Strategies of wh-coordination

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Abstract
This paper presents an overview of the cross-linguistically available strategies used in the formation of questions with coordinated wh-expressions. It offers a systematic characterization of the existing surface patterns of wh-coordination and the syntactic strategies underlying these, and presents typological generalizations on the distribution of these strategies, based on a cross-linguistic survey involving 12 languages. It will be pointed out that languages can be classified into four types according to the availability of coordinated wh-questions in them and that these four types can make use of at least six distinct syntactic strategies for the derivation of wh-coordination. The availability of these strategies will be shown to be limited by the syntactic typology of wh-questions.

Keywords: wh-questions, coordination, ellipsis, sharing, (multiple) wh-movement

1. Introduction and goals of the present study

Many languages allow for the coordination of categorially different wh-phrases, leading to questions with two or more question variables. Consider the data in (1): [1]

(1) a. When and why did you leave the party?
b. What and when did you eat?

By and large, the interpretation of these *coordinated multiple wh-questions* – CMWQs for short – is predominantly that of a single-pair question. This makes CMWQs functionally distinct from ordinary multiple wh-questions, for which, although there is some variation across languages, the pair-list reading appears to be more uniformly available.

The literature on CMWQs is sizeable. Among work dedicated to this phenomenon, one finds case studies of their syntax in individual languages (Bánréti 1992, Giannakidou & Merchant 1998, Kazenin 2000, Lipták 2003, Merchant 2007, Zhang 2007, Gribanova 2009, Gracanin-Yuksek 2007, Tomaszewicz 2010, Raţiu 2010, Citko to appear), typologically oriented comparative syntactic studies (Citko & Gracanin-Yuksek 2010, Haida & Repp in press) as well as proposals about the functional use and semantics of CMWQs (Whitmann 2004, Gribanova 2009, Tomaszewicz 2011, to appear).

This work is dedicated to the variation in the syntax of these constructions, and it sets out to accomplish two goals. The first is to identify the entire spectrum of strategies underlying CMWQs in the languages hitherto studied, based on the above-mentioned key references and new data collected from informants. The second is to link the available strategies of CMWQ-formation to the typological properties of the languages they are found in. In this second goal, the present paper follows in the pioneering footsteps of Citko and Gracanin-Yuksek (2010) and Haida & Repp (in press) and expands somewhat on these by discussing inter-language and inter-speaker variation in a larger set of data as well as by paying attention to the prosody of CMWQs when relevant. At this juncture, it is important to point out that this paper will ignore those aspects of the interpretation and functional use of CMWQ that are not directly relevant to understanding the syntax of these constructions.

2. Surface variation in coordinated multiple wh-questions

One of the most peculiar features of coordinated multiple wh-constructions is that they show a bewildering variability across languages (and often also across speakers of any given language). Although on the surface they look rather similar, close examination reveals that their underlying structures can be very dissimilar. This section provides an overview of the surface properties of CMWQs in approximately a dozen languages, based on the existing literature and novel data. Even though most of the data come from Indo-European languages and the Finno-Ugric Hungarian, the contours of basic typological variation are already discernible.

Concerning the surface patterns of CMWQs, as will be made clear below, languages and individual constructions differ most robustly in the grammatical function and the optionality of the wh-phrases that can be coordinated in CMWQs. Looking at prosodically unmarked coordinated wh-questions, languages in which CMWQs can be formed fall into three types.

The first is one where the wh-phrases in CMWQs can only correspond to adjunct material. This type of language will be referred to as an "adjunct CMWQ language" in what follows. Dutch is an adjunct CMWQ language (cf. 2): CMWQs featuring two obligatory arguments, two optional arguments and arguments in combination with adjunct material are ungrammatical:

(2) a. **Wat en aan wie heb je gegeven?* [*arg_{obl} & arg_{obl}] (Dutch)
what and to who have you given
"What and to whom did you give?"

b. **Wat en waar heeft Jan gerepareerd?* [*arg_{obl} & *adj*]
wat en waar has Jan fixed
"What and where did Jan fix?"

c. *??Wat en waar heeft Jan gegeten?* [??arg_{opt} & *adj*]
what en where has Jan eaten
"What and where did Jan eat?"

d. *Wanneer en waarom ben je weggegaan?* [✓*adj* & *adj*]
when and why aux you left
"When and why did you leave?"

An entirely different pattern is exhibited by languages like Polish, where any wh-phrase can be coordinated in CMWQs, be they adjuncts or arguments. The following data are from Citko (to appear):

(3) a. *Co i komu Jan dał?* [✓arg_{obl} & arg_{obl}] (Polish)
what and whom Jan gave
lit. "What and to whom did Jan gave?"

b. *Kto i jak naprawił zlew?* [✓arg_{obl} & *adj*]
who and how fixed sink
lit. "Who and how fixed the sink?"

c. *Co i dlaczego zjadłaś?* [✓arg_{opt} & *adj*]
what and why ate
"What and why did you eat?"

d. *Gdzie i kiedy Jan się urodził?* [✓*adj* & *adj*]
where and when Jan REFL born
"Where and when was Jan born?"

Since there are no thematic restrictions on what can be combined, obligatorily transitive verbs, optionally transitive verbs and intransitive verbs are all possible in these constructions. I will refer to languages in which all types of combinations are grammatical as "free CMWQ" languages.

The third type of pattern is an in-between one, in a sense between the adjunct pattern and the free pattern. In this type, coordinated wh-phrases can be adjuncts or arguments, but when they are argumental, they have to correspond to optional arguments. Well-formed combinations are thus 'adjunct & adjunct', 'adjunct & optional argument' and 'optional argument & optional argument' combinations. In other words, CMWQs can only appear with verbs that are intransitive or optionally transitive. For lack of better terminology, languages in which only these three combinations are possible will be referred to as "mixed CMWQs" languages. English is argued to belong to this group of languages in Gracanin-Yuksek (2007):

(4) a. *What and to who did you give? [* arg_{obl} & arg_{obl}]
b. *What and where did you fix? [* arg_{obl} & *adj*]
c. What and where did you eat? [✓arg_{opt} & *adj*]
d. When and why did you leave? [✓*adj* & *adj*]

It is important to note right away, however, that not all varieties of English allow for coordination with optional arguments. My data work with informants indicates that some varieties of English only allow adjunct material to be coordinated (see also Whitman 2004-2007 for a speaker of such an idiolect) – i.e. some varieties of English are like Dutch (cf. 2 above). The varieties in which this is the case will be called $English_{A(dj)}$, to differentiate them from the varieties of English, $English_{M(ixed)}$, that comply with the pattern in (4).

Before moving on, it must be mentioned that restrictions on the function and optionality of the wh-phrases in CMWQs do not characterize languages or language varieties alone, but can also characterize individual CMWQ *constructions* in any give language. Consider Croatian: Croatian is a language in which CMWQs can come in at least two varieties (Gracanin-Yuksek 2007). One of them is a type in which the coordinated wh-phrases are each followed by the same kind of (auxiliary or pronominal) so-called 2nd position clitic or clitics (italicized in the examples below). This *multi-clitic* CMWQ can only feature coordinated adjuncts or optional arguments (data from Gracanin-Yuksek 2007):

(5) a. **Što* je *i kome* je *dao?* [* arg_{obl} & arg_{obl}]
what AUX and whom AUX given
lit. "What and to whom did he give?"
b. **Što si* mu *i zašto si* mu *popravio?* [* arg_{obl} & *adj*]
what AUX him and why AUX him fixed
lit. "What and why did you fix for him?"
c. *Što će i kada će Ivan jesti?* [✓arg_{opt} & *adj*]
what FUT and when FUT Ivan eat
"What and where will Ivan eat?"
d. *Gdje* mu je *i kada* mu je *Petar pokazao novac?* [✓*adj* & *adj*]
where him AUX and when him AUX Petar showed money
"Where and when did Petar show him the money?"

This multiple-clitic construction starkly differs from CMWQs in the same language that contain only one set of clitics linearly following the second wh-expression. In such single-clitic constructions, any type of wh-phrase can be coordinated, regardless of its thematic role*:* single-clitic CMWQs therefore display a free CMWQ pattern, cf. (6)

(6) a. *Što i kome je dao?* [✓arg_{obl} & arg_{obl}]
what and whom AUX.3SG given
lit. "What and to whom did he give?"

b. *Što i zašto si mu popravio?* [✓arg_{obl} & *adj*]
what and why AUX him fixed
lit. "What and why did you fix for him?"

c. *Što i kada će Ivan jesti?* [✓arg_{opt} & *adj*]
what and when fut.3SG Ivan eat
"What and where will Ivan eat?"

d. *Gdje i kada* mu je *Petar pokazao novac?* [✓*adj* & *adj*]
where and when him AUX Petar showed money
"Where and when did Petar show him the money?"

Before concluding this section, it must also be observed that in addition to the three types of languages in which CMWQs can be formed, there is also a fourth type, in which CMWQs cannot be formed at all. Japanese is an example of such a language (Whitman 2004-2007), as well as Chinese.[2]

To take stock so far, and to give an overview of the distribution of CMWQs among the languages that prominently figure in the discussion in this study, the following table summarizes the properties of the four types of CMWQ languages and constructions. The classification of each language or construction is based on native speaker judgments collected for the purposes of this study. In many cases this classification dovetails with data available in existing literature, where this is the case, it is indicated in brackets.

Table 1. Types of CMWQs patterns across languages and constructions

Pattern	no CMWQs allowed	"adjunct CMWQ"	"mixed CMWQ"	"free CMWQ"
wh-phrases used	—	adjuncts	adjuncts optional arguments	Adjuncts optional arguments obligatory arguments
example	Chinese Japanese (Whitman 2004-2007)	Dutch $English_A$ (Whitman 2004-2007) Italian Spanish	Croatian multi-clitic construction (Gracanin-Yuksek 2007) $English_M$ (Gracanin-Yuksek 2007) German (Haida & Repp in press)	Croatian single-clitic construction (Gracanin-Yuksek 2007) Hungarian (Lipták 2003) Polish (Citko to appear) Romanian (Rațiu 2010) Russian (Gribanova 2009) Bulgarian (Citko & Gracanin-Yuksek 2010)

It must be noted that one finds a great amount of inter-speaker variation in some of the languages in Table 1, especially among the languages that show the adjunct pattern and the mixed one: the demarcation line between the two types can be subject to individual preferences. To give an indication of the variation here, of the four Dutch speakers I consulted one shows a mixed pattern, instead of an adjunct one, and of the three German speakers I

solicited data from one shows an adjunct pattern instead of the mixed pattern of the other two speakers.

