CHAPTER 6

Issues of the syntax-semantics interface

In the preceding chapter, I laid out some overarching hypotheses concerning selection and wh-movement which naturally follow from the novel proposal put forth in Chapter 4. While exploring the predictions of these hypotheses I demonstrated that the internal syntax of MECs is more flexible than previously assumed. At the same time, I provided an extension of the syntactic typology of MECs sketched in Chapter 2, a typology enriched by theoretical insights and motivated by language-specific properties that are independent of MECs. The discussion in the present chapter is based on exploring various predictions and consequences of the event-extension analysis, as set up and developed in the previous two chapters. In particular, the dissociation of the base-generation position of the MEC from the position of a corresponding nominal (participant) argument makes interesting predictions concerning traditional problems of MECs such as matching effects, the impossibility for MECs to be targeted by passivization, or the necessity to strand the wh-word in MEC-topicalization. Substantial attention will also be devoted to the proper treatment of multiple wh-MECs and to the semantic formalization of subject-coreference relations (raising and control), as discussed in the preceding chapter.

The chapter is organized as follows. I start with establishing the state of the art in the study of MEC semantics (§6.1). I will characterize the existing types of semantic analyses, paying special attention to their explanatory potential. This is done by evaluating them with respect to a handful of basic empirical criteria—phenomena that any analysis should be able to account for. In §6.2 I put the event-extension analysis to the same scrutiny and show that it fares very well. The only remaining problem—multiple wh-MECs—is discussed at length in §6.3. After finding out what the actual truth conditions...
of multiple wh-MECs are, I introduce a minor modification of the semantics of the MEC-embedding predicate BE, enabling it to select MECs of various semantic types—depending on the number of wh-words involved. In §6.4 I come back to the issue of MEC-subject identification, especially control. I will show that the puzzling observations about MEC wh-subjects made in the preceding chapter can be turned into an interesting argument in favor of the property (as opposed to propositional) analysis of control constituents. In particular, I will argue that PRO is to be construed in the same way as wh-words, i.e. as a lambda-operator. In §6.5 I turn to one of the specific components of the event-extension analysis—the backgrounding of the participant argument of BE. The antipassivization strategy proposed in §4.4, under which the participant argument position is removed from syntax, will be compared with an alternative strategy under which the position is not removed but rather filled with a (potentially empty) DP. I will suggest that both strategies might be needed to cover the whole set of empirical facts.

6.1 Semantics: state of the art

The preceding chapter was introduced by a section on the state of the art in the study of MECs’ internal syntax. In this chapter, I get back to issues of MECs’ semantics and syntax-semantics interface and that is why it might be useful to summarize and critically review previous research conducted in this field. In what follows, I go through all the existing semantic proposals and try to evaluate their explanatory potential. I use the observations made earlier (see Chapter 2 and throughout the literature, in particular observations relating to the scope, distribution, availability to host more than one wh-operator, and the discourse referential potential of MECs. Three basic analyses have been proposed: a quantificational analysis under which the MEC is an existential generalized quantifier, a non-quantificational analysis that treats the MEC as denoting a property, and another type of non-quantificational analysis, which considers the MEC to have a propositional semantics. I discuss the quantificational analyses in §6.1.1 and the non-quantificational analyses in §6.1.2. In §6.1.3 I summarize the results, concluding that the propositional analysis has the best, though not perfect empirical coverage.

6.1.1 Quantificational analyses

Three authors have argued that MECs are quantifiers: Pesetsky (1982), Rapaport (1986), and Grosu (2004). Unfortunately, none of the proposals is perfectly clear and fully worked out. In order to make them fit for evaluation, I supplement the analyses with explicit semantic proposals, despite the risk of misinterpreting them.
Pesetsky (1982)

The first semantically relevant proposal was made in Pesetsky (1982). Largely for syntactic reasons, Pesetsky treated MECs as existential generalized quantifiers that undergo quantifier raising at LF. His LF-analysis of the Russian MEC in (1) is given in (2) (where CP ≈ S′ and IP ≈ S):

(1) Russian
Ja kupil čto čitat’.
'I bought something to read.'

(2) Pesetsky (1982:152)

Following May (1977), Pesetsky further assumes that the wh-word undergoes a conversion to an existential quantifier. He is not specific about the role of the descriptive content of the MEC (PRO čitat’ ‘PRO read’), but it is reasonable to assume that it further restricts the variable over which the wh-quantifier (node ❶) quantifies. The matrix clause ja kupil ‘I bought’ (node ❷) serves as the quantificational nucleus (the constant sp stands for ‘speaker’). All in all, Pesetsky’s discussion entails the semantics in (3), where ❸ expresses the truth-conditions of (1).

(3) ❶ ⇝ λP∃x[(Read(x) ∧ Thing(x)) ∧ P(x)]
     ❷ ⇝ λy[Bought(sp, y)]
     ❸ ⇝ ∃x[(Read(x) ∧ Thing(x)) ∧ Bought(sp, x)]

Pesetsky’s main motivation to adopt a quantificational analysis for MECs has to do with selection. He argues that the trace left after quantifier raising has a nominal status and thus can satisfy the selectional restrictions of the matrix predicate. This allows him to use a CP syntax, corroborated by the affinity to questions (e.g. no matching effects), and capture the nominal distribution at the same time. Pesetsky further argues that the analysis correctly captures another distributional restriction, namely that MECs cannot occur in external argument positions, as a violation of the Empty Category Principle (ECP): the trace left after the QR of the MEC is not properly governed because (i) it is
not governed by V (being in a VP-external position) and (ii) it is not governed by the moved MEC due to a categorial mismatch (S’ vs. NP). Unfortunately, this argument does not easily carry over to current theories, which no longer work with the notion of (proper) government.

The problems with this quantificational analysis are numerous. First of all, it vastly overgenerates, as it predicts MECs to be licensed in the direct object position of any verb that assigns accusative to its complement. As we saw in §2.2.1 MECs are licit only as objects of a very limited number of predicates. Relatedly, the analysis fails to capture the correlation between the existential construal of MECs with the existential nature of the selecting predicates. Turning to more semantic problems, the analysis makes a wrong prediction about the scope of MECs. Since the MEC quantifier raises, it is predicted to take scope in any position of the matrix clause (following Max 1977). This is at odds with the observation (first made by Plain 1980) that MECs always take scope below any matrix scope-taking elements, such as negation or (other) quantifiers. In principle, the MEC cannot outscope the verb it is selected by, as discussed in §2.2.7.

