Coordination of Unlike Grammatical Cases (and Unlike Categories)

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Abstract

It is often claimed that conjuncts in coordinate structures must be alike in various ways, in particular, that they should have the same syntactic category and the same grammatical case, if any. This paper aims to refute such claims. On the basis of data from Polish, Estonian, and other languages, it demonstrates that there is no universal requirement that conjuncts be alike. Any appearances of such a requirement result from the fact that each conjunct must satisfy all functional constraints on the coordinate structure. The paper discusses ways of formalising such distributive satisfaction of constraints within four major linguistic frameworks: Lexical Functional Grammar, Categorial Grammar, Head-driven Phrase Structure Grammar, and Minimalism.

1. Introduction

Coordination is one of the most contentious phenomena of natural languages: there are ongoing disputes about its internal structure, its grammatical category, and its compositional semantics, with no dominant views on any of these aspects. It is especially controversial whether conjuncts in a coordinate structure must be the same in some way, and to what extent they may differ.

One long-standing view is that only constituents bearing the same grammatical category may be coordinated.[1] After Williams 1981: §2, this view is often referred to as the Law of the

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[1] For early statements to this effect, see for example Bloomfield 1933: 195, Chomsky 1957: 36, Tesnière 1959, 2015: 327, Chomsky 1965: 212, n. 9, Gleitman 1965: 273, and Schachter 1977: 90.

Coordination of Likes (LCL). However, counterexamples to LCL – or at least apparent counterexamples – abound. Perhaps the most frequently cited example of this kind is (1) (Sag et al. 1985: 117, ex. (2b)), involving coordination of a noun phrase *a Republican* and an adjectival phrase *proud of it*.

(1) Pat is [a Republican and proud of it].

In order to account for such counterexamples, some analyses weaken the notion of 'the same grammatical category' (e.g. Bayer 1996), others reject LCL altogether (e.g. Peterson 2004, Patejuk 2015: ch. 4, Dalrymple 2017). The controversy continues: a recent defence of LCL may be found in Bruening & Al Khalaf 2020, while Patejuk & Przepiórkowski 2021 offers a rebuttal.

A less discussed issue concerns grammatical cases: do all conjuncts have to bear the same morphological case (if any)? This question is related to the question of whether all conjuncts must bear the same category, but an answer to one does not imply an answer to the other. That is, regardless of whether LCL holds or not, coordination of nominal constituents may or may not require the identity of cases.

In a recent typologically rich paper, Weisser (2020) looks at some examples of coordination of apparently different grammatical cases and convincingly argues that they in fact involve coordination of the same cases; see §2 for a brief summary. On this basis, the following cross-linguistic generalisation is proposed (Weisser 2020: 43):

(2) Symmetry of Case in Conjunction (SOCIC)

Case is always evenly distributed amongst all of the conjuncts in nominal conjunction.

While (2) is a little vague, the immediately following passage makes it clear that it is to be understood as the requirement of identity of cases in coordination: 'once we control for certain superficial morphological operations that can create asymmetries in form, such as allomorphy and suspended affixation, the conjuncts in nominal conjunction are always identical in morphological case.'

In §3, I present eight counterexamples to this universal claim. The first – acknowledged in Weisser 2020: 72–73 – concerns Differential Object Marking (DOM) observed in a wide variety of languages, and the specific argument I offer is based on Estonian data. The other seven counterarguments are illustrated mainly with data from a single Slavic language, Polish, with some supporting data from Russian and other languages. They concern: partitive object marking, arguments displaying case indeterminacy, temporal adjuncts, possessive modifiers, secondary predicates, accusative numeral subjects, and coordination of different grammatical functions. I argue that in all eight instances case mismatches cannot be explained either via 'superficial morphological operations' of the kind envisaged in Weisser 2020, or via ellipsis (so-called conjunction reduction), that is I argue that they are genuine counterexamples to SOCIC. Additionally, in §4, I point out that most of these environments also illustrate coordination of unlike categories, that is that they also counterexemplify LCL. In §5, I provide a relatively pretheoretical explanation of coordination of unlike grammatical cases (and unlike categories)

and I mention some predecessors in §6. Then, in §7 I consider how this explanation might be formalised in four major linguistic frameworks: Lexical Functional Grammar, Categorial Grammar, Head-driven Phrase Structure Grammar, and Minimalism. Finally, §8 concludes the paper.

2. Apparent case mismatches in coordination

Weisser (2020) discusses three phenomena that may create the impression of case mismatches in coordination. The first involves case clitics which may attach to the whole coordinate phrase, as in the following Estonian example (Hasselblatt 2008 apud Weisser 2020: 46, ex. (5)):[2]

(3) Ta jook-sis [jõe ja puu]-ni. (Estonian)
3SG run-3SG river.GEN and tree-TERM
'He went to the river and the tree.'

Weisser (2020: 46–47) argues that what looks like coordination of genitive and terminative is really coordination of two syntactically genitive constituents, *jõe* 'river' and *puu* 'tree', with the terminative case clitic *ni* attached to the whole coordinate structure, as the bracketing in (3) indicates. An argument for the genitive case of *puu* 'tree' is that an agreeing modifier of this noun must bear the genitive (Weisser 2020: 46, ex. (6)):[3]

(4) Ta jook-sis [jõe ja suu-re puu]-ni. (Estonian)
3SG run-3SG river.GEN and big-GEN tree.GEN-TERM
'He went to the river and the big tree.'

The second mechanism results in superficially similar structures, with a case marker realised just once, on the periphery of the coordinate structure, but with some evidence that the marker is an affix rather than a phrasal clitic. For example, in the following Japanese example (Johannessen 1988 apud Weisser 2020: 50, ex. (16)), the case affix is followed by another element – a numeral-classifier complex – belonging to the second conjunct.

(5) [Hon issatsu to pen-o nihon] kau. (Japanese)
book one and pen-OBJ two buy
'I will buy one book and two pens.'

Weisser (2020: §2.2) argues that such examples involve a superficial morphological mechanism of 'suspended affixation', on which – by analogy to Right-Node Raising – an affix shared among all conjuncts is phonetically realised just once, on the last conjunct.

Finally, the third mechanism concerns familiar English examples such as the following (Weisser 2020: 54, ex. (24a)), as well as similar examples in other European languages with very impoverished case(-like) systems restricted to some pronouns.

[2]Morphosyntactic abbreviations used in this paper follow the Leipzig Glossing Rules. Additionally, COORD in (7) stands for a coordinator (conjunction), PAR in (8) and in Table 1 – for the partitive case, IMPS in (33)–(35) and (51) – for impersonal forms of verbs, and PREP in (100) – for the so-called prepositional case in Russian.

[3]The form *puu* alone is syncretic between nominative singular and genitive singular. Many thanks to Heiki-Jaan Kaalep for a discussion of Estonian data and the confirmation of the validity of Weisser's (2020) analysis of (3)–(4).

(6) [Him and I] are fighting.

Following Parrott (2009) and earlier work by Joseph Emonds, Weisser (2020) argues that different forms of pronouns are not a reflex of a case system, but are rather governed by specific allomorphy rules.[4] Hence, once again, what looks like coordination of different cases does not on closer inspection contradict the SOCIC principle in (2), which says that only same grammatical cases may be coordinated.

3. Genuine case mismatches in coordination

3.1 Differential Object Marking

Kalin and Weisser (2019) consider languages displaying Differential Object Marking (DOM), a phenomenon where only objects which are high in topicality, animacy, or specificity bear a special case affix or are introduced by a preposition. They show that out of 11 such languages that they examine – Spanish, southern Italian, Romanian, Nepali, Hindi, Finnish, Turkish, Caucasian Urum, Hebrew, Amharic, and Tamil – nine (with the exception of Hindi and Turkish) allow for coordination of a differentially marked object with a non-marked object. An example from Tamil is (7) (Kalin & Weisser 2019: 670, ex. (26)); the marked conjunct is in the accusative:

(7) Kumaar [kar-aiy-um paṇam-um] keeṭ-ṭ-anṉ. (Tamil)
Kumaar car-ACC-COORD money.NOM-COORD ask-PAST-3SG.M
'Kumaar asked for the car and money.'

Kalin and Weisser (2019: 672) note that such examples cannot be analysed via so-called conjunction reduction – coordination of larger (verbal) constituents and subsequent ellipsis – because the coordination marker *-um* is used only for conjoining broadly nominal constituents, while verbal and clausal conjunction employs a different strategy. They also provide Spanish and Hebrew examples in which the coordinate structure is modified by an adjective meaning 'together' or a relative clause meaning 'who played together', that is by elements which target plural constituents; such examples also seem to speak against conjunction reduction.[5] Moreover, Kalin and Weisser (2019) make sure that in all their examples the differential marker is placed coordination-internally (cf. *-aiy* in (7)), and not near the outer edge of coordination as in the Estonian and Japanese examples in the previous section, so that an analysis on which the marker applies to the whole coordinate structure is not immediately plausible.

Nevertheless, Weisser (2020: 73) speculates that – given that some other instances of coordination of apparently different cases were successfully analysed with recourse to superficial morphological processes (see §2 above) – 'there may be morphological processes that are responsible for asymmetric patterns in the case of differential object marking as well, at least in

[4] See also Hudson 1995 for a similar conclusion.

[5] See, however, Saab & Zdrojewski 2021 for convincing arguments that, in Spanish, differentially marked objects cannot be directly coordinated with unmarked objects and that any such apparent cases of asymmetric coordination involve coordination of larger – verbal – constituents and subsequent ellipsis.

some languages', but provides no arguments supporting this speculation. Moreover, the next sentence appears to admit that unlike case coordination in DOM languages may be genuine: 'why is it that regular syntactic case assignment that is independent of referential properties obeys SOCIC [in (2)] but differential object marking in many languages does not?'

What would count as positive evidence that examples such as (7) really involve two different grammatical cases? Recall that, in the case of the Estonian example (3), the deciding test demonstrating that the SAME cases were coordinated was agreement. While *puu-ni* in that example looked like a terminative form of *puu* 'tree' coordinated with the genitive form *jõe* 'river', (4) shows that *puu* may be modified by a genitive adjective. This – given Estonian agreement facts – shows that *puu* is also a syntactically genitive form and that *-ni* should be analysed as a phrasal marker, as the bracketing in (3)–(4) indicates. More generally, Weisser (2020: 70) refers to Legate 2014 in the context of distinguishing between superficial morphological case and true syntactic case, and the primary test used in Legate 2014 to determine the syntactic case is also case agreement.

In most of the nine languages allowing for the coordination of differently marked objects this test in inapplicable: in the three Romance languages the marker is a preposition rather than a case affix, and most of the other languages have insufficiently rich morphology and agreement patterns. For example, only nouns and verbs inflect in Tamil (Lehmann 1989: 11), so the form of an adjectival modifier cannot help in resolving the grammatical cases of nominal conjuncts in (7). Also, almost all of these nine languages – with the exception of Finnish – are examples of so-called ASYMMETRICAL DOM languages (de Hoop & Malchukov 2008), where overt case marking alternates with zero marking; compare the accusative affix *-aiy* in *kar-aiy* 'car-ACC' versus the lack of affix in the nominative *paṇam* 'money.NOM' in (7). Hence, it could perhaps be claimed that in such languages the overt marker, irregardless of its placement, somehow scopes over the whole coordinate structure, that is that 'there may be morphological processes that are responsible for asymmetric patterns'.

However, such a claim is easy to refute in the case of so-called SYMMETRICAL DOM languages, such as the Finnic languages Finnish and Estonian.[6] For example, in Estonian, the difference is between what Estonian grammarians call TOTAL OBJECTS – bearing either genitive or nominative – and PARTIAL OBJECTS – bearing partitive. To the first approximation, total objects are quantitatively bound objects of affirmative telic verbs, and partial objects occur when some of these conditions are not met, for example when the object is not quantitatively bound.[7] Not surprisingly, such partial and total objects may be coordinated, for example (David Ogren, p.c.):

[6]As argued in Iemmolo 2013, such languages differ from asymmetrical DOM languages in that differential marking typically targets polarity, quantification, and aspect, rather than topicality, animacy, and specificity.

[7]See for example Ogren 2015, 2018, also for a discussion of factors determining the genitive or nominative realisation of total objects. Many thanks to David Ogren for his help with Estonian DOM data.

(8) Ostsin korraga [tumedat leiba ja suure tordi]. (Estonian)
bought.1SG simultaneously dark.PAR bread.PAR and big.GEN cake.GEN
'I simultaneously bought (some) dark bread and a/the big cake.'

As shown in Table 1, all partitive and genitive forms in (8) are marked with respect to the unmarked nominative forms. Moreover, adjective–noun agreement demonstrates beyond any doubt that the first conjunct bears the partitive case and the second conjunct bears the genitive. Finally, the presence of the adverb *korraga* 'simultaneously', which targets semantically plural constituents, speaks against an analysis in terms of ellipsis and coordination of larger constituents.[8]

Table 1: Nominative, genitive, and partitive forms of Estonian *tume leib* 'dark.SG bread.SG' and *suur tort* 'big.SG cake.SG'

	'dark.SG'	'bread.SG'	'big.SG'	'cake.SG'
NOM	*tume*	*leib*	*suur*	*tort*
GEN	*tume-da*	*leiv-a*	*suur-e*	*tord-i*
PAR	*tume-dat*	*leib-a*	*suur-t*	*tort-i*

In summary, at least some DOM languages counterexemplify the claim that only the same cases may be coordinated. As already argued in Kalin & Weisser 2019, and confirmed by examples such as (8), an analysis of such coordinate structures in terms of conjunction reduction is unlikely to be successful. Moreover, in the case of morphologically rich symmetrical DOM languages, such as Estonian, it is possible to conclusively demonstrate that conjuncts bear different morphological cases.

This result immediately gives rise to two questions: 1) do all DOM languages allow for the mixed coordination of marked and unmarked objects? and, crucially, 2) is coordination of unlike cases limited to DOM? The answer to the first question seems to be negative: as noted in Kalin & Weisser 2019: 667–668, fn. 4, out of 11 DOM languages considered there, two seem to impose some parallelism constraints on coordinate structures – a general ban on mismatches of specificity in the case of Hindi and a more specific ban on case mismatches in Turkish. Moreover, Weisser 2020: 71–72 claims that partitive objects cannot be conjoined with non-partitive objects in Finnish, a language closely related to Estonian.[9] As all these claims are only made in passing, they should be carefully verified and, if confirmed, it should be investigated why some DOM languages allow for the coordination of unlike cases and others apparently do not.[10]

[8]This last argument assumes, together with the vast majority of the literature, that conjunction reduction does not affect the truth-conditional meaning. (Such semantic arguments against conjunction reduction were first discussed in Partee 1970.) There is an HPSG analysis that rejects this assumption; see §7.3 for discussion.

