

Wh-Coordination in Free Relatives

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1. Issue

A. Wh-Questions with Coordinated Wh-pronouns (**CWHs**) are possible even in languages without multiple wh-fronting (Bilbîe & Gazdik 2012, Gracanin-Yukse 2007, Gribanova 2009, Kazenin 2002, Whitman 2002, 2004, among many others):

- (1) a. **Čto i kogda** oni podarili? *Russian*
what and when they gave
'What did they give, and when?' (Gribanova 2009:134)
b. **What and why** did John eat? *English*

B. The structure of **CWHs** can vary not only from language to language but also within a single language. (cf. Citko and Gracanin-Yukse 2009, 2012)

New Research Questions

C. Given various parallels between free relatives (**FRs**) and wh-questions, do **FRs** allow coordination of relative pronouns?

YES (*under certain conditions*)

D. Do Free Relatives with Coordinated Wh-pronouns (**CFRs**) exhibit the same amount of crosslinguistic variation as **CWHs**?

NO

Free Relatives (**FRs**) allow coordination of relative pronouns *under certain conditions*. These conditions do not seem to vary crosslinguistically.

2. Wh-Questions with Coordinated Wh-Pronouns (**CWHs**) (Citko & Gracanin-Yukse 2012)

• **CWHs** can in principle have three distinct structures (one monoclausal and two distinct biclausal types)

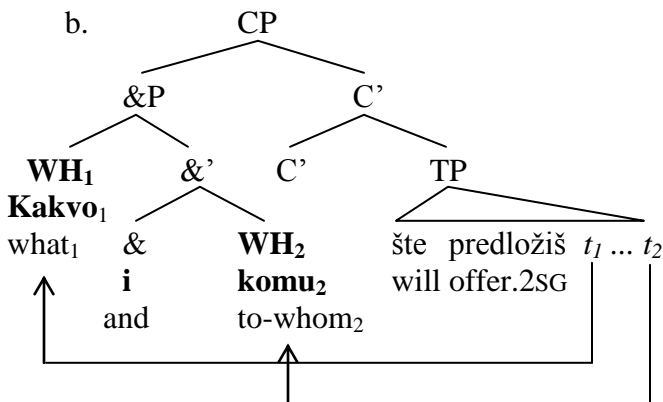
- (2) **What and why** did John eat?

- (3) **Cine și ce** ti-a spus? *Romanian*
who and what to-you-has told
'Who told you something and what was it?' (Comorovski 1996:135)
- (4) **Kakvo i kak** kupi Ivan? *Bulgarian*
what and how bought Ivan
'What and how did Ivan buy?'
- (5) a. **Čto i kogda** oni podarili? *Russian*
what and when they gave
'What did they give, and when?' (Gribanova 2009:134)
- b. **Što i zašto** si mu popravio? *Croatian*
what and why AUX.CL him fixed
'What and why did you fix to him?' (Gracanin-Yuksek 2007:187)
- c. **Kto i co** zradio? *Polish*
who and what did
'Who did something and what was it?'

- A. Are **CWHs** possible with obligatorily transitive verbs?
B. Are **CWHs** grammatical with two argument wh-phrases?
C. Do **CWHs** and **MWHs** exhibit the same behavior with respect to superiority?

2.1 Mono-Clausal CWHs: BULGARIAN

- (6) a. **Kakvo i komu** šte predložiš? *(Kliashchuk 2008)*
what and to-whom will offer.2SG
'What and to whom will you offer?'



- A. Are **CWHs** possible with obligatorily transitive verbs? **YES**
B. Are **CWHs** grammatical with two argument wh-phrases? **YES**
C. Do **CWHs** and **MWHs** exhibit the same behavior with respect to superiority? **YES**

(7) **Kakvo i kak** kupi Ivan?
 what and how bought Ivan
 ‘What and how did Ivan buy?’

(8) **Kakvo i komu** šte predložiš?
 what and to-whom will offer.2SG
 ‘What and to whom will you offer?’

(Kliashchuk 2008)

(9) a. **Koj koga** ste si hodi v Bulgaria?
 who when will REFL go in Bulgaria
 ‘Who is going to Bulgaria when?’

