical:

(37) *[$_{\text{NP}}$ Lisa] saw [$_{\text{NP}}$ and [$_{\text{NP}}$ Bart]].

(38) *Marge was waiting [$_{\text{PP}}$ or [$_{\text{PP}}$ for Homer]].

But, in fact, only certain kinds of constituents starting with a coordinator (namely, sentential constituents) may occur in certain positions outside of coordination, so they should not bear exactly the same category as coordinator-less constituents.[11] Hence,

[9] Punctuation has been adjusted in (33) for clarity.

[10] Throughout the paper I employ the usual convention that the lack of functional descriptions is equivalent to $\downarrow = \uparrow$.

[11] An anonymous reviewer of LFG 2025 proceedings asks about the possibility of non-sentential par-

the simple replacement of + with ∗ in (35)–(36) must be augmented by some additional analytical adjustments to the effect that syntactic positions earmarked for constituents of category X may only be filled by non-coordinate constituents bearing X or by coordinations with at least two X coordinands.

Nevertheless, while such theoretical considerations suggest that the argument adduced in the current subsection should not be dismissed too quickly, much stronger arguments for less flat structures are presented in the following subsection.[12]

2.3 Coordinand-internal coordinators

2.3.1 Shifting coordinators

Ross (1967: 163–164) notes that some coordinators in some languages may be placed inside the following – but not the preceding – coordinand, e.g., in German:[13]

(39) [Sie will tanzen], aber [ich will nach Hause gehen]. (German)
she wants dance but I want to house go
'She wants to dance, but I want to go home.'

(40) a. [Sie will tanzen]; [ich will aber nach Hause gehen]. = (39)

b. #[Sie will aber tanzen]; [ich will nach Hause gehen]. ≠ (39) (hence #)

Similar "shifting coordinators" (Weisser 2024) also occur in Polish, as in the following examples from the National Corpus of Polish cited in Patejuk (2018), where the relevant coordinators are called "incorporating":

(41) . . . [uzyskał zwolnienie wszystkich zakładników], [władze sowieckie wyraziły
achieved release all hostages authorities Soviet expressed
zaś zgodę na ich powrót]. (Polish)
but consent on their return
'He achieved the release of all hostages, whereas the Soviet authorities agreed to their return.'

(42) . . . [należy karać tych chrześcijan, którzy są oskarżeni przed władzą], [nie
should penalise those Christians who are accused before authority NEG

entheticals, as in *I saw Lisa there (and Bart)*. These are parentheticals of a different kind: what is in parentheses is actually integrated in the main sentence, as witnessed by the grammaticality of *I saw Lisa there and Bart* without the strong prosodic break witnessed in examples such as (18)–(24). (See the last apparent counterargument in §3 for a brief discussion of such apparent extrapositions.) I assume that in such cases a more general rule suffices which puts any (optional) sentence constituent in parentheses, as in the current sentence and in the following corpus examples:

(i) Many RDF APIs exist currently (in various programming languages).

(ii) In an insightful letter (to Thomas Jefferson), James Madison wrote. . .

(iii) For those interested in participating in this (free) contest, please meet in the Coleman room. . .

[12] Another anonymous reviewer wonders whether a specialized rule, Paren → Co IP, could be posited for parentheticals involving sentence-initial coordinators, with the usual fully flat structure of coordination left intact. This perhaps might be a reasonable way to go if sentence-initial coordinators were the only argument for less flat structures, but even then non-parenthetical sentence-initial coordinators, as in (17a), (34), (53), (55a), or (56), would need to be accounted for. By contrast, on the formalization proposed in §4 below, both kinds of sentences starting with a coordinator are constituents by virtue of the general approach to coordination advocated here, an approach motivated also by other phenomena.

[13] In this section coordinands are in square brackets and coordinators are underlined for conspicuity.

trzeba ich natomiast wyszukiwać]. (Polish)
need them but seek.INF
'One should penalise those Christians who were accused by the authorities, but one should not search for them.'