[9]The two crucial Finnish examples provided in Weisser 2020: 72 are marked with '??' (rather than '*'), so the actual acceptability status of coordinations of partitive and non-partitive objects in Finnish should be carefully ascertained (via questionnaires and/or corpus investigations) – a task outside the scope of the present paper.

[10]Citing Kiparsky 2001 and others, Weisser (2020) states that partitive and non-partitive objects in Finnish

In the following sections, I also provide a negative answer to the second – more important – question, that is I show that unlike case coordination is NOT limited to DOM. In §§3.2–3.8, I discuss seven diverse instances of coordination of unlike cases in one sufficiently morphosyntactically rich language, Polish; only one of these (discussed in §3.2) is directly comparable to Estonian DOM. Given that – just as in Estonian – both nouns and adjectives inflect for case in Polish, it is easy to demonstrate that in each instance different grammatical cases are coordinated. This makes it possible to falsify both the claim that only the same cases may be coordinated and the suggestion that there is something special about Differential Object Marking that allows for unlike case coordination.

3.2 Partitive object marking

While Polish is not widely known as a DOM language, it displays a phenomenon remarkably similar to Differential Object Marking in Finnic languages.[11]

In Polish, direct objects are typically in the accusative case in affirmative contexts and in the genitive case – so-called genitive of negation – in negative contexts.[12] In the case of some verbs, their normally accusative objects may bear the genitive morphological case also in affirmative contexts, with the additional partitive meaning. Consider the following example (Przepiórkowski 1999: 175, ex. (5.269)):

(9) Dajcie [wina i całą świnię]! (Polish)
give.IMP.2PL wine.GEN.SG.N and whole.ACC.SG.F pig.ACC.SG.F
'Serve (some) wine and a/the whole pig!'

Here, *całą świnię* 'whole pig' must be analysed as accusative: the accusative form *świnię* is not syncretic with any other case form of the noun ŚWINIA 'pig', and the accusative form *całą* happens to be syncretic with the instrumental only; see Table 2. Similarly, when understood as singular, the genitive form *wina* 'wine' is not syncretic with any other case.[13]

In order to try to defend the 'same case in coordination' generalisation in (2), one would have to claim that *-a* in *wina* is an allomorph of *-o* in the accusative form *wino*. But, applying Weisser's (2020) own test, this is untenable, as *wina* in this position may be modified by

occupy different syntactic positions. This immediately explains the ungrammaticality of such coordinations, given considerations in §5 below. More generally, this also suggests a possible explanation of the purported difference in coordination possibilities in different DOM languages: it could be that marked and unmarked objects occupy different syntactic positions in those languages that do not allow for mixed coordination, such as (hypothetically) Finnish, while in languages such as Estonian they occupy the same syntactic position. This difference, of course, needs to be explained itself, but – in Minimalist terms – it may boil down to different lexical properties of verbal and functional heads in the two classes of languages.

[11] In fact, Iemmolo 2013 argues that symmetrical DOM is typical of the 'Circum-Baltic' area, comprising not only Finnic languages, but also at least some Baltic and some Slavic languages, including Polish. Also Czardybon 2017: §5.3 discusses Polish partitive objects under the rubric of Differential Object Marking. Nevertheless, relevant case alternations seem to be lexically and constructionally much more restricted in Polish than in Finnic languages, so it remains to be seen whether the extension of the term DOM to Polish is sufficiently justified.

[12] This is an oversimplification: if passivisation is taken as the primary test for direct objecthood, then some verbs must be analysed as taking instrumental, genitive, or even dative direct objects, and not all accusative arguments are direct objects; see for example Przepiórkowski 1999: §5.1.1 and references therein.

[13] But it is syncretic with the plural nominative and accusative.

Table 2: Case paradigms of Polish *dobre wino* 'good.SG.N wine.SG.N' and *cała świnia* 'whole.SG.F pig.SG.F'

	'good.SG.N'	'wine.SG.N'	'whole.SG.F'	'pig.SG.F'
NOM	*dobr-e*	*win-o*	*cał-a*	*świni-a*
ACC	*dobr-e*	*win-o*	*cał-ą*	*świni-ę*
GEN	*dobr-ego*	*win-a*	*cał-ej*	*świni*
DAT	*dobr-emu*	*win-u*	*cał-ej*	*świni*
INS	*dobr-ym*	*win-em*	*cał-ą*	*świni-ą*
LOC	*dobr-ym*	*win-ie*	*cał-ej*	*świni*
VOC	*dobr-e*	*win-o*	*cał-a*	*świni-o*

unambiguously genitive adjectives, for example *dobrego* 'good':[14]

(10) Dajcie [dobrego wina i całą świnię]!
give.IMP.2PL good.GEN.SG.N wine.GEN.SG.N and whole.ACC.SG.F pig.ACC.SG.F
(Polish)
'Serve (some) good wine and a/the whole pig!'

Examples such as (9)–(10) are not perceived as marginal or marked in any way, they may be constructed with a number of verbs allowing for partitive objects, and the order and number of conjuncts does not matter. In particular, either the accusative or the genitive may occur as the middle conjunct, surrounded by unlike case conjuncts:

(11) Dajcie [tę kuropatwę, dobrego wina i
give.IMP.2PL this.ACC.SG.F partridge.ACC.SG.F, good.GEN.SG.N wine.GEN.SG.N and
całą świnię]! (Polish)
whole.ACC.SG.F pig.ACC.SG.F
'Serve the partridge, (some) good wine and a/the whole pig!'

(12) Dajcie [dobrego wina, całą świnię i miodu
give.IMP.2PL good.GEN.SG.N wine.GEN.SG.N whole.ACC.SG.F pig.ACC.SG.F and honey.GEN.SG.M
pitnego]! (Polish)
potable.GEN.SG.M
'Serve (some) good wine, a/the whole pig, and (some) mead!'

Also, a conjunction reduction analysis is not likely, given the possibility to insert adverbs such as JEDNOCZEŚNIE 'simultaneously' between the verb and the coordinate object:

(13) Dajcie jednocześnie [wina i całą świnię]!
give.IMP.2PL simultaneously wine.GEN.SG.N and whole.ACC.SG.F pig.ACC.SG.F
(Polish)
'Serve (some) wine and a/the whole pig at the same time!'

The hypothetical input to conjunction reduction is marginal at best and, to the extent it is accept-

[14]Modification by the form *dobre* is also possible here, but only because both forms *dobre* and *wina* also have accusative PLURAL interpretations. That is, replacing *dobrego* with *dobre* in (10) results in the unambiguous non-partitive accusative plural interpretation of *dobre wina* 'good wines'.

able at all, the first *jednocześnie* ‘simultaneously’ seems to refer to cotemporality with some other – contextually given – event, rather than the pig-serving event:

(14) ?[Dajcie jednocześnie wina i dajcie jednocześnie całą
give.IMP.2PL simultaneously wine.GEN.SG.N and give.IMP.2PL simultaneously whole.ACC.SG.F
świnię]! (Polish)
pig.ACC.SG.F

In summary, there does not seem to be an analysis available that could compete with the treatment of such examples as involving direct coordination of unlike cases.

3.3 Argument case indeterminacy

In languages such as Polish and Russian, some predicates allow for some case indeterminacy in their arguments. For example, some verbs require that their objects be either accusative or genitive, without any change of meaning, unlike in the partitive case discussed in the previous subsection. This is the case with the Russian verb PROŽDAT’ ‘wait for’. As the following example (Levy 2001 apud Dalrymple et al. 2009: 51, ex. (51)) shows, the object of this verb may be a coordinate structure with one conjunct in the accusative, and the other in the genitive:

(15) Včera ves’ den’ on prožd*a*l [svoju podrugu Irinu i
yesterday all day he.NOM expected.3SG.M self’s.ACC girlfriend.ACC Irina.ACC and
zvonka ot svoego brata Grigorija]. (Russian)
call.GEN from self’s brother Grigory
‘Yesterday he waited all day for his girlfriend Irina and for a call from his brother Grigory.’

The adjectival possessive reflexive pronoun *svoju* ‘self’s’ agreeing with the appositive *podrugu Irinu* ‘girlfriend Irina’ is in the accusative case, and the genitive head of the second conjunct, *zvonka* ‘call’, may be modified by unambiguously genitive adjectives, so (15) illustrates genuine unlike case coordination.

This phenomenon does not only occur in the verbal domain. For example, in the case of the Polish noun HANDLARZ ‘trader, dealer’, the commodity argument may be expressed either by the genitive or by the instrumental (see (16)), and so it may be expressed by the coordination of unlike cases, as in the attested (17) from the National Corpus of Polish (Przepiórkowski et al. 2011, 2012; `http://nkjp.pl/`).

(16) handlarz {narkotyków / narkotykami / broni / bronią} (Polish)
dealer narcotics.GEN/INS weaponry.GEN/INS
‘{drug / arms} dealer’

(17) Policjanci . . . rozpracowują grupę handlarzy [narkotyków i bronią]. (Polish)
policemen investigate group dealers narcotics.GEN and weaponry.INS
‘Police officers . . . are investigating a group of drug and arms dealers.’

Again, the relevant nouns may be modified by agreeing adjectives, demonstrating beyond doubt

that these forms are truly morphosyntactically genitive and instrumental, for example:

(18) … grupę handlarzy [twardych narkotyków i bronią palną].
group dealers hard.GEN.PL.M narcotics.GEN.PL.M and weaponry.INS.SG.F fiery.INS.SG.F
(Polish)
'… a group of hard drugs and firearms dealers.'

An attempt to replace the genitive form *twardych* 'hard' with the instrumenal *twardymi*, or the instrumental *palną* 'fiery' with the genitive *palnej*, results in clear unacceptability.

Note also that (17) cannot be explained via conjunction reduction, as it has a meaning that the hypothetical input to ellipsis in (19) lacks. Namely, (17) – but not (19) – may refer to dealers who each trade in both drugs and arms.

(19) … grupę [handlarzy narkotyków i handlarzy bronią]. (Polish)
group dealers narcotics.GEN and dealers weaponry.INS
'… a group of drug dealers and arms dealers.'

Example (17) is cited – together with another corpus example of unlike case coordination in the same argument position of HANDLARZ – in the on-line valency dictionary Walenty (Przepiórkowski et al. 2014, 2017; `http://walenty.ipipan.waw.pl/`) and classified by the lexicographers as 'good' (acceptable), as opposed to 'doubtful' or 'bad' (unacceptable), the other two classifiers occasionally used to mark corpus examples in this dictionary. Nevertheless, some native speakers consider examples such as (17) – and, even more so, (18) – as somewhat marginal, perhaps due to some stylistic preference for parallelism in coordination when both – parallel and divergent – structures are available and synonymous. The other six instances of unlike case coordination in Polish, discussed in §3.2 and §§3.4–3.8, are uniformly judged as fully acceptable.

3.4 Temporal adjuncts

In English, various kinds of temporal intervals are introduced by various prepositions, for example *at two*, *on Friday*, *in April*, or they may be bare noun phrases (NPs), for example *next winter*. Similarly, in Polish temporal adjuncts may be introduced by different prepositions, for example *o drugiej* 'at two.LOC', *w piątek* 'on Friday.ACC', *w kwietniu* 'in April.LOC', or they may be bare NPs bearing different cases, for example *wieczorem* '(in the) evening.INS' or *tej zimy* 'this.GEN winter.GEN'. Such bare NPs bearing different cases may be coordinated, as in the following example (Przepiórkowski 1999: 175, ex. (5.270)):

(20) Przyjedzie [albo późnym wieczorem, albo następnej zimy].
come.FUT.3SG or late.INS.SG.M evening.INS.SG.M or next.GEN.SG.F winter.GEN.SG.F
(Polish)
'(S)he will come either late in the evening, or next winter.'

Traditional grammars sometimes treat temporal uses of nouns such as *wieczorem* '(in the) evening' as adverbs, but it is clear that they are nouns, with syntactically active case, forming noun phrases rather than adverbial phrases. This is illustrated in (20) by the fact that such nouns

are modified by adjectives which must agree with them in case, as well as in number and gender. While the lexical material that may appear in such bare NP temporal phrases is limited, it is clear that these are full-fledged noun phrases, allowing for recursive modification, coordination within modifiers, and so on, for example:

(21) Przyjedzie [późnym albo nawet bardzo późnym] popołudniem.
come.FUT.3SG late.INS.SG.N or even very late.INS.SG.N afternoon.INS.SG.N
(Polish)
'(S)he will come late or even very late in the afternoon.'

And, again, an elliptical analysis is not promising, in view of the acceptability of sentences such as following:

(22) Jutrzejsza burza przyniesie więcej śniegu niż spadło łącznie [wieczorem
tomorrow.NOM storm.NOM bring.FUT more snow than fell jointly evening.INS
i poprzedniej zimy]. (Polish)
and previous.GEN winter.GEN
'Tomorrow's storm will bring more snow than jointly fell in the evening and last winter.'

The adverb *łącznie* 'jointly' modifies the whole coordinate structure rather than each conjunct separately. That is, the meaning of (22) can at best marginally, if at all, be expressed by the hypothetical input to ellipsis in (23).

(23) ?... więcej śniegu niż [spadło łącznie wieczorem i spadło łącznie poprzedniej
more snow than fell jointly evening.INS and fell jointly previous.GEN
zimy]. (Polish)
winter.GEN

Hence, temporal adjunction is yet another place where genuine coordination of unlike cases may be observed in Polish.

3.5 Possessive modifiers

This and the following two subsections discuss unlike case coordination of nominal constituents in the broader sense of the term NOMINAL, referring not only to nouns, but also to adjectives and numerals.

In Polish, the exponents of the possessive function are noun phrases in the genitive, as well as so-called possessive pronouns – morphosyntactically, adjectives[15] – which agree with the modified head in case, number, and gender. These two options are illustrated by the following nominative phrases:

[15]Such 1st and 2nd person possessive pronouns are also uniformly analysed as adjectives in contemporary part-of-speech classifications and grammars of Polish; see for example Saloni 1974: 5, Laskowski 1998: 62, Wróbel 2001: 124–128, and Saloni & Świdziński 2007: 93.