MWH

b. ***Koga koj** ste si hodi v Bulgaria?
 when who will REFL go in Bulgaria

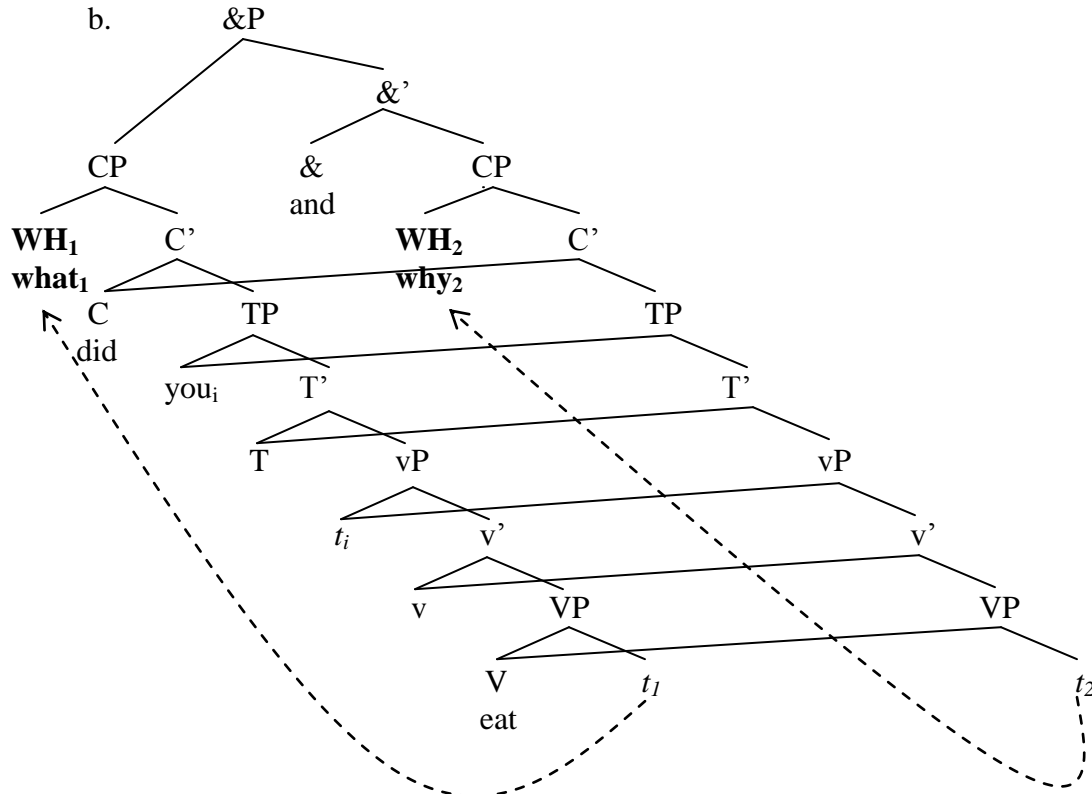
(10) a. **Koj i koga** ste si hodi v Bulgaria?
 who and when will REFL go in Bulgaria
 ‘Who is going to Bulgaria and when?’

CWH

b. ***Koga i koj** ste si hodi v Bulgaria?
 when and who will REFL go in Bulgaria

2.2. Bi-Clausal CWHs with Non-Bulk Sharing: ENGLISH

(11) a. **What** and **why** did you eat?



- A. Are **CWHs** possible with obligatorily transitive verbs? **NO**
- B. Are **CWHs** grammatical with two argument wh-phrases? **NO**
- C. Do **CWHs** and **MWHs** exhibit the same behavior with respect to superiority? **NO**

- (12) a. **What and why** did you eat?
b. ***What and why** did you devour?

- (13) a. [**What** did you eat] and [**why** did you eat]?
b. *[**What** did you devour] and [**why** did you devour]?

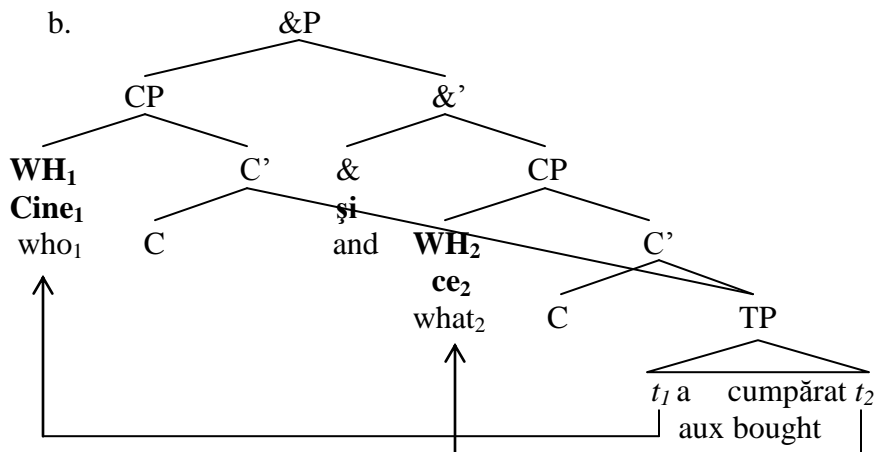
- (14) a. ***What and to whom** did John give?
b. *[**What** did John give] and [**to whom** did John give]?