Rappaport (1986)

It is relatively difficult to interpret Rappaport’s (1986) account, partly for the use of terminology which is not very standard and which remains undefined in the paper. I would like to translate the proposal in more common terms, taking the risk of misinterpretation. Rappaport treats the matrix verb (‘be’ in particular) as the locus of the construction. It is a transitive predicate, taking the wh-word as its internal argument and the dative subject (see §5.4.4 for discussion) as its external argument. Thus, the wh-word, which Rappaport calls a “quantifier pronoun” and a “syntactic quantifier”, originates in the matrix clause. The role of the infinitival clause is one of an obligatory modifier/adjunct of the wh-word. Rappaport goes on to say that the MEC is interpreted as “‘some/no X with property Y where’, where the property Y is identified by the infinitival clause” (p. 26). This suggests that the infinitival clause restricts the wh-quantifier (i.e. modifies its restriction), rather than “modifying” it, exactly as in Pesetsky’s account. In order to achieve interpretability, Rappaport would therefore also have to assume quantifier raising, inheriting all the problems of Pesetsky’s account, from which it would be technically indistinguishable. This is a somewhat surprising finding, given that Rappaport discusses and dismisses Pesetsky’s analysis.

According to Pesetsky, the approach also explains why the Russian negative existential verb net ‘there is not’ only tolerates arguments in genitive (even though optionality with nominative would be expected). As far as I can tell, this argument also finds no clear correlate in current standard theories. I invite the interested reader to consult the original literature.

Rappaport criticizes Pesetsky basically on the grounds of the label that Pesetsky uses for MECs, namely “infinitival free relatives”, disregarding the details of his proposal.
Grosu (2004)

The quantificational analysis of MECs was recently revived by Grosu (2004). Following much previous work, Grosu assumes that MECs are syntactically CPs. Their quantificational force is argued to originate in a special type of C head. In particular, the C head of MECs bears the features [−INDIC] and [+GQ ∃]. It is the latter feature ("existential generalized quantifier" feature) that is responsible for the existential construal of the whole MEC. The former feature ("non-indicative" feature) is in turn responsible for the non-indicative/modal nature of the MEC-internal predicate. The fact that two hallmark properties of MECs are introduced by a lexical stipulation makes Grosu’s analysis conceptually unattractive. Nevertheless, by adopting this kind of quantificational analysis, Grosu accounts for a new observation, namely that MECs cannot serve the function of predicates:

(4) **Romanian**

*Săpunul ăsta este cu ce să te speli pe față.*

soap.the this is with what SBJ REFL.2SG wash on face

‘This piece of soap is something with which to wash your face.’

This fact has no straightforward explanation under the competing nonquantificational analysis, where MECs are treated as properties (i.e. expressions of type ⟨et⟩); see § 6.1.2.

Unfortunately, Grosu provides no formally explicit semantic analysis, which complicates the proper evaluation of his proposal and its potential predictions. Yet, unlike Pesetsky and Rappaport, he is aware of the problems pointed out above and suggests tentative solutions. Concerning the limited distribution, Grosu assumes that the C head (or more precisely its [+GQ ∃] feature) must enter into some sort of agreement or concord relation with the matrix predicate, which therefore must have an existential flavor. The fact that MECs take the narrowest scope is argued to be a consequence of the [−INDIC] feature on the C head. How exactly this feature maps onto semantic scope of the whole CP remains obscure. A remaining problem that Grosu’s analysis faces are MECs with multiple wh-words. As opposed to Pesetsky (1982), Grosu (2004) was already very well aware of the fact that MECs in many languages are capable of hosting multiple wh-words. Nevertheless, there is no straightforward way of incorporating this insight into his analysis. The reason is that generalized quantifiers are by definition selective and cannot handle (i.e. bind) more than

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3 Apparently, Grosu constructed his analysis independently of Pesetsky (1982) and Rappaport (1986). He does not cite Pesetsky (though he must be aware of his contribution, as is clear from his previous papers), and does not seem to recognize the relevant aspects of Rappaport’s analysis.

4 The latter feature could be seen as a modern reformulation of May’s (1977) conversion rule (adopted also by Pesetsky 1982), where a wh-word in an A-bar position converts into an existential quantifier.
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6.1.2 Non-quantificational analyses

There are two versions of the non-quantificational analysis: one that assigns the MEC the type of a property (et), and another that treats the MEC as a proposition (st). Both of these options have been explored in some detail and I discuss them in turn below.

Property-based analysis

The property analysis was first informally proposed by Grosu and Landman (1998) and then formalized by Caponigro (2001, 2003). The property analysis treats MECs essentially as “incomplete free relative clauses”, both syntactically and semantically. Syntactically, they are free relatives minus the D-head, i.e. essentially CPs and therefore almost indistinguishable from embedded wh-questions. Semantically, they are free relatives minus the semantics of the D-head, i.e. an iota/sigma operator. The tree below is adapted from Caponigro (2003) and illustrates the core syntactic aspects of the property-based analysis.

\[ \text{(5) Italian (Caponigro 2003:98)} \]
Flavio ha con chi parlare.
Flavio has with whom speak.
‘Flavio has somebody he can talk to.’

\[ \text{(6)} \]
\[ \text{IP/\textcircled{9}} \]
\[ \text{Flavio/\textcircled{6}} \]
\[ \text{VP/\textcircled{5}} \]
\[ \text{ha/\textcircled{4}} \]
\[ \text{CP/\textcircled{3}} \]
\[ \text{con chi/\textcircled{2}} \]
\[ \text{1} \]
\[ \text{IP} \]
\[ \text{PRO M parlare t₁} \]

The semantic derivation corresponding to the tree above is given in (7). Notice that the MEC (node \textcircled{3}) is indistinguishable from an ordinary relative clause.

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6 Alexander Grosu (p.c.) informs me that his intention was to deal with multiple wh-MECs by quantification over individual tuples. See 6.3 for more discussion.

