Czech modal existential *wh*-constructions as vP-level free relatives*

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1. Introduction

Modal existential *wh*-constructions (MEC; term from Grosu 2004), also called irrealis free relatives (Grosu 1994), existential free relatives (Caponigro 2003), or non-indicative *wh*-clauses (Izvorski 1998), are apparently embedded *wh*-clauses which are characterised by an idiosyncratic cluster of syntactico-semantic properties. They are introduced by a verb/auxiliary containing an existential component, 'be' or 'have' (BE/HAVE for simplicity) in Czech. Some languages allow for more predicates, such as 'buy', 'find', or 'look for' (see Grosu 2004 for a full list). In Czech, BE is always impersonal (shows default agreement and disallows any overt subjects, whether in nominative or some oblique Case). On the other hand, HAVE requires a subject in nominative, with which it agrees. The main verb of the MEC appears in 'irrealis mood', typically infinitive or subjunctive. The *wh*-word is obligatorily fronted and is devoid of the so-called case-matching effects which are characteristic of standard free relatives.

Semantically, the structure in which MEC appear has been argued to assert the existence/non-existence of whatever is expressed by the *wh*-clause. The MEC expresses modality of possibility or availability. Finally, there is no theta-relation (say possession) between the *wh*-word and the matrix verb. See the examples of Czech MEC below:

(1) a. mám / nemám   s   kým mluvit
         have / not.have.1SG with whom talk.INF
         'There is some / no one with whom I could talk.'
     b. je / není   s   kým mluvit
         is / not.is.3SG with whom talk.INF
         'There is some / no one with whom one could talk.'

This paper is concerned with two problems: the categorial status of Czech infinitival MEC and the source of modality in MEC. In Section 3, I will argue that Czech infinitival MEC are vPs rather than CPs and that the matrix BE/HAVE is a restructuring verb. Section 4 discusses the semantics and presents two hypotheses designed to explain the unexpected lack of ambiguity of modality in MEC. The first relies on the assumption that the source of modality is the matrix existential predicate; the second assumes that *wh*-words in MEC are non-canonical free choice items. The following section provides a very brief overview of some influential analyses of MEC.

2.   MEC in the literature

MEC have been noted or described for a number of Slavic, Romance, Semitic, and Finno-Ugric languages. With the excpetion of Yiddish, they do not appear in Germanic languages. A more or less exhaustive list of literature on MEC can be found in Caponigro (2003). Here I only briefly mention some influential analyses: Grosu (1994), Izvorski (1998), Caponigro (2003), and Grosu (2004).

All these authors take seriously the difficulties of analyzing MEC as free relatives (FR). Since Jacobson (1995), it has been standard to analyze FR as definite descriptions denoting a maximal plural entity. This analysis is untenable for MEC because they appear to have existential force and are devoid of any maximality. On top of that, MEC lack the hallmark of FR, case-matching effects, and display a very limited distribution, not attested in free relatives. These problems led Grosu (1994) to analyze MEC as 'bare CPs', which stands in opposition to CPs selected by a D head, arguably the proper representation of FR. This kind of analysis has recently been revived by Caponigro (2003), who modifies Jacobson's (1995) proposal in a way that enables him to analyze MEC as genuine FR, locating the difference between them in the selecting material: Standard FR are selected by a D-head (iota-operator), while MEC are selected by an existential predicate. Grosu's most recent analysis (2004), even though descriptively the most ambitious one, ends up having a stipulative flavour, since it is ultimately based on a postulation a specialised head C, designed exclusively for MEC. Izvorski (1998), in an effort to avoid construction-specificity, makes an attempt to generalize MEC to a sort of embedded questions.

All in all, Izvorski's and Caponigro's analyses as well as Grosu's older proposal agree on the following points: syntactically, MEC are 'bare' CPs; semantically, they are open propositions. Below, I will show that the syntactic part of the claim cannot be maintained for Czech infinitival MEC. As for the semantics, I adopt the view that MEC are open propositions.