It is very important to note at this point that the variation reviewed so far is intended to cover only CMWQs that are prosodically unmarked (as in: similar to ordinary wh-questions). Prosodically marked patterns exist in all languages. What seems to be the most frequently occurring one is a parenthetical strategy in which the second wh-phrase is uttered with a prosodic signature that resembles parentheticals in that one finds pauses before and after the '*and* wh_2' sequence and sometimes, a fall-rise on the first wh-expression.[3] To illustrate this parenthetical strategy, consider the following data from Spanish, which, according to my informants, is by-and-large an adjunct CMWQ language. [4] It is however, possible to find '*and* wh_2' sequences that combine with argumental material, and (to varying degrees across speakers), these '*and* wh_2' sequences must be set off by pauses (marked by #) from the rest of the sentence in a manner similar to parentheticals.

(7) *Quién # y cuándo# vió a María?*
who and when saw *a* Maria
lit. "Who and when saw Maria?"

Evidence for the parenthetical nature of the '*and* wh_2' phrase comes not only from prosodic features, but also from data like (8), in which the order of the two wh-phrases is switched. This kind of coordination is ungrammatical, with or without the marked prosodic pattern:

(8) **Cuándo #y quién# vió a María?*
when and who saw *a* Maria
"When and who saw Maria?"

If the second wh-phrase is parenthetical in this construction, the ungrammaticality of the variant in (8) receives a straightforward account, since parentheticals cannot contain obligatory arguments of any sort (Espinal 1991). See endnote 19 in Section 4.3 below for examples of this particular kind of parenthetical strategy in other languages as well.

Summarizing this section, I have identified four language and construction types when it comes to coordinated wh-questions: languages without CMWQs; languages with only adjunct wh-phrases; languages with adjunct and optional argument wh-phrases and finally, languages without any syntactic restriction. These four patterns are hierarchically related in the sense that languages that can coordinate any two arguments freely can also coordinate adjuncts with other adjuncts or optional arguments. Languages that cannot coordinate two obligatory arguments but can coordinate optional arguments and/or adjuncts also allow the coordination of two adjuncts. Finally, there are languages that only allow the coordination of two adjuncts and no arguments are ever allowed in CMWQs, be they optional or obligatory. This implicational relationship among the patterns can be summarized as follows.

(9) *Hierarchy of CMWQ patterns*
free CMWQ pattern > mixed CMWQ pattern > adjunct CMWQ pattern

Following this cross-linguistic survey of CMWQs patterns, the next sections turn to the analysis of these data. As will be shown, there is variation in the size of the coordinates found in coordinated questions. One can distinguish between CMWQs that involve a bi-clausal structure, and CMWQs that have a mono-clausal core (Kazenin 2000, Lipták 2003, Merchant 2007, Gracanin-Yuksek 2007). In the former, we are dealing with single wh-dependencies in each clausal component; in the latter, both wh-phrases originate in the same VP. In addition to

reviewing arguments for differentiating between these two structures, the following sections will also show that both types can be the result of various syntactic mechanisms. Section 3 is dedicated to the analysis of the mixed pattern of CMWQs, identifying the size of the coordinates and the available syntactic strategies that can give rise to this pattern. Section 4 will turn to the peculiarities of the free pattern. Section 5 will touch upon the adjunct CMWQ pattern.

3. Mixed CMWQs

3.1. A bi-clausal underlier

When thinking about the basic structure of CMWQs, it is instructive to start the investigation with the pattern that shows restrictions on what can be coordinated: the mixed pattern. Taking $\text{English}_{\text{M}}$ as a test case for a mixed CMWQ language, the following row of examples show that the grammaticality judgments for CMWQs are fully parallel to the judgments on bi-clausal questions:

(10) *CMWQs in English_{M}*

a. *What and to who did you give?
b. *What and where did you fix?
c. ✓What and where did you eat?
d. ✓When and why did you leave?

(11) *Bi-clausal questions in English_{M}*

a. *[What did you give] and [to who did you give]?
b. *[What did you fix] and [where did you fix?]
c. ✓[What did you eat] and [where did you eat]?
d. ✓[When did you leave] and [why did you leave]?

Given that a coordinate structure is grammatical only if its individual conjuncts are grammatical (Goodall 1983), one legitimate way of thinking about (10a) and (10b) can be that these are ungrammatical for the same reason that (11a) and (11b) are ill-formed: the underlined verbs (*give* and *fix* respectively) do not have their theta-requirements satisfied. In (11a), *give* lacks a locative argument in the first clause and a theme argument in the second. In (11b), *fix* lacks an internal argument in the second clause. In both instances, ungrammaticality in at least one conjunct leads to the ungrammaticality of the whole sentence. Turning to CMWQs, if these are bi-clausal in the same way, that is, if they are underlyingly a coordinated instance of two single wh-questions, the ungrammaticality of (10a) and (10b) follow in exactly the same manner. Assuming that CMWQs are underlyingly bi-clausal can thus give a straightforward explanation as to why arguments cannot be coordinated and why obligatorily transitive verbs cannot surface in CMWQs in $\text{English}_{\text{M}}$: no clause is well-formed if it lacks an obligatory argument.

3.2. Mechanisms of English CMWQs: ellipsis, RNR or sharing

The bi-clausal nature of $\text{English}_{\text{M}}$ mixed CMWQs thus established, the question now is, how does each clause of the bi-clausal construction surface? Since the coordination of two clauses is not what one can actually observe in CMWQs (CMWQs only contain one verb), this structure must be reduced further so that parts of it are not pronounced. In the literature one finds three suggestions as to how such a reduction is achieved.

The first proposal assumes ellipsis of the TP in the first clause (cf. 12b):

(12) a. [What did you eat] and [where did you eat]? underlying structure

b. [What ~~did you eat~~] and [where did you eat]? reduction through *ellipsis*

The ellipsis account goes back to Giannakidou & Merchant (1998) and has recently been revived by Tomaszewicz (2011, to appear). Giannakidou & Merchant (1998) present a sluicing account for the apparent coordination of a question complementizer and a wh-phrase in English. According to this, (13a) should receive a bi-clausal analysis in which the first clause undergoes TP-ellipsis (cf. 13b):

(13) a. It's not clear if and when the police arrested the demonstrators.
b. It's not clear if [$_{TP}$ ~~the police arrested the demonstrators~~] and when the police arrested the demonstrators.

This ellipsis operation is an instance of 'reverse' sluicing in the sense that the antecedent follows rather than precedes the elliptical TP.[5]

The second proposal about English CMWQs grew out of the critique of the ellipsis approach, and posits that the 'missing' TP is an instance of right-node raising (RNR) in these constructions – a theoretical option that Giannakidou & Merchant (1998) actually argue against, based on, among others, the examples in (14), which they indicate to be ungrammatical:

(14) [*] I didn't remember that or when Jack got married.

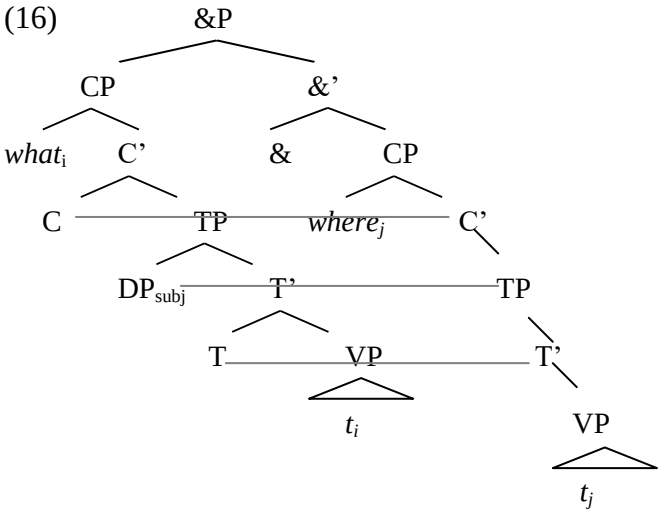
Since the complementizer *that* cannot be followed by ellipsis in English, they argue, the ungrammaticality of (14) follows straightforwardly under an ellipsis account, but not under a RNR account. Park (2006) and Haida & Repp (in press), however, consider examples of this sort to be well-formed, and treat them as crucial arguments for the RNR approach. The following example is from Haida & Repp (in press):

(15) Paul is a clever little boy. Although he is only three years old – he knows that, and why,the leaves change colour and fall off the trees in autumn.

As for the mechanism underlying RNR, Haida & Repp (in press) consider it to be rightward ATB movement (following Sabbagh 2007).[6]

The third proposal about the structure of mixed CMWQs has been put forward in the multidominance framework,[7] and it advocates that the material in the TP is *shared* between the two coordinates. This kind of sharing represents what the author refers to as *non-bulk-sharing* (Gracanin-Yuksek 2007), cf. (17), and involves the coordination of two CPs, below which in each clause every node apart from the spine of the tree is individually shared between the two clauses. The linearization process spells out "to the right" in the sense that shared material linearly follows the second wh-phrase (for details consider Gracanin-Yuksek 2007, to appear).

(16)



Gracanin-Yuksek (2007) argues that this kind of sharing also underlies the Croatian multi-clitic construction repeated in (17a-d):

(17) a. **Što je i kome je dao?* [* arg_{obl} & arg_{obl}]
what AUX.3SG and whom AUX.3SG given
"What and to whom did he give?"

b. **Što si mu i zašto si mu popravio?* [* arg_{obl} & *adj*]
what AUX him and why AUX him fixed
"What and why did you fix for him?"

c. *Što će i kada će Ivan jesti?* [✓arg_{opt} & *adj*]
what FUT.3SG and when FUT.3SG Ivan eat
"What and where will Ivan eat?"

d. *Gdje* mu je *i kada* mu je *Petar pokazao novac?* [✓*adj* & *adj*]
where him AUX and when him AUX Petar showed money
"Where and when did Petar show him the money?"

