Tutorial on modal existential constructions

Radek Šimík
Humboldt-Universität zu Berlin
radek.simik@hu-berlin.de

Workshop on Multiple wh- constructions and their kin

Université de Nantes • 17 September 2018

1   Basic facts

> Modal existential constructions (henceforth MECs) are
>
> - primarily **infinitival** and secondarily **subjunctive-based**
> - **wh-constructions**,
> - embedded under **existential** or **possessive** verbs ('be', 'have'), or verbs that **entail coming into existence/possession** ('find', 'look for', 'get', etc.).
>
> (Grosu 2004; Šimík 2011)

(1)   *French* (Hirschbühler & Rivero 1981:121)

    a. Il n'a   [avec qui parler].
         he NEG.has with who talk.INF
         'There's nobody that he could speak with.'

    b. Il n'a   [où   dormir].
         he NEG.has where sleep.INF
         'There's no place where he could sleep.'

(2)   *Italian* (Pancheva Izvorski 2000:26; Caponigro 2001:51)

    a. Ha   [con chi parlare].
         have.3SG with who speak.INF
         'There is someone to talk to.'

    b. Non aveva   [dove nascondersi   in caso di pericolo].
         NEG have.PST.3SG where hide.INF.REFL in case of danger
         'He didn't have a place/places where he could hide in case of danger.'

(3)   *Romanian* (Grosu 1989:52; Grosu 1994:138)

    a. Andrea nu   are [cu cine {vota   / să voteze}].
         Andrea NEG has with who   vote.INF / SBJ vote
         'Andrea doesn't have anyone with whom to vote.'

    b. Maria nu   găseşte [cu cine {ieşi   / să iasă}].
         Maria NEG finds   with whom   go.out.INF / SBJ go.out
         'Maria doesn't find (anyone) with whom to go out.'

1.1 Cross-linguistic distribution and basic references

MECs are attested in most languages that have wh-based free relatives. Table 1 provides a complete list of languages where MECs (or very closely related constructions) have been attested, including some selected references. A notable gap in the distribution (hitherto unexplained) is represented by Germanic languages, most of which lack MECs altogether.

FAMILY	LANGUAGE	REFERENCE	COMMENT
Baltic	**Latvian**	Holvoet 1999	understudied
	Lithuanian	Holvoet 1999; Kalėdaitė 2008	
Caucasian	**Tsez**	Polinsky 2015	
Finno-Ugric	**Estonian**	Caponigro 2003	only examples
	Finnish	Caponigro 2003	only examples
	Hungarian	Lipták 2003; Šimík 2011	well-studied
Germanic	**New York English**	Caponigro 2003	only examples
	Yiddish	Hoge 2017	understudied
Mayan	**Chuj**	Kotek & Erlewine 2016, to appear	indefinite FRs?
	Kaqchikel	Torrence & Duncan 2016	indefinite FRs?
Otomanguean	**Melchor Ocampo Mixtec**	Caponigro et al. 2013	
	Nieves Mixtec	Caponigro et al. 2013	
Romance	**Catalan**	Bartra i Kaufmann 1990	understudied
	French	Suñer 1984; Thomas 2008	understudied
	Italian	Caponigro 2003	
	Portuguese	Brito 1988; Móia 1992	
	Romanian	Grosu 1994, 2004, 2013	
	Spanish	Plann 1980; Šimík 2011; Ojea 2016	well-studied
Semitic	**Arabic (Classical)**	Grosu 2004	understudied
	Arabic (Moroccan)	Caponigro 2003	only examples
	Hebrew	Grosu 1994, 2004	
	Maltese	Sadler & Camilleri 2017	
Slavic	**Belarusian**	Mazzitelli 2015	understudied
	Bosnian-Serbian-Croatian	Citko & Gračanin-Yüksek 2016	understudied
	Bulgarian	Rudin 1986; Pancheva Izvorski 2000	
	Czech	Ceplová 2007; Šimík 2011	
	Macedonian	Caponigro 2003	only examples
	Polish	Holvoet 1999; Jędrzejowski 2015	understudied
	Russian	Pesetsky 1982; Babby 2000; Livitz 2012	very well-studied
	Slovak	Růžička 1994	understudied
	Slovenian	Šimík 2011	
	Ukrainian	Šimík 2011	understudied
Others	**Albanian**	Caponigro 2003	only examples
	Greek	Agouraki 2005	
	Basque	Šimík 2011	understudied

Table 1: Cross-linguistic distribution of MECs

Basic resources

- Pancheva Izvorski (2000); Caponigro (2003); Grosu (2004): First attempts at a general analysis of MECs, underpinned by cross-linguistic evidence.

- Šimík (2011): Monograph on MECs, typological study of 16 languages, deeper analyses of Czech, Hungarian, Russian, and Spanish.

- Šimík (2017): Annotated bibliography on MECs and related constructions.
  (A more rough but complete version of the annotated bibliography is here: https://amor.cms.hu-berlin.de/~simikrad/pdf/simik-bibl-MEC.pdf.)

1.2   Mood and modality

Concerning **mood**. . .

- The mood is **primarily infinitive** in the sense that every language (with MECs) that has the infinitive can use it in MECs.

- The mood is **secondarily subjunctive** in two senses:

  (i) languages with no infinitive use the subjunctive or its functional equivalent (Bulgarian, Greek) and

  (4)   *Bulgarian* (Rudin 1986:156)
        Imam   [kakvo **da četa**].
        have.1SG what SBJ read.1SG
        'I've got something that I can read.'

  (ii) some languages use the subjunctive either optionally, alongside with the infinitive (Hungarian, Romanian, Czech), (3), or obligatorily, in certain grammatical circumstances (Spanish, Portuguese), (5).

  (5)   *Spanish* (Šimík 2013b:1176)
        a.   **wh ≠ subject → infinitive**
             No   tienes   [a quién {**multar** / *__multes__}].
             NEG have.2SG A who   fine.INF   fine.SBJ.2SG
             'You don't have anybody who you could fine.'
        b.   **wh = subject → subjunctive**
             No   tienes   [quién te {**multe**   / *__multar__}].
             NEG have.2SG who you fine.SBJ.3SG   fine.INF
             'You don't have anybody who could fine you.'