Another language well-known for such shifting coordinators is Latin. However, unlike in German and Polish, the shifting coordinators *que* 'and' and *ve* 'or' usually occur after the first word of the final coordinand. The following examples come from Weisser (2024: §3.1), with (45) illustrating that the notion of the first word that is relevant here is prosodic (*de provincia* 'from province'), and not orthographic (*de* 'from'):

(43) ...ut consules [sortir-entur] [conparar-ent=ve inter se] (Latin)
that consul.NOM.PL draw.lots-PASS.3PL arrange=or between REFL
'...that the consuls should draw lots or arrange between themselves'

(44) [cunctis oppidis] [castellis=que desertis] (Latin)
defeated towns fortresses=and deserted
'the towns defeated and the fortresses deserted'

(45) [is istum reliqui-t] [de provincia=que decess-it] (Latin)
he it leave.PERF-3SG from province=and depart.PERF-3SG
'he left it and departed from the province'

What this phenomenon seems to show is that at least some coordinators in some languages occur *within* the coordinand, contrary to the usual rule in (35) or its variant in (36). If so, then – in the absence of arguments to the contrary – it may be assumed that all coordinands in all languages form a constituent with one coordinand, to the exclusion of the others. However, if the argument were only based on these three (and similar) languages, it would only be suggestive.

This is most clear in the case of Latin, where rules responsible for the realization of the coordinator are uncontroversially prosodic: the coordinator must occur after the first prosodic word of the final coordinand. However, this is compatible with the usual LFG approach to coordination, if the observed linear order is not necessarily completely determined by c-structural configurations, but may be influenced by the prosodic component of the grammar, as in Bögel et al. (2010) or in L_RFG (see, especially, Asudeh et al. 2023 and Asudeh & Siddiqi 2024). On such analyses, the coordinator could occur in c-structure *before* the last coordinand, hence, not necessarily forming a constituent with that coordinand, and be placed *within* that coordinand only when c-structure is mapped to utterance by the prosodic component. A similar escape hatch is readily available for other languages with Latin-type shifting coordinators, including – according to Weisser (2024: ch. 3) – various other extinct Indo-European languages (Ancient Greek, Hittite, Old Irish, Gaulish, Gothic), as well as Oklahoma Cherokee, and possibly Kalaallisut (i.e., West Greenlandic).

As for German, Polish, and a couple of other languages (Yorùbá and the closely related Nupe, both Niger-Congo languages, as well as perhaps Slovenian), Weisser (2024: ch. 4) argues that the position of shifting coordinators is also prosodically determined, namely, that they occur after the first prosodic *phrase* of the respective coordinand. If so, then – assuming a sufficiently powerful prosodic component – these

languages also do not provide a decisive argument for the less flat structure of coordination advocated here.

However, Weisser (2024: chs. 5–6) also discusses two other groups of languages, where shifting coordinators are positioned within respective coordinands on the basis of purely (morpho)syntactic factors.

In one group of languages, the coordinator is always placed after the first major constituent of the relevant coordinand. This pattern is apparently "fairly common crosslinguistically" and "extremely widespread in Caucasian… and Turkic languages" (Weisser 2024: 166), but also witnessed, e.g., in Yavapai (Yuman; Arizona, US), Udihe (Tungusic; Russian Far East), Rangi (Bantu; Tanzania), and Makalero (Papuan; East Timor). Unlike in the previous two groups, which included Latin, German, and Polish, shifting coordinators in languages belonging to this group may not occur *within* major constituents of the coordinand, only between them. A particularly telling example is (46) (Haspelmath 1993: 366 apud Weisser 2024: 154) from Lezgian (Nakh-Dagestanian), where the coordinator occurs after a very long constituent which contains a clausal complement (marked by substantivized participle in superessive case).[14]

(46) …[Dağustandi-n har sa xür-e lap q^hsan wa ag'alt'aj pis adet-ar
Daghestan-GEN every one village-INESS very good and extremely bad custom-PL
awa-j-da-l sa šak-ni ala-č] (Lezgian)
be.in-PTCP-SBST-SRESS one doubt-and be.on-NEG
'…and there is no doubt that there are very good and extremely bad customs in every Daghestanian village.'

Note that, despite a number of maximal projections within the clausal complement, the coordinator occurs only after the whole top-level constituent in the coordinand.

In the other – more heterogeneous – group of languages, coordinators attach to specific categories, but again honouring syntactic structure. For example, in Khwarshi (Nakh-Dagestanian), they attach to major absolutive phrases or – when such an absolutive nominal is missing at the top level of the coordinand – to the first major constituent, as in languages of the previous group. This is illustrated with (47) (Khalilova 2009: 128 apud Weisser 2024: 178).[15]

(47) [zamana m-eλ'-aλa] [∅-ešt'-un žahaλ'a-n [soyro b-eγ^w-a]] (Khwarshi)
time.III III-go-ANTR I-let-PST.UW again-and horse.III III-sell-INF
'Some time passed and he sent (him) again to sell the horse.'