Arguments for the bi-clausal nature of coordination in (17) come from two sources. The first of these was already reviewed in the previous section for English: the ban on using obligatory arguments in wh-coordination of this sort in Croatian indicates that the structure contains two coordinated clauses. The second argument for the bi-clausal nature of the multi-clitic construction comes from the presence of clitics. Croatian clitics being 2nd position clitics, they have to occupy a high clausal position, and the fact that they occur twice indicates that one is dealing underlyingly with two CPs. Gracanin-Yuksek's (2007) proposal of non-bulk sharing between two CPs captures this property neatly.

Gracanin-Yuksek (2007) also shows that a sluicing account is incompatible with the data at hand: if (17c) and (17d) involved sluicing, we would expect the 2nd position clitics not to surface, upon parallelism with the ordinary (forward and backward) sluicing cases in which the clitics can never be spelled out. Consider (18) for illustration. The ban on clitic material next to the elliptical remnant falls under the so-called '*Sluicing-Comp generalization*' established in Merchant (2001).

(18) *Jan ne zna što (*mu je), ali zna da* mu je *Ivan nešto kupio.*
Jan not knows what HIM AUX but knows that HIM AUX Ivan something bought
"Jan does not know what, but he knows that Ivan bought something."

However, Croatian multi-clitic CMWQs by definition contain clitics adjacent to the wh-phrases, which rules out an analysis in which the first wh-clause undergoes sluicing. Ellipsis not being an option, the non-bulk sharing account is singled out as the only viable structure for the Croatian (17c) and (17d) by Gracanin-Yuksek (2007). Gracanin-Yuksek (2007) furthermore advocates that non-bulk-sharing is also what underlies English, a language that she uniformly considers to be a mixed CMWQ language (since she is not aware of variants of English – which I dubbed English_A above – that cannot coordinate arguments in CMWQs).

3.3. In defense of ellipsis in mixed CMWQs

Although recent proposals argue against ellipsis as the source of reduction in bi-clausal CMWQs in English, close examination reveals that the sluicing strategy does exist in some variants of English.

Extending Giannakidou & Merchant's (1998) proposal for *if and when* coordination to CMWQs of the type that involves coordinated wh-expressions, (19) can be analyzed as backward TP deletion, i.e. backward sluicing, in the following way:

(19) a. What and where did you eat?
b. What [$_{TP}$ ~~did you eat~~] and where did you eat?

Note that backward application of sluicing is attested in English single wh-movement contexts as well (Coppock 2001, Gullifer 2004) in examples like (20). This kind of backwards sluicing violates the backward anaphora constraint:

(20) I don't know what, but John will have something.

Primary evidence for a backward sluicing mechanism in the CMWQ in (19) can be construed with the help of a sluicing-specific construction, *swiping* – a phenomenon in which the complement of a preposition appears before the preposition in English. It is well-known since Merchant (2001) that swiping is restricted to sluicing configurations:

(21) a. *Who from did Mary receive a package?
b. Mary received a package, but I don't know who from.

Swiping can thus present the perfect testing ground for the availability of sluicing in CMWQs. If a speaker can derive a CMWQ via sluicing, he should allow for the first wh-phrase to be swiped.

Interestingly, the English_M informants I consulted (two British English speakers and two Canadian English speakers) can do precisely this. They accept the following examples:[8]

(22) a. Who from and why did Mary receive a package?
b. Who to and when did Chomsky lecture about syntax?

For reasons of completeness, it must be added that for the two British English speakers the data in (22) are slightly marked. However, the degradation is not due to swiping, as the non-swiped versions of these sentences are also marked for these speakers in the same way, showing that the degradation is not due to swiping per se, but possibly to the fact that these wh-phrases are PPs.

Swiping being a signature of sluicing, the examples in (22) present unequivocal evidence that certain varieties of English_M can form CMWQs via sluicing. Interestingly, there is also evidence that these sluicing speakers do not use RNR as an available strategy in clausal

coordination. The evidence for this comes from examples like (14) or (15) above, which my sluicing speakers find (close to) ungrammatical:

sluicing speakers of English$_M$

(23) ?* Paul is a clever little boy. Although he is only three years old – he knows that, and why, the leaves change colour and fall off the trees in autumn.

Since these speakers cannot use RNR in (23), it is likely that they do not use RNR in CMWQs of the type where wh-phrases are coordinated, either. At the same time, all these speakers find (13a) above with *if and when*, repeated here as (24), to be grammatical, which can be taken as evidence that these kinds of coordinated questions are derived via sluicing, as originally suggested by Giannakidou & Merchant (1998), and not via RNR, as proposed by Haida & Repp (in press):

(24) a. It's not clear if and when the police arrested the demonstrators.
b. It's not clear if [$_{TP}$ ~~the police arrested the demonstrators~~] and when the police arrested the demonstrators.

Taking stock, this section has examined mixed CMWQ constructions in English (and to a lesser extent, in Croatian) and concluded that under standard assumptions on wh-movement, these most likely involve coordination of two CPs underlyingly. As for the strategy that reduces these coordinated CPs, three different kinds were identified: next to a sharing strategy most clearly present in Croatian multi-clitic constructions, one can find RNR or ellipsis in the first clause. This section has isolated variants of English$_M$ in which the ellipsis pattern can be evidenced with data featuring swiping, and it was shown that speakers who can use the ellipsis strategy use it to the exclusion of the RNR strategy, a conclusion that comes from their rejection of clausal coordinations of the type that only allows for the latter. Although I have not found evidence for it among my informants, there may be variants of English$_M$ where the only strategy used is RNR or non-bulk-sharing and where an ellipsis strategy is excluded.[9]

4. Free CMWQs

4.1. No bi-clausal underliers

Turning now to free CMWQs, which can freely coordinate argumental wh-phrases and can use obligatorily transitive verbs, what can be known about the number of clauses underlying CMWQs in these? Although there are some differences between the various languages with free CMWQ patterns as will be made clear below in sections to follow, all free CMWQ languages are uniform in that the wh-phrases coordinated in them belong to a single verb. To prove this, the present section looks at Hungarian – which for the purposes of the discussion here will serve as the representative of all other free CMWQ languages. Hungarian is chosen because it has object agreement as well as systematic object drop, both handy properties for detecting the structure of CMWQs as will be made clear shortly.

When looking at the basic pattern in (25), it is not difficult to spot that Hungarian represents the reverse scenario of what we find in English$_M$: Hungarian CMWQs – at least the types that involve arguments and obligatorily transitive verbs – *cannot* be analyzed in terms of clausal coordination (as Lipták 2003 has shown):

(25) a. *Mit és kinek adtál?* [✓arg_{obl} & arg_{obl}]
what.A and who.DAT gave.INDEF.2SG
"What and to whom did you give?"
b. *Mit és hol javítottál meg?* [✓arg_{obl} & *adj*]
what. A and where repaired.INDEF.2SG PV
"What and where did you repair?"
c. *Mit és hol ettél ?* [✓*arg* & *adj*]
what.A and where ate INDEF.2SG
"What and where did you eat?"
d. *Mikor és miért mentél el?* [✓*adj* & *adj*]
when and why left.3SG PV
"When and why did you leave?"

To spell this out, consider what would happen if Hungarian had bi-clausal syntax, comparable to the coordinated full questions in (26):

(26) a. ***Mit** <u>adtál</u> és kinek <u>adtál</u>?*
what.A gave.NDEF.2SG and who.DAT gave.INDEF.2SG
"What did you give and to whom did you give?"
b. **Mit javítottál meg és hol <u>javítottál</u> meg?*
what.A repaired.INDEF.2SG PV and where repaired.INDEF.2SG PV
"What did you repair and where did you repair?"
c. *Mit ettél és hol ettél?*
what.A ate.INDEF.2SG and where ate.INDEF.2SG.
"What did you eat and where did you eat?"
d. *Mikor mentél el és miért mentél el?*
when left.2SG PV and why left.2SG PV
"When did you leave and why did you leave?"

If CMWQs contained coordinated single questions, and the examples in (25) were therefore underlyingly similar to the examples in (26), (25a) and (25b) would not be expected to come out grammatical. This is because the clauses with the obligatorily transitive verb *ad* 'give' in (26a) lack an argument in both clauses, similarly to the second clause in (26b), which lacks the internal argument of *javít* 'repair'. Yet the CMWQs in (25a) and (25b) are all well-formed, unlike (26a) and (26b), which shows the lack of bi-clausality in these constructions.

One could object that the bi-clausal analysis is viable in principle and the reason why the external and/or internal arguments in (26a) and (26b) are invisible is that these can freely be dropped in free CMWQ languages, and therefore in Hungarian. That is, maybe we are dealing with the following schematic structure – before further reduction occurs:

(27) $[_{CP}wh_1 \ [_{TP} \ldots \ t_1 \ldots \ pro_2 \ ] \ ]$ and $[_{CP} \ wh_2 \ [_{TP} \ldots \ t_2 \ldots \ pro_1 \ldots]]$

This theoretical option should clearly be available in languages that allow null arguments across the board: if a language can drop its arguments wholesale, it should allow a bi-clausal structure in which the non-overt arguments are null. Tomaszewicz (2011) in fact advocates the view that (27) can underlie CMWQs in Polish, Russian and Bulgarian when these have the semantic import of a single-pair question. This claim, however, is difficult to evaluate, because Tomaszewicz does not provide evidence that these languages can indeed drop arguments of all kinds.[10] Although it is well-known that Slavic languages can drop pronominal subjects, evidence for generalized object drop is lacking, as far as I am aware.

The language that can drop most of its arguments in our sample is Hungarian. In this language, definite objects can also be dropped next to pronominal subjects. Object drop, however, is restricted to singulars. Plural object pronouns cannot be dropped:

(28) a. *Itt van a könyv. Péter már elolvasta* pro_{sg}.
Here is the book Péter already PV-read.DEF.3SG
"Here is the book. Péter has read it."
b. *Itt vannak a könyvek. *Péter már elolvasta* pro_{pl}.
here are the book.PL Péter already PV-read.DEF.3SG
"Here are the books. Péter has already read them."