Modality expressed by MECs is

- always of the **root** (**circumstantial**) type (which is not surprising, given the mood used; cf. Bhatt 2006) and

- always expressing **possibility**, never necessity (which is surprising, given the comparison with infinitival relatives; cf. Bhatt 2006).

  (6)   *Czech*
        Mám   [kam   jít].
        have.1SG where.DIR go.INF
        a.   **available:** 'There's a place where I can go.'
        b.   **unavailable:** 'There's a place where I want / have to go (in order to. . .).'

- Occasional claims that MECs can express ability (Grosu 2004) have not been supported by evidence.

- Some languages (from the Mayan family, and, to some extent also some European languages) have non-modal **existential free relatives** (Caponigro 2003).

  (7)   a.   *Chuj* (Kotek & Erlewine 2016: ex. (15))
             Ay [tas ix-∅-s-man   waj Xun].
             exist what PFV-B3-A3-buy CL Juan
             'Juan bought something.' lit. 'There exists what Juan bought.'

b.   *Italian* (Ivano Caponigro, p.c.; see also Caponigro 2003, 2004)
C'è   [chi è allergico ai   raggi del   sole].
there.is who is allergic to.the rays of.the sun
'There are people who are allergic to sun rays.'

- From now on, I will only be concerned with MECs.

1.3   Wh-words

MECs are characterized by the **lack of (case-)matching effects**. A few Czech examples are provided below:

(8)   **Nominal phrases**
Mám   {psa   / *psovi   / *psem}.
have.1SG dog.ACC/(GEN)   dog.DAT/LOC   dog.INSTR
'I have a dog.'

(9)   **Free relatives**
a. Mám   [**co**   mu dal].
    have.1SG what.ACC him bought
    'I have what he gave him.'

b. #Mám   [**čemu**   se   divil].
    have.1SG what.DAT REFL wondered
    'I have the information about what he wondered about.' (irrelevant)

c. #Mám   [**čím**   tě překvapil].
    have.1SG what.INSTR you surprised
    'I have the information about what he surprised you with.' (irrelevant)

d. #Mám   [**kde**   žije].
    have.1SG where lives
    'I have the information about the place where he lives.' (irrelvant)

e. #Mám   [**proč** se   smál].
    have.1SG why REFL laughed
    'I have the information about the reason why he laughed.' (irrelevant)

(10)   **MECs**
a. Mám   [**co**   mu dát].
    have.1SG what.ACC him give.INF
    'There's something that I can give him.'

b. Mám   [**čemu**   se   divit].
    have.1SG what.DAT REFL wonder.INF
    'There's something I can wonder about.'

c. Mám   [**čím**   tě překvapit].
    have.1SG what.INSTR you surprise.INF
    'There's something I can surprise you with.'

d. Mám   [**kde** žít].
    have.1SG where live.INF
    'There's a place where I can live.'

e. Mám   [**proč** se   smát].
    have.1SG why REFL laugh.INF
    'I have a reason to laugh.'

Wh-words used in MECs are of the **interrogative kind**, not the relative kind (Greek, Bulgarian, Macedonian, Slovenian, Spanish, French). The only exception is Hungarian, where both are allowed (although relative wh-words come with some grammatical restrictions).

(11)   *Slovenian* (Marko Hladnic, p.c., Adrian Stegovec, p.c.)

    a.   **Question**
       Vem   [**kam** (*-**or**) iti].
       know.1SG   where   -REL go.INF
       'I know where to go.'

    b.   **MEC**
       Imam   [**kam** (*-**or**) iti].
       have.1SG   where   -REL go.INF
       'There's a place where I can go.'

    c.   **Free relative**
       Šel sem   [**kam** *(-**or**) je   šel Janez].
       went AUX.1SG where   -REL AUX.3SG went Janez
       'I went where Janez went.'

(12)   *Hungarian* (Šimík 2011)

    a.   Nincs [**kivel**   beszéljek   / beszélni].
       is.NEG who.with speak.SBJ.1SG   speak.INF
       'I don't have anyone to speak to.'

    b.   Nincs [**akivel**   beszéljek   / *beszélni].
       is.NEG REL.who.with speak.SBJ.1SG   speak.INF
       'I don't have anyone to speak to.'

While there seem to be no language allowing 'why' in free relatives, **'why' is very common in MECs** (in my sample, 10 languages allow for this); some examples below:

(13)   a.   *Serbo-Croatian*
       Imam   [**zašto** da se   smejem].
       have.1SG   why   SBJ REFL laugh.1SG
       'There is a reason why I can laugh.'

    b.   *Hungarian* (Lipták 2003:4)
       Van [**miért** elmennem otthonról].
       is   why   leave.INF home.from
       'There is a reason to leave home.'

    c.   *Spanish*
       Tengo   [**por qué** venir].
       have.1SG   for   what go.INF
       'There's a reason to go.'

Sluicing is very common in MECs, like in wh-questions and unlike in free relatives. Italian seems to be the only language that disallows sluicing in MECs.

(14)   a.   *Polish*
       Chciałbym   tam pójść ale nie mam   [**kiedy** ~~tam pójść~~].
       want.SBJ.1SG there go.INF but NEG have.1SG when
       'I'd like to go there but I have no time (to go there).'

    b.   *French*
Je voudrais   manger mais il n'y a   pas [**de quoi** ~~manger~~].
I   would.like eat.INF but I NEG have NEG of what
'I'd like to eat but I didn't find anything (that I could eat).'

    c.   *Hebrew*
Raci-ti   lenakot et   ha-bayit aval lo   nata-ta   l-i   [**be-ma**].
wanted-1SG clean   ACC the-house but NEG gave-2SG.M to-me with-what
'I wanted to clean the house, but you didn't give me anything (to do it with).'

Most languages exhibit **reduced acceptability of wh-phrases with NP sortals**, which matches the behavior of free relatives.

(15)   a.   *Latvian*
Man ir [ar   {**ko** / *****kurš students**} parunāt].
me be with who   which student   speak:INF
(Intended:) 'There is somebody / some student with whom I can speak.'

    b.   *Bulgarian* (Rudin 1986:157; slightly adapted)
Imam   [{**kakvo** / *****kakva   kniga** / *****koja kniga**} da četa].
have.1SG   what   what(.kind.of) book   which book   SBJ read.1SG
(Intended:) 'I have something / a book that I could read.'