3.   Syntax of Czech infinitival MEC

Wh-words in MEC obligatorily undergo *wh*-movement (2), which is hardly surprising, whether one takes MEC to be free relatives (FR), or embedded questions (EQ).

(2) Mám   {koho} navštívit {*koho}
    have.1SG who   visit   who
    'There is someone who I could visit'

This fact strongly suggests that we are dealing with a CP. However, as suggested in Ceplová (2007), Czech infinitival MEC are more appropriately analyzed as vPs appearing in the same clause as their 'matrix' predicate. The discussion below provides a new set of arguments for this view.

3.1 Czech infinitival MEC are not CPs

The arguments below are based on a minimal-pair comparison between infinitival EQ, which are standardly considered to be CPs, and infinitival MEC. Even though not all phenomena discussed below constitute an unambiguous criterion of CP-hood, all of them are strongly *characteristic* of (*wh*-)CPs.

Argument 1: A-bar extraction. Izvorski (1998) claims that both EQ and MEC (as opposed to FR) are transparent for A-bar extraction, which makes them all CPs (as opposed to DPs). The following examples show the availability of A-bar extraction from two different EQ: an EQ introduced by the verb *ptát se* 'ask' and another one selected by *nevědět* 'not know'. Both EQs are tested with three types of extraction (*wh*-extraction, topicalisation, and quantifier movement) and compared to the transparency of MEC.[1]

(4) a. *{Komu/každému/Petrovi}$_1$ **se   ptal** [$_{EQ}$ co   dát   t$_1$]
        {who /everyone/Peter}.DAT REFL asked   what.ACC give.INF
        'To whom/To everyone/To Peter he ask what to give'

    b. $^?${Komu/každému/Petrovi}$_1$ **nevěděl** [$_{EQ}$ co   dát   t$_1$]
        {who /everyone/Peter}.DAT not.knew   what.ACC give.INF
        'To whom/To everyone/To Peter he didn't know what to give'

(5) {Komu/každému/Petrovi}$_1$ **nemáš   /není**   [$_{MEC}$ co   dát t$_1$]
    {who /everyone/Peter}.DAT not.have.2SG/not.is.3SG   what.ACC give.INF
    'To whom/To everyone/To Peter there is nothing to give'

The examples in (4) show that Czech embedded infinitival questions are not completely transparent for A-bar extraction and show familiar subjacency effects. The one that is relatively acceptable is selected by (*ne*)*vědět* '(not) know' and will be

used for our comparisons further on. The MEC in (5), on the other hand, is completely acceptable, which suggests a structural difference.

Argument 2: Clitic climbing. Czech EQ are strict barriers for clitic climbing, as illustrated in (6). MEC, on the other hand, allow for clitic climbing freely, as seen in (7):

(6) *Včera   jsem   **ho**$_1$ nevěděl [$_{EQ}$ kde   potkat   t$_1$]
    yesterday AUX.1SG him not.knew   where meet.INF
    'Yesterday I didn't know where to meet him'

(7) Včera   jsem   **ho**$_1$ neměl [$_{MEC}$ kde   potkat   t$_1$]
    yesterday AUX.1SG him not.had   where meet.INF
    'Yesterday there was no place where I could meet him'

Since most analyses of clitic climbing propose that CPs are barriers for clitic climbing (see e.g. Rezac 2005, Dotlačil 2007), it is unclear how the grammaticality of (7) could possibly be accounted for if MEC are CPs.[2]

Argument 3: Selection by a CP-correlative. Embedded CPs in many Slavic languages can be introduced by a demonstrative element *to* 'that', which Stepanov & Stateva (2006) call *CP-correlative* and analyze as a D-head, selecting the embedded CP. The resulting structure, a DP, is in turn selected by the matrix verb.[3] Czech (as opposed to Russian, cf. Stepanov & Stateva 2006) imposes hardly any restrictions on the presence of this *to* — it can select any kind of embedded CP (CPs selected by factive, non-factive verbs, as well as prepositions, *wh*-CPs or declarative CPs, infinitival or finite CPs, etc.), which makes it a suitable test for the CP-hood of clauses. MEC fail this test:

(8) Nevěděl jsem   jen **to** [$_{EQ}$ kde   koupit zeleninu]
    not.knew AUX.1SG only that   where buy.INF vegetables
    'I only didn't know where to buy vegetables.'