Izvorski (1998) also utilizes this analysis, at least in her formal treatment. Informally, she inclines to a propositional analysis, which is discussed below.
(under a standard analysis), as it denotes a property. The existential force originates in the matrix verb (node ❹), which is treated as an unrestricted generalized quantifier. As its internal argument, it selects the property denoted by the MEC and states that there is at least one individual with that property (❺). The identification of the embedded subject takes place via subject-control from Flavio (represented as the individual constant f (node ❹)). The symbol $M$ stands for a modal operator, which, according to Caponigro, applies to the VP, before the subject enters the derivation.

\[
\begin{align*}
\text{(7)} & \\
\text{❶} & \rightarrow \lambda x [\text{M-Speak.with}(y, x)] \\
\text{❷} & \rightarrow \lambda P \lambda y [\text{Human}(y) \land P(y)] \\
\text{❸} & \rightarrow \lambda x [\text{Human}(x) \land \text{M-Speak.with}(y, x)] \\
\text{❹} & \rightarrow \lambda P \lambda y \exists z [P(z) \land \text{Have}(y, z)] \\
\text{❺} & \rightarrow \lambda y \exists x [\text{Human}(x) \land \text{M-Speak.with}(y, x) \land \text{Have}(y, x)] \\
\text{❻} & \rightarrow f \\
\text{❼} & \rightarrow \exists x [\text{Human}(x) \land \text{M-Speak.with}(f, x) \land \text{Have}(f, x)]
\end{align*}
\]

The property-based analysis has a number of virtues, both conceptual and empirical. Its conceptual advantage is that the semantics neatly reflects the formal affinity to related structures, i.e. (free) relatives and questions (under some approaches). As opposed to the quantificational analysis, it derives the obligatory narrow scope of MECs: the MEC is forced to scope with the verb that it is selected by and any matrix scope-taking element is therefore correctly predicted to outscope the MEC. As for the distribution facts, it also fares remarkably well. Under this analysis, MECs can only be selected by predicates that take properties (rather than individual entities) as their internal arguments. Existential predicates like ‘be’ and ‘have’ can certainly be analyzed as such (following the tradition of Milsark 1974) and it is not difficult to imagine the analysis being extended to other predicates that can select MECs, such as ‘find’, ‘seek’, or ‘send’ (see §2.2.1), though no such analysis is offered by Caponigro. On the other hand, the external argument position is correctly predicted to be forbidden for MECs.

Despite the relatively neat coverage of the facts, there are still problems. The analysis needs to be further constrained with respect to the distribution in the internal argument position. The verbs that are traditionally thought of as capable of selecting property-type arguments form a proper superset of those that (cross-linguistically) select MECs, as it includes verbs like ‘need’ or ‘wear’ which do not license MECs. Another problematic distributional aspect is the ban on the predicate position, as predicates are property-type expressions par excellence. A potential solution to the latter problem might dwell in the fact that MECs, as opposed to ordinary predicates, contain a wh-word as an overt correlate of the variable to be bound. It has always been the intuition of scholars working on MECs that this variable requires “explicit” existential binding, which is not available in run-of-the-mill predications, where the property is simply assigned to an individual entity rather than being quantified over. The
last and arguably the most serious problem for the property analysis is one that is shared with the quantificational analysis: the existence of MECs with multiple wh-words. While it is possible to construct an MEC with more than one wh-word under this analysis, the result will be a more complex semantic type than just a property (for two wh-words it will be a two-place relation, i.e. \( \langle e, et \rangle \)), a type that cannot serve as input into the matrix existential predicate.

**Proposition-based analysis**

The proposition-based analysis was first introduced by Izvorski (1998) and Pancheva-Izvorski (2000), though only informally. The basic idea of this analysis is that MECs do not characterize or quantify over individuals (like in the property and quantificational analyses, respectively), but rather denote or characterize (depending on the particular analysis) propositions. The locus of the description of the individual is much smaller—the wh-word itself. Notice that this shift in perspective leads to no information loss, as the variable introduced by the wh-word is also restricted by the predication in which it originates. The first formal implementation of this type of analysis is given in Šimík (2009a), whose analysis I use here for illustration. MECs are assumed to be CPs (Pancheva-Izvorski) or vPs (Šimík; see Chapter 5) that are selected by a modal verb/auxiliary.

(8) **Czech**

Karel má kde spát.
Karel has-whereness sleep
‘Karel has a place where he can sleep.’

(9)

\[
\begin{array}{c}
\text{IP} \\
\text{Karel} \\
\text{ModP/} \langle \ angle \\
\text{má/} \langle \ angle \\
\text{vP/} \langle \ angle \\
\text{kde/} \langle \ angle \\
\text{t spát t}_1
\end{array}
\]

---

Pancheva-Izvorski says that “the existential construction provides and \( \exists \)-quantifier [used for] closing off the position left open by the interrogative syntax, in an unselective fashion.” (p. 62; my boldface) It is the claim about unselective binding, alongside with Pancheva-Izvorski’s syntax and her reference to Berman’s (1991) analysis of interrogatives that suggest that a proposition-based analysis is what she actually had in mind for MECs. Yet, formally, Pancheva-Izvorski’s analysis is more or less identical to Caponigro’s (2003) analysis.
The syntax in (9) maps to semantics as follows. The wh-word (node ❷) is assumed to denote a set of alternative individuals (following Kratzer and Shimoyama 2002). It combines (by some sort of alternative-friendly functional application) with the predicate created by movement (node ❶) and yields a set of propositions (node ❸)—one proposition per each individual in the wh-set. This set of propositions is then selected by a modal verb (node ❹), which states that it is possible that at least one proposition in that set is true (node ❺). As usual, the modal quantifies over a set of worlds (circumstantially) accessible from the evaluation world \((C(w))\). As argued by Pancheva-Izvorski (2000), the accessible worlds are those where the circumstances are identical to those in the evaluation world, i.e. we are dealing with so called circumstantial modality.

\[
\begin{align*}
\text{(10)} & \quad ❶ \leadsto \lambda x \lambda w[\text{Sleep}(w)(k, x)] \\
& \quad ❷ \leadsto \{ x : \text{Place}(x) \} \\
& \quad ❸ \leadsto \{ \lambda w[\text{Sleep}(w)(k, [x : \text{Place}(x)])] \} \\
& \quad ❹ \leadsto \lambda \pi(\{st\}) \lambda w \exists w' \{ w' \in C(w) \land \exists p \in \pi \land p(w') = 1 \} \\
& \quad ❺ \leadsto \lambda w \exists w' \{ w' \in C(w) \land \exists p \in \{ \lambda w''[\text{Sleep}(w'')(k, [x : \text{Place}(x)])] \} \land p(w') = 1 \}
\end{align*}
\]