(24) a. ręce Zofii (Polish)
hands.NOM.PL.F Zofia.GEN.SG.F
'Zofia's hands'

b. moje ręce (Polish)
my.NOM.PL.F hands.NOM.PL.F
'my hands'

As may be expected, such genitive NPs and agreeing possessive pronouns may be coordinated; the following attested examples – abridged in a way that does not affect the argument – come from the National Corpus of Polish:

(25) Ręce [moje i Zofii] . . . złączyły się . . . na psich kudłach . . .
hands.NOM.PL.F my.NOM.PL.F and Zofia.GEN.SG joined self on dog's fur
(Polish)
'My and Zofia's hands met on the dog's shaggy fur.'

(26) Proszę o poparcie poprawki . . . , która jest poprawką
ask.1SG for support.ACC amendment.GEN.SG.F which.NOM.SG.F is amendment.INS.SG.F
wspólną [pana senatora Kruszewskiego i moją] . . .
joint.INS.SG.F Mister.GEN.SG.M senator.GEN.SG.M Kruszewski.GEN.SG.M and my.INS.SG.F
(Polish)
'Please support the amendment . . . which is a joint amendment of Senator Kruszewski and mine.'

The semantics of these two examples is at odds with a conjunction reduction analysis. In the case of (25), the possible input to ellipsis given in (27) would mean that my hands met and Zofia's hands met separately; that is, such a hypothetical input would not have the conspicuous meaning of (25), on which hands of two people met.

(27) [Ręce moje złączyły się na psich kudłach i ręce
hands.NOM.PL.F my.NOM.PL.F joined self on dog's fur and hands.NOM.PL.F
Zofii złączyły się na psich kudłach] . . . (Polish)
Zofia.GEN.SG joined self on dog's fur
'My hands met on the dog's shaggy fur and Zofia's hands met on the dog's shaggy fur.'

Similarly, the hypothetical input to conjunction reduction analysis of (26), presented in (28), is not acceptable in Polish, given the semantics of the adjective WSPÓLNY 'joint'.

(28) ?* . . . która jest [poprawką wspólną pana senatora
which.NOM.SG.F is amendment.INS.SG.F joint.INS.SG.F Mister.GEN.SG.M senator.GEN.SG.M
Kruszewskiego i poprawką wspólną moją] . . . (Polish)
Kruszewski.GEN.SG.M and amendment.INS.SG.F joint.INS.SG.F my.INS.SG.F

Also, as in previous cases, the rich morphosyntax makes it clear that such possessive coordinations involve a genitive NP and a possessive pronoun agreeing with the head: nominative in (25) and instrumental in (26). Thus, possessive constructions constitute another environ-

ment which licenses unlike case coordination. Moreover, given that possessive pronouns are morphosyntactically adjectives, examples (25)–(26) also involve unlike category coordination, violating LCL.

3.6 Secondary predicates

In Polish, certain secondary predicates – adjectives agreeing in case with the NP they predicate of – may be coordinated with adjuncts, as in the following attested[16] example:

(29) Wracamy do domu [późno i zmęczeni]. (Polish)
return.1PL to home late.ADV and tired.NOM.PL.M
'We return home late and tired.'

This is an example of unlike category coordination: *późno* 'late' is an adverb and *zmęczeni* 'tired' is a deverbal adjective predicating of the *pro*-dropped 1st person plural masculine subject in the nominative.[17] As we saw in §3.4, temporal adjuncts may be bare NPs in Polish, and the adverb *późno* 'late' in (29) may be replaced with such an NP:

(30) Wracamy do domu [późnym wieczorem i zmęczeni].
return.1PL to home late.ADJ.INS.SG.M evening.INS.SG.M and tired.NOM.PL.M
(Polish)
'We return home late in the evening and tired.'

The NP *późnym wieczorem* 'late evening' is uncontroversially instrumental, while the adjective *zmęczeni* 'tired' is unambiguously nominative (and plural masculine), so it is clear that different cases – and categories – are coordinated in (30). It is also easy to construct examples that show the implausibility of conjunction reduction, for example:

(31) Wracamy do domu na przemian [a to [późnym wieczorem i zmęczeni],
return.1PL to home alternately and late.ADJ.INS.SG.M evening.INS.SG.M and tired.NOM.PL.M
a to [wczesnym popołudniem i rześcy]]. (Polish)
and early.ADJ.INS.SG.N afternoon.INS.SG.N and fresh.NOM.PL.M
'We return home alternately late in the evening and tired, or in the early afternoon and fresh.'

Here, the expression *na przemian* 'alternately' refers to the top level of nested coordination, introduced by the discontinuous conjunction *a to …, a to …* 'both; at one point …, and at another …'. That is, the alternation is between two states, each expressed by a coordination of unlike cases: 1) late in the evening and tired and 2) early in the afternoon and fresh. This means that a hypothetical input to conjunction reduction would have to be a coordination of four clauses, the first shown in (32). This clause is not only semantically incoherent, as it contains

[16] https://pitbike24.pl/pitdadson-czyli-tata-syn-i-pit-bike-w-akcji/

[17] This is NOT unlike category coordination on the assumption – which I do not share – that adverbs and adjectives are the same category. However, the adverb in (29) may be replaced with a prepositional phrase (e.g. *w nocy* 'at night'), resulting in uncontroversial unlike category coordination. See Patejuk & Przepiórkowski 2021: §2.5 for similar examples in English.

na przemian ‘alternately’ which lacks a target, but it is also ungrammatical, as it contains just one part of the discontinuous conjunction *a to . . . , a to . . . .*

(32) *Wracamy do domu na przemian a to późnym wieczorem. (Polish)
return.1PL to home alternately and late.ADJ.INS.SG.M evening.INS.SG.M

Not only temporal adjuncts may be coordinated with secondary predicates. The attested[18] example (33) involves a coordination of a secondary predicate and the quantificational manner adjunct *hurtem* ‘wholesale’.

(33) Myszy kupuje się [żywe i hurtem]. (Polish)
mice.ACC.PL.F buy.IMPS alive.ACC.PL.F and wholesale.INS.M.SG
‘One buys mice alive and wholesale.’

In this impersonal construction, *myszy* ‘mice’ is the direct object in the accusative, so the predicative adjective *żywe* ‘alive’ – coordinated with the instrumental noun *hurtem* – is also in the accusative.[19] One way of supporting the claim that (33) involves direct coordination, is to topicalise it, for example:[20]

(34) [Żywe i hurtem] to kupuje się szczury, a nie myszy.
alive.ACC.PL.M and wholesale.INS.M.SG TOP buy.IMPS rats.ACC.PL.M, and NEG mice.ACC.PL.F (Polish)
‘As for alive and wholesale, one buys rats like that, not mice.’

It is less immediately clear that *hurtem* ‘wholesale’ is a noun in the instrumental case, as opposed to an originally nominal form fossilised into a contemporary adverb. The possibilities of modifying *hurtem* ‘wholesale’ are very limited, but they exist:

(35) Szczurów wcale nie kupuje się [ani żywych, ani żadnym
rats.GEN.PL.M at all NEG buy.IMPS neither alive.GEN.PL.M neither none.INS.M.SG
pieprzonym hurtem]! (Polish)
fucking.INS.M.SG wholesale.INS.M.SG
‘One does not buy rats either alive or fucking wholesale!’

In (35) – a possible angry reply to (34) – the emphatic adjectives *żadnym* ‘none’ and *pieprzonym* ‘fucking’ must agree in case (and number and gender) with *hurtem* ‘wholesale’, and no other forms of these adjectives are possible here, which shows that *hurtem* is a noun bearing the syntactically active instrumental case. Note that the negation in (35) requires the change of case of the direct object from the accusative *szczury* ‘rats’ in (34) to the genitive *szczurów* in (35), which in turn necessitates the genitive form of the agreeing predicative adjective, *żywych* ‘alive’, so in this case an instrumental adjunct is coordinated with a secondary predicate in the genitive.

[18] From the *Polityka* weekly (issue 3319 of 30 June 2021, p. 102), in an article about the feeding of animals in Polish zoos.

[19] While both feminine plural forms *myszy* ‘mice’ and *żywe* ‘alive’ are multiply syncretic, the claim that they bear the accusative case in (33) can be substantiated by replacing these plural feminine forms in (33) with human masculine or singular forms, which are not syncretic this way.

[20] In (34), the multifunctional *to* acts as a marker of the preceding topic.

In summary, adjectival secondary predicates bearing various cases may be coordinated with some bare NP adjuncts; the examples in this section involved secondary predicates in the nominative, accusative, and genitive, and temporal and manner adjuncts in the instrumental. All these examples illustrate not only coordination of unlike cases, but also coordination of unlike categories.

3.7 Accusative numeral subjects

Arguably, numeral phrases (NumPs) in Polish are headed by the numeral, not the noun, and – unlike ordinary nominal subjects in the nominative case – they bear the accusative case (with the embedded NP in the genitive) when they occur in the subject position. (I will present some of the well-known arguments for both claims below.) If so, examples such as the following (from the National Corpus of Polish), where the subject is a coordinate structure with a nominative NP conjunct and an accusative NumP conjunct, illustrate yet another instance of unlike case coordination:

(36) [Ja i trzech innych] nosimy ją w lektyce . . .
I.NOM.SG and three.ACC.PL.M others.GEN.PL.M carry.1PL she.ACC in litter
(Polish)
'Me and three others are carrying her in a litter . . . '

(37) . . . do pokoju wpadli [lekarz i kilka pielęgniarek].
into room burst.3PL.M doctor.NOM.SG.M and several.ACC.PL.F nurses.GEN.PL.F
(Polish)
'. . . into the room burst a doctor and several nurses.'

The nominative case of the nominal conjuncts is uncontroversial. Both *ja* 'I' in (36) and *lekarz* 'doctor' in (37) are unambiguously nominative – these forms are not syncretic with any other cases. Also, both may be modified by nominative adjectives in these examples, for example *ja* 'I' in (36) may be replaced by *ja sam* 'I.NOM alone.NOM' and *lekarz* 'doctor' in (37) may be replaced by *wysoki lekarz* 'tall.NOM doctor.NOM'.

It is also widely accepted that numeral phrases are indeed headed by the numeral – a distinct syntactic category in Polish[21] – and not the noun. I cannot do full justice to the extremely complex behaviour of Polish numerals – see for example Witkoś et al. 2018 on Polish and Franks 1995: chs. 4–5 on Slavic in general – but one argument is this. Consider the numeral phrase occurring in (37), that is *kilka pielęgniarek* 'several nurses'. The noun *pielęgniarek* is in the genitive. (The accusative plural form is *pielęgniarki*.) It is also in the genitive when the numeral phrase occurs in an accusative position, as in (38), and when it occurs in a genitive position, as in (39).

[21] Cardinal numerals are a separate syntactic category in all major part-of-speech classifications and grammars of Polish (see fn. 15) – not because of their semantics, but because of their distinct morphological and syntactic behaviour. In particular, numerals inflect for case and gender but have lexically fixed plural number (unlike nouns, which inflect for case and number and have a specific gender, and unlike adjectives, which inflect for all three categories), and they display certain quirky agreement patterns, including 'default agreement' mentioned in fn. 29. The indefinite numeral KILKA 'several' in the following examples is a prototypical numeral in this sense.

(38) Widzę kilka pielęgniarek. (Polish)
see.1SG several.ACC.PL.F nurses.GEN.PL.F
'I see several nurses.'

(39) Nie widzę kilku pielęgniarek. (Polish)
NEG see.1SG several.GEN.PL.F nurses.GEN.PL.F
'I don't see several nurses.'

What varies with the case of the syntactic position is the form of the numeral: accusative *kilka* in (38) and genitive *kilku* in (39). That is, it is the numeral, not the noun, that bears the morphosyntactic features of the whole phrase. Hence – according to the robust 'morphosyntactic locus' criterion for headedness (Zwicky 1985, Hudson 1987) – numeral phrases are indeed headed by numerals.

What is somewhat controversial is the case value of numeral subjects.[22] One – minority – view is that, in the subject position, masculine numeral phrases (as in (36)) are in the genitive and numeral phrases in other genders (as in (37)) are in the nominative.[23] Indeed, the form *trzech* 'three' in (36) is syncretic with genitive, while the form *kilka* 'several' in (37) is not – as we have just seen (in (39)), the genitive form is *kilku*. As this is a minority view, and it assumes that – unlike anywhere else in Polish grammar – case depends on gender, I will not consider it here. Suffice it to say that if it were true, then (36) would involve unlike case coordination of a nominative pronoun and a genitive numeral phrase, supporting the main claim of this paper.

The other two views assume that case does not depend on gender, but differ in whether numeral subjects are taken to be uniformly nominative or uniformly accusative. The nominative view stems from the assumption that Polish subjects are always nominative. It is clear that, unqualified, this assumption is false, as there are well-known cases of subjects which do not bear any case: categorially verbal subjects and prepositional subjects.[24] So, at best, the generalisation is that case-bearing subjects are in the nominative.

However, there are a number of synchronic and diachronic arguments against the nominative view and for the accusative view, of which I present just one here.[25] The argument is based on the fact that Polish numeral phrases may be modified by adjectives, which agree either with the numeral or with the noun. Consider the following examples involving the demonstrative pronoun – morphosyntactically, an adjective – TEN 'this'; some syncretisms are indicated in the morphosyntactic glosses, and the case values assumed or argued for here are underlined:

[22]The following discussion is based on Przepiórkowski 1999: §5.1 and it concerns typical numerals; some paucal numerals behave differently.

[23]This is a simplification. Polish is generally assumed to have five genders, including three masculine genders: human-masculine (also called virile), animate-masculine, and inanimate-masculine (Mańczak 1956), and the dichotomy referred to in the main text is assumed to be between the virile gender and non-virile genders.

[24]Verbal subjects in Polish are discussed for example in Świdziński 1992, 1993 and – in predicative constructions – in Patejuk & Przepiórkowski 2018, while prepositional subjects are discussed for example in Jaworska 1986.

[25]For this and other arguments, see Przepiórkowski 1999: §5.3.1.1, Miechowicz-Mathiasen 2012, and references therein. A similar argument to the one presented here is sketched – and a similar conclusion is reached – for another West Slavic language, Upper Sorbian, in Franks 1995: 138–139. Another argument is alluded to in fn. 29 on p. 19.

(40) Tych / Te kilka pielęgniarek wyjechało. (Polish)
these.GEN / these.NOM/ACC several.ACC/NOM? nurses.GEN left.3SG.N
'These several nurses have left.'

(41) Tych / *Ci kilku lekarzy wyjechało. (Polish)
these.ACC/GEN / *these.NOM several.ACC/NOM? doctors.GEN left.3SG.N
'These several doctors have left.'