> **Multiple wh-words** are possible in MECs in a language on two conditions:
>
> 1. the language has multiple wh-fronting and
>
> 2. both wh-words are actually fronted in the multiple-wh MEC.
>
> (Grosu 2004; Šimík 2011)

(16)   *Russian*

    a.   **Multiple wh-fronting** (Grosu 2004:418)
U nego   est' [**kogo**   **s**   **kem**   poznakomit'].
at him.GEN is   who.ACC with who.INSTR introduce.INF
'There is a pair of individuals $\langle a, b \rangle$ such that he can introduce a to b.'

    b.   **Single wh-fronting** (Rappaport 1986:9)
Bylo [**komu**   zakazat' **što**].
was   who.DAT order.INF what.ACC
Intended: 'There was somebody who could order something.'

(17)   *Czech*

    a.   **Multiple wh questions → multiple wh-fronting optional**
Nevím,   . . .
NEG.know.1SG
'I don't know. . .'
    (i) [**s**   **kým**   **o**   **čem**   mluvit].
        with who.INSTR about what.LOC speak.INF
    (ii) [**s**   **kým**   mluvit   **o**   **čem**].
         with who.INSTR speak.INF about what.LOC
         'with whom I should speak about what.'

b. **Multiple wh MECs → multiple wh-fronting obligatory**
Nemám,   …
NEG.have.1SG
'I can't…'
(i)   [s   **kým**   **o**   **čem**   mluvit].
          with who.INSTR about what.LOC speak.INF
(ii) *[s **kým**   mluvit   **o**   **čem**].
          with who.INSTR speak.INF about what.LOC
      'speak with anybody about anything.'

	Qs	MECs	FRs	COMMENT
Matching effects	no	no	yes	
'why'	yes	yes*	no	*possible in some languages
Interrogative wh	yes	yes*	no	*Hungarian also allows relative wh
Sluicing	yes	yes*	no	*Italian is the only exception
NP sortals in wh	yes	no*	no*	*with some exceptions
Multiple wh	yes	yes*	yes*	*only in multiple wh-movement Ls(?)

Table 2: Summary of MEC properties, as compared to questions and free relatives

1.4   MEC embedders

MECs have a **nominal distribution**. As discovered by Grosu (2004), they are embedded under the following verbs:

- Existential predicates ('be')

- Possessive predicates ('be', 'have')

- Predicates expressing (the causation of) coming into existence/possession ('look for', 'find', 'give', 'send', 'buy')

Grosu (2004) notices that these predicates roughly correspond to those that exhibit **definiteness effects in Hungarian** (Szabolcsi 1986)

→ **Important existential component**

In Šimík (2011), I noticed that these predicates roughly correspond to those that license **"gapped" purpose clauses** (Faraci 1974; Bach 1982; Chierchia 1989b; Jones 1991):

(18)   Faraci (1974:7)
       Carol bought a rack$_i$ [to hang coats on e_i].

These purpose clauses are not relative clauses:

(19)   Faraci (1974:12)
       a.   A rack [$_{RC}$ {on which} to hang coats {on}] was bought by Carol.
       b.   A rack was bought by Carol [$_{PC}$ {*on which} to hang coats {on}].

There's another crucial similarity between gapped purpose clauses and MECs: the **modality type**:

(20)   a.   I have a rack [$_{PC}$ to hang coats on].

→ I **can** / *__have to__ hang coats on the rack that I have.

b.   Mám   [$_{MEC}$ na co   věšet   kabáty].
have.1SG   on what hang.INF coats
'I have something to hang coats on.'

→ I **can** / *__have to__ hang coats on the rack that I have.

> **Restricted distribution**
> The distribution of MECs is very limited and does not correspond to the distribution of nominal phrases or free relatives. No language known to me allows MECs to be embedded in a full range of "direct object" or "internal argument" positions.

2   MECs as affordance descriptions

Discussion based on Šimík (2013a).

> **The distribution–modality heuristic**
> The restricted and highly specific distribution and modality (common for MECs and purpose clauses) is key to the understanding of these constructions.

2.1   Affordance (explaining modality, among other things)

The term and notion **affordance** was invented by psychologist James Gibson (in Gibson 1977):[1]

> The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill. The verb to afford is found in the dictionary, the noun affordance is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment.
>
> (Gibson 1979:127; cited via https://en.wikipedia.org/wiki/Affordance)

> Affordance is a potential transaction that is made possible by a given object or environment; especially, one that is made easily discoverable.
>
> https://en.wiktionary.org/wiki/affordance#English

> Defining affordance in a more linguist-friendly way:
>
> (21)   **Affordance**
> Affordance is a relation between an entity x (AFFORDER), an entity y (BENEFICIARY), and an event e (AFFORDEE) such that x makes e possible for y.

---

[1]The notion of affordance has been used, albeit rarely, also in linguistics; see Steedman (2002a,b); McNally & Boleda (2017).

Some basic examples

(22)   **This pen** (x) makes it possible for **me** (y) to **take notes** (e).

(23)   A **handle** on a cup (x) makes it possible for **somebody** (y) to **hold the cup** (e).

from https://en.wikipedia.org/wiki/Affordance

(24)   A **door** (x) makes it possible for **somebody** (y) to **open the door** (e_1), **close the door** (e_2), **go through the door** (e_3), etc.   from Steedman (2002b)

Application to a purpose clause

(25)   Sue has a rack $[\text{OP}_1$ to hang coats on $t_1]$.

a. $\langle$rack x, Sue, hang coats on $x\rangle \in$ AFFORDANCE

b.   A rack makes it possible for Sue to hang coats (on it).

Application to an MEC:

(26)   Lída má [na co$_1$ věšet kabáty t$_1$].
L. has on what hang.INF coats
'There's something on which Lída can hang coats.'

a. $\langle$some x, Lída, hang coats on $x\rangle \in$ AFFORDANCE

b.   Something makes it possible for Lída to hang coats (on that thing).

Desirable properties of affordances

- Modality of the correct type: **circumstantial possibility** (see Šimík 2013a for a situation-semantic analysis of the modal component).