Notice that under this implementation of the propositional analysis, the wh-word is not directly quantified over, its scope and force is determined by the reduction of the alternatives that it introduces, i.e. by the modal verb. In effect, the wh-word scopes together with the modal and is construed as an existential, since quantifying over propositions comes out as equivalent to quantifying over the corresponding individuals.\(^8\)

\[
\begin{align*}
\text{(11)} & \quad ❹ \equiv \lambda w \exists w' \{ w' \in C(w) \land \exists x[\text{Sleep}(w')(k, [x : \text{Place}(x)])] \}
\end{align*}
\]

It turns out that this analysis goes quite a long way in accounting for the facts considered so far. First of all, unlike the quantificational analysis and the property analysis, the proposition-based analysis readily incorporates multiple wh-words in MECs. The reason is that any additional wh-word simply contributes a set of alternatives (or, an individual variable in Pancheva-Izvorski’s account) and keeps the semantic type of the MEC intact. For illustration, the interpretation of (12) is given in (12a) and equivalently in (12b):

\[
\begin{align*}
\text{(12)} & \quad \text{Bulgarian} \quad \text{(Pancheva-Izvorski 2000:41)} \\
\text{Ima} & \quad \text{have:3SG} \quad \text{koj} \quad \text{who} \quad \text{kade} \quad \text{where} \quad \text{da} \quad \text{me} \quad \text{zavede}.
\end{align*}
\]

‘I have someone to take me somewhere.’

\(^8\)For simplicity, I assume that the subject Karel is interpreted in its base-position as an individual constant \(k\).

\(^9\)In Pancheva-Izvorski’s analysis the modal that selects the MEC quantifies over possible worlds only. The variable introduced by the wh-word is closed off at a higher level, by a syntactically represented existential quantifier over individuals.
6.1. Semantics: state of the art

a. \( \lambda w \exists w' \in C(w) \land \exists p \in \{ \lambda w''[\text{Take}(w'')(\{x : \text{Human}(x)\}, sp, [y : \text{Place}(y)])]\}\land p(w') = 1 \equiv \\
b. \lambda w \exists w' \in C(w) \land \exists x \exists y[\text{Take}(w')((x : \text{Human}(x), sp, [y : \text{Place}(y)])]] \)

The analysis fares surprisingly well also with respect to distributional and scopal properties. Concerning the distribution, the MEC is predicted to appear as an object of a very limited set of predicates, namely those that can be analyzed as modals. The analysis therefore covers the core cases of embedding under predicates ‘be’ and ‘have’. Any external argument position as well as the predicate position are ruled out because of type-mismatch. Concerning the scope, the wh-word (because it is the wh-word, rather than the whole MEC, whose scopal properties are relevant under this analysis), scopes very low and can never outscope matrix quantifiers (at least under my analysis: Pancheva-Izvorski’s analysis is not that straightforward). In fact, in Šimík (2009a) I argue that this analysis correctly predicts one previously unobserved property of MECs, namely the fact that the individual variables associated with the wh-words fail to introduce discourse referents. This is illustrated in the example (13). Notice also that the English translation is perfectly acceptable, pointing to a difference between MECs and corresponding infinitival relative clauses.

(13) Slovenian (Marko Hladnik, p.c.)

a. Na srečo sem imel koga, vprašati.
   ‘Luckily, I had somebody who I could ask.’

b. #pro, Dela na univerzi.
   ‘He works at the university.’

The reason for the failure of discourse referent introduction is that the wh-word introducing the variable is captured within the scope of the modal and the existence of the individual in the actual world is thus not guaranteed. In the non-propositional analyses discussed above, the modal takes a narrow scope and such referential opacity is therefore not predicted.

It seems that the propositional analysis has the best empirical coverage. Unfortunately, there is one aspect in which the analysis is too powerful: There is no straightforward way in which embedding predicates other than ‘be’ and ‘have’ can be incorporated into this analysis. It seems unlikely that a verb like ‘send’ could be analyzed as a modal selecting for a propositional argument. Thus, while the analysis could be used for languages that allow for no other predicates than ‘be’ and ‘have’ (Czech, Polish, Italian), it covers only a small subset of MECs from all other languages.
6.1.3 Summary

I reviewed the existing semantic analyses of MECs and evaluated them with respect to a number of properties, mainly scopal and distributional. The properties I considered were (i) the obligatory narrow scope with respect to matrix quantifiers, (ii) the impossibility to appear in external argument (EA) positions, (iii) the impossibility to appear in the predicative (PRED) position, (iv) a very limited distribution in the internal argument (IA) position, (v) the availability of multiple wh-words, (vi) the failure to introduce a discourse referent (DR). Table 6.1 summarizes the results of this evaluation. The symbols should be read as follows: ✓ corresponds to a correct prediction, ? is a potentially correct prediction but an unclear account, * is wrong prediction, ↑ is overgeneration, ↓ is undergeneration.10

Table 6.1: Semantic analyses of MECs

<table>
<thead>
<tr>
<th></th>
<th>Quantificational Basic</th>
<th>Quantificational Grosu</th>
<th>Non-quantificational Property</th>
<th>Non-quantificational Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrow scope</td>
<td>*</td>
<td>?</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>No EA position</td>
<td>?</td>
<td>?</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>No PRED position</td>
<td>✓</td>
<td>✓</td>
<td>*</td>
<td>✓</td>
</tr>
<tr>
<td>IA position</td>
<td>↑</td>
<td>?</td>
<td>↑</td>
<td>↓</td>
</tr>
<tr>
<td>Multiple wh-words</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>✓</td>
</tr>
<tr>
<td>DR introduction</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>✓</td>
</tr>
</tbody>
</table>

The basic quantificational analysis (Pesetsky, Rappaport) has problems with capturing the narrow scope of MECs and massively overgenerates with respect to the distribution: MECs are predicted to be felicitous in many more positions (internal and external argument) than actually attested. Under Pesetsky’s analysis, the ban on the EA position follows from the empty category principle, which, however, finds no straightforward correlate in current theories. In his version of the quantificational analysis, Grosu attempts to address these issues but his account is far from clear and sufficient. The non-quantificational property analysis correctly captures the narrow scope and the ban on external argument positions, however, it has no straightforward account of the ban on the predicative position. With respect to the internal argument position, it also overgenerates (though not so massively), as many verbs that are often considered to be property-selecting (e.g. intensional verbs like ‘need’) do not license MECs. Neither the quantificational analyses nor the property analysis have a clear handle on how to treat multiple wh-words in MECs and how to explain that MECs (or the wh-words in them) fail to introduce discourse referents. The non-quantificational propositional analysis is by far the most explanatory one. It makes correct predictions in all the empirical domains considered except for the distribution in the internal argument position, where it undergenerates.