While there is an absolutive phrase in the second coordinand (see *syoro* 'horse.III'), it is not a top-level constituent (it is embedded within an infinitival phrase), so the coordinator *-n* attaches to an earlier top-level constituent. Similar constraints are observed in various Caucasian (especially Nakh-Dagestanian) and Dravidian languages, as well as in Sinhala (Indo-European), areally close to the Dravidian language Tamil.

Crucially, in both groups of languages, factors determining the position of the coordinator within the coordinand are purely (morpho)syntactic, not phonological or

[14] INESS = inessive, SRESS = superessive, SBST = substantivizer.

[15] I and III are gender markers, ANTR = anterior, UW = unwitnessed. The free translation of this example is my interpretation, as the translations provided in Khalilova (2009: 128) and Weisser (2024: 178) are not fully coherent.

prosodic. This means that it is very unlikely that prosodic rules are responsible in such languages for placing the coordinator where it is observed; if they were, they would have to be bestowed with powers reserved so far for syntactic rules.

On the basis of such and more data, Weisser (2024: 209) reaches the generalization that "[s]hifting coordinators always appear inside the coordinand that they form a constituent with", in consonance with Ross's claim. I believe that shifting coordinators, where they are positioned on the basis of (morpho)syntactic factors, indeed provide a strong argument for the existence of constituents encompassing a coordinator and a single coordinand, to the exclusion of other coordinands, i.e., for the less flat structure of coordination advocated here.

2.3.2 Word-internal coordinators

The above argument that coordinators may be encoded within coordinands is further strengthened by data from languages in which coordinators are encoded morphologically or even phonologically.

For instance, Haspelmath (2007: 15) notes that, in Djabugay (a Pama-Nyungan language of Australia), coordinators are realized as suffixes which may be followed by case suffixes, as in the following example from from Patz (1991: 292):

(48) yaba-nggu nyumbu-djada-nggu (Djabugay)
brother-ERG father-AND-ERG
'my brother and father'

Another language with a similar phenomenon is Tundra Nenets (Uralic), where two coordinands can be coordinated by marking each with a word-internal dual marker, which loses its usual dual function in such cases (i.e., each coordinand is singular). This is illustrated in (49) from Nikolaeva (2014: 418) apud Weisser (2024: 63), where one grandfather and one grandmother is referred to.

(49) yir'i-xəyu-nº xadake-xºyu-nº m'adonceyº-m xana-q
grandfather-DU-1SG grandmother-DU-1SG present-ACC take-IMP
(Tundra Nenets)
'Take the present to my grandfather and my grandmother.'

Note that the marker is again word-internal, and may be followed by a possessive affix, as in the example above.

Even more strikingly, coordination in Telugu (Dravidian) is marked by lengthening the final vowels of both coordinands, as in (50):

(50) kamalaa wimalaa poDugu (Telugu)
Kamala Vimala tall
'Kamala and Vimala are tall.' (Krishnamurti & Gwynn 1985: 325 apud Drellishak & Bender 2005: 111 apud Abeillé & Chaves 2024: 781)

In all these cases, as well as at least some of those involving shifting coordinators, the standard LFG rule for coordination, repeated as (51), is inapplicable, as there is no overt coordinator preceding the final coordinand.

(51) XP → XP^{+} Co XP
$\downarrow \in \uparrow$ $\downarrow \in \uparrow$

Instead, a rule like (52a) is needed, indicating a constituent with internally expressed monosyndetic coordinator, or – in the case of polysyndetic coordination as in (49)–(50) – a rule like (52b), indicating that all coordinands express coordinators internally.

(52) a. $\mathrm{XP} \rightarrow \underset{\downarrow\in\uparrow}{\mathrm{XP}^{+}} \quad \underset{\downarrow\in\uparrow}{\mathrm{XP}_{\&}}$ b. $\mathrm{XP} \rightarrow \underset{\downarrow\in\uparrow}{\mathrm{XP}^{+}_{\&}} \quad \underset{\downarrow\in\uparrow}{\mathrm{XP}_{\&}}$

In §4, I will propose a variant of such rules.[16] But let us first examine counterarguments offered within the LFG literature against such slightly less flat structures.

3 Counterarguments?

The only attempt at countering arguments such as above that I am aware of is Hristov (2012: 19–20), which refers to three arguments for [Co X] given in Huddleston & Pullum (2002: 1277). The first – not commented on in Hristov (2012) – concerns intonation breaks and mirrors Ross's first argument discussed in §2.1 above.

The second mirrors Ross's second argument, discussed in §2.2, and it is illustrated with (53), suggesting that *and* forms a constituent with the following sentence.

(53) She thoroughly enjoyed it. And so did her mother.