- (15) a. ?? **What** did you teach **why**? **MWH**
b. **Why** did you teach **what**?

- (16) a. **What** and **why** did you teach? **CWH**
b. **Why** and **what** did you teach?

2.3 Bi-Clausal CWHs with *Bulk Sharing*: ROMANIAN

- (17) a. **Cine și ce** a cumpărat?
who and what aux bought
'Who bought something and what was it?'



- A. Are **CWHs** possible with obligatorily transitive verbs? **YES**
- B. Are **CWHs** grammatical with two argument wh-phrases? **YES**
- C. Do **CWHs** and **MWHs** exhibit the same behavior with respect to superiority? **NO**

- (18) **Cine și ce** a cumpărat?
who and what aux bought
'Who bought something and what was it?'

- (27) a. Jan je **co(kolwiek)** Piotr gotuje. *Polish*
Jan eats whatever Piotr cooks
'Jan eats whatever Piotr cooks.'
b. Jan je **kiedy(kolwiek)** Piotr gotuje.
Jan eats whenever Piotr cooks
'Jan eats whenever Piotr cooks.'
- (28) a. *Jan jede **što(god) kad(god)** Ivan kuha. *Croatian*
Jan eats whatever whenever Ivan cooks
b. *Jan jede **kad(god) što(god)** Ivan kuha.
Jan eats whenever whatever Ivan cooks
- (29) a. Jan jede **što(god)** Ivan kuha. *Croatian*
Jan eats whatever Ivan cooks
'Jan eats whatever Ivan cooks.'
b. Jan jede **kad(god)** Ivan kuha.
Jan eats whenever Ivan cooks
'Jan eats whenever Ivan cooks.'
- B.** Multiple free relatives with coordinated wh-pronouns (**CFRs**) are allowed, *even* in a language that does not allow multiple wh-fronting.
- (30) a. Jan je **cokolwiek i kiedykolwiek** Peter gotuje. *Polish*
Jan eats whatever and whenever Peter cooks
'Jan eats whatever and whenever Peter cooks.'
b. Jan je **kiedykolwiek i cokolwiek** Peter gotuje.
Jan eats whenever and whatever Peter cooks
'Jan eats whenever and whatever Peter cooks.'
- (31) a. Jan jede **štogod i kadgod** Marija kuha. *Croatian*
Jan eats whatever and whenever Marija cooks
'Jan eats whatever and whenever Maria cooks.'
b. Jan jede **kadgod i štogod** Marija kuha.
Jan eats whenever and whatever Marija cooks
'Jan eats whenever and whatever Maria cooks.'
- (32) John eats **what(ever) and when(ever)** Peter cooks.

What are the constraints on wh-coordination in Coordinated Free Relatives (**CFRs**)?

4. English CWHs and CFRs

4.1. Restrictions

A. English **CWHs** are allowed only with optionally transitive verbs such as *eat* (vs. *devour*):

- (33) a. **What and when** does John *eat*_[__(DP)]?
b. **What** does John eat and **when** does John eat?

- (34) a. ***What and when** does John *devour*_[__(DP)]?
b. ***What** does John devour and **when** does John devour?

B. English **CFRs** are allowed only if *both* the matrix and the embedded verb are optionally transitive:

- (35) a. John **eats**_[__(DP)] whatever and whenever Peter **cooks**_[__(DP)].
b. *John **eats**_[__(DP)] what(ever) and when(ever) Peter **prepares**_[__(DP)].
c. *John **devours**_[__(DP)] what(ever) and when(ever) Peter **prepares**_[__(DP)].
d. *John **devours**_[__(DP)] what(ever) and when(ever) Peter **cooks**_[__(DP)].

C. English **CWHs** are impossible with two coordinated wh-arguments:

- (36) ***What and to whom** did John give?