10Table 6.1 will be extended in §6.2.5 after I discuss the basic predictions of the event-extension analysis.
My last remark concerns the problem of modality. The highly restricted modal flavor and force is certainly one of the core and most striking properties of MECs. Yet, none of the existing analyses offers a clear account of this MEC property. The only two studies that have paid attention to this problem are Pancheva-Izvorski (2000) and Šimík (2009a)—proponents of the propositional analysis. Both of these authors proposed solutions to the problem of the non-ambiguity of modal force. Unfortunately, these proposals are technical in nature and reduce to a redescription of the fact. Effectively, none of the existing analyses are adequate with respect to the problem of modality and either make no prediction at all or, based on a comparison with related constructions, overgenerate. For more discussion of the problem of modality and its reflection in the literature, see §4.1.2.

6.2 Basic predictions of the event-extension analysis

The preceding section provided a critical summary of the existing semantic proposals. I concluded that non-quantificational analyses are more descriptively adequate than quantificational analyses. Within the non-quantificational class, the propositional analysis appears to be superior to the property-based one, at least with respect to the selected set of criteria. In this section, I will use the same empirical criteria to evaluate the predictions of the event-extension analysis, as proposed in Chapter 4 and further developed in Chapter 5.

The event-extension analysis is of the non-quantificational property-type and consequently inherits its basic predictions. The desired ones are the obligatorily narrow scope of MECs, brought about by the fact that the quantificational force has its source in the matrix predicate, and the ban on the external argument position, which is caused by a type mismatch. These predictions are straightforward and will not be discussed any more. Of greater interest are the criteria where the property analysis has failed, in particular are the ban on the predicative position, the ban on certain internal argument positions, as well as the failure to introduce discourse referents and multiple wh-MECs. How does the event-extension analysis cope with these? Compared to previous property analyses, most notably the one of Caponigro (2003), the event-extension analysis is enriched by independently motivated assumptions which reduce the undesirable consequences and increase the explanatory power. Most importantly, the event-extension analysis is based on the idea that the MEC is not a run-of-the-mill argument of the matrix verb. Rather, it functions as that verb’s event extension, which is furthermore weakened by a modal interpretation. As such, it is not simply of type \( \langle e, t \rangle \), but rather of the more complex type \( \langle s, \langle e, vt \rangle \rangle \), relating a world of evaluation with an event and an individual. It is this property of the analysis that makes the event-extension analysis superior to its basic property-based kin.
I discuss the problematic properties in turn. In §6.2.1 I show how the analysis accounts for the relevant distributional facts: the ban on the predicative position as well as the limited distribution in the (apparently) internal argument position. I also discuss the proper treatment of MECs embedded under intensional predicates like ‘look for’, as opposed to predicates like ‘want’. In §6.2.2 I briefly discuss the problem of modality, showing that as opposed to all the previous analyses, the event-extension analysis makes the right prediction concerning both modal force and flavor. The inability to introduce discourse referents is discussed in §6.2.3. We will see that the event-extension analysis patterns with the class of propositional analyses in this respect. Finally, in §6.2.4 I briefly mention the problem of multiple wh-MECs, which are not directly accounted for by the event-extension analysis. The evaluation of predictions is summarized and compared to previous analyses in §6.2.5.

6.2.1 Distribution

Consider first the ban on the predicative position, illustrated in (14), a fact that is problematic for the property analysis.

(14) Romanian (Grosu 2004:428)

*Şapunul ăsta este cu ce să te speli pe față.

‘This piece of soap is something with which to wash your face.’

The event-extension analysis derives the ungrammaticality of (14). As opposed to ordinary predicates and Caponigro-style MECs, MECs in the event-extension analysis are of type \(\langle s, \langle e, vt \rangle \rangle\). As such they can only function as event extensions of atomic event predicates. Even though the DP șapunul ăsta ‘this piece of soap’, denoting an individual (type \(e\)), is allowed to combine with the MEC by intensional function application, the result is not a proposition (type \(\langle s, t \rangle\)), but rather an event description (type \(\langle s, vt \rangle\)). The example in (14) therefore cannot be grammatical under the designated meaning. The reason why it cannot function as ordinary event descriptions, e.g. as an extension argument of an event predicate, is arguably its full-fledged sentential form.

Let us now turn to other distributional restrictions. In §6.1.2 I said that it comes as a surprise for the property analysis that MECs generally cannot appear in argument positions of predicates which have been argued to take property-type objects. Examples of these predicates include ‘look for’, but also ‘want’, and ‘resemble’. While the first predicate generally licenses MECs, the last two do not. Why?

Consider the predicate ‘look for’, a very common MEC-embedder. Notice first that looking for something does not guarantee that there is something or that one has something. If Dave looked for a pizza, we can draw no inferences about Dave having a pizza. Consequently, the sentence in (15) does not accommodate the possibility inference in (15b).
6.2. Basic predictions of the event-extension analysis

(15)  
   a. Dave looked for a mushroom pizza.
   b. Dave can eat a/the mushroom pizza.

Does this fact falsify the present theory? Not really. As has been previously argued, the predicate ‘look for (something)’ implies ‘finding (something)’ and therefore ‘having (something available)’. The problem is that the existence result is weakened by the condition that the thing looked for is actually found. The inference in (15b) should therefore be modified as in (16).

(16)  
   Dave can eat a/the mushroom pizza if he found one.