To this, Hristov (2012: 20) replies that "[t]he initial *and* in [(53)] can equally plausibly be deemed a sentential adjunct", but does not provide any arguments for this hypothesis.

In fact, there are multiple arguments against this hypothesis. One argument is that, as shown in §2.2 above, not only *and*, but also other coordinators – both in English and crosslinguistically – may occur sentence-initially, and it is unlikely that they all lead double lives as sentential adjuncts. A stronger argument is that – while actual sentential adjuncts are not restricted to sentence-initial positions, see (54a) and the attested (54b) – *and* must remain sentence-initial, see (55a–b).

(54) a. Unfortunately, document-level information retrieval can lead to…

b. Document-level information retrieval can unfortunately lead to…

(55) a. And document-level information retrieval can lead to…

b. Document-level information retrieval (*and) can (*and) lead (*and) to…

Finally, a particularly strong argument against the hypothesis that sentence-initial coordinators are sentential adjuncts may be constructed on the basis of V2 languages such as German – see the attested (56).

(56) Und natürlich sind das OnePlus 9 und das OnePlus 9 Pro auch beim Ratenkauf
and naturally are ART OnePlus 9 and ART OnePlus 9 Pro also at.ART installment.purchase
SIM-frei. (German)
SIM-free
'And, of course, the OnePlus 9 and OnePlus 9 Pro are also SIM-free when purchased on installments.'

[16] On the other hand, I will have nothing to say about how information about the presence and kind of a coordinator within an $\mathrm{XP}_{\&}$ conjunct makes its way to the top level of that $\mathrm{XP}_{\&}$. See Patejuk (2018) for one LFG analysis of shifting coordinators in Polish, as well as Goldstein & Haug (2016) for an extension of c-structure rules that could be employed in another such analysis.

If *und* 'and' were an adjunct, then there would be two pre-verbal constituents in (56) – not an option in German matrix declarative clauses.[17] Hence, it is very unlikely that sentence-initial coordinators are adjuncts; instead, they are what they seem – coordinators combining with a single coordinand.

Ross's third argument, based on shifting coordinators and discussed in §2.3.1, is not considered in Hristov (2012). The final argument that is considered in Hristov (2012) is illustrated with examples such as (57), where the [Co X] sequence seems to be extraposed, which suggests that it is a constituent.

(57) a. Did the boss [or her secretary] tell you that?

b. Did the boss tell you that [or her secretary]?

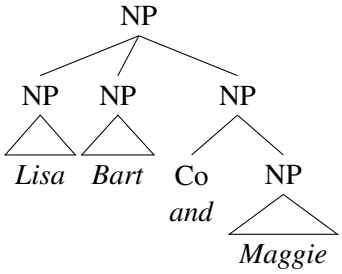
This argument was apparently first given in Munn (1993: 15), but – as rightly noted in Hristov (2012: 20) and, independently, many times elsewhere (e.g., Wagner 2005: §3.4.1, Chaves 2007: 42–43) – it is flawed; for example, if such extraposition were possible, then the ungrammatical sentence (58) should be grammatical, given that *each other* would be bound by *John and Mary*, as in (59), from which *and Mary* is extraposed. (The currently common view is that examples such as (57b) involve sentential coordination and ellipsis.)

(58) *John resembled each other [and Mary].

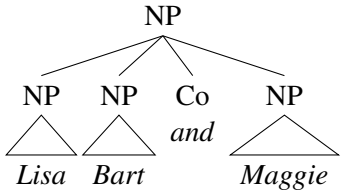
(59) John [and Mary] resembled each other.

In summary, only one of the arguments for [Co X] constituents discussed in §2 is addressed in Hristov (2012), the argument from sentence-initial coordinators in §2.2, and the offered explanation – in terms of coordinators such as *and* sometimes acting as adjuncts – does not stand scrutiny. Hence, it is fair to say that the completely flat structure traditionally assumed in LFG, such as that repeated in (61), is not and has never been motivated, and that the slightly less flat structure, such as that repeated in (60), should be adopted instead.

(60) motivated (see §2):



(61) not motivated (see §3):



4 Formalization

It is a relatively easy exercise to modify existing LFG accounts of coordination in such a way that c-structures such as (60) rather than (61) are licensed, but resulting f-structures are unchanged. The following subsections provide translations of the standard LFG

[17] In fact, Weisser (2024: 46, 122–124) takes such co-occurrence with a pre-verbal constituent as a reliable test distinguishing coordinators from adjuncts in German.

analysis in *The Oxford Reference Guide* (Dalrymple et al. 2019: ch. 16), which assumes that all coordinands bear the same category, as well as the analysis in Przepiórkowski & Patejuk (2021), which deals with unlike category coordination.