D. English **CFRs** are also impossible with two coordinated wh-arguments:

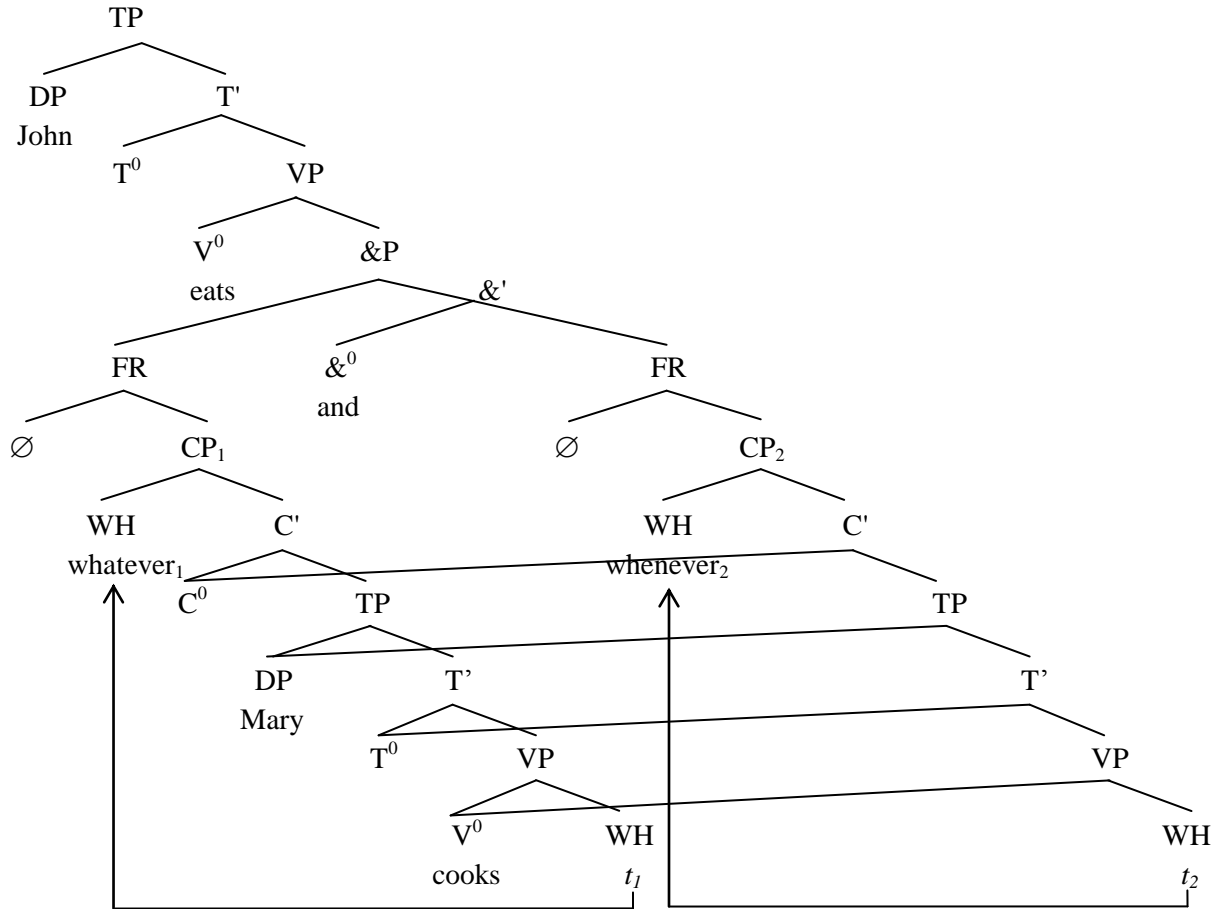
- (37) *John cooked **whatever and whomever** Bill served.

English Coordinated Wh-Questions (**CWHs**) and Coordinated Free Relatives (**CFRs**) are subject to the same restrictions.

4.2. Account

A. English **CFRs** involve *a non-bulk sharing structure*, parallel to the structure for English **CWHs** proposed by Gracanin-Yuksek (2007)

(38)



B. CFRs are well-formed only if the main clause can embed each **FR** conjunct independently without incurring a grammaticality violation (see Goodall 1987 and Fox 2000 for arguments that each component in a coordinate structure has to be independently well-formed).