- The afforder as well as beneficiary are obligatorily involved in the afforded event. This corresponds to two properties of purpose clauses (PCs) and MECs:

  1. Obligatory presence of fronted wh-word (MECs) and a gap/empty operator (PCs) $\approx$ presence of afforder.

  2. Obligatory control of the beneficiary by the matrix argument (or its raising); for PCs, see Bach (1982); Chierchia (1989a); Whelpton (2002); for MECs, see Šimík (2013b).

2.2   Distribution (affordance–availability connection)

The presence of affordance is a matter of perspective: a door may afford going to another room (via the door) for me, but not for my daughter. In order for an entity to afford an event (in order for a handle to afford opening the door and going through it), the entity must be **available** (the handle must be in reach). And thanks to the flexibility of human cognition, also the reverse holds (by hypothesis). Hence:

(27)   **The affordance–availability connection**

a.   If something affords an event (to someone), it is available (to that individual) (in some broad sense).

b.   If something is available (to someone), it affords some event (to that individual).

> (28)   **The MEC distribution conjecture**
>
>   a.   Availability predicates carry an **implication of affordance** (due to (27)).
>
>   b.   This implication gets **grammaticalized** by opening up an affordance argument slot for availability predicates.
>
>   c.   Syntactically, the argument functions similarly as a result state for the availability predicate → **the availability results in the affordance**.
>
>   d.   The argument slot can get filled by expressions of type $\langle e, \langle v, t \rangle \rangle$ (relations between entities and events), the type of MECs or purpose clauses.
>
>   e.   The availability predicate introduces modal existential quantification over situations.

Compositional analysis (simplified)

(29)   Karel$_1$ má [kde   t$_1$ spát].
        K.   has where   sleep.INF
        'There's a place that Karel can use for sleeping.'

(30)   a.   ⟦Karel sleep.INF⟧   **event description**
              $= \lambda e[\text{SLEEP}(e) \wedge \text{EXP}(e)(\text{KAREL})]$

        b.   ⟦where Karel sleep.INF⟧   **event-based relative**[2]
              $= \lambda x \lambda e[\text{PLACE}(x) \wedge \text{SLEEP}(e) \wedge \text{EXP}(e)(\text{KAREL})]$

        c.   ⟦has⟧   **availability predicate with affordance argument**
              $= \lambda E_{\langle e, vt \rangle} \exists s \exists x \exists e[s \in \{s' : \text{AVAILABLE}(x) \text{ in } s'\} \wedge E(x)(e) \text{ in } s]$

        d.   ⟦has where Karel sleep.INF⟧
              $= \exists s \exists x \exists e[s \in \{s' : \text{AVAILABLE}(x) \text{ in } s'\} \wedge \text{PLACE}(x) \wedge \text{SLEEP}(e) \wedge \text{EXP}(e)(\text{KAREL}) \text{ in } s]$

(31)   (29) is true iff there is a possible situation s, a place x, and an event e, such that x is available (to Karel) in s and Karel takes part in the event of sleeping e in s.

This analysis is simplified in at least two respects:

- It does not formally encode the "beneficiary" relation (the individual to whom something is available); see Šimík (2013b) for more discussion.

- It simplifies the formal representation of modality; see Šimík (2013a) for more discussion.

Bottomline

- MECs, being "affordance descriptions"—relations between individuals and events (Šimík 2013a), are **event-based relative clauses**, i.e., abstracts over the variable represented by the wh-word.

- This ambivalent semantic nature—involving an **event description** and at the same time an **individual "eventive" property**—underlies their mixed syntactic behavior (apparently nominal distribution vs. verbal syntactic category).

---

[2]Caponigro's (2003) analysis of wh-words in relatives is directly applicable.

3 Multiple-wh MECs

This discussion is based on Šimík (2011:§6.3).

Multiple wh in MECs is common and productive in all languages that exhibit multiple wh-movement:

(32)   a.   *Russian* (Grosu 2004:418)
              U nego   est' [**kogo**   **s**   **kem**   poznakomit'].
              at him.GEN is   who.ACC with who.INSTR introduce.INF
              'There is a pair of individuals $\langle a, b \rangle$ such that he can introduce a to b.'

        b.   *Bulgarian* (Rudin 1986:193)
              Imaš   li [**s**   **kogo kŭde** da otideš]?
              have.2SG Q   with who   where SBJ go.2SG
              'Do you have somewhere to go and someone to go with?'

        c.   *Czech* (Ceplová 2007:35/36)
              Josef už   opravdu nemá   [**koho**   **komu**   představit].
              Josef already really   NEG.has who.ACC who.DAT introduce.INF
              'Josef is done with all introductions.'

        d.   *Latvian*
              Man ir [**ar**   **ko**   **par**   **ko**   parunāt].
              me   be with who about what speak.INF
              'I could speak with someone about something.'

Multiple wh MECs are hard to paraphrase. Table (33) illustrates the paraphrases and corresponding logical forms of (33) that have been used in the literature.

(33)   *Czech*
        Mám   [**kam**   **s**   **kým**   jít].
        have.1SG where.DIR with who.INSTR go.INF

Label	Paraphrase	Logical form	Used by
Relative clause paraphrase	'There is some place where I can go with somebody.'	$\exists x[\Diamond \exists y[P(x,y)]]$	Bošković 1998 Pancheva Izvorski 2000
Distributive paraphrase	'Every place is such that I can go there with somebody.'	$\forall x[\Diamond \exists y[P(x,y)]]$	Lipták 2000, 2003 Surányi 2005
Modal+indefinites paraphrase	'I can go somewhere with somebody.'	$\Diamond \exists x, y[P(x,y)]$	Šimík 2009
Coordination paraphrase	'There is a place where I can go and a person I can go there with.'	$\exists x[\Diamond P(x)] \wedge \exists y[\Diamond P(y)]$	Rudin 1986
Pair paraphrase	'There is a place-person pair such that I can go to that place with that person.'	$\exists \langle x, y \rangle[\Diamond P(x,y)]$	Grosu 2004
Event paraphrase	'There is a possible event of me going somewhere with somebody.'	$\Diamond \exists e[\exists x, y[P(e)(x,y)]]$	Ceplová 2007

Table 3: Paraphrases and logical forms of multiple wh MECs; "asymmetric" paraphrases are shaded (adapted from Šimík 2011:233)

3.1   Ruling out the "asymmetric" paraphrases

The **distributive paraphrase** claims a different quantificational force for each wh-word—a wide-scoping universal and a narrow-scoping existential, which would make multiple wh MECs akin to comparable multiple interrogatives with pair-list readings. This has only been claimed for Hungarian (Lipták 2000, 2003; Surányi 2005).