This restriction on object drop provides a key piece of evidence for rejecting the structure in (27). Even though object drop is a viable strategy with singular objects only, as we have seen above, Hungarian CMWQs are also well-formed if their missing object is plural. Consider (29). Here, the missing object has to correspond to a plural expression as the wh-phrase *miket* 'what' carries plural morphology and refers to more than one thing:

(29) *Miket és hol javítottál meg?*
what.PL.A and where repaired.INDEF.2SG PV
"What (things) and where did you repair?"

A second argument against (27) comes from verbal agreement. In Hungarian, transitive verbs show agreement with their object in definiteness. This agreement is also observed in CMWQs. When the object wh-phrase is an indefinite, this manifests itself as *indefinite* agreement on the verb. Dropped objects, being definite, on the other hand trigger definite agreement. In a bi-clausal construction like the following, the result is obligatory indefinite agreement in the first clause and definite agreement in the second:

(30) *Mit javítottál meg és hol javított{-ad/*-ál} meg* pro_{sg}*?*
what.A repaired.INDEF. 2SG PV and where repaired.DEF/INDEF. 2SG. PV
"What did you repair and where did you repair it?"

Importantly, the agreement pattern in the bi-clausal (30) differs from that in the corresponding CMWQ, (cf. 25b repeated here as 31). In (31), the verb is only well-formed with indefinite agreement, while in (30) the second verb is only well-formed with definite agreement:

(31) *Mit és hol javított{-ál/*-ad} meg?*
what.A and where repaired.INDEF/DEF.2SG PV
"What and where did you repair?"

This shows that postulation of covert objects in Hungarian CMWQs would lead to predicting the wrong inflection on the verb that surfaces in the CMWQ. The same considerations of unexpected object agreement carry over to CMWQs analyzed in terms of the following hypothetical bi-clausal underlier, involving ellipsis of the first clause TP, the latter containing the indefinite correlate of the second wh-phrase:

(32) ***Mit** ~~javítottál meg valahol~~ és hol javítottad meg* pro_{sg}*?*
what.A repaired.2SG.INDEF PV somewhere and where repaired.DEF.2SG PV
"What did you repair somewhere and where did you repair *it*?"

Just as in (30), the *pro* object in the second clause in this case should trigger definite agreement, contrary to the observed facts. A more viable possibility for a bi-clausal elliptical analysis would therefore have it that the object of the second clause is represented by an elided indefinite, corresponding to *something*, which could straightforwardly trigger indefiniteness agreement:

(33) *Mit* ~~*javítottál meg valahol*~~ *és hol javítottál*
what.A repaired.2SG.INDEF PV somewhere and where repaired. INDEF.2SG
~~*valamit*~~*?*
something.A
"What did you repair somewhere and where did you repair *it*?"

The trouble with such an analysis, however, is that there is no evidence for indefinite object deletion in other domains of the grammar of Hungarian.[11]

An independent argument against a bi-clausal analysis comes from the possibility of stranding parts of either wh-phrase behind the verb in Hungarian CMWQs. Stranding is possible from any wh-phrase, the first or the second, be it an obligatory argument (34a-b), an adjunct (34c) or a non-obligatory argument (34d). The latter point (that stranding is possible in CMWQs with optional material) demonstrates that adjunct CMWQs can take part in the same structure as argumental CMWQs:

(34) a. Kinek$_i$ *és miért szerezted meg a* t$_i$ *fényképét?*
who.DAT and why got.DEF.2SG PV the foto.POSS.3SG.A
"Whose photograph and why did you get hold of?"
b. *Ki és* kinek$_i$ *szerezte meg a* t$_i$ *fényképét?*
who and who.DAT got.DEF.3SG PV the foto.POSS.3SG.A
"Who and whose photograph got hold of?"
c. *Ki és* melyik napján$_i$ *érkezett a hétnek* t$_i$*?*
who and which day.POSS3SG.ON arrived.3SG the week.DAT
lit. "Who and on which day of the week arrived?"
d. Kinek$_i$ *és miért ettél a* t$_i$ *tortájából?*
who.DAT and why ate.2SG.INDEF the cake.POSS3SG.FROM
"Whose cake did you eat from and why?"

Under a bi-clausal analysis stranding parts of either wh-phrase is impossible after the verb. Consider the following examples from English$_M$, which show that what on the surface looks like preposition stranding is impossible in CMWQs:

(35) a. *What$_i$ and where did you sing about t_i ?
b. *Where and what$_i$ did you sing about t_i?
c. What$_i$ did you sing about t_i and where did you sing?

The English facts follow straightforwardly from a bi-clausal account, which predicts that the stranded preposition can only belong to one clause, similarly to (35c). Since *about* is not part of the second clause, but the first clause, it cannot surface in the second clause (either under an ellipsis account, an RNR account or a sharing one).[12].

The above discussion has investigated properties of alleged argument drop, verbal agreement and stranding and showed that all three areas of syntax point to the conclusion that a bi-clausal analysis is heavily problem-ridden for Hungarian CMWQs with argumental wh-phrases. The only plausible analysis for these is one in which CMWQs have a source that

only contains one projected VP and one set of arguments only. Even if the other free CMWQ languages do not have generalized object drop and object agreement, the argumentation based on thematic properties and on stranding can be carried out in these languages. Confining the discussion here to the latter phenomenon, consider for example left branch extraction in Russian (36a) and dative extraction in Polish (36b, Tomaszewicz to appear):

(36) a. Kakuju$_i$ *i* *kto* *prodal* t$_i$ *mašinu?* (Russian)
which and who sold car.A
"Who sold which car?"
b. Komu *i* *kiedy* *zepsuł* *się* *samochód?* (Polish)
who.DAT and when broke REFL car
"Whose car broke and when?"

Extraction data thus give the same results as the extended argumentation in Hungarian: argumental CMWQs only contain one instance of the VP, such that that verbal predicate as well as all arguments appear generated only once. What exactly the configuration of these single-VP CMWQs is will be the topic of the next section.

4.2. Mechanism of free CMWQs: small coordination and bulk sharing

Free CMWQs have received two types of accounts in the literature. One proposal assumes that these questions are mono-clausal in the sense that they project a single CP, within which one finds the local combination of wh-expressions in a coordination phrase (&P). As a single constituent these coordinated question phrases undergo movement to the same position that single wh-phrases also target. In Hungarian, for example, this happens to be FocP (see, among others, É. Kiss 2002):

(37) [$_{CP}$ [$_{FocP}$ [$_{\&P}$ *mit$_i$* *és* *hol$_j$*] *javítottál* *meg* *t$_i$* *t$_j$*]]?
what.A and where repaired.INDEF.2SG PV

Since coordination only extends to the wh-phrases in this structure, this type of approach is often referred to as the "small (constituent) coordination" approach. Kazenin (2000) and Gribanova (2009) propose a small coordination account for Russian CMWQs, and Haida & Repp (in press) hold the view that this kind of structure underlies all free CMWQ constructions.

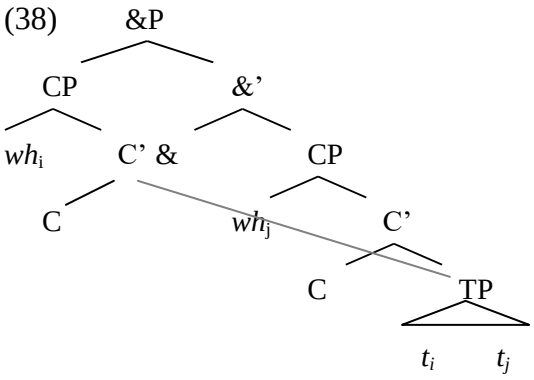
The derivation of small coordination is not exactly straightforward. Since categorially non-identical phrases resist coordination in general (cf. *Law of Coordination of Likes*, Williams 1981) one pertinent question about small coordination in CMWQs is how categorially non-identical wh-phrases can be coordinated to begin with. Available proposals about CMWQs escaping the law of coordination of likes (Schachter 1977, Grosu 1983, Lipták 2003, Haida & Repp in press) argue that this instance of non-categorial coordination is possible because wh-phrases are alike in their semantics and it is not the syntactic category but the semantic interpretation that coordination cares about in this case.[13] An entirely different solution to the coordination of unlikes problem is proposed in Merchant (2007), where it is argued that the coordinator in small coordination CMWQs is actually not a run-of-the-mill conjunction, but rather a discourse marker.

Concerning the syntactic steps in the derivation of small coordination, the most explicit theory is put forward by Zhang (2007) and, in Zhang's footsteps, Haida & Repp (in press): according to this theory small coordination is derived by sideward movement of the wh-phrases to a coordination phrase. In Haida & Repp's (in press) version of this theory, the sideward movement step to &P can only apply in configurations where the to-be-coordinated

wh-phrases are overtly moved to the left periphery – a configuration that only obtains in multiple movement languages. From the left peripheral position the wh-phrases move to an unconnected &P, which later merges with the rest of the tree.

A drastically different solution to the 'coordination of unlikes' puzzle is offered by Raţiu (2010) for Romanian and Citko (to appear) for Polish, and constitutes the second type of account for the structure of free CMWQ languages in the literature. Both works argue that in their respective languages CMWQs can also partake in a structure that is mono-clausal from the bottom up to the *v*P or TP level, but bi-clausal at the level of the CP/left periphery that hosts the target of wh-movement. Two CPs are projected, each hosting a wh-phrase on its own, and the complement to these CPs is a unique and singular TP node within which one finds just one set of arguments projected. The structure of such coordination instantiates what Gracanin-Yuksek (2007) refers to as bulk sharing, and refers to the fact that a single constituent is shared by more than one mother.