The gist of the translations is that single rules such as (62) responsible for ordinary coordination in run-of-the-mill languages are replaced with double rules such as (63) (suggested already in §2.3.2) or, equivalently, (64); in either case, while the c-structure is less flat, the hybrid f-structure representation of coordination remains essentially the same as in standard LFG analyses assuming rules such as (62).[18]

(62) $\begin{array}{lcccc} \text{XP} & \rightarrow & \text{XP}^{+} & \text{Co} & \text{XP} \\ & & \downarrow \in \uparrow & & \downarrow \in \uparrow \end{array}$

(63) a. $\begin{array}{lcccc} \text{XP} & \rightarrow & \text{XP}^{+} & \text{XP}_{\&} & \\ & & \downarrow \in \uparrow & \downarrow \in \uparrow & \end{array}$

b. $\begin{array}{lccc} \text{XP}_{\&} & \rightarrow & \text{Co} & \text{XP} \end{array}$

(64) a. $\begin{array}{lcccc} \text{XP} & \rightarrow & \text{XP}^{+} & \text{XP}_{\&} & \\ & & \downarrow \in \uparrow & & \end{array}$

b. $\begin{array}{lccc} \text{XP}_{\&} & \rightarrow & \text{Co} & \text{XP} \\ & & & \downarrow \in \uparrow \end{array}$

Replacing one rule with two might seem less than satisfactory, but the two rules in (63) or (64) are needed anyway. First, rules such as (63a) or (64a), not mentioning a coordinator between the coordinands, are needed for word-internal coordinators exemplified in §2.3.2 and possibly also for coordination involving "shifting coordinators" discussed in §2.3.1. Second, rules such as (63b) or (64b), with a coordinator co-occurring with a single constituent, are needed for sentence-initial coordinators, discussed in §2.2.[19] Thus, the resulting grammar is actually leaner, as it does not assume rules such as (62) on top of independently needed (63a–b) or (64a–b).

The following subsections demonstrate how two specific LFG analyses of coordination mentioned above may be modified in line with the general schema in (64) (§4.1) or in (63) (§4.2).

4.1 Standard LFG (Dalrymple et al. 2019)

In what follows, I slightly simplify the analysis of coordination in Dalrymple et al. (2019: ch. 16) by ignoring so-called "preconjunctions" such as English *either* and *both*, as their syntactic category and position is controversial; for example, they are argued to be focus particles in Hendriks (2004). For this reason, I will not distinguish between the complex categories Cnj[pre] ("preconjunctions") and Cnj[main] (ordinary coordinators), and hence I will assume that coordinators have the simple category Co (and will rename some macros correspondingly).

Dalrymple et al. (2019: 622–623) employ rule macros in their analysis of coordination. Such macros are used to define and parameterize right-hand sides of syntactic rules. Specifically, Dalrymple et al. define the CO macro in (65) and the ENGLISH-COORD macro in (66); the latter macro is used in syntactic rules as illustrated in (67).

[18] Recall the convention that the lack of functional descriptions is equivalent to $\downarrow = \uparrow$.

[19] Note that, according to (63b) and (64b), such constituents have the category $\text{XP}_{\&}$ rather than XP, with the effect that the distribution of the two kinds of constituents is not necessarily the same (as it would be, if Kleene plus were only replaced by Kleene star in (62)).

(65) CO(_C) ≡ Co _C
$\downarrow = \uparrow$ $\downarrow \in \uparrow$

(66) ENGLISH-COORD(_C) ≡ _C { _C* | @CO(_C)* } @CO(_C)
$\downarrow \in \uparrow$ $\downarrow \in \uparrow$

(67) V → @ENGLISH-COORD(V)
IP → @ENGLISH-COORD(IP)
NP → @ENGLISH-COORD(NP)
...

The disjunction in (66) takes care of monosyndentic coordination, where the coordinator only occurs before the last coordinand (*Lisa, Bart, and Maggie*), and polysyndetic coordination, with one fewer coordinator than the number of coordinands (*Lisa, and Bart, and Maggie*).

Only a minor modification is necessary to adjust this analysis to the view advocated in this paper: the CO macro definition in (65) should be replaced by an almost identical syntactic rule, as in (68), and the ENGLISH-COORD macro should be adjusted accordingly, as shown in (69).