Traditionally, this issue is approached by evaluating the truth of the result state with respect to “successful-search worlds”. The semantics of the processual sub-predicate of ‘look for’ constructed along these lines is given in (17). Notice that the semantics is based on related MEC-embedding predicates such as ‘buy’, given in (52) in §4.3.3. It states that the process of looking for (something) extends to some subevent which exists in all possible worlds in which the search is successful ($S(w)$).

(17)  
   \[ \lambda w \exists e \lambda E(\langle s, x \rangle) \lambda x \lambda e \exists e' \left[ \text{Look.for}(w)(e') \land \theta(e') = x \land \forall w' \in S(w) : \exists e''[E(w')(e'') \land e = e' \rightarrow e''] \right] \]

The predicate that LOOK.FOR selects for is either AT+BE or simply BE. Thus, the whole complex predicate ‘look for’ corresponds to LOOK.FOR+AT+BE or LOOK.FOR+BE. This leads to the entailment that the process of looking for (something) extends to a state of there being/having (something) such that it is conditioned by the successful search. For illustration, consider the following example.

(18)  
   French (adapted from Suñer 1983:385, fn10)
   Jean est en train de chercher pour qui travailler.
   ‘He is looking for somebody for whom he could work.’

The truth conditions of (18) are given in (19). The sentence is true in some world iff the event of looking for (somebody), initiated by Jean, extends to an event of there being somebody, though just in case the event of looking for (somebody) is successful, i.e. if somebody was found, which in turn extends to a potential event characterized by Jean’s working for the person that was found.

(19)  
   \[ \lambda w \exists e \exists e'' \left[ \text{Look.for}(w)(e'') \land \theta(e'') = j \land \forall w' \in S(w) : \exists e'''[\exists e'' \exists x[\text{Exist}(w')(e'') \land \theta(e'') = x \land \exists w'' \in C(w') : \exists e''_[\text{Work}(w'')(e'') \land \text{Ben}(e''') = x \land \text{Ag}(e''') = j \land e''' = e'' \rightarrow e'''] \land e = e'''' \rightarrow e'''] \right] \]

Once the existence result state is allowed to be evaluated to some other worlds than the one with respect to which the higher sub-predicate is evaluated, we run the danger of overgenerating. As I reported in §2.2.1 no language allows
the embedding of MECs under intensional verbs like ‘want’ or ‘need’.

(20) Spanish (Cintia Widmann, p.c.)

*Juan quiere qué ponerse para la ceremonia.
‘Juan wants something to put on for the ceremony.’

Yet, these verbs have been analyzed in close parallel to the above analysis of ‘look for’ (see, e.g., Moltmann 1997 and the references cited therein), i.e. as modals containing a result state of there being/having something/someone, in this case conditioned by fulfilled desires (bouletic modality). Clearly, there must be some relevant difference between ‘look for’ on the one hand and ‘need’ and ‘want’ on the other, a difference that prevents the latter from embedding MECs. I would like to suggest, following Schwarz (2007), that the difference lies in the type of argument that the predicates select for.

It has been a matter of ongoing controversy whether the presently discussed intensional verbs, also called intensional transitive verbs, are to be analyzed as property- or proposition-embedding. Under the property analysis, the LF of sentences like I need a secretary derives directly from the surface structure in that a secretary is represented as an NP/DP, and translates to an ⟨e, t⟩ type expression. Under the proposition analysis, the same expression a secretary corresponds to a more complex LF, namely have a secretary, which in turn translates to an ⟨s, t⟩ type expression. Some authors have argued that all intensional transitive verbs are to be analyzed as property-embedding (see mainly Zimmermann 1993, Van Geenhoven and McNally 2005, and the references cited therein), others have argued that all of them have to be analyzed as proposition-embedding (see mainly Larson et al. 1997). Recently, Schwarz (2007) provided some novel arguments that both analyses are necessary. In particular, he argues that ‘look for’ selects for properties and ‘need’ (and arguably ‘want’) select for propositions. Now, there is a relatively straightforward way in which Schwarz’s distinction carries over to the present event-based system. While the predicate ‘look for’ corresponds to a complex event expressing the extension from a process of looking for to the state of existence, the truth of which is relativized to the success of the search process, and the existence predicate accommodates a nominal argument, no such event structure is present in the representation of predicates like ‘want’ or ‘need’. Instead, these are represented simply as modals (possibly stative predicates) which select for proposition-type complements instead of event extensions. For this reason, they cannot incorporate the stative predicate BE (or AT+BE) and consequently cannot select MECs.

The last type of predicate which was problematic for the property analysis of MECs is the intensional predicate ‘resemble’. Under an analysis such as the one of Zimmermann (1993), the object of ‘resemble’ is of the property-type. Yet, this predicate is incapable of selecting MECs. Once again, the event-extension
analysis makes the right prediction, since it does not assume that MECs are of type \( (e, t) \) but rather of type \( (s, (e, vt)) \). Notice also that the semantics of ‘resemble’ cannot be naturally modified in such a way that would enable it to select MEC-type objects. The reason is that it cannot possibly incorporate the existence result state.

In sum, I showed that the event-extension analysis successfully sidesteps all the problematic predictions of the property-type analysis, on which it is based. Thanks to its more complex semantic type, the MEC cannot function as a predicate, nor can it appear in the object position of verbs that have been argued to select property-type objects, such as ‘need’, ‘want’, or ‘resemble’. The reason why these intensional predicates cannot select MECs is that they fail to incorporate the existence result state, which is responsible for the availability inference. In this respect, they differ from the intensional predicate ‘look for’, which can be analyzed as involving the relevant result state, though relativized to a set of successful-search worlds.

6.2.2 Modality

The event-extension analysis makes use of the insight of Pancheva-Izvorski (2000) and Simik (2009a), who argue that the source of modal quantification is not MEC-internal but rather MEC-external. In particular, it is incorporated in the selecting predicate. As opposed to the previous approaches, which more or less stipulate the properties of the modal quantifier, the present analysis attempts to motivate these properties by the assumption that the embedding predicates come with what I called the availability inference. This pragmatic inference gives rise to the grammaticalization of an argument position within the argument structure of the MEC-embedding predicate. A formalization of this idea was offered in Chapter 4. At this point, I provide an informal discussion showing that the approach makes the exact right prediction, concerning both modal force and flavor.