(38)



It is important to note that the multidominant structure in (38) is different from the non-bulk-sharing one that underlies the Croatian (16) above. While non-bulk-sharing is entirely bi-clausal, (38) has a mono-clausal core, up to the level of the shared material (the TP), and it is only bi-clausal above that. This implies that (38) has mono-clausal properties when it comes to the argument structure of the verb, that is, there is a single verb and a single set of arguments in the VP. Features of the non-shared material, however, are multiply represented, and thus count as bi-clausal. For example there are two complementizers projected and both of these have a <+wh> feature to value in the precise configuration in (38). For these reasons, bulk sharing can be said to represent *a bi-clausal CMWQ with monoclausal properties*. This type of CMWQ can, according to Citko & Gracanin-Yuksek (2010), only occur in languages with multiple wh-fronting: since there is only one set of arguments projected in these structures, the movement of wh-phrases up to the CP level qualifies as multiple movement and is thus only allowed in languages that allow for multiple fronting in general.

Bulk-sharing underliers have been proposed so far for Polish and Romanian, which exhibit lexical evidence for the presence of multiple nodes and multiple features in the high left periphery of their clauses. There are two types of lexical material that have been identified to earmark bulk sharing: question particles and high adverbs. Raţiu (2010) demonstrates that in Romanian the question particle *oare*, which normally can only appear once per clause in both single and multiple questions, is allowed to appear more than once in CMWQs, preceding each wh-expression:

(39) a. Oare *cine (*oare*) ce (*oare*) va spune (*oare)?* (Romanian)
QPRT who QPRT what QPRT AUX say QPRT
"Who will say what?"

b. Oare *cine şi* oare *ce va spune?*
QPRT who and QPRT what AUX say
lit. "Who and what will say?"

This provides evidence for there being two CP-projections in (39b): since a single CP cannot host two or more particles (cf. 39a), the presence of multiple particles in (39b) entails the presence of two independent CPs.

The other type of lexical evidence put forward in the literature for bulk-sharing is the possible occurrence of adverbial expressions between the wh-phrases. As Citko and Gracanin-Yuksek (2010) show, with reference to data like (40) noted in Tomaszewicz (2010), high (speaker-oriented) adverbs can appear between the wh-words in Polish.[14]

(40) *Kto i* najważniejsze *co powiedział?* (Polish)
who and most.importantly what said
"Who and most importantly what said?"

Only if a full CP projection is projected as a complement of the coordinator head & can the high adverbial freely attach to this CP projection and appear linearly to the left of the second wh-phrase. If instead the example involved small coordination of wh-phrases, high left peripheral material would not be able to appear between the coordinates, since speaker oriented adverbials cannot adjoin to DPs.[15]

4.3. The prosodic features of bulk sharing

It is important to note that CMWQs that are unambiguously 3-dimensional, i.e. that appear with multiple question particles and/or high adverbs can be found in *all* free CMWQ languages, and thus are not restricted to Polish and Romanian. Another crucial point to be made about bulk-sharing CMWQs is that they are 3-dimensional structures that are p*rosodically marked*. The present section presents evidence for these two novel claims.

The prosodic phrasing and intonation of the relevant examples is different from that of ordinary CMWQs without multiple question particles and adverbs, in a way that informants identify as 'more emphatic' and 'parenthetical like'. To start with Polish, the example in (40) according to my informants necessarily comes out with comma intonation. Comma intonation is obligatory after the first wh-phrase and optional after the second, the latter of which needs to receive heavy accentuation (marked by capitalization). For one of my informants, there also needs to be an additional prosodic break before and after the adverbial.

(41) *Kto # i* %*(#) najważniejsze* %*(#) CO (#) powiedział?*
who and most.importantly what said
"Who and most importantly what said?"

Without the presence of *najważniejsze* 'most importantly' none of the pauses would be necessary and *co* 'what' could receive less stress than it does in (41). Other languages in our sample are exactly like Polish in that high adverbials can be added to CMWQs and when they are present, they have to occur with marked prosody, involving a pause before the coordinator, heavier than normal pitch on the second wh-phrase, and another possible prosodic break after the second wh-phrase:

(42) a. *Što # i što je bitnije KADA (#) Ivan jede?* (Croatian)
what and what is more when Ivan ate

lit. “What and what’s more when Ivan ate?”

b. *Kto # i bolee vazhno GDE (#) videl papu?* (Russian)
who and more important where saw father.A
lit. “Who and more importantly, where saw father?”

c. *Kade # i vaobshte KAKVO # si jal dnes?* (Bulgarian)
where and in.general what aux eaten today
“Where and in general what have you eaten today?”

d. *Ki # és méginkább MIKOR (#) törte be az ablakot?* (Hungarian)
who and even more when broke PV the window.A
lit. “Who and even more importantly, when broke the window?”

e. *Ce # şi # cel mai important # UNDE (#) va cînta Filip?* (Romanian)
what and more importantly when AUX sing Filip
lit. “What and more importantly, when will Filip sing?”

Without the adverbial, the coordinated questions are prosodically unmarked in these languages, just as in Polish: no pauses need to occur, and the wh-items are not heavily stressed. In the most neutral cases, the second wh-phrase receives more stress than the first, but does not end up with heavy accentuation, unlike in the examples in (42) above.

In multi-particle constructions, prosodic breaks are also observable before the ‘*and* QPRT *wh*$_2$’ sequence in Romanian, together with stronger than ordinary stress on wh$_2$. Without this prosodic pattern, the sentence in (43) is ill-formed.

(43) a. Oare *cine # şi* oare *CE (#) va spune?* (Romanian)
QPRT who and QPRT what AUX say
lit. “Who and what will say?”

The same obtains in Hungarian, which has a cognate of *oare*, *vajon* that can be used in wh-questions and which can be multiplied in CMWQs, but not in ordinary multiple questions.[16] Multiple *vajon* is only licensed by marked prosody:

(44) a. Vajon *ki* (*vajon) *mikor torte be* (*vajon) *az ablakot* (*vajon)*?*
QPRT who QPRT when broke PV QPRT the window.A QPRT
“Who broke the window when?”

b. Vajon *ki # és* vajon *mikor (#) torte be az ablakot?*
QPRT who and QPRT whom broke PV the window.A
lit. “Who and when broke the window?”

What we can observe then is that the data that provide first-hand evidence for bulk-sharing, namely the examples of CMWQs featuring high adverbs and multiple particles, prove to be prosodically marked constructions and thus distinct from ordinary run-of-the-mill CMWQs. The question is: is this markedness an earmark of bulk-sharing or is it due to the semantics of the lexical markers used in these tests?

For sentence adverbials one could perhaps make a case for the latter option, since sentence adverbials are sometimes treated as parentheticals (Taglicht 1989) and the type of high adverbs in our examples must be marked off by comma intonation in some languages (cf. the Romanian and Polish examples above), even if not before the coordinator and the second wh-expression.

The same, however, cannot be said about question particles, since these do not themselves trigger the insertion of comma intonation, in fact they are ungrammatical with it, cf. (45).

(45) *Ki torte be (*#)* vajon *(*#) az ablakot?*
QPRT broke PV QPRT the window.A
"Who broke the window?"

For this reason, the prosodically marked nature of CMWQs with high adverbials and question particles cannot be due to the lexical indicators of bulk sharing but must be viewed as a characteristic feature of bulk-sharing itself.[17] Another independent indication that the special prosody in the bulk-sharing constructions in this section is not due to any parenthetical semantics comes from the observation that the special prosody is completely acceptable in CMWQs in which the second wh-phrase is an obligatory argument. Consider the following list of illustrative examples:[18]

(46) a. *Co # i KOMU # Jan dał?* (Polish)
what and whom Jan gave
lit. "What and whom Jan gave?"
b. *Što # i KOME (#) je dao?* (Croatian)
what and whom AUX.3SG given
lit. "What and to whom did he give?"
c. *Kto # i bolee vazhno KOGO (#) uvidel?* (Russian)
who and more important whom saw
lit. "Who and more importantly whom saw?"
d. *Kade # i KAKVO # si popravjal dnes?* (Bulgarian)
where and what aux fixed today
"Where and in general what have you fixed today?"
e. *Ki # és KIT (#) hívott meg?* (Hungarian)
who and who.A invited PV
lit. "Who and whom invited?"
f. *Cine # şi CE (#) a cumpărat?* (Romanian)
who and what has bought
lit. "Who and what bought?"

These examples then clearly differ from the parenthetical strategy in Spanish that was identified above in (7)-(8) above, and is repeated here as (47):

(47) a. *Quién # y cuándo # vió a María?*
who and when saw *a* Maria
lit. "Who and when saw Maria?"
b. **Cuándo # y quién # vió a María?*
When and who saw *a* Maria
lit. "When and who saw Maria?"

The interim conclusion on the basis of the six languages studied in this section has to be that the bulk-sharing strategy – at least when it is detectable from lexical content – is available in all six languages and that this strategy has a prosodic signature that bears resemblance to that of parentheticals, even though it is not parenthetical in its syntax.

4.4. On the diagnostic force of superiority

The reader might ask whether there are other contexts in which the bulk-sharing strategy can be identified. The typologically oriented study of Citko & Gracanin-Yuksek (2010) argues that bulk sharing, just like small coordination, is a freely available strategy in free CMWQ

languages, and they offer another diagnostic to differentiate between the two: superiority effects in some languages.

Citko & Gracanin-Yuksek (2010) argue that when CMWQs use a mono-clausal strategy, they exhibit the same pattern of superiority in CMWQs as in multiple fronting. This happens to be the case in Russian, Croatian or Polish, where neither constructions show effects of superiority, and this also happens to be the case in Bulgarian in which both constructions do. If superiority configurations on the other hand show *differences* across the two constructions, it indicates that there are distinct underliers in the two types. Romanian shows superiority in multiple movement, but not in CMWQs (Comorovski 1996).

(48) a. *Cine ce a văzut?* (Romanian)
who what has seen
b. **Ce cine a văzut?*
what who has seen
"Who saw what?"

(49) a. *Cine şi ce ti-a spus?*
who and what to.you-AUX told
b. *Ce şi cine ti-a spus?*
what and who to.you-AUX told
"Who told you something and what was it?"

The authors argue that the CMWQs in (49) cannot involve movement of two wh-phrases – at least according to accounts of superiority which trace superiority back to a single C^0 head attracting multiple wh-phrases. Rather, these CMWQs involve bulk-sharing, i.e. contain two C^0 heads that each attract a wh-phrase, and thus there is no competition between the wh-phrases.[19]

It appears, however, that there are some problems with taking the lack of superiority in CMWQs here as indicative of bulk-sharing. The first is that (49) need not be pronounced with the characteristic intonation that was seen to be obligatory for bulk sharing. Second, Romanian superiority does rear its head in some CMWQs, namely those that contain collective predicates.