(34)   *Hungarian* (Lipták 2000:163)
        Nincs [**kinek**   **mit**   adnom].
        be.NEG   who.DAT what.ACC give.INF.1SG
        'There is nothing I could give to everyone of them.'

The problem is that, according to Lipták (2000), the universally quantified wh-word *kinek* 'who.DAT' in (34) only receives wide scope with respect to the matrix negation; cf. (35-a). This, however, corresponds to low scope of a corresponding existential quantifier; cf. (35-b):

(35)   a. $\forall x[\text{PERSON}(x) \rightarrow \neg \exists y[\text{THING}(y) \wedge \Diamond \text{GIVE}(\text{SP}, x, y)]]$
        b. $\neg \exists x, y[\text{PERSON}(x) \wedge \text{THING}(y) \wedge \Diamond \text{GIVE}(\text{SP}, x, y)]$

The datapoint below further confirms that universal wide scope over matrix material is not possible:

(36)   *Hungarian* (Anikó Lipták, p.c.)

        a.   Valakinek   nincs [**kinek**   **mit**   adni   ]
             someone.DAT NEG.is   who.DAT what.ACC give.INF
             (i)   'Somebody was such that she could not give anything to anybody.'
             (ii) *'For every x there was someone who could not give things to x.'

        b. #... de   van [**mit**   adni egy embernek].
                 but is   what.ACC give one person.DAT
                 ... but x could give things to some person.'

The **relative clause paraphrase** (e.g. Bošković 1998; Pancheva Izvorski 2000) claims a different kind of asymmetry: only one (the higher) wh-word is assumed to be relativized; the other one has the status of a low-scoping indefinite. This predicts that something should be able to scope in between the two, within the MEC. I tried to show that this is not the case:

> Scenario A involves an activist organization (say organization A) which receives funding only on the condition that they are active in every country of the EU, no matter what exactly they do where. As soon as there is a single country for which they have no agenda, the funding stops. In scenario B, the organization B receives funding only on the condition that there is at least one particular thing which they create awareness about in every country of the EU. As soon as this exhaustive coverage of the EU with one particular issue is not satisfied, they stop receiving funding. Now, the sentence in (37) could only be felicitously uttered by the boss of the organization A but not by the boss of the organization B.

(37)   *Czech*
        Organizaci jsem   rozpustil, protože příští rok už   by   nebylo v každé
        organization be:1SG dissolved because next year already would NEG:be in every
        zemi   o   čem   koho přesvědčovat.
        country about what who persuade:INF
        'I dissolved the organization because next year we wouldn't be able to persuade somebody about something in every country.'
        A $\neg[\forall x[\textbf{Country}(x) \rightarrow \exists y, z[\textbf{Issue}(y) \wedge \textbf{Official}(z) \wedge \text{ we persuade } x \text{ about } y \text{ in } z]]]$
        B   *$\neg[\exists y[\textbf{Issue}(y) \wedge \forall x[\textbf{Country}(x) \rightarrow \exists z[\textbf{Official}(z) \wedge \text{ we persuade } x \text{ about } y \text{ in } z]]]]$

(Šimík 2011:239)

A note on a potential **functional analysis** (à la Caponigro & Fălăuş 2018 for multiple wh free relatives). I see no evidence of a functional dependency between the two wh-words in MECs. Their contribution seems entirely symmetric. This can be tested for a language without superiority effects, like Czech. While in multiple interrogatives, there is a tendency to interpret the higher wh-word as the "sorting key" (contrastive topic) and the lower one as the "dependent" element (focus) (see Šimík 2010; Constant 2014), there is no such tendency in MECs, i.e., there's no intuitive difference between (38-a) and (38-b).

(38)   *Czech*
    a. Už   nemám   [**koho**   **o**   **čem**   informovat].
        already   NEG.have.1SG who.ACC   about   what.LOC   inform.INF
    b. Už   nemám   [**o**   **čem**   **koho**   informovat].
        already   NEG.have.1SG about   what.LOC   who.ACC   inform.INF
        'There's nobody to inform about anything. / There's nothing to inform anybody about.'
        (or, in fact, an interpretation ambivalent between the two)

The "symmetry" of multiple wh-words in MECs

- Wh-words in MECs do not have independent quantificational force.

- The variables they bind are quantified from a common source: the availability predicate.

3.2   The challenge of a "symmetric" analysis

Shape of the problem

- MECs denote "eventive" properties / relations between individuals and events (type $\langle e, \langle v, t \rangle \rangle$).

- What is the denotation of a multiple (double) wh MEC? Is it of type $\langle e, \langle e, \langle v, t \rangle \rangle \rangle$? Or perhaps $\langle \mathbf{e}, \langle v, t \rangle \rangle$, where $\mathbf{e}$ is a tuple of individuals?

The **modal+indefinites paraphrase** is based on the idea that wh-words in MECs do not abstract over variables but are variables (or "Hamblin pronouns") themselves. This analysis (proposed in Šimík 2009 doesn't have the type-theoretic problem (MECs always denote a set of propositions or a set of event descriptions, independently of the number of wh-words), but it has empirical problems, including the fact that words like *proč* 'why' can never be wh-indefinites, but they can be used in MECs, even in multiple ones, see (39-a). Note that *proč* 'why' is cross-linguistically productive as a relative operator (and hence an abstractor); cf. (39-b).

(39)   *Czech*
    a. Nemá   si   [{**kdo proč** / **proč kdo**} stěžovat].
        NEG.has REFL   who why   why who   complain.INF
        'Nobody has any reason to complain.'
    b. Důvod, [**proč** si   stěžoval   ], nám   není jasný.
        reason   why   REFL complained us   NEG.is clear
        'The reason why he complained isn't clear to us.'

The **coordination analysis** would solve the type-theoretic problem, as it would treat multiple wh MECs as an array of single wh MECs. But this is implausible. While it is possible to coordinate wh-words or whole MECs, see (40), some cases are arguably irreducible to coordinations; cf. (41).