In (40), where the noun and the numeral are feminine, two forms of TEN 'this' are possible: the unambiguously genitive *tych*, which agrees with the noun *pielęgniarek* 'nurses', and the form *te*, syncretic between nominative and accusative, which agrees with the numeral. So (40) by itself is compatible with both views: that the numeral is in the nominative and that it is in the accusative. However, in the case of the masculine numeral phrase in (41), only one form of TEN is possible: *tych* 'these', which is syncretic between accusative and genitive. Hence, if the accusative hypothesis is right, then (41) with *tych* is structurally ambiguous: either *tych* is genitive and agrees with the genitive noun or it is accusative and agrees with the accusative numeral. On the other hand, on the nominative hypothesis, *tych* in (41) is unambiguously genitive and agrees with the noun. If, by hypothesis, the numeral is nominative, it should be modifiable by the nominative masculine plural form of TEN, that is by *ci*. As (41) shows, this prediction is not borne out: this example is dramatically unacceptable with *ci*. This refutes the nominative hypothesis and confirms that examples (36)–(37) do involve unlike case (and unlike category) coordination: a nominative NP is conjoined with an accusative NumP.

As in the previous instances of unlike case coordination, coordination of nominative NPs and accusative NumPs cannot be explained away with recourse to conjunction reduction. Consider the following, somewhat outlandish, example:[26]

(42) [Alibaba i czterdziestu rozbójników] zawarli związek małżeński.
Ali Baba.NOM and forty.ACC thieves.GEN made.3PL.M relationship conjugal
(Polish)

'Ali Baba and the forty thieves got married.'

A hypothetical input to conjunction reduction would not have the meaning of (42), that a single marriage was constituted involving forty-one men. Rather, it would mean that Ali Baba got married (to somebody) and the forty thieves got married – either each to somebody or resulting in a forty-men relationship. This constitutes a semantic argument against conjunction reduction, analogous to arguments given in previous subsections.

However, in the case of coordination involving numeral subjects, there is also a syntactic argument against conjunction reduction, an argument based on the syntactic nature of subject–verb agreement in Polish. Consider again examples (36)–(37) and (42). In all three ex-

[26]This example is based on a passage in `https://www.fronda.pl/a/alibaba-i-czterdziestu-rozbojnikow-tez-moze-zarejestrowac-swoj-zwiazek,21910.html`, on a right-wing portal, where the idea of a marriage of more than two people is ridiculed by posing the rhetorical question whether Ali Baba and the forty thieves should also have the right to marry. Less outlandish examples may easily be constructed based on collective verbs such as OTOCZYĆ 'surround' or ZEBRAĆ SIĘ 'gather'.

amples, a numeral phrase happens to be coordinated with a noun phrase in the singular. The crucial observation is that in all these examples the finite verb agrees with the coordinate structure as a whole; other forms of the verb would have to be used on an elliptical analysis, where both the overt and the elided forms would be expected to agree with single conjuncts.

Take for example (37), repeated below as (43).

(43) … do pokoju wpadli [lekarz i kilka pielęgniarek].
into room burst.3PL.M doctor.NOM.SG.M and several.ACC.PL.F nurses.GEN.PL.F
(Polish)
'… into the room burst a doctor and several nurses.'

While closest conjunct agreement would also be possible here, in which case the form *wpadł* 'burst.3SG.M' agreeing with *lekarz* 'doctor.NOM.SG.M' would be used, the form of WPAŚĆ 'burst' actually observed in the fully acceptable (43) is the 3rd person plural masculine *wpadli*. But this form should be ungrammatical on the conjunction reduction analysis, on which the subject of the first clause would be *lekarz* 'doctor.NOM.SG.M' alone, which only agrees with the form *wpadł* 'burst.3SG.M':

(44) … do pokoju [wpadł/*wpadli lekarz i ~~wpadło/*wpadli~~ kilka
into room burst.3SG.M/*3PL.M doctor.NOM.SG.M and burst.3SG.N/*3PL.M several.ACC.PL.F
pielęgniarek]. (Polish)
nurses.GEN.PL.F
'… into the room burst a doctor and ~~burst~~ several nurses.'

This is a qualitatively different argument than the previous arguments based on the semantic expectations of adverbs such as JEDNOCZEŚNIE 'simultaneously' or expressions such as ZAWRZEĆ ZWIĄZEK MAŁŻEŃSKI 'get married' because subject–verb agreement in Polish is syntactic, not semantic, in nature.[27] This is demonstrated by the following examples:

(45) Cała banda zawarła/*zawarli związek małżeński. (Polish)
whole.NOM.SG.F gang.NOM.SG.F made.3SG.F/*3PL.M reationship conjugal
'The whole gang got married.'

(46) Pierwsza grupa weszła/*weszli jednocześnie. (Polish)
first.NOM.SG.F group.NOM.SG.F entered.3SG.F/*3PL.M simultaneously
'The first group entered simultaneously.'

In (45), *cała banda* 'the whole gang' may be understood as referring to Ali Baba and the forty thieves, so (45) may be understood as synonymous with (42). That is, the meaning of the NP *cała banda* is semantically plural and, thus, it satisfies the semantic requirements of *zawarła związek małżeński* 'got married'. However, this subject NP is morphosyntactically feminine singular, so the agreeing verb must also be feminine singular: *zawarła* 'made.3SG.F' and not *zawarli* 'made.3PL.M'. Similarly, in (46), the subject NP *pierwsza grupa* 'first group' is se-

[27] See Munn 1999 for a lucid discussion of differences between syntactic and semantic plurality in the context of closest conjunct agreement. Thanks to an anonymous reviewer for this reference and for comments which led to the inclusion of this additional syntactic argument against conjunction reduction.

mantically plural, qualifying as the target of *jednocześnie* 'simultaneously', but it is morphosyntactically feminine singular, so the form of the agreeing verb must be *weszła* 'entered.3SG.F', and it cannot be *weszli* 'entered.3PL.M' (or any other plural form). Thus, both examples demonstrate that, in Polish, verbs agree with subjects AD FORMAM, not AD SENSUM.[28] This in turn means that, in (43), the plural form *wpadli* 'burst.3PL.M' agrees with the syntactically plural coordinate structure *lekarz i kilka pielęgniarek* 'doctor and several nurses', as is expected on the direct coordination analysis, and not with the syntactically singular closest conjunct *lekarz* 'doctor' itself, as would be expected on the conjunction reduction analysis.[29]

In summary, Polish allows for the coordination of nominative NPs and accusative NumPs in the subject position, and there are both semantic and syntactic arguments against a hypothetical explanation of this fact in terms of conjunction reduction. Hence, such structures are genuine instances of direct coordination of unlike cases (and unlike categories).

3.8 Heterofunctional Coordination

'Heterofunctional Coordination' (HC) is a transparent name – used here after Grosu (1987), who talks about English Heterofunctional Coordinate Constructions – for a phenomenon also called 'Lexico-Semantic Coordination' (e.g. in Mel'čuk 1988: 40, n. 5, and Patejuk & Przepiórkowski 2012, after Sannikov (1979–1980), who talks about lexico-semantic uniformity of conjuncts in this construction) and 'Hybrid Coordination' (e.g. in Chaves & Paperno 2007).

In this construction, different grammatical functions may be coordinated, as long as all conjuncts belong to roughly the same lexico-semantic class: all are *wh*-phrases or all are pronominal quantifiers of the same kind. Two of the Russian examples provided by Mel'čuk (1988: 40, n. 5, his (i)–(ii)) involve coordination of nominative subjects and dative arguments:[30]

[28] One exception to the generalisation that subject–verb agreement in Polish is always syntactic in nature involves nouns such as *wysokość* 'highness', which agree AD FORMAM with attributive adjectives but AD SENSUM with verbs and predicative adjectives (Czuba & Przepiórkowski 1995):

(i) Jego szacowna wysokość był zmęczony. (Polish)
his venerable.NOM.SG.F highness.NOM.SG.F was.3SG.M tired.NOM.SG.M
'His venerable highness was tired.'

However, this only concerns a handful of nouns and only the value of grammatical gender (not number).

[29] Note that, as indicated in (44), the form *wpadli* observed in (43) is also different from the form 'agreeing' with the second conjunct, that is with the NumP *kilka pielęgniarek* 'several nurses'. It is a well known fact that, in Polish, such numeral subjects, even though they are demonstrably plural, 'agree' with the 'default' 3rd person singular neuter form of the verb, here, *wpadło* 'burst.3SG.N'. This quirky syntax of Polish numerals actually provides one more argument for the claim – justified above – that such numerals in the subject position are not in the nominative case, bur rather in the accusative: given that, as in other Indo-European languages, Polish verbs only agree with nominative subjects and otherwise occur in the default form (an instance of so-called 'default agreement'; cf. Dziwirek 1990), the lack of true agreement between verbs and numeral subjects is the direct consequence of the lack of the nominative case on such numeral subjects.

[30] HC is not constrained to arguments or to bare NPs; see the literature cited in this section for the full range of data.

(47) [Nikto i nikomu] ne pomogaet. (Russian)
nobody.NOM and nobody.DAT NEG helps
'Nobody helps anybody.', lit. '[Nobody and to-nobody] not helps.'

(48) [Kto i komu] pomog? (Russian)
who.NOM and who.DAT helped
'Who helped whom?', lit. '[Who and whom] helped?'

This phenomenon is typical of Slavic and some neighbouring languages, especially Hungarian, and it is by no means limited to nominative and dative conjuncts. For example, Browne (1972: 223, ex. (4)) provides the Serbo-Croatian example (49) (nominative and instrumental), Lipták (2003: 148, ex. (18)) – the Hungarian example (50) (nominative and accusative), and Patejuk (2015: 80, ex. (5.3)) – the attested (51) from the National Corpus of Polish (accusative and dative):

(49) [Ko i čime] je razbio staklo? (Serbo-Croatian)
who.NOM and what.INS AUX.3SG broke glass
'Who broke glass with (= using) what?', lit. '[Who and with-what] broke glass?'

(50) [Ki és mit] olvasott? (Hungarian)
who.NOM and what.ACC read
'Who read what?', lit. '[Who and what] read?'

(51) Obiecać można [wszystko i wszystkim]. (Polish)
promise.INF may.IMPS everything.ACC and everybody.DAT
'One may promise everything to everyone.', lit. '... [everything and to-everyone].'

Neither is HC limited to just two conjuncts, for example:[31]

(52) [Kto, kogo i czym] karmi? (Polish)
who.NOM who.ACC and what.INS feeds
'Who feeds whom and with what?' (ambiguous: with what food or using what instrument)

HC prefers light conjuncts, preferably consisting of single words; modification possibilities are very limited.[32] However, there is no doubt that the conjoined elements bear case values indicated in the glosses: not only because of their morphological shape, but also because these case values directly reflect the grammatical functions of these conjuncts. For example, in (47), the two conjuncts meaning 'nobody' are understood as the two arguments of the verb POMOGAT' 'help' and they bear exactly the expected cases: nominative in the case of the subject *nikto* and dative in the case of the other argument, *nikomu*.

Slavic HC differs from superficially similar English examples such as (53)[33] in allowing syntactically obligatory arguments to be conjuncts, which makes an analysis in terms of con-

[31] https://akademiamarketingu.edu.pl/webinar-marketing-kulinarny-przed-w-trakcie-i-po-pandemii/

[32] See Patejuk 2015: §5.8.5 for an overview of such possibilities in Polish.

[33] https://www.active.com/nutrition/articles/athletes-what-to-eat-and-when-for-top-performance

junction reduction unlikely.[34]

(53) Here are a few key points on [what and when] to eat to perform at your best.

For example, a hypothetical input to ellipsis resulting in (47) would be (54).

(54) [Nikto ne pomogaet i nikomu ne pomogaet]. (Russian)
nobody.NOM NEG helps and nobody.DAT NEG helps
'Nobody helps and they help nobody.'

While (54) is syntactically acceptable, it has a different meaning than (47). The two missing arguments in the two clauses of (54) must be understood as discourse-old, that is as definite null complements, in the sense of Fillmore 1986. More specifically, (54) means that nobody helps some specific people and some specific person helps nobody. By contrast, (47) is most readily understood as referring to a single situation in which nobody helps anybody. Further convincing arguments against elliptical analyses of HC in Eastern European languages may be found in Kazenin 2001, Gribanova 2009: 136–137, and Paperno 2012: 99–102 (for Russian), in Lipták 2003 and Bîlbîie & Gazdik 2012: §3.3 (for Hungarian), and in Skrabalova 2007: §§2 and 5 (for Czech).[35]

Let me finally note that HC is true coordination, as implicitly assumed in almost all work on this construction. One argument is that, in languages as different as Polish, Russian, and Hungarian, it is always the conjunction that joins relevant phrases in HC. Merchant 2017: §4, the only recent voice of dissent that I am aware of, claims that HC is not coordination and that items such as the Hungarian *és* 'and' or the Slavic *i* 'and' are used as discourse markers. Admittedly, *i* doubles as a discourse marker in many Slavic languages. However, not only *i* may be used in HC in Slavic. For example, in Czech, the conjunction used to combine *wh*-phrases in HC is *a* 'and', which does not have such discourse uses, and not *i*, which does (Skrabalova 2007: 163, ex. (8a)):

(55) [Komu a co] řekl? (Czech)
who.DAT and what.ACC said.3SG.M
'What did he say to whom?', lit. '[Whom and what] he.said?'

Further, Patejuk 2015: §5.3 provides attested examples of other coordinators used in HC in Polish, apart from *i*: not only the conjoining *oraz* 'and', but also *ani* 'nor' and *lub* 'or'; none of these doubles as a discourse particle. Moreover, also contra Merchant 2017: §4, 'balanced' versions of some conjunctions, repeated before each conjunct, can be used, as well as preconjunctions; multiple attested examples from Polish may be found in Patejuk 2015: §5.3. Another attested[36] example, involving bare NPs of different cases, is (56).

[34] On English constructions such as (53) and their elliptical analysis, see for example Grosu 1987 and Gračanin-Yüksek 2007.

[35] See also Lipták 2011, Paperno 2012: ch. 3, and Citko & Gračanin-Yüksek 2013 for typological overviews of HC involving *wh*-phrases and for additional arguments that at least some must be analysed as the result of direct coordination of such phrases. Semantic analyses of Slavic HC may be found in Paperno 2012 and Przepiórkowski 2022b,a.

[36] https://sip.lex.pl/orzeczenia-i-pisma-urzedowe/orzeczenia-sadow/i-sa-

(56) … odzwierciedlało [nie tylko co, ale i komu] przekazano z darowizny …
reflected NEG only what.ACC but and who.DAT transferred from donation
(Polish)

'… it reflected not only what was transferred out of this donation, but also who it was transferred to …'

In summary, Heterofunctional Coordination is somewhat exotic in that it allows for conjoining different grammatical functions, but it is true coordination, it cannot be explained away with recourse to conjunction reduction, and it may involve bare NP conjuncts bearing a range of different grammatical cases.