(9) *Neměl jsem   jen **to** [$_{MEC}$ kde   koupit zeleninu]
    not.had AUX.1SG only that   where buy.INF vegetables
    'There only was no place where I could buy vegetables.'

Argument 4: *Wh*-subjects, nominative case, and ϕ-agreement. Infinitival embedded questions in Czech can never contain a subject *wh*-phrase. This is illustrated in (10). The reason seems to be that subjects in Czech typically bear nominative, a case licensed by a finite verb, which is absent from an infinitival CP. MEC, on the other hand, not only can contain a subject *wh*-phrase (in nominative), but the *wh*-phrase even agrees in ϕ-features with the 'matrix' verb, suggesting that the two are in an agreement/Case-assignment relation:

(10) *Nevěděl   [$_{EQ}$ kdo   přijít]
     not.knew.**3SG.MASC**   who.**NOM.3SG.MASC** come.**INF**
     'He didn't know who to come'

(11) Neměl   [$_{MEC}$ kdo   přijít]
      not.had.**3SG.MASC**   who.**NOM.3SG.MASC** come.**INF**
      'There was no one who could come' (lit. '(He$_i$) didn't have who$_i$ to come')

If MEC are to be analyzed as CP, then we are facing an unprecedented case of cross-clausal nominative Case assignment and agreement.[4]

Argument 5: Quantifier scope. *Wh*-phrases can take scope and thus behave as quantifiers. Standard *wh*-movement escalates a *wh*-phrase relatively high, to a position above IP, a position which c-commands the standardly assumed target of quantifier raising. Indeed, *wh*-phrases in SpecCP can generally be interpreted as bearing wide scope with respect to other quantifiers. The example in (12) illustrates this: the *wh*-phrase is scopally ambiguous with respect to the universal quantifier in subject. The situation in MEC is strikingly different, as witnessed in (13). The *wh*-word not only cannot take scope over the universal quantifier, but MEC with universal quantifiers are hard to accept, in the first place:

(12) a. Nevím   [$_{EQ}$ **co**   **každému chlapci** dát]   *wh*>∀, ∀>*wh*
          not.know.1SG   what.ACC every   boy.DAT give.INF
      b. Nevím   [$_{EQ}$ **co**   dát   **každému chlapci**]   *wh*>∀, ∀>*wh*
          not.know.1SG   what.ACC give.INF every   boy.DAT
          'I don't know what to give to every boy'

(13) a. ?Nemám   [$_{MEC}$ **co**   **každému chlapci** dát]   **wh*>∀, ∀>*wh*
          not.have.1SG   what.ACC every   boy.DAT give.INF
      b. *Nemám   [$_{MEC}$ **co**   dát   **každému chlapci**]   **wh*>∀, ∀>*wh*
          not.have.1SG   what.ACC give.INF every   boy.DAT
          'There is nothing that I can give to every boy'

In fact, the only form of (13) that is completely acceptable is one where the universal quantifier appears outside of the MEC (an option which is marginal or unacceptable for common embedded questions, see the examples in (4)). The scope-interaction remains the same as in (13):

(14) **Každému chlapci** nemám   [$_{MEC}$ **co**   dát t]   **wh*>∀, ∀>*wh*
      every   boy.DAT not.have.1SG   what.ACC give.INF
      'There is nothing that I can give to every boy'

Briefly, *wh*-words in MEC obligatorily take narrow scope, which remains mysterious if one adopts the assumption that they are in SpecCP.

3.2 Analysis

I propose that Czech infinitival MEC are to be viewed as in (15). The apparently matrix existential HAVE/BE is analyzed as a restructuring verb inserted into the functional layers above the vP (cf. Cinque 2006). I suggest that it lexicalizes the VP-related existential closure (Heim 1982) and behaves as an unselective binder. The *wh*-word undergoes movement to the edge of vP. It is either adjoined, or it moves to a position in vP's extended left-periphery, as described in Jayaseelan (2001) and Belletti (2004). Currently, I do not have empirical arguments favoring one choice over the other so I leave the issue open.