(40)   *Czech*

    a. Nemám   [**kde a kdy** spát].
        NEG.have.1SG where and when sleep.INF
        'I don't have a place and time to sleep.'

    b. Nemám   [**kde spát**   ] **a** [**kdy spát**].
        NEG.have.1SG where sleep.INF   and when sleep.INF
        'I don't have a place to sleep or time to sleep.'

(41)   *Czech*

    a. Nemám   [**komu co** dát].
        NEG.have.1SG who.DAT what.ACC give.INF
        'I can't give anything to anybody.'

    b. ??Nemám   [**komu a co** dát].
        NEG.have.1SG who.DAT and what.ACC give.INF
        Intended: 'I can't give anything to anybody.'

    c. *Nemám   [**komu dát**   ] **a** [**co** dát].
        NEG.have.1SG who.DAT give.INF   and what.ACC give.INF
        Intended: 'I can't give anything to anybody.'

Hence, we are left with **two analytical options**:

> **Tuple-analysis:** Wh-words jointly abstract over a tuple (implied in Grosu 2004):
>
> (42) $[\![$who.DAT what.ACC give.INF$]\!] = \lambda\langle x, y\rangle\lambda e[\text{GIVE}(e) \wedge \text{RECIP}(e)(x) \wedge \text{THEME}(e)(y)]$

Problems:

- Compositionality: How are tuples formally derived?
- Type-theory: If we want a unified definition of the embedding availability predicate, tuples of entities and entities would have to have the same semantic type.

> **Flexible type analysis:** MECs are of a flexibel type, allowing for $\langle e, \langle v, t\rangle\rangle$ and also $\langle e, \langle e, \langle v, t\rangle\rangle\rangle$, etc. (formalized in Šimík 2011:242ff.)
>
> (43) $[\![$who.DAT what.ACC give.INF$]\!] = \lambda x\lambda y\lambda e[\text{GIVE}(e) \wedge \text{RECIP}(e)(x) \wedge \text{THEME}(e)(y)]$

Problems:

- How to define the meaning of the availability predicate so that it can select multiple types. Cf. solution in Šimík (2011:244) based on a recursive function over types, which, however, is very technical and has no independent empirical motivation.
- How to define the meaning of wh-words themselves? As correctly pointed out in Caponigro & Fălăuş (2018) (and before that in Šimík 2011:125ff.), Caponigro's (2003) analysis of wh-words in terms of type $\langle\langle e, t\rangle, \langle e, t\rangle\rangle$ functions won't work because applying this function to an abstract over an already formed wh-clause (type $\langle e, \langle e, t\rangle\rangle$) produces type incompatibility. Cf. solution in Šimík (2011), based on the simple idea of Groenendijk & Stokhof (1984) or Heim & Kratzer (1998) that wh-words are translated as lambdas themselves (introducing sortal restrictions, possibly in situ, as in Rullmann & Beck 1998 or Sauerland 1998, although presumably without definiteness-related presuppositions).

(44)   a. $[\![\text{what}_1^{\text{in-situ}}]\!]^g = g(1)[\text{THING}(g(1))]$ (type e; after Heim 1982)

        b. $[\![\text{what}_1^{\text{ex-situ}} \text{ X}]\!]^g = \lambda x[[\![\text{X}]\!]^{g[1 \to x]}]$ (after Heim & Kratzer 1998)

(45)   a. $[\![\text{give who}_1^{\text{in-situ}} \text{ what}_2^{\text{in-situ}}]\!]^g$

              $= \lambda e[\text{GIVE}(e) \wedge \text{REC}(e)(g(1)) \wedge \text{PERSON}(g(1)) \wedge \text{TH}(e)(g(2)) \wedge \text{THING}(g(2))]$

        b. $[\![\text{what}_2^{\text{ex-situ}} \text{ [give who}_1^{\text{in-situ}} \text{ what}_2^{\text{in-situ}}]]\!]^g$

              $= \lambda y \lambda e[\text{GIVE}(e) \wedge \text{REC}(e)(g(1)) \wedge \text{PERSON}(g(1)) \wedge \text{TH}(e)(y) \wedge \text{THING}(y)]$

        c. $[\![\text{who}_1^{\text{ex-situ}} \text{ [what}_2^{\text{ex-situ}} \text{ [give who}_1^{\text{in-situ}} \text{ what}_2^{\text{in-situ}}]]]\!]^g$

              $= \lambda x \lambda y \lambda e[\text{GIVE}(e) \wedge \text{REC}(e)(x) \wedge \text{PERSON}(x) \wedge \text{TH}(e)(y) \wedge \text{THING}(y)]$

3.3   Conclusion

To the extent that the empirical generalizations, esp. the one about the "symmetry" of wh-words in multiple wh MECs, are correct, multiple wh MECs pose a non-trivial problem to the general theory of multiple wh constructions, both substantial and technical.

- MECs seem to show that a completely "symmetric" treatment of multiple wh-words in a multiple-wh construction is possible. Why does the asymmetry arise so often in other constructions (wh-questions, correlatives, free relatives) or is, in fact, the default if not the only option?

- If the "symmetric" treatment of wh-words exists for MECs, what prevents its use in other constructions (such as multiple wh free relatives)?

- Multiple wh MECs raise the issue of the ontology of tuples. Can entities and tuples of entities be ontologically identified with one another?

References

Agouraki, Yoryia. 2005. Wh-clauses in DP-positions. In Melita Stavrou & Arhonto Terzi (eds.), *Advances in Greek generative syntax*, 285–330. Amsterdam: John Benjamins. https://doi.org/10.1075/la.76.11ago.

Babby, Leonard H. 2000. Infinitival existential sentences in Russian: A case of syntactic suppletion. In Tracy Holloway King & Irina A. Sekerina (eds.), *Formal Approaches to Slavic Linguistics (FASL) 8: The Philadelphia Meeting 1999*, 1–21. Ann Arbor, MI: Michigan Slavic Publications.

Bach, Emmon. 1982. Purpose clauses and control. In Pauline Jacobson & Geoffrey Pullum (eds.), *The nature of syntactic representation*, 35–57. Dordrecht: Reidel.

Bartra i Kaufmann, Anna. 1990. Sobre unes frases relatives sense antecedent. *Caplletra: Revista Internacional de Filologia* 8. 131–148. http://www.raco.cat/index.php/Caplletra/article/view/300178.

Bhatt, Rajesh. 2006. *Covert modality in non-finite contexts*. The Hague: Mouton de Gruyter.