4. Coordination of unlike categories

Some of the phenomena considered in the previous section involve not only mismatches in grammatical cases, but also unlike categories. Thus, unlike case coordination in possessive constructions (discussed in §3.5) and in secondary predicates (in §3.6) involves coordination of adjectival and nominal constituents, and also coordination of nominative NPs with accusative NumPs (discussed in §3.7) involves different categories. But also the other four instances of unlike case coordination in Polish may be seen as instances of more general phenomena, which also allow for the coordination of unlike categories. This is most clear in the case of HC, discussed in §3.8, in which unlike category coordination is typical; (57) is just one attested[37] example, involving nominal, adverbial, and prepositional conjuncts.

(57) Mówić [kto, kiedy i z kim] pił wódkę, to jest po prostu
say.INF who.NOM when.ADV and with whom.INS drank vodka this is simply
nieeleganckie. (Polish)
inelegant

'Saying who was drinking vodka when and with whom is simply inelegant.'

Also, as mentioned at the beginning of §3.4, temporal adjuncts in Polish are not just bare NPs, but also prepositional phrases; (58) involves two conjuncts bearing these two categories, as well as an adverbial conjunct:

(58) Przyjedzie [albo teraz, albo późnym wieczorem, albo w piątek].
come.FUT.3SG or now.ADV or late.INS.SG.M evening.INS.SG.M or in Friday.ACC.SG.M
(Polish)

'(S)he will come either now, or late in the evening, or on Friday.'

Further back, in §3.3, we looked at Russian and Polish predicates which allow their arguments to bear two different cases, without any apparent change of meaning. Similarly, some predicates allow their arguments to be either an NP or a prepositional phrase (PP) without any change of meaning. For example OWINĄĆ 'wrap' allows its fabric argument to be expressed by

gd-85-20-sprawozdanie-z-darowizny-przekazanej-na-523119725

[37] https://www.rp.pl/Prawo-i-Sprawiedliwosc/190609625-Karczewski-Mowic-kto-kiedy-i-z-kim-pil-wodke-to-jest-po-prostu-nieeleganckie.html

an instrumental NP or by a PP headed by *w* 'in' (which combinines with an accusative NP) – or by a coordination of such phrases (Kosek 1999: 43, ex. (8)):

(59) Owinął dziecko [w koc i ręcznikiem]. (Polish)
wrapped.3SG.M baby.ACC in blanket.ACC and towel.INS
'He wrapped the baby in a blanket and with a towel.'

The usual tests show that this is a direct coordination of a PP and an instrumental NP, rather than the result of conjunction reduction.

Finally, normally accusative objects may be realised not only as accusative NPs or – with some verbs – partitive genitive NPs, but also as certain quantificational PPs, including PPs headed by the distributive *po* 'each' which combines with locative NPs (see e.g. Przepiórkowski 2013). Hence, examples given in §3.2 (on partitive object marking) may be extended accordingly, for example:[38]

(60) Dajcie im [wina, całą świnię i po kuropatwie]!
give.IMP.2PL them.DAT wine.GEN.SG.N whole.ACC.SG.F pig.ACC.SG.F and DISTR partridge.LOC (Polish)
'Serve them (some) wine, a/the whole pig, and a partridge for each!'

Other examples of unlike category coordination in Polish may be found in Patejuk 2015: ch. 4 and in Prażmowska 2015, and in English, for example in Peterson 1981, 2004, Sag et al. 1985, Bayer 1996, Huddleston & Pullum 2002: §15.3.2, Whitman 2004, Levine 2011: §2.3, Dalrymple 2017, Abeillé & Chaves 2021: §6, and, especially, Patejuk & Przepiórkowski 2021.

5. Explaining coordination of unlike grammatical cases (and unlike categories)

Section 3 presented diverse environments which allow for the coordination of unlike grammatical cases. Most of them were illustrated with examples from a single language, Polish, and doubtlessly many more may be found in other languages. Such examples directly contradict the claim that only the same cases may be coordinated.

This result should not be misconstrued: contradicting a universal statement ('the conjuncts in nominal conjunction are always identical in morphological case'; Weisser 2020: 43) results in an existential statement ('no, not always'), not in another universal statement. In particular, it does not follow from the discussion above that whenever differently cased constituents C_1 and C_2 may occur in some syntactic environment, also the coordinate structure $[C_1 \ \& \ C_2]$ may occur in this environment.

First of all, what seems like the same environment might in fact not be the same. This is most clear in the case of two different heads H_1 and H_2 – of the same phonetic form H – forming acceptable constituents with C_1 and C_2, respectively; it does not follow that H $[C_1$ &

[38]Note that also DOM seems to involve unlike category coordination in some languages, especially in Romance, where an unmarked nominal object may be coordinated with a marked prepositional object. Kalin & Weisser 2019: 665 and 672–673 provide Spanish examples suggesting that such coordination cannot be analysed via conjunction reduction, but see again Saab & Zdrojewski 2021 for a voice of dissent.

C_2] is also an acceptable constituent. This is illustrated by the following Polish examples, based on the attested[39] (61):[40]

(61) To nie premier zarządzał wybory. (Polish)
FOC NEG prime minister ordered elections.ACC
'It wasn't the prime minister who called the elections.'

(62) To nie premier zarządzał bankiem. (Polish)
FOC NEG prime minister managed bank.INS
'It wasn't the prime minister who managed the bank.'

(63) ?*To nie premier zarządzał [wybory i bankiem]. (Polish)
FOC NEG prime minister ordered/managed elections.ACC and bank.INS

Polish dictionaries list two different meanings of the verb ZARZĄDZAĆ: one that may be glossed as 'order, call' and combines with the accusative case (or genitive under negation), see (61), and another, which may be glossed as 'manage, run' and combines with the instrumental case, see (62). As might be expected, it does not follow that ZARZĄDZAĆ may combine with a coordinate structure involving both accusative and instrumental conjuncts; see (63).

Second, even when the same head H may form acceptable constituents $H\ C_1$ and $H\ C_2$, it does not necessarily follow that H [C_1 & C_2] is also an acceptable constituent. Consider the following dialogues:

(64) a. Co dać Marii? (Polish)
what.ACC give.INF Maria.DAT
'What should I give Maria?' (lit. 'What to give Mary?)

b. Daj książkę! (Polish)
give.IMP.2SG book.ACC
'Give (her) a book!'

(65) a. Komu dać książkę? (Polish)
who.DAT give.INF book.ACC
'Whom should I give a/the book?' (lit. 'Whom to give a/the book?')

b. Daj Marii! (Polish)
give.IMP.2SG Maria.DAT
'Give (it) to Maria!'

(66) a. [Co i komu] dać? (Polish)
what.ACC and who.DAT give.INF
'What should I give and to whom?' (lit. 'What and whom to give?')

b. *Daj [książkę i Marii]! (Polish)
give.IMP.2SG book.ACC and Maria.DAT
intended: 'Give a/the book to Maria.'

[39] https://wiadomosci.gazeta.pl/wiadomosci/7,114884,27079486,rzecznik-rzadu-broni-morawieckiego-po-zarzutach-nik-to-nie.html

[40] In (61)–(63), the multifunctional *to* acts as a marker of the following focus.

c. Daj książkę Marii! (Polish)
give.IMP.2SG book.ACC Maria.DAT
'Give a/the book to Maria.'

Polish is a *pro*-drop language and – as (64)–(65) demonstrate – not only subjects may be dropped, but also other semantically obligatory arguments, given the right context. Thus, given that (64a) mentions the recipient of *dać* 'give', namely, *Marii* 'Maria.DAT', this argument may be dropped in (64b), and similarly for the theme argument *książkę* 'book.ACC' in (65a–b). But, despite the acceptability of both (64b) and (65b), involving the same head *daj* 'give.IMP.2SG', example (66b), with the accusative theme and the dative recipient coordinated, is unacceptable; the intended meaning may instead be expressed as in (66c). This is surprising, given that (66a), which exemplifies Heterofunctional Coordination discussed in §3.8, is acceptable, even though it also involves coordination of the accusative theme and the dative recipient.

The acceptability contrast between (66a) and (66b) shows that, while Weisser's (2020) Symmetry of Case in Conjunction – and Williams's (1981) Law of the Coordination of Likes – are too strong, coordinate structures are not completely unconstrained. However, I claim that there is no universal internal parallelism constraint on coordinate structures of the kind expressed by SOCIC or LCL, that is, there is no general requirement that conjuncts be syntactically similar in some sense. Instead, coordinate structures are constrained externally: certain constraints imposed on the syntactic position occupied by a coordinate structure must be satisfied by all conjuncts in that structure. That is, an alternative and more empirically promising constraint on coordinate structures is the following:[41]

(67) Distributive Satisfaction of Functional Constraints (DSFC)
Each conjunct must satisfy all functional constraints on the coordinate structure.

Here, 'functional' refers to the level of representation that encodes grammatical functions such as subject or direct object, as this is the locus of categorial restrictions and case marking. For example, Tamil objects are disjunctively specified as either low on the definiteness scale and nominative (unmarked), or high on this scale and accusative (marked), and the two conjuncts in (7) (in §3.1 on p. 4) satisfy this specification by separately satisfying its two disjuncts, in accordance with DSFC. Similarly, Polish subjects are – to the first approximation – specified as either nominative noun phrases or accusative numeral phrases, so they may also be coordinate structures containing both a nominative NP and an accusative NumP, again in accordance with DSFC; and so forth.

It should be clear that the effect of DSFC goes beyond semantic restrictions on particular syntactic positions. For example, Pollard and Sag (1994: §3.2) demonstrate that while verbs like BE, BECOME, WAX, and SEEM all take a semantically predicative argument, they differ in categorial restrictions they impose on that argument. So, for example, both BE and BECOME may combine with a noun phrase or an adjectival phrase, but only BE may easily combine with

[41] Many thanks to an anonymous reviewer for this formulation of DSFC, more compact than a previous version.

a prepositional phrase:[42]

(68) Fred {is / became} {a professor / proud of his work}.

(69) Fred {is / *became} in a good mood.

As discussed in Sag et al. 1985: §3.2 and Dalrymple 2017: §2.1, such selectional restrictions must be satisfied by all conjuncts, and this is exactly what DSFC predicts:

(70) Fred {is / became} [a professor and proud of his work].

(71) Fred {is / *became} [a professor and in a good mood].

Similarly, as discussed in Bayer 1996: §2.4, the preposition DESPITE may combine with NPs denoting facts or propositions (see (72)–(73)), but not with CPs, even when they denote facts or propositions (see (74)), and this constraint applies to all conjuncts (see (75)), again in accordance with DSFC.

(72) Despite LaToya's intransigence, Michael signed the contract.

(73) Despite the fact that all the musicians quit, Michael signed the contract.

(74) *Despite that all the musicians quit, Michael signed the contract.

(75) *Despite [LaTroya's intransigence and that all the musicians quit], Michael signed the contract.

Returning to the puzzling contrast in (66a–b), I assume that the notion of 'functional' in DSFC extends to grammaticalised discourse functions. On the common assumption that there is a fronted position for *wh*-phrases in *wh*-questions, and that the relevant constraint on this position is that it be occupied by a *wh*-phrase which is a dependent of some predicate within the sentence (subject to any additional locality constraints), also (66a) satisfies DSFC: each conjunct is a *wh*-phrase and each is a dependent of the verb *dać* 'give'.[43] On the other hand, (66b) is unacceptable because it does not satisfy DSFC. This is because – for any plausible syntactic position that the coordinate structure in this sentence could be assumed to occupy – at least one conjunct violates at least one constraint on that position. The relevant position cannot be that of the direct of object of *dać* 'give', as the dative conjunct *Marii* violates case constraints on that position, which say that the object normally bears the accusative case, or the genitive when it is partitive or under negation. It also cannot be the indirect object, as then all conjuncts should be dative. Moreover, it is not the fronted *wh*-position: neither are the conjuncts fronted, nor are they *wh*-phrases. Thus, DSFC immediately explains the puzzling contrast between (66a) and (66b).[44]

[42]Examples (68)–(71) are either taken from or based on those in Dalrymple 2017: §2.1.

[43]The fact that multiple *wh*-phrases may occupy this position in Slavic and some neighbouring languages but not, say, in Germanic is usually related to the general permissibility of multiple *wh*-fronting in the former group of languages; see for example Gribanova 2009: 138.

[44]A fuller explanation of this contrast would need to be preceded by an analysis of Heterofunctional Coordination, one that takes into account its syntactic, semantic, and pragmatic properties. Developing such an analysis is well beyond the scope of this paper, but I assume that – in such discourse-configurational languages (Kiss 1995) as Slavic and Hungarian – certain focus positions may be occupied by certain kinds of quantificational expressions and, hence, also by coordinate structures consisting of such expressions, perhaps subject to further semantic homogeneity constraints on conjuncts. On an analysis of HC along these lines, DSFC predicts (66b) to be unacceptable because the conjuncts lack the quantificational force expected of this focus position.

I leave it as an open research question exactly which constraints on a given syntactic position distribute to all conjuncts in accordance with DSFC (i.e. which are 'functional constraints' in the sense of this principle), and which apply to the coordinate structure as a whole or may be satisfied by a single conjunct. A prominent phenomenon which is outside the scope of DSFC is agreement. As illustrated in (76), subject–verb agreement in Polish either requires the resolution of phi-features (in this case, singular feminine and singular masculine are resolved to plural masculine) or involves closest conjunct agreement (here, with *Maria*). Crucially, what is not required, is agreement with each conjunct.

(76) Do pokoju {weszli / weszła} [Maria i jej mąż].
into room entered.3PL.M/3SG.F Maria.NOM.SG.F and her husband.NOM.SG.M
(Polish)
'Into the room entered Maria and her husband.'

Hence, it seems that the 'functional constraints' in the sense of DSFC should be understood as (unary) properties that particular syntactic positions must satisfy by virtue of realising particular grammatical functions or grammaticalised discourse functions; agreement – a (binary) relation – is outside of the scope of DSFC. In §7, we will look at some implementations of DSFC that are compatible with nondistributive rules of agreement.