(68) _C[co] → Co _C (_C ∈ {V, IP, NP, ...})
$\downarrow \in \uparrow$

(69) ENGLISH-COORD(_C) ≡ _C { _C* | _C[co]* } _C[co]
$\downarrow \in \uparrow$ $\downarrow \in \uparrow$

The rule in (68) employs a convention that also makes it possible to replace the set of rules alluded to in (67) with a single rule, namely, (70).

(70) _C → @ENGLISH-COORD(_C) (_C ∈ {V, IP, NP, ...})

Such rules are sometimes called metarules (Gazdar et al. 1985); they are employed in some LFG analyses (especially in the analysis of Polish shifting coordinators in Patejuk 2018, but also in Asudeh et al. 2024: 57 in an L_RFG analysis of Latin declension), and they are implemented in XLE (Crouch et al. 2011).

In (68), I additionally employ complex categories (see _C[co]), with the effect that this metarule is equivalent to the following set of rules:

(71) V[co] → Co V
$\downarrow \in \uparrow$
IP[co] → Co IP
$\downarrow \in \uparrow$
NP[co] → Co NP
$\downarrow \in \uparrow$
...

It is easy to see that this analysis results in exactly the same f-structures as in standard LFG analyses of coordination: the rule in (68) licenses hybrid f-structures containing the final coordinand, while the rule macro (69) ensures that all other coordinands are also members of such hybrid f-structures, as commonly assumed in LFG.

In summary, the modification of the standard LFG analysis of coordination in Dalrymple et al. (2019) necessary to implement the "slightly less flat" view is trivial and consists in replacing one macro, (65), with an almost identical syntactic rule, (68), and

with corresponding straightforward adjustments in another macro, (66). The employment of metarules in the process makes it also possible to replace a presumably large collection of rules in (67) with a single metarule in (70).

4.2 Category-less coordination (Przepiórkowski & Patejuk 2021)

Dalrymple (2017) notes that prepositions may combine with NPs (as in (72a)) and, on certain uses, with PPs (as in (72b)), and hence also with unlike category coordinations involving NPs and PPs, as in (73) from the NOW corpus (Davies 2016–).

(72) a. I removed them from [$_{\text{NP}}$ the box].

b. I removed them from [$_{\text{PP}}$ under the bed].

(73) I removed them from [[$_{\text{NP}}$ the box] and [$_{\text{PP}}$ under the bed]].

She also notes that the intuitive PP rule in (74) does not handle such examples, as it simply requires that the whole coordinate structure in (73) be either an NP or a PP, and not that all coordinands should be of these categories.

(74) $\text{P}' \rightarrow \text{P} \quad \begin{matrix}\{\text{NP}|\text{PP}\} \\ (\uparrow \text{OBJ}) = \downarrow\end{matrix}$

She finally notes some problems with a potential solution based on the CAT predicate introduced in Kaplan & Maxwell (1996: 93), and proposes a novel solution, based on complex categories such as [N +, V −, P +, ADJ −, ADV −] in the case of the coordination in (73).

Przepiórkowski & Patejuk (2021) argue that this solution does not extend to those cases of unlike category coordination where not only categories, but also morphosyntactic or lexical features of coordinands matter for well-formedness. One of their examples is (75), where the coordination of PP and CP is possible because of the subcategorization properties of *believe*, but where not just any PP and CP will do: the PP must be headed by *in* (and not, say, *on*, which in other contexts may also be used as a non-semantic preposition), and the CP must be headed by *that* (and not, say, *whether*).

(75) We all believe [[$_{\text{PP}[in]}$ in positive energy] and [$_{\text{CP}[that]}$ that what you give comes back]].

They develop a solution based on the radical idea of moving categorial information from c-structure to f-structure, where it is encoded via the distributive CAT feature. On this solution, the rule in (74) is a shorthand for the rule in (76), with information about projection level (P′ vs. P, etc.) omitted here (but see, e.g., Lowe & Lovestrand 2020).

(76) $\bullet \rightarrow \begin{matrix}\bullet \\ (\downarrow \text{CAT}) =_c \text{P} \\ \downarrow = \uparrow\end{matrix} \quad \begin{matrix}\bullet \\ (\downarrow \text{CAT}) \in_c \{\text{P}, \text{N}\} \\ (\uparrow \text{OBJ}) = \downarrow\end{matrix}$

They argue that this solution removes a number of redundancies in the grammar, e.g., the repetition of the head's basic category symbol on the left-hand side of a rule (see P repeated in P′ in (74)), even though this often follows from the head status of the relevant constituent. They moreover propose that descriptions such as $(\downarrow \text{CAT}) \in_c \{\text{P}, \text{N}\}$ should be understood distributively, i.e., satisfied for each coordinand independently; this aspect of the analysis is further discussed and formalized in Przepiórkowski (2022: §7.1).