- (39) a. John eats_[__(DP)] **what(ever)** and **when(ever)** Peter cooks_[__(DP)].
 b. John eats **what(ever)** Peter cooks.
 c. John eats **when(ever)** Peter cooks.
- (40) a. *John eats_[__(DP)] **what(ever)** and **when(ever)** Peter prepares_[__DP].
 c. John eats **what(ever)** Peter prepares.
 d. *John eats **when(ever)** Peter prepares.
- (41) a. *John devours_[__DP] **what(ever)** and **when(ever)** Peter prepares_[__DP].
 b. John devours **what(ever)** Peter prepares.
 c. *John devours **when(ever)** Peter prepares.
- (42) a. *John devours_[__DP] **what(ever)** and **when(ever)** Peter cooks_[__(DP)].
 b. John devours **what(ever)** Peter cooks.
 c. *John devours **when(ever)** Peter cooks.

What about **CFRs** in multiple wh-fronting languages?

5. CFRs in Multiple Wh-Fronting Languages

5.1. Restrictions

A. Multiple wh-fronting languages *allow* **CWHs** with two argument wh-phrases:

- (43) a. **Co i komu** Jan pokazuje? *Polish*
what and to-whom Jan shows
*‘What and to whom is Jan showing?’
- b. **Što i kome** Jan pokazuje? *Croatian*
what and to-whom Jan shows
*‘What and to whom is Jan showing?’

B. Multiple wh-fronting languages *allow* **CWHs** with obligatorily transitive verbs:

- (44) a. **Što i zašto** Jan **popravlja**? *Croatian*
what and why Jan fixes
*‘What and why does Jan fix?’
- b. **Co i kiedy** Piotr **używa**? *Polish*
what and when Piotr uses
‘What and when does Piotr use?’

C. Multiple wh-fronting languages *disallow* **CFRs** with two coordinated wh-arguments:

- (45) a. *Jan **će dati što(god) i kome(god)** Vid pokaže. *Croatian*
Jan will give what(ever) and to-whom(ever) Vid shows
Int.: ‘Jan will give the thing(s) that Vid shows to the person(s) that Vid shows.’
- b. *Jan da **cokolwiek i komukolwiek** Piotr pokaže. *Polish*
Jan will.give what(ever) and to-whom(ever) Piotr shows
Int.: ‘Jan will give the thing(s) that Piotr shows to the person(s) that Piotr shows.’

D. Multiple wh-fronting languages *disallow* **CFRs** in which either the matrix or the embedded verb (or both) are obligatorily transitive:

- (46) a. *Jan **ocjenjuje** što(god) i kad(god) Vid **priprema**. $V_{\text{main}}[_ \text{DP}] V_{\text{emb}}[_ \text{DP}]$
Jan evaluates what(ever) and when(ever) Vid prepares
*‘Jan evaluates what(ever) and when(ever) Vid prepares.’

- b. *Jan **jede** što(god) i kad(god) Vid **priprema**. $V_{main}[_{(DP)}] V_{emb}[_{(DP)}]$
Jan eats what(ever) and when(ever) Vid prepares
*'Jan eats what(ever) and when(ever) Vid prepares.'
- c. *Jan **ocjenjuje** što(god) i kad(god) Vid **kuha**. $V_{main}[_{(DP)}] V_{emb}[_{(DP)}]$
Jan evaluates what(ever) and when(ever) Vid cooks
*'Jan evaluates what(ever) and when(ever) Vid cooks.'
- d. Jan **jede** što(god) i kad(god) Vid **kuha**. $V_{main}[_{(DP)}] V_{emb}[_{(DP)}]$
Jan eats what(ever) and when(ever) Vid cooks
'Jan eats what(ever) and when(ever) Vid cooks.'
- (47) a. *Jan **używa** cokolwiek i kiedykolwiek Piotr mu **poleca**. $V_{main}[_{(DP)}] V_{emb}[_{(DP)}]$
Jan uses whatever and whenever Piotr him recommends
'Jan uses whatever and whenever Piotr recommends to him.'
- b. *Jan **je** cokolwiek i kiedykolwiek Piotr mu **poleca**. $V_{main}[_{(DP)}] V_{emb}[_{(DP)}]$
Jan eats whatever and whenever Piotr him recommends
'Jan eats whatever and whenever Piotr recommends to him.'
- c. *Jan **ocenia** cokolwiek i kiedykolwiek Piotr **gotuje**. $V_{main}[_{(DP)}] V_{emb}[_{(DP)}]$
Jan evaluates whatever and whenever Piotr cooks
'Jan evaluates whatever and whenever Piotr cooks.'
- d. Jan **je** cokolwiek i kiedykolwiek Piotr **gotuje**. $V_{main}[_{(DP)}] V_{emb}[_{(DP)}]$
Jan eats whatever and whenever Piotr cooks
'Jan eats whatever and whenever Piotr cooks.'