The main thrust of the above considerations is this: there are no universal internal syntactic parallelism constraints such as SOCIC or LCL, and appearances to the contrary mostly result from the fact that conjuncts must satisfy external functional constraints imposed on the coordinate structure. This, however, does not deny the possibility that particular constructions in particular languages may impose certain internal parallelism constraints. For example, Heterofunctional Coordination seems to require some similarity of quantifiers expressed by conjuncts, although – as discussed in Grosu 1987: §2 and Przepiórkowski 2022b: §2.2 – it is difficult to make this requirement precise. Similarly, as noted in §3.1, some DOM languages seem to impose some internal parallelism constraints on coordinate structures. Careful investigation of whether these are truly internal constraints or whether they perhaps follow from some external restrictions is impossible within the limits of this paper. But even if these constructions do impose internal parallelism constraints, this does not invalidate the main claim of this paper, namely, that there is no universal ban on category or case mismatches in coordination.

6. Predecessors

DSFC may be seen as a variant of two previously stated generalisations.[45] The first is the so-called 'Wasow's generalisation' (WG; Pullum & Zwicky 1986: 752–753, ex. (4)):

[45] A similar generalisation is also presented – but not defended – in Höhle 1990: 221. Moreover, a view particularly close to that argued for in the current paper is expressed in Borsley's (2005: 465) discussion of Pollard and Sag's (1994) approach to coordination: 'Within this approach, how similar conjuncts must be depends on the context in which the coordinate structure appears, specifically on how specific the constraints that it imposes on constituents occupying the position of the coordinate structure are. If the constraints are quite specific, the conjuncts must be very similar. If the constraints are not very specific, the conjuncts may be quite different … Thus, there is no Coordination of Likes Constraint …'

(77) If a coordinate structure occurs in some position in a syntactic representation, each of its conjuncts must have syntactic feature values that would allow it individually to occur in that position.

Here syntactic features are understood literally.[46] As mentioned in Pullum & Zwicky 1986: 752, one implementation of WG is the analysis of unlike category coordination in Sag et al. 1985. There, example (1), repeated below as (78), is predicted to be grammatical because BE requires that its predicative argument bear the +PRD feature, and the coordinate structure *a Republican and proud of it* bears this feature by virtue of each conjunct bearing the +PRD feature.

(78) Pat is [a Republican and proud of it].

By contrast, DSFC does not mention syntactic features. In particular, on the LFG implementation of DSFC proposed in §7.1, an accusative object may be coordinated with a partitive genitive object not because they share some syntactic feature, but because they each satisfy a disjunctive constraint on the position occupied by the coordinate structure.

A more general difference between DSFC and WG is that the former does not insist on the syntactic nature of constraint satisfaction. For example, temporal adjuncts bearing different cases (discussed in §3.4) may co-occur in a given position not necessarily because they have specific syntactic features, but perhaps because of their temporal semantics; and similarly for possessive modifiers (discussed in §3.5).

The other previous generalisation that DSFC is related to is given in the following quote from *The Cambridge Grammar of the English Language* (CGEL; Huddleston & Pullum 2002: 1323):

(79) If (and only if) in a given syntactic construction a constituent X can be replaced without change of function by a constituent Y, then it can also be replaced by a coordination of X and Y.

Here, the main difference with respect to DSFC is that where CGEL talks about functions of conjuncts, DSFC refers to functional constraints on a given syntactic position. This difference is important in the case of Heterofunctional Coordination (discussed in §3.8). Consider again (52), repeated below as (80).

(80) [Kto, kogo i czym] karmi? (Polish)
who.NOM who.ACC and what.INS feeds
'Who feeds whom and with what?'

Such examples seem to violate the CGEL constraint:[47] *kto* 'who.NOM' is the subject of *karmi* 'feeds', *kogo* 'who.ACC' is its object, and *czym* 'what.INS' bears yet another grammatical function, so it cannot be said that these three conjuncts are mutually substitutable 'without change

[46] In passing, Pullum and Zwicky (1986: 752) also give a more general formulation of WG, one that is closer to DSFC: 'Wasow's Generalization says basically that an element in construction with a coordinate constituent must be syntactically construable with each conjunct'. However, this statement is too general and it is immediately contradicted by agreement facts such as those discussed earlier in this section.

[47] They are also problematic for other attempts to replace the requirement of the same grammatical categories in coordination with that of the same grammatical functions, for example in Dik 1968: 25–28 and Hudson 1990: 404–421.

of function'. However, on the assumption that there is a dedicated syntactic position for fronted *wh*-phrases and that the constraint on this position is that such *wh*-phrases bear SOME grammatical function in relation to a lower predicate, then all conjuncts in (80) satisfy this functional constraint, in accordance with DSFC.

7. Distribution of functional constraints in major linguistic frameworks

7.1 Lexical Functional Grammar

Lexical Functional Grammar (Kaplan & Bresnan 1982, Bresnan et al. 2016, Dalrymple et al. 2019) is a linguistic theory that already has at its disposal almost all mechanisms needed to formalise DSFC. A simplified syntactic representation of (81) (based on (9) in §3.2) is given in Figure 1.

(81) Dajcie [wina i świnię]! (Polish)
give.IMP.2PL wine.GEN.SG and pig.ACC.SG
'Serve (some) wine and a/the pig!'

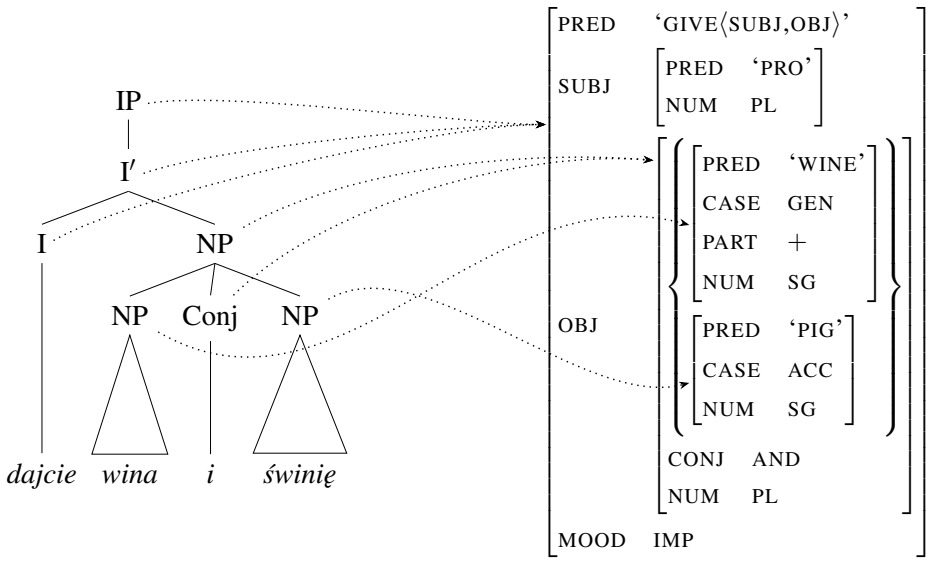


Figure 1: Syntactic representation of (81) in LFG

As is common in LFG, the c(onstituency)-structure in Figure 1 (on the left) is very simple: it does not contain numerous projections of empty heads, typical of Minimalist representations. Moreover, it assumes the flat – rather than binary – representation of coordination, but nothing in the implementation of DSFC presented in this subsection hinges on this. There is a mapping, indicated by dotted arrows, from nonterminal nodes of the c-structure to parts of the f(unctional)-structure (on the right). Such f-structures contain information about grammatical functions, as well as values of morphosyntactic features (case, number, mood, etc.). According to the f-structure in Figure 1, the subject is a plural *pro* and the object is a hybrid structure: a set containing f-structures of both conjuncts, but also having features CONJ(unction) and NUM(ber) specific to the whole coordination.

LFG makes a distinction between distributive features, such as CASE, and nondistributive features, such as CONJ and NUM; only the latter may pertain to whole coordinate structures. In particular, the value of NUM of the OBJ in Figure 1 is PL (plural), even though both conjuncts are marked as SG (singular). As discussed in Dalrymple & Kaplan 2000: 778–779, this approach makes it possible to handle agreement; for example, a coordinate structure in the subject position, containing singular conjuncts, may itself be specified as plural and, hence, agree with the plural verb.

By contrast, when a value of a distributive feature such as CASE is assigned to a coordinate structure, it is not recorded on the hybrid structure itself, but it distributes to all conjuncts. For example, the following equation in the lexical entry of a verb which takes an accusative object will have the effect that, when the object is a simple NP, it will bear the CASE value ACC, but when it is a coordination, all its conjuncts will bear this CASE value.

(82) $(\uparrow \text{OBJ CASE}) = \text{ACC}$

Hence, the above specification cannot be a part of the lexical entry of the Polish verb DAĆ 'give', as its object may – in affirmative contexts – be either accusative or partitive genitive.

Intuitively, the following equations should be part of the lexical entry of DAĆ 'give' instead:[48]

(83) $(\uparrow \text{OBJ CASE}) = \text{ACC} \vee [(\uparrow \text{OBJ CASE}) = \text{GEN} \wedge (\uparrow \text{OBJ PART}) = +]$

This description is saying that either the object must bear the accusative case, or it must bear the genitive and be marked as PARTitive +.

Unfortunately, this will not work when the value of OBJ is a hybrid structure representing coordination. In such a case, (83) is interpreted as saying that either all conjuncts are accusative, or all conjuncts are genitive partitive. The reason is that, while the possibility that any properties may be distributive is envisaged in the following definition (Dalrymple & Kaplan 2000: 779, ex. (73)),[49] LFG currently lacks a mechanism to directly express distributive properties more complex than pertaining to values of single distributive features.

(84) For any DISTRIBUTIVE property P and set s, $P(s)$ iff $\forall f \in s.\ P(f)$.
For any NONDISTRIBUTIVE property P and set s, $P(s)$ iff P holds of s itself.

The need for such a mechanism has occasionally been expressed in the LFG literature,[50] but there is no standard notation for encoding distributive properties in LFG grammars. In the case at hand, the distributive property P is given in (85), but such statements are not part of the LFG formalism.

(85) $P \equiv \lambda x.\, [(x\ \text{CASE}) = \text{ACC} \vee [(x\ \text{CASE}) = \text{GEN} \wedge (x\ \text{PART}) = +]]$

Note the crucial use of the variable x in (85). While the statement in (85) does not follow

[48] In LFG notation logical conjunction is usually left implicit, but I explicitly indicate it with $\wedge$ for greater perspicuity. (83) and the following reformulations are oversimplified as they do not take into consideration the possibility of the genitive of negation.

[49] This definition of distributive properties originated in Bresnan et al. 1985; many thanks to Ron Kaplan and Peter Peterson for making available to me the surviving fragments of various drafts of this unpublished manuscript.

[50] See for example Przepiórkowski & Patejuk 2012: §5 and Kaplan 2017: 133–134, fn. 6.

the syntax of LFG grammars, the LFG formalism does make use of variables in functional descriptions; in LFG parlance, such variables are called local names and, by convention, they start with the percent sign, for example %O or %GF (see e.g. Dalrymple et al. 2019: §6.5).[51]

A typical use of local names is illustrated with an artificial example below, of a hypothetical verb form which requires that one of its arguments – subject, object, or oblique – be 1st person singular masculine:[52]

(86) $\%\text{GF} = (\uparrow \{\text{SUBJ}|\text{OBJ}|\text{OBL}\}) \wedge$
$(\%\text{GF PERS} = 1) \wedge (\%\text{GF NUM} = \text{SG}) \wedge (\%\text{GF GEND} = \text{M})$

In (86), the value of the local name %GF is either the subject, or the object, or the oblique; the statement in the first line of (86) is equivalent to (87):

(87) $\%\text{GF} = (\uparrow \text{SUBJ}) \vee \%\text{GF} = (\uparrow \text{OBJ}) \vee \%\text{GF} = (\uparrow \text{OBL})$

The second line of (86) says that this grammatical function %GF – subject, object, or oblique – bears the 1st person, singular number, masculine gender features. If such a local name were not employed, the equivalent statement would be more cumbersome and it would smack of a missed generalisation:

(88) $[(\uparrow \text{SUBJ PERS} = 1) \wedge (\uparrow \text{SUBJ NUM} = \text{SG}) \wedge (\uparrow \text{SUBJ GEND} = \text{M})] \vee$
$[(\uparrow \text{OBJ PERS} = 1) \wedge (\uparrow \text{OBJ NUM} = \text{SG}) \wedge (\uparrow \text{OBJ GEND} = \text{M})] \vee$
$[(\uparrow \text{OBL PERS} = 1) \wedge (\uparrow \text{OBL NUM} = \text{SG}) \wedge (\uparrow \text{OBL GEND} = \text{M})]$

In the case at hand, a description fully equivalent to (83) (i.e. not encoding distributivity) but making use of a local name is (89):

(89) $\%\text{O} = (\uparrow \text{OBJ}) \wedge$
$[(\%\text{O CASE}) = \text{ACC} \vee [(\%\text{O CASE}) = \text{GEN} \wedge (\%\text{O PART}) = +]]$

The first line of (89) assigns to the local name %O the value of the feature OBJ, that is an f-structure representing the object, and the second line says that this object must either bear the accusative case, or bear the genitive and be marked as PARTitive +.

As mentioned above, the standard syntax of LFG grammars does not make it possible to mark complex properties as distributive. Instead of introducing a completely new notation, I propose to minimally extend the syntax and semantics of local names for this purpose: when x is a local name, then $x : P(x)$ (with a colon) is understood as saying that P is a distributive property holding either of the value of x, or – when this value is a set (e.g. a hybrid structure) – distributively of each element of the set.[53] More precisely:

(90) For any property P, the statement $x : P(x)$ is true iff
a. either x is not a set and $P(x)$ is true (i.e. P holds of x itself),
b. or x is a set and $f : P(f)$ is true for each element f of x.

[51] Templates (Dalrymple et al. 2004) are another locus of variables in LFG grammars, so a different way to encode distributive properties would be by extending the syntax and semantics of templates (Ron Kaplan, p.c.).

[52] This example is inspired by Belyaev's (2020) analysis of 1st person singular markers in Ashti Dargwa (an East Caucasian language).

[53] This notation is based on the notation commonly used for the description of sets, where $\{x : P(x)\}$ is the set of objects satisfying the property P.

Adopting this convention, the intended distributive constraint on possibly partitive objects may be encoded as in (91):

(91) $\%\text{O} = (\uparrow \text{OBJ}) \wedge$
$\%\text{O} : [(\%\text{O CASE}) = \text{ACC} \vee [(\%\text{O CASE}) = \text{GEN} \wedge (\%\text{O PART}) = +]]$

According to (90), the effect of (91) is that the value of %O – that is, the value of $(\uparrow\text{OBJ})$ – is either an f-structure bearing the ACC-valued CASE attribute, or an f-structure with the GEN-valued CASE and +-valued PART, or a set whose each element satisfies the property in the second line of (91). That means that each element of such a set is either an appropriate – accusative or partitive genitive – f-structure or, recursively, a set satisfying this distributive property. This way, the definition in (90) also covers arbitrarily deeply nested coordination.