Przepiórkowski & Patejuk (2021) do not provide specific rules for coordinate structures, but they implicitly assume a variant of the standard LFG approach schematically given in (62) above, repeated as (77). I modify this approach by applying the variant of the "slightly less flat" view which was suggested in §2.3.2 and made more explicit in (63), repeated as (78) below.

(77) $\underset{}{\text{XP}} \rightarrow \underset{\downarrow\in\uparrow}{\text{XP}^{+}}\ \underset{}{\text{Co}}\ \underset{\downarrow\in\uparrow}{\text{XP}}$

(78) a. $\underset{}{\text{XP}} \rightarrow \underset{\downarrow\in\uparrow}{\text{XP}^{+}}\ \underset{\downarrow\in\uparrow}{\text{XP}_{\&}}$

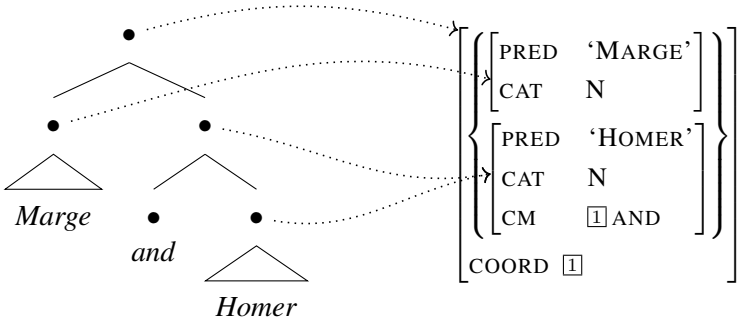
b. $\text{XP}_{\&} \rightarrow \text{Co}\ \text{XP}$

A specific rule corresponding to the schematic (78b) is given in (79).[20]

(79) $\bullet \rightarrow \underset{(\downarrow \text{CAT}) =_c \text{Co}}{\bullet}\ \bullet$
$(\uparrow \text{CM}) = (\downarrow \text{COORD})$

The first constituent is a coordinator (see $(\downarrow \text{CAT}) =_c \text{Co}$). I follow the standard assumption that coordinators lexically specify the value of CONJ (e.g., AND or BUT), but I rename this feature to COORD, in line with terminological conventions adopted here.[21] The value of this feature becomes the value of the newly introduced COORD-MARK feature of the constituent licensed by (79).[22] I assume that COORD-MARK is an instantiated feature, so this rule cannot be used recursively, and I abbreviate COORD-MARK to CM in syntactic rules and f-structures. The second constituent in (79) lacks functional descriptions, so it is the head. This rule makes the simplifying assumption that all categories may be coordinated, but this may be constrained by an explicit annotation such as $(\downarrow \text{CAT}) \in_c \{\text{V}, \text{N}, \text{P}\ldots\}$. The net effect of this rule is that a constituent is marked by a coordinator, as in the f-structure for *and Homer* in (80).

(80)



A specific rule corresponding to the schematic (78a) is given in (81). It has the same empirical scope as the rules considered in the previous subsection, i.e., it contains a disjunction responsible for both monosyndetic and polysyndetic coordination.

[20] Note that this is an ordinary rule, not a metarule, even though it has the effect of multiple rules thanks to moving category information to f-structures.

[21] See fn. 1. In the LFG literature, this feature is also sometimes called CONJ-FORM (e.g., Hristov 2012) or COORD-FORM (e.g., Patejuk 2015).

[22] This aspect of the analysis is similar to HPSG analyses of coordination; see Abeillé & Chaves (2024: §3.1) and references therein.

(81) $\bullet \rightarrow$ $\underset{\substack{\downarrow \in \uparrow \\ \neg(\downarrow \text{CM})}}{\bullet}$ { $\underset{\substack{\downarrow \in \uparrow \\ \neg(\downarrow \text{CM})}}{\bullet^*}$ | $\underset{\substack{\downarrow \in \uparrow \\ (\uparrow \text{COORD}) =_c (\downarrow \text{CM})}}{\bullet^*}$ } $\underset{\substack{\downarrow \in \uparrow \\ (\uparrow \text{COORD}) = (\downarrow \text{CM})}}{\bullet}$

The COORD value of the coordinate structure is the COORD-MARK value of the final coordinand. If that coordinand has no COORD-MARK, then the equation $(\uparrow \text{COORD}) = (\downarrow \text{CM})$ makes this rule inapplicable.[23] The corresponding constraining equation in the polysyndetic part of the rule only checks that that value is also the value of COORD-MARK on all non-initial coordinands. The initial coordinand may not be marked with a coordinator in any case,[24] and neither may other non-final coordinands in the monosyndetic part of the rule. The syntactic structure of *Marge and Homer* licensed by these rules is given in (80) above.