Bošković, Željko. 1998. Wh-phrases and wh-movement in Slavic. Position paper for the Comparative Slavic Morphosyntax Conference.

Brito, Ana Maria. 1988. *A sintaxe das orações relativas em Português: Estrutura, mecanismos interpretativos e condições sobre a distribuição dos morfemas relativos*: The University of Porto dissertation.

Caponigro, Ivano. 2001. On the semantics of indefinite free relatives. In Marjo van Koppen, Joanna Sio & Mark de Vos (eds.), *Proceedings of ConSOLE X*, 49–62. Leiden: SOLE. http://www.hum.leiden.edu/lucl/research/sole/proceedings/.

Caponigro, Ivano. 2003. *Free not to ask: On the semantics of free relatives and wh-words cross-linguistically*. Los Angeles: University of California dissertation.

Caponigro, Ivano. 2004. The semantic contribution of wh-words and type shifts: Evidence from free relatives crosslinguistically. In Robert B. Young (ed.), *SALT 14: Proceedings from the 14th Conference on Semantics and Linguistic Theory*, 38–55. Ithaca, NY: CLC Publications. http://journals.linguisticsociety.org/proceedings/index.php/SALT/article/view/2906.

Caponigro, Ivano & Anamaria Fălăuş. 2018. The functional nature of multiple wh- free relative clauses. In *SALT 28: Proceedings of the 28th Semantics and Linguistic Theory Conference*, .

Caponigro, Ivano, Harold Torrence & Carlos Cisneros. 2013. Free relative clauses in two Mixtec languages. *International Journal of American Linguistics* 79(1). 61–96. https://doi.org/10.1086/668608.

Ceplová, Markéta. 2007. Infinitives under 'have'/'be' in Czech. In Mojmír Dočekal, Petr Karlík & Jana Zmrzlíková (eds.), *Czech in generative grammar*, 31–45. München: LINCOM.

Chierchia, Gennaro. 1989a. Anaphora and attitudes *de se*. In Renate Bartsch, Johan van Benthem & Peter van Emde Boas (eds.), *Semantics and contextual expression*, 1–32. Dordrecht: Foris.

Chierchia, Gennaro. 1989b. Structured meanings, thematic roles, and control. In Gennaro Chierchia, Barbara Partee & Raymond Turner (eds.), *Properties, types and meaning, Volume II: Semantic issues*, 131–166. Dordrecht: Kluwer.

Citko, Barbara & Martina Gračanin-Yüksek. 2016. Multiple (coordinated) (free) relatives. *Natural Language & Linguistic Theory* 34(2). 393–427. https://doi.org/10.1007/s11049-015-9306-8.

Constant, Noah. 2014. *Contrastive topic: Meaning and realizations*: University of Massachusetts at Amherst dissertation.

Faraci, Robert A. 1974. *Aspects of the grammar of infinitives and for-phrases*. Cambridge, MA: MIT dissertation.

Gibson, James J. 1977. The theory of affordances. In Robert Shaw & John Bransford (eds.), *Perceiving, acting, and knowing*, 67–82. Hillsdale: Lawrence Erlbaum Associates.

Gibson, James J. 1979. *The ecological approach to visual perception*. Boston, MA: Houghton Mifflin.

Groenendijk, Jeroen & Martin Stokhof. 1984. *Studies on the semantics of questions and the pragmatics of answers*: University of Amsterdam dissertation.

Grosu, Alexander. 1989. Pied piping and the matching parameter. *The Linguistic Review* 6(1). 41–58. https://doi.org/10.1515/tlir.1987.6.1.41.

Grosu, Alexander. 1994. *Three studies in locality and case*. London: Routledge.

Grosu, Alexander. 2004. The syntax-semantics of modal existential wh constructions. In Olga Mišeska Tomić (ed.), *Balkan syntax and semantics*, 405–438. Amsterdam: John Benjamins.

Grosu, Alexander. 2013. Relative clause constructions and unbounded dependencies. In Carmen Dobrovie-Sorin & Ion Giurgea (eds.), *A reference grammar of Romanian, Vol. 1: The noun phrase*, 597–662. Amsterdam: John Benjamins.

Heim, Irene. 1982. *The semantics of definite and indefinite noun phrases*: University of Massachusetts at Amherst dissertation.

Heim, Irene & Angelika Kratzer. 1998. *Semantics in generative grammar*. Oxford: Blackwell.

Hirschbühler, Paul & María-Luisa Rivero. 1981. A unified analysis of matching and non-matching free relatives in Catalan. In Victoria A. Burke & James Pustejovsky (eds.), *NELS 11: Proceedings of the 11th Annual Meeting of the North East Linguistic Society*, 113–124. Amherst, MA: GLSA Publications.

Hoge, Kerstin. 2017. On Yiddish indefinite free relatives. Abstract for the workshop Köpfigkeit und/oder grammatische Anarchie, Free University of Berlin, May 2017.

Holvoet, Axel. 1999. Infinitival relative clauses in Baltic and Slavonic. *Baltistica* 34(1). 37–53. https://doi.org/10.15388/baltistica.34.1.470.

Jędrzejowski, Łukasz. 2015. On the origin and the development of infinitival wh-complements in the history of Polish. Presented at conference Slavic Corpus Linguistics: The Historical Dimension, University of Tromsø, April 2015.

Jones, Charles. 1991. *Purpose clauses: Syntax, thematics, and semantics of English purpose constructions*. Dordrecht: Kluwer.

Kalėdaitė, Violeta. 2008. Language-specific existential sentence types: A case study of Lithuanian. *Linguistics: Germanic and Romance Studies* 59. 128–137.

Kotek, Hadas & Michael Yoshitaka Erlewine. 2016. Unifying definite and indefinite free relatives: Evidence from Mayan. In Christopher Hammerly & Brandon Prickett (eds.), *NELS 38: Proceedings of the 38th Annual Meeting of the North East Linguistic Society*, vol. 2, 241–254. Amherst, MA: GLSA Publications.

Kotek, Hadas & Michael Yoshitaka Erlewine. to appear. Wh-indeterminates in Chuj. *Canadian Journal of Linguistics* http://ling.auf.net/lingbuzz/003954.