(50) a. *Cine şi cu cine s-a intilnit?*
who and with who REFL-has met
b. **Cu cine şi cine s-a intilnit?*
with who and who REFL- has met
"Who met whom?"

Citko & Gracanin-Yuksek (2010) are actually aware of this and interpret this effect as evidence that collective predicates have to use the mono-clausal structure with small coordination. Why this should be the case is not very evident (the two arguments here are just as obligatory as they are with non-collective predicates like *repair*) and is furthermore not supported by the observation that collective predicates can occur with the prosodic earmarks of bulk-sharing, as shown in the following examples from colloquial Romanian.[20]

(51) *Cine # şi cu CINE (#) s-a intilnit?*
who and with who REFL-has met
"Who met whom?"

It can therefore not be the case that superitority-observing constructions in Romanian must necessarily receive a small coordination account, and that superiority violations and the difference between multiple fronting and CMWQs in this respect can be taken as evidence for a distinct underlier, although further research is necessary to find out what exactly causes the presence of superiority in (50).

5. Adjunct CMWQ languages

The last class of languages that must be covered when investigating the structural properties of CMWQ is the group of languages that only allow for these constructions with adjunct material, such as Dutch, Spanish or Italian, or some variants of English.

The question, just as in the case of mixed and free CMWQ languages is, do these constructions exhibit a bi-clausal or a mono-clausal underlier? It is clear that argument structure properties alone cannot differentiate between bi-clausal or mono-clausal properties in adjunct coordination: since adjunct material is never obligatory, both bi-clausal and mono-clausal structures can in principle generate adjunct coordination. Consider the well-formed Dutch CMWQ in (52a) and its possible underlying structures in (52b,c):

(52) a. *Wanneer en waarom ben je weggegaan?*
when and why AUX you left
"When and why did you leave?"
b. *Wanneer ben je weggegaan en waarom ben je weggegaan?*
when AUX you left and why AUX you left
c. [$_{\&P}$*Wanneer en waarom*] *ben je weggegaan?*
when and why AUX you left

(52a) is paraphrasable as (52b), since both conjuncts of (52b) are well-formed, but the small coordination in (52c) is a possible source.

Testing the possibility of stranding, however, can single out the correct representation, just as in the case of English (35) and Hungarian (34). Consider Dutch again. Dutch can strand prepositions when their complements are so-called R-pronouns, wh-phrases and demonstratives (van Riemsdijk 1978). As the next example shows, a wh-phrase such as *waar*, in this example the R-pronoun version of *wat* 'what' can strand its preposition *mee* 'with':

(53) *Waar heb je je fiets mee gerepareerd?*
R-what AUX you your bike with repaired
"With what did you repair your bike?"

In CMWQs, however, the same stranding is impossible, and this holds both for the initial or the non-initial wh-expressions:

(54) a. **Waar en wanneer heb je je fiets mee gerepareerd?*
R-what and when AUX you your bike with repaired
"With what and when did you repair your bike?"
b. **Waar en wanneer ben je hier voor gekomen?*
R-what and when AUX you here for come
"For what and when did you come here?"

The impossibility of preposition stranding forces one to conclude that the small coordination account cannot be on the right track for the adjunct CMWQ language Dutch. If it was, prepositions would be strandable, just as material is strandable in Hungarian (cf. 34 above). This leaves us with the sole option of a bi-clausal account.

That CMWQs in adjunct CMWQ languages are bi-clausal is also suggested by the typological generalization (already mentioned in Section 4.2.) that small coordination is only observed in multiple fronting languages. Since adjunct CMWQ languages are not multiple fronting, they cannot form their CMWQs via small coordination. The latter point can be made even more strongly for one of the three adjunct CMWQ languages, Italian, as Haida & Repp (in press) rightly point out. Since this language cannot form multiple questions of any sort, including cases where some wh-phrase appears in situ (Calabrese 1984), the option that two wh-phrases originate in one and the same clause does not arise for this language (but see Moro 2011 for possible counterarguments). Yet, CMWQs with coordinated adjuncts can be formed without a problem:

(55) *Perché e come sono arrivati?* (Italian)
why and how AUX arrived.3PL
"Why and how have they arrived?"

Coordinated wh-questions in adjunct CMWQ languages are thus bi-clausal according to the evidence of Dutch or Italian. As Section 2 has shown, there is also evidence from one of these languages, Spanish, for a parenthetical strategy of CMWQ formation.

6. Summary of findings: a typology of CMWQs

The previous three sections provided a systematic comparison of CMWQs in several languages, and identified and demonstrated six strategies for CMWQs. The present section takes stock of these findings and places them in a typological perspective.

6.1. The strategies of CMWQ formation and their distribution

In the discussion on the syntactic properties of CMWQs, the existence of several strategies has emerged: an ellipsis strategy, an RNR strategy, a non-bulk-sharing strategy, a small coordination strategy, a bulk-sharing strategy, and a parenthetical strategy. The first three of these are strategies of bi-clausal CMWQs and characterize languages or constructions that cannot freely coordinate arguments, i.e. what we call in this paper mixed CMWQ languages and adjunct CMWQ languages. The small coordination and bulk-sharing strategies, on the other hand, occur in free CMWQ languages. The parenthetical strategy was shown to occur across types (Spanish, as well as Hungarian and Bulgarian, see fn. 19). The following summarizes the main characteristics of each type.

THE **ELLIPSIS** STRATEGY. This strategy has bi-clausal syntax and involves ellipsis as a means of reduction. It has been demonstrated to underlie some variants of English$_M$.

(56) Who to [$_{TP}$ ~~did Chomsky lecture~~] and when did Chomsky lecture?

THE **RNR** STRATEGY. This strategy has bi-clausal syntax and uses the mechanism of right node raising. It was identified as the only strategy that can derive clausal coordinations of a declarative and an interrogative clause (57a), and a possible strategy in CMWQs (57b):

(57) a. … [$_{CP}$ that _] and [$_{CP}$ why _] the leaves change colour…

b. [$_{CP}$ What _] and [$_{CP}$ when _] did John eat?

THE **NON-BULK-SHARING** STRATEGY. This strategy has a bi-clausal underlier and involves sharing as a reduction strategy that shares individual nodes in the tree. This strategy has been demonstrated to underlie Croatian CMWQs with multiple clitics.

(58) *Što mu je i zašto mu je Petar pjevao?*
what HIM AUX and why HIM AUX Petar sung
"What and why did Petar sing?"

THE **SMALL COORDINATION** STRATEGY. This strategy has a mono-clausal syntax and involves small coordination of wh-phrases. This strategy has been demonstrated to occur in free CMWQ languages.

(59) [$_{FocP}$ [$_{\&P}$ *mit$_i$* *és* *hol$_j$*] *javítottál* *meg* t_i t_j]]?
what.A and where fixed PV
"What and where did you fix?"

THE **BULK SHARING** STRATEGY. This strategy involves bulk-sharing and has a hybrid syntax, mono-clausal up to the shared material and bi-clausal in the left periphery. It was identified as a prosodically marked strategy in free CMWQ languages.

(60) *Oare cine # si oare CE (#) va spune?*
QPRT who and QPRT what AUX say
"Who will say something and what will he say?"

THE **PARENTHETICAL** STRATEGY. The second wh-phrase is necessarily an adjunct and is marked off by parenthetical intonation. Evidence for this strategy came from Spanish (as well as Hungarian and Bulgarian):

(61) *Quién # y cuándo # vió a María?*
who and when saw *a* Maria
lit. "Who and when saw Maria?"

Concerning the distribution of these strategies across languages, Table 2 presents the results of this paper for each language and construction type considered, indicating which pattern the languages belong to, whether they allow for multiple movement, whether the language or construction exhibits lexical evidence for multiple left peripheral material and if so what sort, and finally, what strategies can underlie the CMWQs. The existence of the strategies in parentheses has not been evidenced in the present paper but is considered to be a possibility that cannot be ruled out. Given that the parenthetical strategy (cf. 61) is expected to occur in many languages, I do not list this specifically.

Table 2: Strategies of CMWQs in the languages under discussion

Language or construction	**pattern of CMWQs**	**multiple fronting**	**possible high material**	**possible strategies**
Dutch $English_A$ Italian Spanish	adjunct	no	— [21]	(ellipsis) (RNR) (non-bulk sharing)
$English_M$	mixed	no	—	ellipsis (RNR) (non-bulk sharing)
German	mixed	no	—	(ellipsis) (RNR) (non-bulk sharing)
Croatian multi-clitic construction	mixed	yes	✓ CLITICS	non-bulk sharing
Croatian single-clitic construction	free	yes	✓ HIGH ADVERBS	small coordination bulk sharing
Bulgarian Polish Romanian Russian	free	yes	✓ HIGH ADVERBS	small coordination bulk sharing
Hungarian Romanian	free	yes	✓ HIGH ADVERBS, QUESTION PARTICLES	small coordination bulk sharing

Table 2 differs in some respects from Citko & Gracanin-Yuksek's (2010) pioneering paper, which sets out to provide a cross-linguistically informative account of the distribution of three core strategies in CMWQs. In their typology, they consider three strategies to be available (on the basis of already familiar diagnostics, such as argument structure properties, the availability of multiple question particles and high adverbs, and, last but no least, superiority): the small coordination strategy, the bulk-sharing strategy and the non-bulk-sharing strategy. [22] The authors capitalize on the fact that languages might use more than one strategy in building CMWQs. In their view, Croatian, Russian and Polish possess three strategies in total: the small coordination, the bulk sharing and the non-bulk sharing strategies. Bulgarian on the other hand uses only the small coordination strategy, and Romanian allows for bulk-sharing and small coordination.