The presence of the functional description (91) in the lexical entry of DAĆ 'give' leads to an analysis of (81) shown in Figure 1 on p. 29. There, the value of %O is the hybrid feature structure containing f-structures for *wina* 'wine' and *świnię* 'pig', and both these f-structures satisfy the distributive property specified in the second line of (91). The lower f-structure, for *świnię* 'pig', satisfies the first disjunct: its CASE value is ACC. The higher f-structure, for *wina* 'wine', satisfies the second disjunct: its CASE value is GEN and its PART value is +. Note that these f-structures do not share any relevant features,[54] contradicting Wasow's generalisation, but not DSFC. Other instances of unlike case coordination may be analysed in a similar way.

Given the slight extension of the syntax of LFG grammars illustrated in (91), extant LFG analyses are not affected by this proposal. This proposal is also compatible with the previous LFG account of case indeterminacy, in Dalrymple et al. 2009, but improves on it. According to Dalrymple and colleagues (2009), values of CASE are assumed to be feature matrices of the form [NOM ±, ACC ±, GEN ±, ...]. For example, assuming the usual four morphological cases in German, the unambiguously dative German pronoun *ihm* 'him' contains in its lexical entry the four equations in (92), resulting in the CASE value in (93):

(92) $(\uparrow \text{CASE NOM}) = -$
$(\uparrow \text{CASE ACC}) = -$
$(\uparrow \text{CASE GEN}) = -$
$(\uparrow \text{CASE DAT}) = +$

(93) $\begin{bmatrix} \text{NOM} & - \\ \text{ACC} & - \\ \text{GEN} & - \\ \text{DAT} & + \end{bmatrix}$

On the other hand, the lexical entry of a nominative/accusative syncretic form such as *was* 'what' contains the following equations, where the first line specifies that at least one of NOM and ACC is +-valued.

(94) $(\uparrow \text{CASE } \{\text{NOM}|\text{ACC}\}) = +$
$(\uparrow \text{CASE GEN}) = -$
$(\uparrow \text{CASE DAT}) = -$

This leads to an elegant analysis of, inter alia, well-known free relative examples such as (95)

[54] The fact that both are specified as singular is accidental; the same analysis would go through if the singular noun *świnię* 'pig' were replaced by some plural form, for example *prosiaki* 'piglets'.

(from Groos & van Riemsdijk 1981: 212, ex. (88c)), where *was* is simultaneously accusative (as required of its object by *gegessen* 'eaten') and nominative (as the subject of *war* 'was').

(95) Ich habe gegessen was noch übrig war. (German)
I have eaten what.NOM+ACC still left was
'I ate what was left.'

That is, the CASE value of *was* in (95) is the case matrix in (96).

(96) $\begin{bmatrix} \text{NOM} & + \\ \text{ACC} & + \\ \text{GEN} & - \\ \text{DAT} & - \end{bmatrix}$

Dalrymple and colleagues (2009) use such case matrices not only to account for case syncretisms, but also to handle case indeterminacy, as in the Russian example (15), repeated below as (97).

(97) Včera ves' den' on prožd*al* [svoju podrugu Irinu i
yesterday all day he.NOM expected.3SG.M self's.ACC girlfriend.ACC Irina.ACC and
zvonka ot svoego brata Grigorija]. (Russian)
call.GEN from self's brother Grigory
'Yesterday he waited all day for his girlfriend Irina and for a call from his brother Grigory.'

On their account, verbs which may only combine with accusative objects contain the equation in (98), and verbs which allow for either accusative or genitive objects, such as PROŽDAT' 'wait for' in (97), are specified as in (99).

(98) $(\uparrow \text{OBJ CASE ACC}) = +$

(99) $(\uparrow \text{OBJ CASE } \{\text{ACC}|\text{GEN}\}) = +$

Such indeterminate paths are defined in LFG in such a way that they are resolved independently for each conjunct (see e.g. Kaplan & Zaenen 1995: 161). This means that (99) may result in the assignment of + to ACC in one conjunct and to GEN in another, accounting for (97) and leading to an f-structure schematically represented in (100) (Dalrymple et al. 2009: 52, ex. (54)).[55]

[55] All the '−' values come from the lexical specifications of the nouns heading the two conjuncts.

(100)
$$\begin{bmatrix}
\text{PRED} & \text{`WAIT.FOR'} & \\
\text{OBJ} & \left\{\begin{bmatrix}
\text{PRED} & \text{`GIRLFRIEND'} & \\
\text{CASE} & \begin{bmatrix}
\text{NOM} & - \\ \text{ACC} & + \\ \text{GEN} & - \\ \text{DAT} & - \\ \text{INS} & - \\ \text{PREP} & -
\end{bmatrix} &
\end{bmatrix}\right. \\
& \left.\begin{bmatrix}
\text{PRED} & \text{`CALL'} & \\
\text{CASE} & \begin{bmatrix}
\text{NOM} & - \\ \text{ACC} & - \\ \text{GEN} & + \\ \text{DAT} & - \\ \text{INS} & - \\ \text{PREP} & -
\end{bmatrix} &
\end{bmatrix}\right\} \\
\text{CONJ} & \text{AND} &
\end{bmatrix}$$

Unfortunately, this approach – based on indeterminate equations such as (99) – only works for the simplest cases, those discussed in §3.3, where the value of CASE is not correlated with any other features and has no semantic import. In the case of the Polish example (81) considered at the beginning of this section, the value of CASE correlates with partitivity, so a more complex distributive statement is needed. Assuming case matrices of Dalrymple et al. 2009, the distributive case specification of the object of DAĆ 'give' proposed in (91) should be straightforwardly modified to (101).

(101) $\%\text{O} = (\uparrow \text{OBJ}) \wedge$
$\%\text{O} : [(\%\text{O CASE ACC}) = + \vee [(\%\text{O CASE GEN}) = + \wedge (\%\text{O PART}) = +]]$

The data discussed in §§3.1–3.2 and §§3.4–3.7 show that such correlations are the norm rather than an exception.[56] Hence, independently of whether CASE values are assumed to be atoms or case matrices, a mechanism – such as that proposed in this section – is needed to encode more complex distributive properties in a transparent way.[57]

[56]Such correlations may also involve grammatical categories, as in the phenomena discussed in §§3.5–3.7. See Przepiórkowski & Patejuk 2021 for a proposal, compatible with the current analysis, to represent categorial information not in c-structures but rather in f-structures, so that all selectional restrictions may be expressed uniformly at the functional level.

[57]This last manner modifier is important; Przepiórkowski & Patejuk 2012: §6 and Patejuk 2015: §4.4.2, following a suggestion by Mary Dalrymple (p.c.), show how to encode general distributivity using so-called off-path constraints. That solution is far from transparent and crucially relies on the presence of the PRED attribute (indicating the semantic predicate and its arguments), which – as repeatedly noted in the literature (e.g. in Dalrymple et al. 1993: 13–14 and Kuhn 2001: §§1.3.3 and 1.4.1) – is redundant, given more recent approaches to semantics (see e.g. Dalrymple 1999 and Dalrymple et al. 2019: ch. 8).

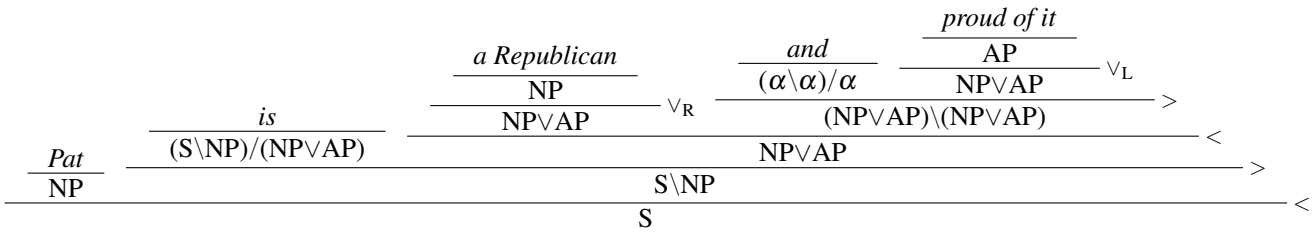


Figure 2: CG derivation of (102) (Bayer 1996: 596–597)

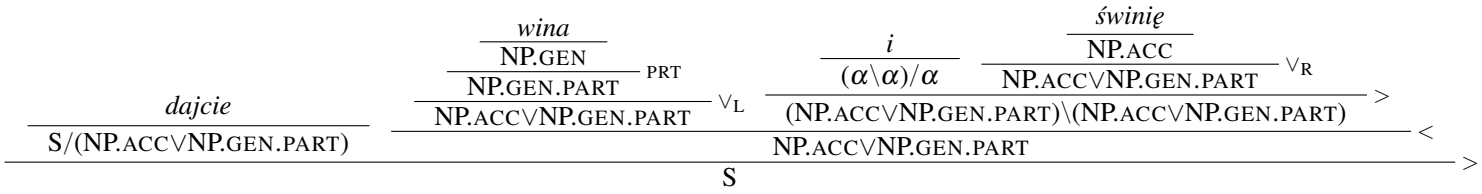


Figure 3: CG derivation of (81)

7.2 Categorial Grammar

LFG is not the only theory that makes formalisation of DSFC easy. It is essentially free on the Categorial Grammar (CG; Ajdukiewicz 1935, Lambek 1958, 1961) approach of Bayer 1996, provided that categories may encode not only strictly categorial information, but also morpho-syntactic features (as explicitly assumed by Bayer).[58] Recall that Bayer (1996: §6), following Morrill (1990, 1994), proposes the derivation in Figure 2 for the classical unlike category coordination example (1), repeated again as (102).

(102) Pat is [a Republican and proud of it].

The key points of this analysis are these. First, the predicative argument of *is* is specified disjunctively, as NP∨AP (i.e. a noun phrase or an adjectival phrase). Second, categories NP and AP may each be weakened to the category NP∨AP by virtue of join (∨) introduction rules (103)–(104) (where β and γ stand for any category).

(103) $\dfrac{\beta}{\beta \vee \gamma}\ \vee_{\mathrm{R}}$ (104) $\dfrac{\gamma}{\beta \vee \gamma}\ \vee_{\mathrm{L}}$

Third, the category of *and* is the polymorphic $(\alpha\backslash\alpha)/\alpha$, where α stands for any category.

Similarly, Figure 3 presents a possible derivation of the partitive example (81). Here, *dajcie* 'give.IMP.2PL' takes just one argument, specified disjunctively as NP.ACC∨NP.GEN.PART. I also assume the existence of the parochial rule (105), which strengthens any genitive category (not only nominal, but also adjectival) to partitive genitive.

(105) $\dfrac{\alpha.\mathrm{GEN}}{\alpha.\mathrm{GEN.PART}}\ \mathrm{PRT}$

The rest of the derivation is parallel to that in Figure 2.

As can be seen in these two derivations, the effect analogous to distributive properties in LFG is achieved in CG via disjunctive categories specified in selectional restrictions (e.g.

[58] Also the categorial analyses of Whitman 2004 and Worth 2016 may easily be extended to unlike category coordination. See also Paperno 2012 for a categorial analysis of lexico-semantic coordination.

NP∨AP selected by *is*) and the possibility to weaken – via the application of rules (103)–(104) – any specific category such NP or AP to such a disjunctive category.

7.3 Head-driven Phrase Structure Grammar

Within Head-driven Phrase Structure Grammar (HPSG; Pollard & Sag 1994, Müller et al. 2021), an analysis of unlike category coordination that is very close to DSFC and to the LFG approach sketched in §7.1 is proposed in Yatabe 2004. In order to handle examples such as (106) (from Bayer 1996: 585, fn. 7, ex. (ii.c–d)), Yatabe (2004: 343) assumes a lexical entry for *emphasized* schematically represented in (107),[59] in which the category of the object is specified disjunctively as an NP (see *noun*) or a CP (complementiser phrase; see *comp*).

(106) a. We emphasized [Mr. Colson's many qualifications and that he had worked at the White House].

b. We emphasized [that Mr. Colson had worked at the White House and his many other qualifications].

(107)
$$\left[\begin{array}{l}\textsc{phon}\ \langle\text{emphasized}\rangle \\ \ldots\textsc{valence}\ \left[\begin{array}{l}\textsc{subj}\ \left\langle\left[\ldots\textsc{head}\ c\left(\left[\begin{array}{l}\textit{noun}\\ \textsc{case}\ \textit{nom}\end{array}\right]\right)\right]\right\rangle \\ \textsc{comps}\ \langle[\ldots\textsc{head}\ c(\textit{noun}\vee\textit{comp})]\rangle\end{array}\right]\end{array}\right]$$

The key idea is the use of the distributive functor, c, defined in (108) (Yatabe 2004: 343, ex. (12)):

(108) $\boxed{1}:c(\alpha)\ \equiv\ \boxed{1}:\alpha\ \vee\ (\boxed{1}:\left[\ \textsc{args}\ \langle\boxed{a_1},\ldots,\boxed{a_n}\rangle\ \right]\ \wedge\ \boxed{a_1}:\alpha\wedge\ldots\wedge\boxed{a_n}:\alpha)$

Here α is a description, such as $\left[\begin{array}{l}\textit{noun}\\ \textsc{case}\ \textit{nom}\end{array}\right]$ or $\textit{noun}\vee\textit{comp}$ in (107), and an object $\boxed{1}$ satisfies $c(\alpha)$ – written as $\boxed{1}:c(\alpha)$ – iff it either satisfies the description α directly (see the first disjunct in (108)), or if it is (the HEAD value of) a coordinate structure with conjuncts (having HEAD values) $\boxed{a_1}$, …, $\boxed{a_n}$ (see the second disjunct); in the latter case, each of $\boxed{a_1}$, …, $\boxed{a_n}$ must recursively satisfy α independently. Given this mechanism, selectional restrictions of *dajcie* 'give.IMP.2PL' could be encoded as in (109).[60]

(109)
$$\left[\begin{array}{l}\textsc{phon}\ \langle\text{dajcie}\rangle \\ \ldots\textsc{valence}|\textsc{comps}\ \left\langle\left[\ldots\textsc{head}\ c\left(\left[\ \textsc{case}\ \textit{acc}\ \right]\vee\left[\begin{array}{l}\textsc{case}\ \textit{gen}\\ \textsc{part}\ +\end{array}\right]\right)\right]\right\rangle\end{array}\right]$$

The intention of (108) is clear, but it is far from clear how to formally encode (108), even within the highly expressive RSRL logic often assumed to underlie HPSG (see Richter 2004, as well as Richter 2021 and references therein). That is, it is possible to define relations on objects in RSRL, and for each possible description α it is easy to define a property of objects corresponding to $c(\alpha)$ in (108). What is far from clear is how to define c in its generality, that is in a way simulating (108): one relation whose first argument is any description α and

[59] Ellipsis (…) marks omitted initial segments of longer paths.