Note that, as postulated in Przepiórkowski & Patejuk (2021), the hybrid structure licensed by such rules has no CAT feature, so that coordination of unlike categories itself has no category. However, when constituents bearing the same category are coordinated, as in (80), then it makes sense to talk about this category as also being the category of the coordinate structure, given that CAT is a distributive feature and assuming the following definition of distributive properties in Dalrymple & Kaplan (2000: 779), with the biconditional "iff":

(82) For any DISTRIBUTIVE property P and set s, $P(s)$ iff $\forall f \in s.\ P(f)$.

Let us finally note that, as suggested at the beginning of this section, the two rules in (79) and (81) may be used independently, i.e., they do not have to work in tandem.

First, the rule (79), responsible for combining a coordinator and a coordinand, is used alone in constructions with sentence-initial coordinators discussed in §2.2. Whatever contexts license, say, IPs preceded by *and*, they simply specify the presence of a constituent with f-structure f specified as $(f \text{ CAT}) =_c \text{I} \wedge (f \text{ CM}) =_c \text{AND}$.[25]

However, dually, care must be taken when an ordinary – coordinator-less – category is expected in a given position. To this end, a macro, CAT, can be defined as in (83).

(83) $\text{CAT}(\text{X}) \equiv (\downarrow \text{CAT}) \in_c \text{X} \wedge \neg(\downarrow \text{CM})$

Given this macro, the above PP rule in (76) may be rewritten as in (84).

(84) $\bullet \rightarrow$ $\underset{\substack{@\text{CAT}(\{\text{P}\}) \\ \downarrow = \uparrow}}{\bullet}$ $\underset{\substack{@\text{CAT}(\{\text{P, N}\}) \\ (\uparrow \text{OBJ}) = \downarrow}}{\bullet}$

Second, the rule (81) may be used alone at least in those languages, exemplified in §2.3.2, in which coordinators are expressed morphologically or phonologically. In such cases, the respective forms, e.g., *nyumbu-djada-nggu* 'father-AND-ERG' in Djabugay, specify the value of COORD-MARK. This rule is possibly also used alone in at least some of the languages with "shifting coordinators", although a comprehensive analysis of this phenomenon is left for future research.

[23] This is because the resulting f-description is then "indeterminate" (Kaplan & Bresnan 1982: 202–203).

[24] I follow the standard assumption that, if "preconjunctions" are really coordinators, they have their own dedicated PRECOORD-MARK feature; cf. CONJ vs. PRECONJ in Dalrymple et al. (2019: ch. 16).

[25] Perhaps another constraint, to the effect that f must be a maximal projection, is also needed.

5 Conclusion

The basic syntactic structure of coordination universally assumed in LFG differs from structures assumed in virtually all other frameworks. Interestingly, with the notable exception of Hristov (2012), no attempt has ever been made to justify this difference.

In this paper, I argue that there is some evidence for less flat coordinate structures, i.e., for structures in which a coordinator forms a constituent with one coordinand to the exclusion of others. The strongest evidence comes from those "exotic" languages in which the coordinator may be expressed word-internally, i.e., squarely within the coordinand. The evidence from a number of more or less "exotic" languages with shifting coordinators at first seems weaker, as at least in some of these languages (including Latin, German, and Polish) the phenomenon lies at the syntax–prosody interface. However, there are also languages where prosody does not seem to matter, i.e., where the coordinand-internal position of a coordinator is a matter of pure (morpho)syntax, and at least in the case of these languages the evidence from shifting coordinators is strong.

Two other arguments might be weaker, but perhaps not as weak as it might seem at first. Contrary to a sometimes expressed view, prosody does correlate relatively strongly with constituency, and it indicates that also in familiar languages such as English the coordinator forms a constituent with the following coordinand. Finally, it might be possible to account for sentence-initial coordinators by a relaxation of the standard LFG rule for coordination, i.e., by replacing the Kleene plus with the Kleene star in the specification of non-final coordinands, but such a relaxation alone does not suffice, and a more careful analysis maintaining completely flat structures would have to be developed.

I conclude that the cumulative evidence for the slightly less flat constituent structure of coordination is sufficiently strong to warrant its adoption in LFG.

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