(15) $[_{CP} \ldots [_{TP} \ldots [_{\exists P}$ HAVE/BE $[_{vP\text{-periphery}} wh_1 [_{vP} \ldots <wh_1> \ldots]]]]]$

The analysis in (15) straightforwardly explains all data in Section 3.1: A-bar movement as well as clitic movement do not cross a clausal boundary at all; a CP-correlative fails to subcategorize for a vP; Case assignment and agreement between a nominative *wh*-word and the HAVE takes place within one clause; finally, if universal quantifiers are licensed above TP (Beghelli & Stowell 1997), then there is no position for them in MEC, which correctly captures the facts in (13) and (14). Below I put forth three more arguments supporting the proposed analysis.

First, MEC cannot have a subject of its own, which is typical of infinitives selected by a modal and/or restructuring verb in Czech (16). Whether we are dealing with a raising or control structure is a separate issue, but the fact that MEC support weather-subjects suggests the former (17).

(16)   a. *Chtěl /Zkusil jsem   ho /pro něho odejít
        wanted/tried   AUX.1SG him/for him leave.INF
        'I wanted/tried him to leave'

      b. *Měl jsem   ho /pro něho kam   jít
        had AUX.1SG him/for him where go.INF
        'I had a place for him to go.'

(17)   Povodeň už   tady nemá co   zničit
       flood   already here not.has what destroy.INF
       'There is nothing more that a flood could destroy here.'

Second, the optionality of pronominal clitic placement resembles some standard cases of restructuring.

(18)   Jirka se   {**mu**} rozhodl/pokusil {**mu**} pomoct
       Jirka REFL him decided/tried   him help.INF
       'Jirka decided/tried to help him'

(19) Jirka {**mu**} neměl   jak {**mu**} pomoct
      Jirka him not.had how him help.INF
      'There was no way Jirka could help him'

Third, in Czech multiple questions, only one *wh*-word moves all the way to the left periphery. The lower one follows second-position clitics, and optionally some adverbials. It has standardly been assumed that the lower *wh* is adjoined to IP (Rudin 1988), but it could as well be true that it appears in the extended left periphery of vP, which would provide more support for the assumption that Czech *wh*-movement can target positions lower than CP (and even IP).[5]

(20) Co   {*komu} jsi   {komu} včera   {komu} dal?
      what who AUX.2SG who   yesterday who   gave
      'What did you give to whom yesterday?'

In sum, I presented a number of arguments that the structure HAVE+MEC is monoclausal in nature.

4.   Semantics

How should the syntax proposed above be mapped onto a semantic representation? In Section 2 I suggested that MEC are to be analyzed as open propositions, i.e. propositions containing a free variable (and potentially more of them). HAVE/BE then quantifies over this proposition and asserts (non)emptiness of a set of individuals with a property expressed by the MEC. Thus a sentence as in (21a), for simplicity given in English literal translation, receives the interpretation in (21b/c):

(21) a. 'John has with whom to talk'
      b. $\exists x$ [**human**$(x) \wedge$ M **talk to**(j,x)] where M is a modal operator
      c. There is some x such that x is a human and John can talk to x.

The representation in (21) is a good starting point to pose further questions. The question of modality is one of the most intriguing ones. Where does the modality come from? Why does it have to be a modality of possibility/availability rather than deontic necessity? These questions are particularly pressing in light of the fact that English near-equivalents of MEC, i.e. infinitival relatives headed by an indefinite, are ambiguous as for their modality (English data from Izvorski 1998; see also Bhatt 2001 for an extensive discussion of modality in embedded infinitival relatives):

(22) a. There is something to do
          'There is something that can be / need to be done'
     b. Je co   dělat
         is what do.INF
         'There is something that can be/*need to be done'

In what follows, I will present two possible explanations of the contrast in (22).