In multiple wh-fronting languages, **CFRs** are subject to different restrictions than **CWHs**. **CFRs** in multiple wh-fronting languages behave like those in English, regardless of the syntax of their **CWHs**.

∴ Unlike the well-formedness of **CWHs**, the well-formedness of **CFRs** is independent of the availability of multiple wh-fronting → the ban against **CFRs** of certain kinds must be a consequence of more general principles.

5.2. Account: CWHs versus CFRs

- (48) a. Co i kiedy Piotr mu **polecil**? *Polish*
what and when Piotr him recommended
'What and when did Piotr recommend to him?'
- b. *Jan **je** cokolwiek i kiedykolwiek Piotr mu **polecil**.
Jan eats whatever and whenever Piotr him recommended
'Jan eats whatever and whenever Piotr recommended to him.'

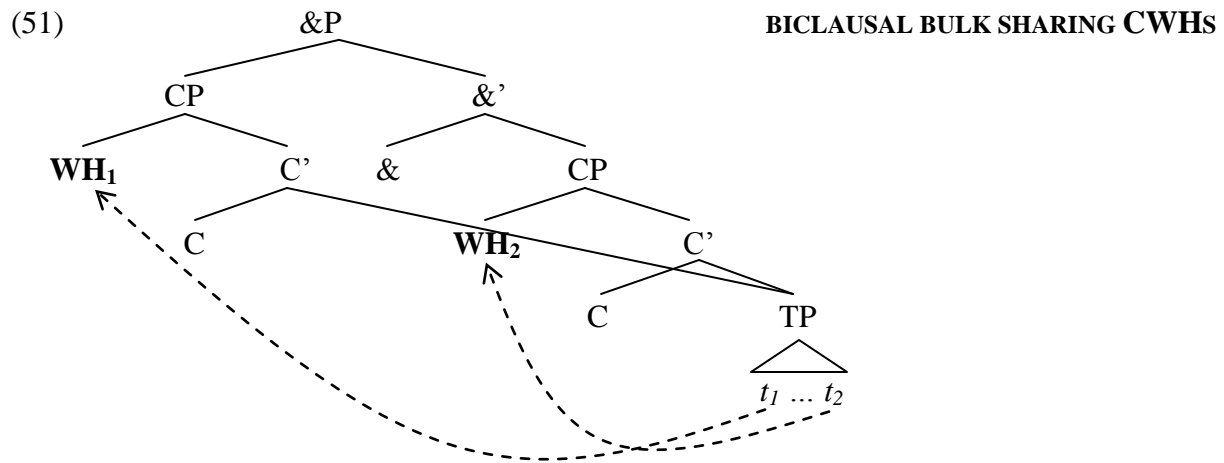
(49) a. **Što i kome** Vid pokazuje? *Croatian*
 what and to-whom Vid shows
 ‘What and to whom is Vid showing?’

b. *Jan će dati **što(god) i kome(god)** Vid pokazuje.
 Jan will give what.ACC(ever) and to-whom(ever) Vid shows
 Int.: ‘Jan will give the thing(s) that Vid shows to the person(s) that Vid shows.’

A. Fronting of two clausemate WHs, coordinated in the specifier of the C-head through a mechanism such as sideways movement (cf. Zhang 2007, 2009):



B. Coordination of CPs (with single wh-fronting in each) and sharing of the entire TP in a bulk manner:



What rules out the *monoclausal* structure for CFRs?
 What rules out the *biclausal bulk sharing* structure for CFRs?

C. The unavailability of both is due to a more general constraint ruling out *multiple relativization from a single clause* (cf also Kazenin 2002).

D. The grammar bans structures in which a *single* head (overt or null) is modified by a single relative clause with two relativized elements.¹²


(52) a. * $[_{DP} \text{HEAD}_{1/2} [_{CP} [\&P \text{wh}_1 (\&) \text{wh}_2 [_{TP} \dots t_1 \dots t_2]]]]$


b. *the clown_{1/2} whom₁ (and) to whom₂ Mary has shown.