The force of the modality is existential, just like the force of the availability inference in (21a). Universal force is ruled out, since it is not supported by the availability inference, cf. (21b).

\[(21)\] I have/bought a car.
\[\begin{align*}
\text{a. } & \text{I can drive the car.} \\
\text{b. } & \text{I have to drive the car.}
\end{align*}\]

If my analysis is on the right track, it is no longer necessary to adopt Pancheva-Izvorski’s (2000) ad hoc assumption that the existential quantifier which closes off the individual variable contributed by the wh-word somehow contributes its force to the modal quantifier which it c-commands. (How exactly this is to be achieved remains unclear.) Pancheva-Izvorski suggests that this “division of labor” provides evidence that the force and flavor of modality are two grammatically independent components of modal expressions, much in the spirit of
the classical work of Angelika Kratzer (1977, 1991). Having provided an alternative and principled solution to the existential-only problem, this argument of Pancheva-Izvorski’s is somewhat weakened.

The flavor of the modality is circumstantial. Once again, I have argued that this property of MECs follows directly from the availability inference. Notice that other or more complex flavors of modality are not inferred at all.

(22) I have/bought a car.
   a. In view of the circumstances (including the fact that I have/bought a car), it is possible for me to drive the car. [circumstantial]
   b. #In view of my desires, it is possible for me to drive the car. [bouletic]
   c. #In view of my obligations, it is possible for me to drive the car. [deontic]
   d. #In view of my physical/mental dispositions, it is possible for me to drive the car. [ability]

The prediction made by the event-extension approach is crucially based on the assumption that the modal quantifier is not located in the infinitival clause itself, as it is in infinitival questions or relatives (cf. Bhatt 2006), but rather in the matrix verb. First, this comes as a surprise, as one would never think of predicates like ‘buy’ or ‘send’ as modals. But this is precisely what the availability inference achieves—it adds a modal component to the result state of these predicates.

6.2.3 Discourse referent introduction

The assumption that the MEC is selected by a predicate with a modal quantifier has another welcome consequence: It accounts for the failure of MECs to introduce discourse referents, illustrated again in (23).

(23) Slovenian (Marko Hladnik, p.c.)
   a. Na sreˇ co sem imel koga, vprašati.
      luckily be:1sg had who ask
      ‘Lucrily, I had somebody who I could ask.’
   b. #pro Dela na univerzi.
      he works at university
      ‘He works at the university.’

While in the ordinary property analysis, the property expressed by the MEC is evaluated with respect to the evaluation world, in my analysis, the MEC is evaluated with respect to the world introduced by the modal in the MEC-embedding predicate. Consequently, the properties that characterize the indi-

12See also Rubinstein (2007), who argues on independent grounds that modals operating over event predicates (or, more precisely, taking event-variables as arguments of their accessibility relations) can only take up circumstantial modal flavors. It is possible that the situation in MECs is just another instance of the general restriction proposed by Rubinstein.
vidual whose existence is asserted are not necessarily attributed to the individual in the evaluation world and hence the actual existence of the characterized individual is not guaranteed. This naturally translates to the discourse referent introduction failure. As already noted above, there is a considerable level of cross-linguistic and even cross-speaker variation in judging the acceptability of continuations like (23b). However, this is hardly surprising, given that referents can be relatively easily accommodated. As witnessed by (24), discourse anaphors seem to be able to pick out referents whose existence is negated in the immediately preceding discourse.

(24) I bought no biological carrots, They\textsubscript{1} were too expensive.

It is generally assumed that (24) sounds felicitous thanks to the fact that the first sentence characterizes a situation in which the existence of biological carrots is relatively clearly implied. In particular, the event of buying implies the existence of a store and the reference to biological carrots, though a negative one, implies the existence of biological carrots in that store. It is this chain of pragmatically motivated reasoning that leads to the accommodation of a referent that they can pick out, i.e. the biological carrots that were in the store where I went shopping. In a similar fashion, a pronoun can refer to a referent that has seemingly been introduced by an MEC. Consider the discourse in (25), where the the pro in (25c) clearly picks out the referent introduced by Karel in (25a). If the sentence in (25a) is not uttered, the MEC in (25b) creates the impression of having introduced a discourse referent. However, this is hard to prove, as the contents of (25a) can also be recovered/accommodated if a suitable context is available.

(25) \textit{Czech}
\begin{itemize}
  \item a. Pak přišel Karel, then came Karel
    ‘Then Karel came.’
  \item b. Měli jsme se konečně [MEC koho zeptat]\textsubscript{1}, had be:1PL REFL finally who:ACC ask:INF
    ‘Finally, we had somebody that we could ask.’
  \item c. pro, Řekl nám, že...
    he told us that
    ‘He told us that...’
\end{itemize}

I conclude that the referential opacity of MECs—a property emergent in my analysis—is desirable, as it can account for many speakers’ intuitions concerning discourse referent introduction. The intuition of speakers who do allow for discourse referent introduction can be accounted for by assuming the process of referent accommodation, illustrated above.

\footnote{I am grateful to Alexander Grosu for making me aware of this kind of examples.}
6.2.4 Multiple wh-MECs

The last undesirable prediction of the property analysis is that multiple wh-MECs should in principle not exist. As discussed in §2.2.2 and as illustrated below, this prediction is clearly wrong.

(26) Bulgarian

\[\text{Rudini 1986:193}\]

\[\text{Imaš li s kogo kûde da otides?} \]

\[\text{have:2sg Q with who where that go:2sg} \]

‘Do you have somewhere to go and someone to go with?’

The reason why the property analysis cannot readily accommodate multiple wh-MECs is a type mismatch. According to the assumptions about the semantics of fronted wh-words introduced in §4.4.1 (adopted from Groenendijk and Stokhof 1984 and Heim and Kratzer 1998), according to which wh-words translate to lambda-operators, a double wh-MEC is of type \(\langle e, et \rangle\), a type which is unfit for the selection by the matrix predicate. The situation in the event-extension analysis is not much different. There, the type of a double wh-MEC is of type \(\langle s, \langle e, \langle e, vt \rangle \rangle \rangle\). Again, an expression of this type cannot be composed with the existence predicate BE due to type mismatch.

I come back to the problem of multiple wh-MECs in §6.3, where I propose a solution compatible with the event-extension analysis.