4.1 Hypothesis 1: Modality in HAVE/BE

Suppose that the existential predicate HAVE/BE is specified to quantify not only over individual variables but also over situation (world) variables. Thus, the quantifier would be of type $\exists(x,s)$ and the MEC would denote a set of non-actual (irrealis) situations with free individual variables in them, i.e. an intensionalised variant of an open proposition. The version of (21) modified according to this hypothesis is in (23):

(23) a. 'John has with whom to talk'
     b. $\exists(x,s)$ [**human**$(x) \wedge$ **C**$(s) \wedge$ **talk**(j,x,s)]
     c. There is an x and an s such that x is a human, s is a contextually specified situation, and John talks to x in s.

Note that the idea that HAVE/BE is an existential quantifier with a modal component does not look so suspicious in light of the present syntactic analysis. We noticed significant syntactic affinities between HAVE/BE and modal restructuring verbs. By analogy, there could be semantic affinities, too. The main advantage of this view is that allowing the existential predicate to quantify over situations immediately explains the type of modality involved in MEC: possibility modals are existential quantifiers ranging over worlds. Moreover, it is not quite clear how the modality is to be represented within a vP, since on standard assumptions modal heads appear in the inflectional domain, rather than in the verbal domain.

However, there are also problems. One of them is that it is not easy to extend this analysis to those languages whose MEC are arguably CPs and those that allow predicates other than HAVE/BE to select an MEC: it appears to be untenable to analyze predicates like 'look for', 'find', or even 'buy' along the lines of (23) (note that 'I bought with what to write' would mean something like 'I bought an x and an s such that x is a thing and I write with x in s'). On the other hand, the fact that Czech only allows for HAVE and BE would be explained if there were a requirement that Czech MEC be selected by a modal existential predicate.

4.2 Hypothesis 2: Polarity sensitive *wh*

Let us now ignore the problem of placing a modal head within a vP and suppose that the locus of modality is the MEC itself, as usually assumed. On this assumption, we are able to generalize the semantics of the Czech MEC to related structures in other languages. However, more has to be said about the contrast in (22). I propose the following solution.

Let us concentrate on the only apparent difference between MEC (22b) and infinitival relatives headed by an indefinite pronoun (22a): a *wh*-word is used in the role of an indefinite in the former but not in the latter. In which sense can this be significant? We know that *wh*-words and indefinites/quantifiers derived from them often display sensitivity to certain operators (see e.g. Lin 1998 for bare *wh*-indefinites in Chinese or Giannakidou 2001 for *wh*-based free choice items in Greek). The following examples show that *wh*-free choice items (FCI) in Czech are licensed by permission modality but not obligation modality, like the English FCI *anyone* (the same holds for epistemic possibility vs. necessity):

(24) Můžeš /*musíš   pozvat   kohokoliv.
      can.2SG/must.2SG invite.INF who.FCI
      'You can/*must invite anyone.'

There is not enough space to go into a detailed analysis of these facts. For my purposes, it will be sufficient to consider a very simplified version of a *variation requirement*, inspired by Giannakidou (2001):

(25) *Variation requirement*
      A structure with an FCI must allow for an interpretation where the variable introduced by the FCI is assigned a different value in every possible world that is considered.

Suppose that the FCI in (24) is a universal quantifier scoping over the modal quantifier expressed by the verb 'can'/'must'. Then, the representation is as follows:

(26) a. $\forall x\,[\mathbf{person}(x) \to \exists w.\mathbf{invite}(\text{you},x,w)]$
          For every person x there is a world w such that you invite x in w
      b. $\forall x\,[\mathbf{person}(x) \to \forall w.\mathbf{invite}(\text{you},x,w)]$
          For every person x you invite x in every world w of consideration

In (26a), the variable x can be assigned a different value in every possible world that we consider. In (26b), however, the variable is assigned the same values in every world considered, in violation of the variation requirement. This is a simplified account of (24). Now, let us come back to the situation in MEC. The reading (27b) is unavailable for a sentence like of (27) (=(22b)):