[60] See Przepiórkowski 1999: ch. 5 for a comprehensive HPSG account of Polish case, and Przepiórkowski 2021a for an overview of case marking in HPSG.

whose second argument is an object that should satisfy this description. The problem is that, in standard RSRL, arguments of relations are objects, not descriptions. A second-order extension of RSRL, like that recently proposed in Przepiórkowski 2021b: §4, is needed to formally encode Yatabe's (2004) analysis.

An alternative HPSG analysis of unlike category coordination, one that was frequently assumed in 2000s, implements conjunction reduction (see e.g. Crysmann 2003, Beavers & Sag 2004, and Chaves 2006, 2007, 2008) in terms of HPSG-specific linearisation mechanisms (Reape 1992, 1994, Kathol 1995, 2000). This analysis is applied not only to unlike category coordination but also to other kinds of 'non-canonical coordination', including the 'non-constituent coordination' of clusters of dependents (*Mary gave Sue [a book yesterday and a CD today]*). However, this approach is refuted in Levine 2011 (see also Kubota & Levine 2015) on the basis of reasoning similar to that in the empirical sections of this paper: in some contexts the putative input to conjunction reduction is either unacceptable or has a different meaning than the putative output. Thus (110) (from Levine 2011: 142, ex. (41)), involving a coordination of categorially unlike *dead drunk* and *in complete control* . . . , would be predicted on such linearisation-based analyses to have the same underlying structure as (111), which expresses a markedly different proposition than (110).

(110) [Dead drunk {but / and yet} in complete control of the situation], no one can be.

(111) [Dead drunk, no one can be, {but / and yet} in complete control of the situation, no one can be].

Consequently, the currently common view within HPSG is that such linearisation-based 'ellipsis does not offer a complete account of coordination of unlikes' (Abeillé & Chaves 2021: 756).

It should be noted that such semantic arguments against conjunction reduction are based on the assumption that ellipsis in general – and conjunction reduction in particular – does not affect truth-conditional meanings of sentences. While this assumption is overwhelmingly common, it is not adopted fully unanimously. Yatabe (2001, 2012) presents a linearisation-based analysis of non-constituent coordination on which ellipsis does influence semantic interpretation, and Yatabe and Tam (2021) defend this analysis against the critique in Levine 2011 and Kubota & Levine 2015. Yatabe (2001, 2012) does not extend this analysis to constituent coordination, and moreover Yatabe and Tam (2021: fns. 31, 35, 42) affirmatively refer to the analysis of unlike category coordination in Yatabe 2004, discussed at the beginning of this section. Nevertheless, a successful extension of Yatabe's (2001, 2012) analysis to unlike category coordination could weaken semantic arguments against conjunction reduction.

Space limits and the high complexity of the analysis in Yatabe 2001, 2012 and Yatabe & Tam 2021 make a detailed investigation of this issue outside the scope of this paper.[61] Here,

[61] Yatabe and Tam (2021: §3) argue that their analysis is not more complex than that of Kubota & Levine 2015, in the sense that it makes a similar number of assumptions. This may be so. However, where Kubota & Levine 2015 assume relatively standard mechanisms of categorial grammar, standard mechanisms of semantic composition employing lambda calculus, and standard – easily readable – semantic representations, the analysis of Yatabe 2001, 2012 and Yatabe & Tam 2021 is based on non-standard underspecified representations of Minimal

I just offer two empirical arguments against such a putative extension of this analysis to unlike category coordination.[62] One argument is based on the fact that Yatabe and Tam (2021) assume two kinds of ellipsis: phonological, which does not affect meaning, and syntactic, which may affect meaning. This way the sentence in (112) (from Yatabe & Tam 2021: 27, their ex. (27)) receives two interpretations: (113a) via (the meaning-affecting variant of) the syntactic ellipsis and (113b) via either the phonological ellipsis or (the meaning-preserving variant of) the syntactic ellipsis.

(112) Terry gave no man [a book on Friday or a record on Saturday].

(113) a. 'There is no man *x* such that Terry gave *x* a book on Friday or Terry gave *x* a record on Saturday.'

b. 'There is no man *x* such that Terry gave *x* a book on Friday or there is no man *y* such that Terry gave *y* a record on Saturday.'

If so, unless something special is said about unlike category coordination, sentence (114) (based on Levine 2011: 141, his ex. (40a)) is predicted to have the two interpretations in (115a–b), while intuitively it seems to only have the meaning indicated in (115a).

(114) [Both poor and a Republican], no one can possibly be.

(115) a. 'No one can possibly be simultaneously poor and a Republican.'

b. 'No one can possibly be poor and no one can possibly be a Republican.'

A perhaps stronger argument against ellipsis-based analyses of unlike category coordination is based on sentences such as (116) (from Abeillé & Chaves 2021: 755, ex. (69a)), whose hypothetical underlying input to ellipsis is ungrammatical, see (117).

(116) Isn't this [both illegal and a safety hazard]?

(117) *[Isn't this both illegal and isn't this (both) a safety hazard]?

As argued by Abeillé and Chaves (2021: 755–756), '[i]f [(116)] is an elliptical coordination like *isn't this both illegal and ~~isn't this~~ a safety hazard*, then the location of *both* is unexpected. Instead of occurring before the first coordinand, it is realized inside the first coordinand. … In an elliptical account, one would have to stipulate that *both* can only float in the presence of ellipsis, which is unmotivated.'[63]

In summary, there is an HPSG analysis of unlike category coordination, that of Yatabe 2004, which is very closely related to the LFG analysis of §7.1, but it requires an extension of the underlying RSRL formalism. Another common HPSG analysis of unlike category coordination, implementing conjunction reduction, is refuted in Levine 2011, based on the assumption that ellipsis does not feed truth-conditional semantics. This assumption is rejected in Yatabe

Recursion Semantics (Copestake et al. 2005) and assumes complex principles at the syntax–semantics interface (see Yatabe & Tam 2021: §2), whose interactions are not always transparent.

[62] Many thanks to an anonymous reviewer for comments that led to the current discussion of Yatabe 2001, 2012 and Yatabe & Tam 2021.

[63] However, as noted by Shûichi Yatabe (p.c.), the placement of *both* in (116) does not pose a technical problem for the left-node raising analysis of Yatabe 2012, on which (116) would be analysed as – underlyingly – a coordination of sentences; what prevents (116) from being analysed this way is rather the fact that *both* cannot be used in sentential coordination. The same argument holds against an elliptical analysis of (114).

2001, 2012 and Yatabe & Tam 2021, but only in an analysis of other kinds of non-canonical coordination, an analysis which does not seem to be applicable to unlike category coordination.

7.4 Minimalism

Let us finally consider Minimalism (Chomsky 1995, 2001), the host framework of Weisser 2020. Since early 1980s, abstract Case checking has been an important aspect of Chomskyan derivational theories, but the relation between abstract Case and morphological cases remains vague and increasingly tenuous (Bobaljik & Wurmbrand 2008: 44). Also, there are competing theories of Case, none being clearly dominant, and none – as far as I can see – immediately compatible with coordination data. For example, on the basis of the existence of closest conjunct agreement in many languages and the lack of analogous 'closest conjunct case checking', Weisser (2020: 62–64) convincingly argues against treating Case as a reflex of the standard Agree operation, contra Chomsky 2000, 2001. But theories relating Case to less standard approaches to Agree do not seem to fare much better. For example, when discussing so-called upward Agree (Zeijlstra 2012), Weisser (2020: 67) notes that '[f]or reasons of Minimality, both [conjuncts] will inevitably find the same case assigner and thus receive the same case-feature value'. This is exactly the outcome that the data discussed in §3 contradict. An option considered in one of the few other explicit discussions of interaction between Case and Agree in coordinate structures, Bošković 2006: 526–527, is that – given the frequently assumed hierarchical structure of coordinations (see e.g. Zhang 2009: ch. 2 and references therein) – Case is checked on the first (i.e. highest) conjunct and spreads to other conjuncts via 'some kind of Case agreement'. This is, again, directly contradicted by the data discussed in this paper.[64]

An alternative approach, on which Case is completely independent of Agree, is the increasingly popular Dependent Case theory (Marantz 1991, Baker 2015), which assumes that Case is assigned to NPs on the basis of their relative configurational relations within a domain. For example, within the CP/TP domain, the following rules may apply (Baker 2015: 74, ex. (66)):

(118) a. If NP_1 c-commands NP_2 and both are in the same domain, value NP_1's case as ergative.

b. If NP_1 c-commands NP_2 and both are in the same domain, value NP_2's case as accusative.

c. If NP has no other case feature, value its case as nominative/absolutive.

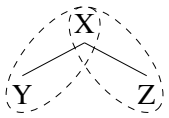
If coordinate structures were to constitute independent domains, then the Dependent Case approach would wrongly predict that Cases of conjuncts are governed solely by a principle analogous to (118), that is only by the relative configuration of conjuncts within coordination. This would make Cases within a coordinate structure independent of the position of the coordination in the sentence – a clearly unsatisfactory result. For this reason Weisser (2020: 70) rightly rejects the independent domain assumption and instead assumes that Case assigned to the top

[64] Another option considered in Bošković 2006: 527 relies on Hiraiwa's (2001) Multiple Agree, resulting again in the same Case checked on all conjuncts.

node of a coordinate structure somehow spreads EVENLY to all conjuncts. This last assumption is crucial for Weisser's (2020) account of the apparent identity of cases in coordination.

In view of the discussion in the previous sections, what is needed instead is a mechanism to spread any constraints on coordinate structures to all conjuncts DISTRIBUTIVELY, even when such constraints are underspecified or disjunctive. Promising steps towards the implementation of this idea in Minimalism are made in Neeleman et al. 2021. There, the top nodes of coordinate structures are assumed not to have any categorial features of their own, in the case of unlike category coordination. However, such nodes are segments of multi-segment categories, and each such category contains the segment of a conjunct. This is schematically illustrated in (119), in which X is the top segment of the coordinate structure, Y and Z are the segments of particular conjuncts, and the full categories are the bi-segmental X–Y and X–Z.

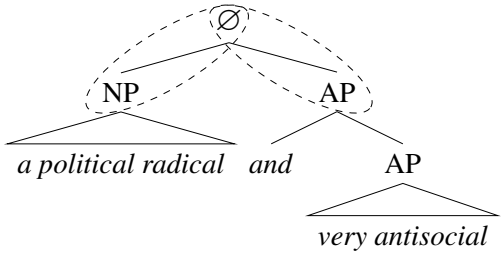
(119)



In the case of the unlike category coordination in (120) (Bruening & Al Khalaf 2020: 25, ex. (85a)), the two bi-segmental categories in (121) are ∅–NP and ∅–AP.

(120) Danny became [[$_{NP}$ a political radical] and [$_{AP}$ very antisocial]].

(121)



While not all technical details are made explicit, Neeleman and colleagues (2021) assume that this multi-segmental representation of coordinate structures makes it possible to – effectively – distribute categorial restrictions imposed on the coordinate structure into all conjuncts. On the assumption that case features are included in categorial features, it should be straightforward to extend the analysis of unlike category coordination in Neeleman et al. 2021 to unlike case coordination. But of course details and consequences of such an analysis need to be worked out.

8. Conclusion

Just as there is no universal requirement that only same categories may be coordinated, there is also no crosslinguistic requirement to the effect that all conjuncts must bear the same grammatical case. Even within a single language, it is possible to identify multiple environments which allow for the coordination of different grammatical cases. The main empirical contribution of this paper is the description of seven such constructions in Polish, but the same argument could probably be made on the basis of other languages with sufficiently rich inflectional morphology, certainly on the basis of at least some of the other Slavic languages.

It seems that, instead of any universal INTERNAL restrictions on coordinate structures to

the effect that conjuncts must be syntactically alike, the only universal restriction is that all conjuncts must satisfy certain EXTERNAL constraints imposed on a given syntactic position. When such external constraints are underspecified or disjunctive, conjuncts may satisfy them in different ways, resulting in different categories or different case values. The impression that internal syntactic parallelism constraints are at play stems from the fact that such external constraints are often rigid, resulting in the obligatory sameness of categories and cases in many syntactic positions.

Any linguistic framework that espouses this view must have at its disposal a mechanism for distributing external constraints imposed on the coordinate structure to all conjuncts. The main technical contribution of this paper is an extension of the LFG notion of distributivity to arbitrary properties, as envisaged in Dalrymple & Kaplan 2000 but never transparently implemented. But, while the crucial notion of distributivity is made available in LFG directly, it is not the only theory that makes formalisation of the Distributive Satisfaction of Functional Constraints principle possible. The Categorial Grammar analysis of Morrill 1990, 1994 and Bayer 1996 may be seen as another implementation of this view. Moreover, an account assuming distributivity of constraints to particular conjuncts has also been proposed in Head-driven Phrase Structure Grammar (Yatabe 2004), but it requires a second-order extension of the underlying formalism. Finally, it is not immediately obvious how to reconcile the data introduced in this paper with standard Minimalist approaches to case and coordination, but Neeleman and colleagues (2021) propose a new account of coordination, which suggests a way of analysing at least some instances of unlike category coordination in Minimalism, and it seems that this account could be extended to coordination of different grammatical cases. Hence, the picture painted in this paper may in principle be framed in any of these major linguistic frameworks.

The most important question that is left unanswered in the current paper concerns the exact scope of DSFC: which external constraints necessarily distribute to all conjuncts, and which only apply to the coordinate structure as a whole or perhaps to just one of the conjuncts? The distributive constraints considered in this paper refer to features of particular grammatical functions and grammaticalised discourse functions, that is to features such as grammatical category, case, partitivity, *wh* status, and so on; hence the moniker 'functional constraints' in DSFC. But it is clear that there also are constraints which do not normally distribute to conjuncts, such as – most prominently – agreement. A general theory of why certain properties but not others are distributive is needed. Also, while there is no universal internal parallelism requirement, some constructions in some languages seem to impose such parochial restrictions, and these constructions should be investigated in more detail. So it is clear that much still remains to be done on the grammar of coordination in general, as well as on coordinate constructions in particular languages. Nevertheless, the present paper seeks to remove the straitjacket of stipulations such as LCL and SOCIC, thus broadening the empirical coverage and opening new research questions, especially about the nature of distributivity in coordination.

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