As the preceding discussion has shown, the present paper adheres to the view that ellipsis is a viable strategy of CMWQ formation (cf. Section 3) and that small coordination and bulk sharing are both available strategies of the formation of CMWQs in all free CMWQ languages (cf. Section 4). The unavailability of non-bulk-sharing has not been demonstrated for the latter type of languages. Besides the Croatian multi-clitic construction, I am not aware of any evidence for the existence of such a strategy for free CMWQ languages, and for this reason I did not include it in Table 2 for multiple fronting languages other than Croatian.

6.2. The basic typological generalizations

Now that the list of the cross-linguistically available strategies is complete, the question is: what determines which strategy any given language will use?

The answer to this question is entirely clear when it comes to the basic split between the two bi-clausal strategies and the strategies that do no involve the presence of two independent

clauses. As both Citko & Gracanin-Yuksek (2010) and Haida & Repp (in press) observe, the distribution of the latter type fully correlates with multiple wh-fronting, as defined by Rudin (1998). Since both the small coordination and the bulk-sharing strategies involve multiple instances of wh-fronting within one and the same clause (in bulk-sharing, to be precise, the lower region of the clause), these strategies are only predicted to exist in languages which also allow multiple fronting in well-known cases of multiple wh-constructions. This typological generalization seems to be valid for the languages examined in this paper, including the one language that did not figure in the previous literature, Dutch. It was shown that Dutch does not allow for multiple fronting, and indeed, only allows for a bi-clausal strategy according to the evidence of extraction facts in (54) above, and repeated here:

(62) a. **Waar en wanneer heb je je fiets mee gerepareerd?*
R-what and when AUX you your bike with repaired
"With what and when did you repair your bike?"
b. **Waar en wanneer ben je hier voor gekomen?*
R-what and when AUX you here for come
"For what and when did you come here?"

Importantly, movement is not only a prerequisite for strategies with a mono-clausal core. Single overt wh-movement also seems to be a prerequisite for the bi-clausal strategies. Indication for this typological generalization comes from the fact that wh-in-situ languages, such as Chinese and Japanese, do not allow for CMWQs.[23] The relevance of overt fronting becomes evident for bi-clausal strategies once one considers their possible structures under the three strategies by which they can be derived:

(63) a. [What$_i$ [$_{TP}$ ~~did you eat~~ t_i] and [where$_i$ [$_{TP}$ did you eat t_i]]? *ellip sis*
b. [What __] and [where __] did you eat? *RNR*
c. [What$_i$ [$_{TP}$ did you eat t_i] and [where$_i$ [$_{TP}$ did you eat t_i]]? *sharing*
= did you eat

As these show, only if the wh-phrases are fronted in both clauses can the TPs following them be affected by phonological reduction to give rise to CMWQs – either in terms of ellipsis, RNR or multidominance.[24] If the wh-phrases were to remain in-situ in both clauses, reduction could not apply to the effect that one TP is unpronounced.

The distribution of the bi-clausal strategies and those with a mono-clausal core thus clearly correlates with typological properties. One can formulate two solid generalizations:

GENERALIZATION 1: If a language does not have wh-fronting, it cannot have CMWQs.
GENERALIZATION 2: If a language does not have multiple wh-fronting, it can have bi-clausal CMWQs only.

As the reader can verify, Table 2 shows that these generalizations are on the right track with respect to the sample of languages considered: strategies with a mono-clausal core (small coordination and bulk-sharing) are only available in languages with multiple fronting.

The question is: what can be said about languages with multiple wh-fronting? For this set of languages, it is not the case that the availability of multiple fronting unidirectionally correlates with the use of the mono-clausal strategy only, since the example of Croatian has shown that it is possible for a multiple movement language to have a non-bulk sharing structure. At the same time, it was shown that all multiple movement languages show

evidence for small coordination and bulk-sharing, and thus Generalization 3 seems to be valid in the group of languages examined here.

GENERALIZATION 3: If a language has multiple wh-fronting, it must have strategies of CMWQs with a mono-clausal core, i.e. it must have small coordination and bulk sharing.

Generalizations 1-3 indicate that even though the cross-linguistic variation in CMWQs is quite robust, it is limited by the syntactic typology of wh-questions in languages.

7. Summary

This paper presented a cross-linguistic overview of the strategies found in the formation of coordinated wh-questions, based on specific data from 12 languages. The discussion focused on the syntactic variation exhibited in CMWQs in these languages and aimed at providing evidence for various syntactic strategies that can underlie and generate them. It was shown that languages and speakers show a surprising degree of variation in this respect, and can use up to at least six distinct syntactic strategies in the formation of CMWQs. Although this variation looks sizeable, it was also demonstrated that the choice of these strategies is always confined by typological properties such as the availability of singular and multiple overt wh-fronting across languages.

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[1] Here and in all examples below only literal translations will be given, which in most cases are ungrammatical in English. The most important glosses are the following: A = accusative case, AUX = auxiliary, DAT = dative case, CL = clitic, SG/PL = singular/plural, PV = preverb (in Hungarian), QPART = question particle.

[2] My Chinese informants rule out CMWQs with wh-in-situ and with fronted wh-phrases. Zhang (2007) on the other hand provides data from Chinese that show that for some speakers, CMWQs are acceptable if the wh-phrases appear fronted in them (see Section 6.2 and endnote 24 on the relevance of overt movement in CMWQs).

(i) *Shui yiji cong nali tingshuo-le zhexie yaoyan?*
who and from where hear-PRF these rumor
"Who and from where heard these rumors?"

(ii) *Shui yiji weishenme Wang Jiaoshou zuotian biaoyang-le?*
who and why Wang Prof. yesterday praise-PRF
"Whom and why did Prof. Wang praise yesterday?"

[3] Parentheticals are known to form their own prosodic domains. See Astruc (2005) for an

overview of the prosodic signature of parentheticals, and Local (1992) on the fall-rise on preceding material.

[4] Note that my Spanish informants differ from those of Whitman (2004-2007). The latter can coordinate obligatory arguments, mine cannot. Some cases of obligatory argument-adjunct coordination are grammatical for my speakers. I put these data aside in the following.

[5] The original account involves an LF-copying mechanism a la Chung et al (1995), whereby the elliptical TP in the first clause receives the copy of the TP in the second clause. This copying necessitates 'pruning' (reverse sprouting) in the course of which the trace of the *when* adjunct is deleted before copying into the first clause. It seems to me that a PF-deletion approach to ellipsis, such as that of Merchant (2001), can do without pruning. It is not immediately evident, though, how the e-givenness requirement for the missing TP is satisfied, since at the point when ellipsis applies in the first clause, the content of the TP is not yet given. Tomaszewicz (2011, to appear) argues that the TP is e-given due to the fact that its content is presupposed. I leave the validity of this idea for further research.

[6] Haida & Repp (in press) also provide evidence for RNR from scopal relations with example (i), where the universal quantifier has higher scope in a conjoined question than in the corresponding individual (single) question with *if*:

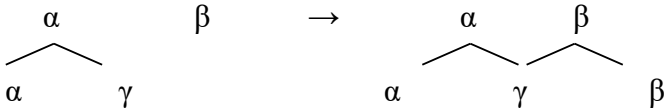
(i) a. Tell me if every guest arrived. *if* >∀, *∀ > *if*
b. Tell me when every guest arrived. *when* >∀, ∀ > *when*
c. Tell me if and when every guest arrived. *if & when* >∀, ∀ > *if & when*

They contend that the behaviour of *if and when* in this respect mimics the behaviour of the pivot material in RNR (see Sabbagh 2007):

(ii) a. Some nurse gave a flu shot to _, and administered a blood test for _, every patient who was admitted last night. (∃ >∀, ∀ > ∃)
b. Some nurse gave a flu shot to every patient, and administered a blood test for every patient. (∃ >∀, *∀ > ∃)

It is, however, not clear that (i) is an example of RNR: while (ii) must necessarily have the special intonation that obligatorily characterizes RNR constructions in which the pivot is focal (cf. Valmala 2010), (i) does not necessarily have such intonation.

[7] Proponents of multidominance argue that syntax freely allows for 3-dimensional structures, because the grammar possesses an operation called Parallel Merge, a natural consequence of Chomsky's (2001) theory of phrase structure (cf. Citko 2005). Parallel merge combines two syntactic objects by taking a subpart of one to the other. Unlike External Merge, it does not affect the roots of two objects, but only one of them. Consider the tree building operation in (i).

(i)


In the resulting structure, γ is said to be shared between α and β. There are various proposals on how multidominant structures can be linearized, see for example Citko (2005), Wilder (1999) and Gracanin-Yuksek (to appear).

[8] Note that Gracanin-Yuksek (2007) denies the existence of examples like (22), most presumably based on native speaker judgments of American English informants.

Gracanin-Yuksek (2007) also adduces another argument against sluicing in CMWQs. This test runs as follows. According to Romero (1998), run-of-the-mill sluicing is ungrammatical if the elliptical site contains operators (like *few kids* in ia) that have to scope under the wh-remnant of the elliptical clause. The non-elliptical version of the same sentence is well-formed.

(i) a. *Few kids ate, but I don't know what.

b. Few kids ate, but I don't know what they ate.

CMWQs, by contrast and as argued by Gracanin-Yuksek (2007), freely allow 'few kids' to appear (see ii). If *what* was followed by an elliptical TP in its clause, the presence of *few kids* should lead to ungrammaticality, just as it does in (iia).

(ii) What and where did few kids eat?

The problem with this test is that it is not clear whether (ia) is actually ungrammatical. I could not find any native speaker who actually disliked (ia) to any degree.

[9] Although I did not find speakers of these variants in my pool of informants (possibly due to the small number of informants asked), the informants who show an adjunct CMWQ pattern in English (speakers of $\text{English}_{\text{A}}$) systematically reject swiped coordinations in favour of non-swiped ones:

(i) With what and when did you try to repair your car?

(ii) ?* What with and when did you try to repair your car?

This suggests that these $\text{English}_{\text{A}}$ speakers do not use ellipsis, but instead use non-bulk sharing or RNR, or a parenthetical strategy like Spanish (cf. 7 and 8).