(27) 'There is what to do'
  a. 'There is something that we could do'
  b. * 'There is something that we should do'

Suppose that the variable introduced by the *wh*-word is subject to the variation requirement (i.e. the *wh*-word is a sort of a non-canonical FCI). How do the two interpretations of (27), both of which are in principle available, score with respect to the variation requirement? Consider the following representations:

(28) a. $\exists x\ [\mathbf{thing}(x) \wedge \exists w.\mathbf{do}(\text{we},x,w)]$
   There is a thing x and a possible world w such that we do x in w
  b. $\exists x\ [\mathbf{thing}(x) \wedge \forall w.\mathbf{do}(\text{we},x,w)]$
   There is a thing x such that we do x in every possible world w that we consider

Let us first look at (28a), i.e. the real interpretation of (27). It is sufficient to consider a single possible world where x is assigned a value, in order for the sentence to be true. This means that there is an interpretation where x is assigned a different value in every possible world considered: the variation requirement is vacuously fulfilled. On the other hand, (28b) violates the requirement because the variable x is assigned the same value in every possible world that we consider (given that universal quantifiers range over non-singleton sets).

  The major advantage of this analysis is its potential universality. It can be applied to any language with MEC. On the other hand, the claim that *wh*-expressions in MEC are FCI, i.e. polarity sensitive in the sense of Giannakidou (1998), needs independent support. Here, I will limit myself to showing that some *wh*-words, namely *kdy* 'when', *jak* 'how', and *kdo/co* 'who/what' in nominative, form MEC with a clear negative polarity character. The following MEC are licensed under negation and protases of conditionals, but not in an affirmative context.

(29) a. **ne**má /*má tady **kdy** /**jak** /**kdo** uklidit
   not.has/ has here when/how/who.ɴᴏᴍ clean up
   'There is no time/time no way/a way noone/someone to clean here up'
  b. **Pokud** tady má **kdy** /**jak** /**kdo** uklidit, tak je to v pohodě
   if here has when/how/who.ɴᴏᴍ clean.up so is it in order
   'If there's time/a way/anyone to clean here up, it's all right.'

Even though the details need to be worked out, the fact that some MEC are NPIs lends some plausibility to the assumption that *wh*-words in MEC are polarity- sensitive in one way or another.

5.   Conclusion

In this paper I dealt with two aspects of MEC. First, I presented evidence that Czech MEC are vPs rather than CPs, despite the apparent *wh*-movement. This conclusion strongly favors theories that postulate vP-peripheral syntactic projections (Jayaseelan 2001, Belletti 2004). Second, I discussed the problem of modality non-ambiguity in MEC. Two lines of explanations were considered. The first one employs the idea that the locus of modality is HAVE/BE rather than the MEC itself. The second one suggests that the *wh*-word in MEC introduces a special kind of variable whose value needs to vary across the worlds/situations considered. In that it would resemble variables introduced by free choice items.

Notes

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1. Izvorski (1998) argues (on semantic grounds) that MEC are related to EQ selected by verbs like *surprise*. However, it is not easy to compare MEC with this kind of EQ in Czech, since such EQ cannot be infinitival at all, and thus fail to display the fundamental property of MEC.

2. Clitic climbing out of *wh*-constituents is discussed also in Wurmbrand (2001:105) and Cinque (2006:19–20). Both authors conclude that the *wh*-expressions do not appear at the clausal edge but rather at the edge of VP, which fits the present proposal.

3. Depending on whether this element does or does not receive focal stress, the CP is interpreted either as focalised or backgrounded. An equivalent of the backgrounding D is arguably also found in English (*I knew **it**, that Peter wouldn't come*).

4. As pointed out by an anonymous reviewer, cases of cross-clausal agreement have been described, see e.g. Polinsky & Potsdam (2001) for cross-clausal agreement in Tsez, or Potsdam & Runner (2001) for a discussion of English cases like *There seem like there are books on the table*. Nevertheless, I do not know of cases of cross-clausal nominative Case assignment.

5. See Sinopoulou (2007) for an analysis of Greek multiple questions along these lines.

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