(53) a. *student **którego (i) któremu** Maria przedstawiła. *Polish*
student who.ACC (and) whom.DAT Maria introduced
'a student who Maria introduced to him/herself'

b. *mladić **kojega (i) kojemu** je Marija pokazala *Croatian*
youth who.ACC (and) whom.DAT aux Maria shown
'a youth who Marija showed to him/herself'

c. *čelovek, **o ktorom i s kotorym** ja govoril *Russian*
person about whom and with whom I talked
lit. 'person about whom and with whom I talked' (Kazenin 2002:5)

(54) a. $[_{DP} \text{HEAD}_{1/2} [_{CP} [\&P \text{wh}_1 (\&) \text{wh}_2 [_{TP} \dots t_1 \dots t_2]]]]$


b. $[_{DP} \text{HEAD}_1 [_{CP} [\&P \text{wh}_1 (\&) \text{wh}_2 [_{TP} \dots t_1 \dots t_2]]]_I]$


c. $[_{DP} \text{HEAD}_2 [_{CP} [\&P \text{wh}_1 (\&) \text{wh}_2 [_{TP} \dots t_1 \dots t_2]]]]$


E. The lack of monoclausal CFRs and biclausal CFRs is thus a direct consequence of the fact that, unlike a wh-question, a FR involves a *head* modified by the relative clause.

(55) *Jan će dati **što(god) i kome(god)** Vid pokaže.

Jan will give what.ACC(ever) and to-whom(ever) Vid shows

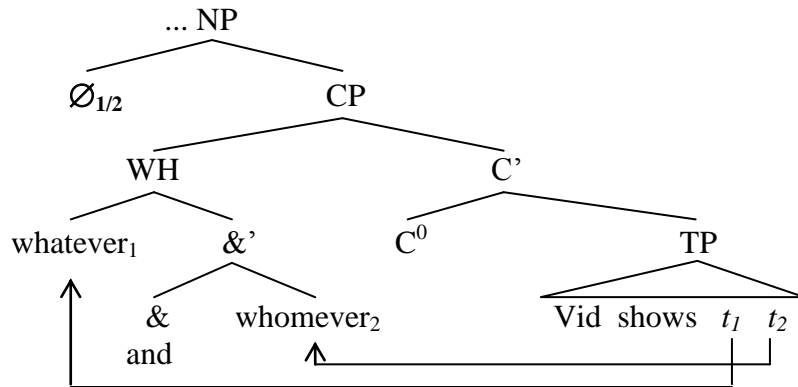
Int.: 'Jan will give the thing(s) that Vid shows to the person(s) that Vid shows.'

¹ The relative clause in (i), the English counterpart of (53c), is not ungrammatical (the same is true of a comparable Polish or Croatian examples). However, they are only possible on a two event reading paraphrased in (ii), which arises from the structure in which a single head is modified by two relative clauses, each containing just a single relativized element:

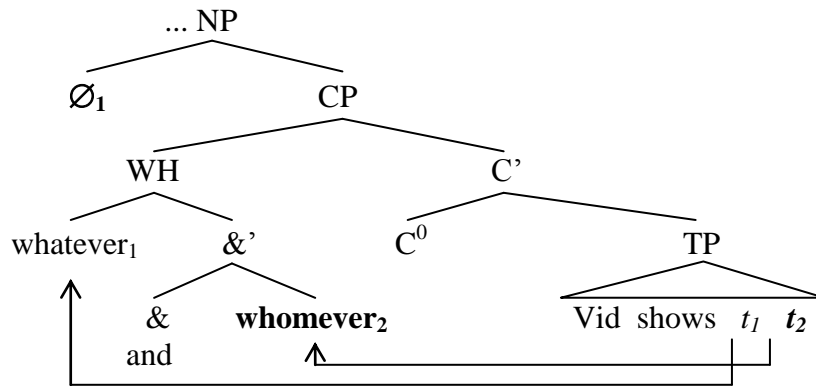
- i. This is the man with whom and about whom Mary was talking.
- ii. This is the man with whom Mary was talking and about whom Mary was talking.
- iii. This is the man with whom Mary was talking and about whom Mary was talking.

² We thank Rajesh Bhatt and Toshi Ogihara for helpful discussion of the issues in this section. They are not responsible for us misunderstanding what they meant.