[10] Tomaszewicz (2011, to appear) furthermore argues that Polish, as well as Bulgarian, Russian and Romanian CMWs also allow another fully bi-clausal structure, involving a bi-clausal underlier consisting of the coordination of a single question and a multiple question, followed by ATB-fronting of the first wh-phrase to some initial position in the resulting structure:

(i) $[\text{wh}_1\ [\text{~~wh~~}_1\ [\ \ldots\ \text{~~wh~~}_1\ \ldots]]]$ and $[\text{~~wh~~}_1\ \text{wh}_2\ [\text{~~wh~~}_1\ [\ \ldots\ \text{~~wh~~}_1\ \text{~~wh~~}_2 \ldots]]]$

The author states that pair list readings can only originate in structures like (i), restricting this reading to languages with multiple wh-movement. This prediction is clearly false, since non-multiple movement languages such as English, Greek or Spanish also allow for pair-list interpretations (see Whitmann 2004, 2004-2007).

[11] One would be tempted to put forward another argument against (33) underlying CMWs: the fact that the preferred interpretation of (33) is that of a question asked about two distinct events, while CMWQs in Hungarian predominantly refer to a single event. In fact, something similar is put forth in Gracanin-Yuksek (2007) where it is argued that bi-clausal CMWs $\text{English}_{\text{M}}$ can only receive an *at all* reading, and not an *it* reading. In the *at all* reading the second question is about an event that is distinct from the event asked about in the first question:

(i) What and why did John eat?

(a) What did John eat and why John did eat at all? *at all* reading

(b)*What did John eat and why did John eat it (i.e. what he ate)? *it* reading

This characterization of English CMWQs, however, does not square with the judgments of my $\text{English}_{\text{M}}$ informants, who can interpret (i) with the *it*-reading, cf. (ib).

It is also important to note that free CMWQs languages also allow for both types of interpretation. Citko (to appear) provides a Polish example that allows for both readings (the Hungarian equivalent of this example is similarly ambiguous, with the predominant *it* reading):

(ii) *Co i dlaczego Jan je?*
what and why Jan eat
"What and why is Jan eating?"
(a) What is Jan eating and why is he eating it?
(b) What does Jan eat and why does he eat?

Citko (to appear) therefore suggests that the number of events does not correspond to the number of clauses in CMWs, contrary to what Gracanin-Yuksek (2007) proposes.

[12] The theoretical argumentation for why this is ruled out in multidominance is more involved

than presented here. See Gracanin-Yuksek (2007) for an analysis that rules out stranding under sharing, with reference to a specific constraint on multidominant constructions that Gracanin-Yuksek (2007) refers to as the COSH (*Constraint On Sharing*).

[13] The facts are similar to the coordination of non-identical focus phrases. As Grosu (1983) shows, an identical meaning component is necessary in order to coordinate focal items (see also Haida & Repp in press for the same idea). Identity here goes as far as lexical identity of semantic features, cf. (i).

(i) a. John sings the MOST inappropriate songs and at the MOST inappropriate hours.
b. *John sings the MOST inappropriate songs and ONLY in his own home.

[14] Recall from Section 4.1 above that Tomaszewicz (2011, to appear) is not a proponent of multidominance, but of a bi-clausal ellipsis account for Polish CMWQs, which she supports with the observation that Polish CMWQs can appear with the coordinator *a*, which can only coordinate clauses:

(i) *Kto a najważniejsze co powiedział?*
Who and most-importantly what said
"Who said something and, most importantly, what did they say?"

Not all speakers accept *a* as a coordinator in Polish CMWQs, but some certainly do.

[15] Citko (to appear) puts forward two more arguments for the bulk-sharing structure in Polish. One is that the behavior of the coordinator in CMWQs does not fully match the behaviour of the coordinator that appears in DP-coordination: the latter cannot, but the former can surface between only the first two elements in DP coordination:

(i) a. *Kto i komu co dał?*
who and whom what gave
"Who gave what to whom?"
b. **Jan i Piotr Tomasz*
Jan and Piotr Tomasz
"Jan, Piotr and Tomasz"

The contrast, however, does not exist for my informants. They also find (ia) ungrammatical with a question interpretation: they can only assign it a meaning in which 'co' is an indefinite similar to *whatever*.

The other argument for the presence of two CP projections hosting the wh-phrases comes from binding. In CMWQs the variable inside the second wh-phrase cannot be bound by the first wh-phrase, unlike in multiple fronting. Thus, the following example, according to Citko, is only grammatical without the coordinator:

(ii) *Ktory profesor (*i) ilu ze swoich studentow przeegzaminował?*
which professor and how.many of his students examined
"Which professor examined how many of his students?"

My informants do not find any contrast between the two versions of this example; they find it perfectly acceptable with or without the coordinator. The same judgments are reported to hold in Bulgarian and Romanian (thanks to an anonymous reviewer for pointing this out) and in Hungarian as well:

(iii) *Ki és hány méterrel maga mellett vett észre egy kígyót?*
who and how.MANY meter.with self next.TO noticed PV a snake.A
"Who and how many meters next to himself noticed a snake?"

In fact it is not clear why (ii) should be ill-formed with the coordinator, if Polish, just like Romanian, Bulgarian and Hungarian can freely make use of the small coordination strategy (a view that Citko & Gracanin-Yuksek 2010 subscribe to, see the next section). Under an X-bar theoretic approach to coordination (Johanessen 1998), the first wh-phrase in the specifier of &P c-commands the second wh-phrase in the complement of the coordinator head, and can bind an anaphor in that position.

[16] Among multiple movement languages, only Romanian and Hungarian possess a question particle that is compatible with wh-semantics, and cannot occur multiply in non-coordinated

multiple questions. Russian and Polish do not have question particles that are compatible with constituent questions (the question particle *li* can only be used in yes/no questions in the former). Bulgarian *li* can occur in wh-questions, but can occur multiply in uncoordinated multiple questions as well:

(i) *Koj li kakvo li shte mi donese?*
who *li* what *li* will me bring
"(I wonder) who will bring me what."

I thank an anonymous reviewer for clarifying this point on Bulgarian.

[17] It can also be the case that 3-dimensionality in general is prosodically marked. While the investigation of this question falls outside the scope of this article, it is important to mention that the non-bulk-sharing strategy that characterizes multi-clitic Croatian CMWQs (see Section 3.2 above), does for some speakers require the same kind of prosody as bulk-sharing. My Serbian informants both feel a difference between the multi-clitic construction and the single clitic one in that the former requires the same kind of prosodic marking as the one identified in the main text above:

(i) a. *Šta će # i kada će # Ivan jesti?* (Serbian)
what will.3SG and when will.3SG Ivan eat
b. *Šta i kada će Ivan jesti?*
what and when will.3SG Ivan eat
"What and when will Ivan eat?"

The same goes for one of my Croatian informants. The other Croatian informant, on the other hand, does not need any prosodic marking in the Croatian equivalent of (ia). I leave the role of prosody in non-bulk-sharing for further research.

[18] It must be mentioned that Bulgarian and Hungarian have varieties that do not allow examples (46d) and (47e) respectively and can only use the prosodic signature identified above if the second wh-phrase is an adjunct, as in (42c) and (42d). Presumably these dialects use a truly parenthetical strategy, similar to that found in Spanish (7), in the formation of prosodically marked CMWQs. This conclusion is also reflected in the fact that in this dialect stranding is only grammatical if the stranded material belongs to the first, but not to the second wh-phrase:

(i) a. Kinek$_i$ *# és MIKOR # énekelted a* t$_i$ *dalát?* (Hungarian)
who.DAT and when broke.2SG the song.POSS.3SG.A
b. **Mikor # és KINEK$_i$ # énekelted a* t$_i$ *dalát?*
when and who.DAT sang.2SG the song.POSS.3SG.A
lit. "When and whose song did you sing?"

[19] Citko & Gracanin-Yuksek (2010) also base their treatment of Bulgarian on superiority facts. According to them, Bulgarian only has the small coordination strategy because Bulgarian shows superiority both in multiple fronting and in CMWQs. As the previous section has shown, this is incorrect to the extent that Bulgarian can use the bulk sharing strategy, cf. (42c) and (46d) above. Interestingly, I have also found a speaker whose grammar complies with superiority in multiple fronting constructions, but not in CMWQs, regardless of the prosody of the latter.

[20] In fact, one of my speakers prefers the example in (51) with the marked pauses/stress pattern to the one in (50a) without those. It must be noted that (50) is impossible for some speakers with the singular agreement on the auxiliary *a* 'has' and can only be grammatical with a plural auxiliary *au* 'have':

(i) *Cine şi cu cine s-au intilnit?*
who and with who REFL-have met
"Who has met with whom?"

These speakers would only use the singular form if the question does not contain a coordinator:

(ii) *Cine cu cine s-a intilnit?*
Who with who REFL-has met
"Who has met with whom?"

For this set of speakers, *cine şi cu cine* in (i) has to form *a single DP*, as this DP denotes a plurality of subjects and triggers plural agreement with the auxiliary. Accordingly, for these speakers, (50) is not an example in which multiple wh-phrases are fronted, and the observed order cannot be due to superiority.

[21] Whether multiple C-material can be found in bi-clausal CMWQs is left for further research. Since bi-clausal CMWQs contain two CPs, the availability of multiple C-material is predicted for them. However, I am not aware of any indication of multiple C-material.

[22] Citko & Gracanin-Yuksek (2010) do not consider ellipsis to be an existing strategy in CMWQs, following Gracanin-Yuksek (2007), which also rules out ellipsis.

[23] Recall that I consider Chinese to be a language without CMWQs, because my informants rule CMWs out with wh-in-situ and with fronted wh-phrases (cf. footnote 2). Zhang (2007) on the other hand posits that CMWQs are acceptable if the wh-phrases appear fronted in them. The latter data do not contradict the claim made here that CMWQs need wh-movement. Zhang (2007) in fact subscribes to the view that overt fronting is necessary in CMWs in all languages.

[24] In CMWs with ellipsis, wh-fronting is obligatory in the elliptical clause in order for the wh-phrase to survive ellipsis (and in order for the TP to be able to undergo deletion). Wh-movement in the non-elliptical clause is forced by parallelism. In CMWQs with sharing, parallel movement in both clauses also follows, with reference to principles on linearization (see Citko 2005 and Gracanin-Yuksek 2007).