Lipták, Anikó. 2000. Multiple relatives as relatives of questions. In Gábor Alberti & István Kenesei (eds.), *Approaches to Hungarian 7: Papers from the Pécs Conference*, 151–177. Szeged: JATEPress.

Lipták, Anikó. 2003. Hungarian modal existential wh-constructions. Manuscript.

Livitz, Inna. 2012. Modal possessive constructions: Evidence from Russian. *Lingua* 122(6). 714–747. https://doi.org/10.1016/j.lingua.2012.02.002.

Mazzitelli, Lidia Federica. 2015. *The expression of predicative possession: A comparative study of belarusian and lithuanian*. Berlin: De Gruyter.

McNally, Louise & Gemma Boleda. 2017. Conceptual versus referential affordance in concept composition. In James A. Hampton & Yoad Winter (eds.), *Compositionality and concepts in linguistics and psychology*, 245–267. Springer. https://doi.org/10.1007/978-3-319-45977-6_10.

Móia, Telmo. 1992. *A sintaxe das orações relativas sem antecedente expresso do português*: University of Lisbon MA thesis.

Ojea, Ana. 2016. Categorías mixtas truncadas: La nominalización defectiva en las cláusulas relativas existenciales modales. *Revista de Lingüística Teórica y Aplicada* 54(1). 129–147. https://doi.org/10.4067/S0718-48832016000100007.

Pancheva Izvorski, Roumyana. 2000. *Free relatives and related matters*. Philadelphia: University of Pennsylvania dissertation.

Pesetsky, David. 1982. *Paths and categories*. Cambridge, MA: MIT dissertation.

Plann, Susan Joan. 1980. *Relative clauses in Spanish without overt antecedents and related constructions*. Los Angeles, CA: University of California Press.

Polinsky, Maria. 2015. Tsez syntax: A description. Manuscript, University of Maryland.

Rappaport, Gilbert C. 1986. On a persistent problem of Russian syntax: Sentences of the type *mne negde spat'*. *Russian Linguistics* 10(1). 1–31. https://doi.org/10.1007/BF02551591.

Růžička, Rudolf. 1994. Asymmetry and parallelism between affirmative and negative *(ne) (est') gde spat'*. *Russian Linguistics* 18(1). 53–72. https://doi.org/10.1007/BF01814389.

Rudin, Catherine. 1986. *Aspects of Bulgarian syntax: Complementizers and wh-constructions*. Columbus, OH: Slavica Publishers.

Rullmann, Hotze & Sigrid Beck. 1998. Presupposition projection and the interpretation of *which*-questions. In Devon Strolovitch & Aaron Lawson (eds.), *SALT 8: Proceedings from the 8th Conference on Semantics and Linguistic Theory*, 215–232. Ithaca, NY: CLC Publications.

Sadler, Louisa & Maris Camilleri. 2017. Free relatives in Maltese. *Brill's Journal of Afroasiatic Languages and Linguistics* 9. https://doi.org/10.1163/18766633-00901001.

Sauerland, Uli. 1998. *The meaning of chains*. Cambridge, MA: MIT dissertation.

Šimík, Radek. 2009. Hamblin pronouns in modal existential wh-constructions. In Maria Babyonyshev, Daria Kavitskaya & Jodi Reich (eds.), *Formal Approaches to Slavic Linguistics (FASL) 17: The Yale Meeting 2008*, 187–202. Ann Arbor, MI: Michigan Slavic Publications.

Šimík, Radek. 2010. Interpretation of multiple interrogatives: An information structure sensitive account. In Wayles Browne, Adam Cooper, Alison Fisher, Esra Kesici, Nikola Predolac & Draga Zec (eds.), *Formal Approaches to Slavic Linguistics (FASL) 18: The Second Cornell Meeting 2009*, 486–501. Ann Arbor, MI: Michigan Slavic Publications.

Šimík, Radek. 2011. *Modal existential wh-constructions*: University of Groningen dissertation. http://www.lotpublications.nl/Documents/269_fulltext.pdf.

Šimík, Radek. 2013a. Modal existential wh-constructions as affordance descriptions. In Emmanuel Chemla, Vincent Homer & Grégoire Winterstein (eds.), *Proceedings of Sinn und Bedeutung 17*, 563–580. http://semanticsarchive.net/Archive/Dk3NGEwY/Simik.pdf.

Šimík, Radek. 2013b. The PRO-wh connection in modal existential wh-constructions: An argument in favor of semantic control. *Natural Language & Linguistic Theory* 31(4). 1163–1205. https://doi.org/10.1007/s11049-013-9205-9.

Šimík, Radek. 2017. Existential wh-constructions. In Mark Aronoff (ed.), *Oxford bibliographies in linguistics*, New York: Oxford University Press. https://doi.org/10.1093/OBO/9780199772810-0162.

Steedman, Mark. 2002a. Formalizing affordance. In *Proceedings of the 24th Annual Conference of the Cognitive Science Society*, 834–839. Fairfax, VA.

Steedman, Mark. 2002b. Plans, affordances, and combinatory grammar. *Linguistics and Philosophy* 25(5–6). 723–753. https://doi.org/10.1023/A:1020820000972.

Suñer, Margarita. 1984. Free relatives and the matching parameter. *The Linguistic Review* 3(4). 363–387. https://doi.org/10.1515/tlir.1984.3.4.363.

Surányi, Balázs. 2005. Indefinite wh-pronouns and the modal existential wh-constructions in Hungarian. Presented at the 7th International Conference on the Structure of Hungarian (ICSH7), Veszprém, Hungary, May 2005.

Szabolcsi, Anna. 1986. From the definiteness effect to lexical integrity. In Werner Abraham & Sjaak de Meij (eds.), *Topic, focus, and configurationality*, 321–348. Amsterdam: John Benjamins.

Thomas, Guillaume. 2008. Consequences of modal existential constructions for the doubly filled Comp phenomenon in French. Manuscript.

Torrence, Harold & Philip Duncan. 2016. Wh-expressions in non-interrogative contexts in Kaqchikel. Presented at the The Annual Meeting of the Society for the Study of the Indigenous Languages of the Americas (SSILA), Washington, DC, January 2016.

Whelpton, Matthew. 2002. Locality and control with infinitives of result. *Natural Language Semantics* 10(3). 167–210. https://doi.org/10.1023/A:1022107429786.