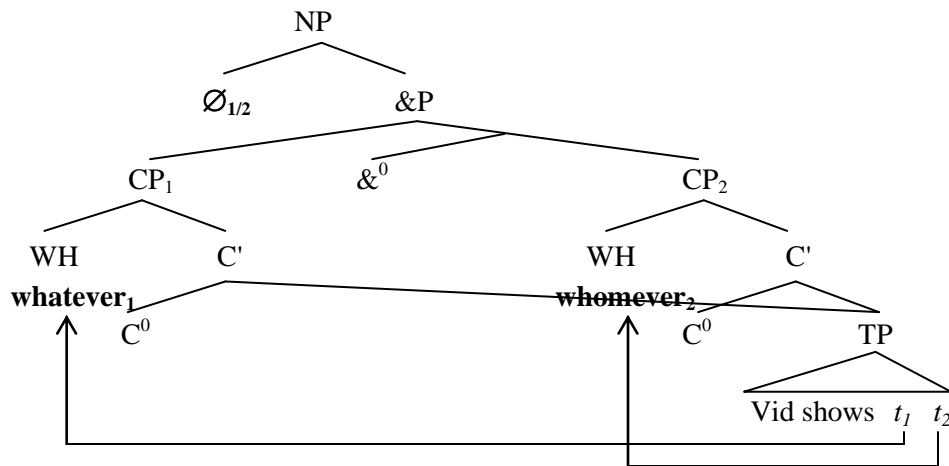
(56) Jan will give ...



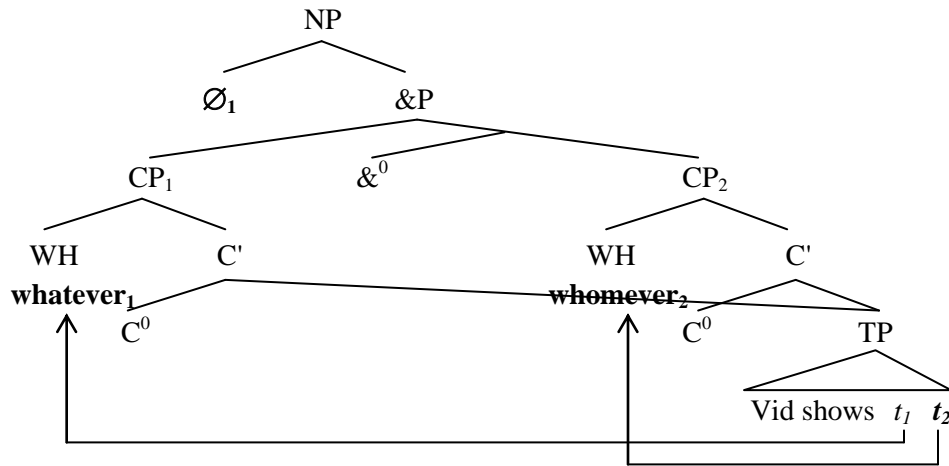
(57) Jan will give ...



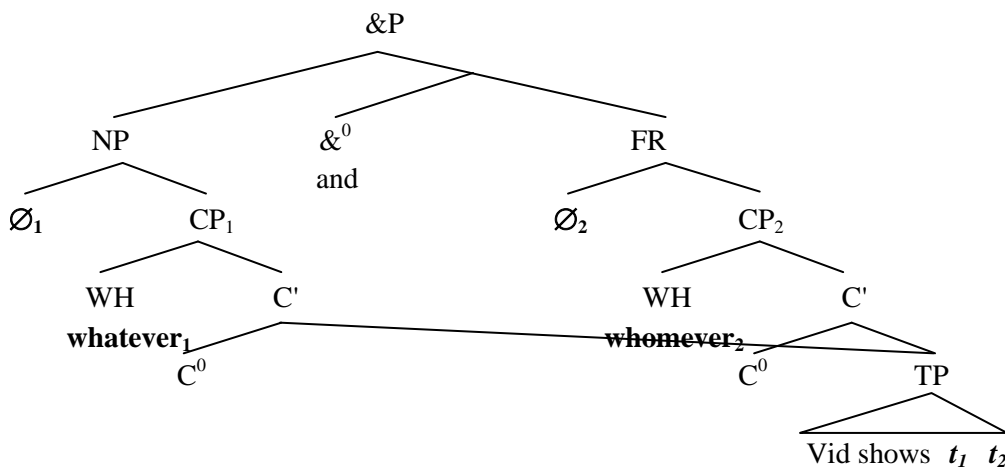
(58) Jan will give...



(59) Jan will give...



(60) Jan will give ...



7. Summary/Conclusions

- A. Free Relatives do allow coordination of wh-pronouns, subject to certain restrictions.
- B. Crosslinguistically, the restrictions on **CFRs** do not parallel the restrictions on **CWHs**.
- C. The lack of crosslinguistic variation in **CFRs** follows from a more general ban against multiple relativization from a single clause.

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