6.2.5 Summary

The following table is adapted from Table 6.1. It shows that the present analysis fares very well in comparison to any previous approaches, with the exception of the issue of multiple wh-MECs. The present analysis is virtually the first one to tackle the issue of modality in a more principled way, accounting for both its highly restricted flavor and force. All the previous analyses overgenerate in this respect, as they predict the modality in MECs to be no different from the modality in comparable infinitival constructions (infinitival questions or relatives), i.e. essentially context-dependent in both its flavor and force.

<table>
<thead>
<tr>
<th></th>
<th>Quantificational Basic</th>
<th>Quantificational Grosu</th>
<th>Non-quantificational Property</th>
<th>Non-quantificational Propos.</th>
<th>Event-ex.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrow scope</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>IA position</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Multiple wh-words</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DR introduction</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Modality</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
In conclusion, the event-extension analysis clearly achieves the highest level of descriptive adequacy. Of the phenomena considered above, only multiple-wh MECs remain unaccounted for and therefore require more discussion. I turn to this problem now.

6.3 Multiple wh-MECs

The semantics of multiple wh-MECs is relatively poorly understood. One of the reasons for this is that they are notoriously difficult to paraphrase. That complicates not only their translation to languages that do not have them but also, and more importantly, the determination of their truth conditions. The reason why the meaning of multiple wh-MECs is difficult to grasp is that they appear to combine two characteristics that are normally mutually exclusive. On the one hand, they have a relative clause-like flavor and on the other hand, the two wh-operators appear to be in a more or less symmetric relation, the combination of which properties make multiple wh-MECs seem like genuine multiple relative (though not correlative) clauses.

The section is organized as follows. In §6.3.1 I discuss the paraphrases that have been used in the literature. I have been able to identify six types, all of which represent slightly different ways of dealing with the problem of multiple wh-MECs’ “ineffability” in languages that do not have them. In §6.3.2 I evaluate the appropriateness of the paraphrases and thus determine the correct truth conditions of multiple wh-MECs. I conclude that all wh-words are to be treated as indefinites (and not e.g. quantifiers) and that their scope is neutralized with respect to each other, i.e. both are to be closed off by one and the same quantifier. In §6.3.3 I draw the reader’s attention to the problem of (multiple) wh-movement and discuss the significance of multiple wh-MECs for the semantics of fronted vs. in-situ wh-words. Finally, §6.3.4 concludes this section.

6.3.1 Types of paraphrases

Table 6.3 summarizes the types of paraphrases that have been offered in the literature in an attempt to spell out the truth conditions of multiple wh-MECs. I supplement these informal paraphrases with formal logical representations. All of these paraphrases are translations of the multiple wh-MEC in (27).

(27) Czech

Mám kam s kým jít.

have:1SG where:DIR with who go:INF
Table 6.3: Paraphrases and logical forms of multiple wh-MECs

<table>
<thead>
<tr>
<th>Label</th>
<th>Paraphrase</th>
<th>Logical form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative clause paraphrase</td>
<td>‘There is some place where I can go with somebody.’</td>
<td>$\exists x \Box \exists y[P(x, y)]$</td>
</tr>
<tr>
<td>Modal+indefinites paraphrase</td>
<td>‘I can go somewhere with somebody.’</td>
<td>$\Diamond \exists x, y[P(x, y)]$</td>
</tr>
<tr>
<td>Distributive paraphrase</td>
<td>‘Every place is such that I can go there with somebody.’</td>
<td>$\forall x [\Diamond \exists y[P(x, y)]]$</td>
</tr>
<tr>
<td>Coordination paraphrase</td>
<td>‘There is a place where I can go and a person I can go there with.’</td>
<td>$\exists x [\Diamond P(x)] \land \exists y[\Diamond P(y)]$</td>
</tr>
<tr>
<td>Pair paraphrase</td>
<td>‘There is a place-person pair such that I can go to that place with that person.’</td>
<td>$\exists(x, y)[\Diamond P(x, y)]$</td>
</tr>
<tr>
<td>Event paraphrase</td>
<td>‘There is a possible event of me going somewhere with somebody.’</td>
<td>$\Diamond \exists e[\exists x, y[P(e)(x, y)]]$</td>
</tr>
</tbody>
</table>

Before turning to an evaluation of these paraphrases and their respective logical forms, let me illustrate their particular instances in the literature and comment on the way they deal with the dual nature of multiple wh-MECs, hinted at above. Probably the most common paraphrase is the relative clause paraphrase. It is used for instance by Bošković (1998) and Pancheva-Izvorski (2000), whose examples are given in (28) and (29).

(28) **Bulgarian** (Bošković 1998:8)

?Ima ko sta da ti proda
has who what SBJ you sells
‘There is someone who can sell you something.’

(29) **Bulgarian** (Pancheva-Izvorski 2000:41)

Ima koj kade da me zavede.
have:3SG who where SBJ me take:3SG
‘I have someone to take me somewhere.’

This paraphrase resolves the duality problem by treating only one of the wh-words as a relative operator, representing the other as a plain indefinite pronoun internal to the MEC. This comes at the cost of not capturing the intuitive symmetry between the two wh-words.

In the modal+indefinites paraphrase, used e.g. in Šimík (2009a), the matrix verb is reformulated simply as a circumstantial modal ‘can’ with the two wh-words corresponding to ordinary indefinite pronouns.
6.3. Multiple wh-MECs

(30) **Czech** (ˇSim´ık 2009a:196)
Mám komu co dát.
have:1SG who:DAT what:ACC give:INF
‘I can give something to someone.’

The purpose of this paraphrase is to capture the apparently symmetric nature of the two wh-words. On the other hand, the relative clause-like flavor is completely lost.

The **distributive paraphrase** is used exclusively by Hungarian scholars, in particular Lipt´ ak (2000, 2003) and Sur´ anyi (2005). They have argued that there is an asymmetry in the quantificational properties of the two wh-words. In particular, the hierarchically higher wh-word is assumed to be a distributive universal quantifier and the lower one an existentially construed indefinite. The paraphrase comes in two flavors—(31) and (32), which correspond to the relative clause paraphrase and the modal+indefinites paraphrase, respectively.

(31) **Hungarian** (Lipt´ ak 2000:163)
Van kinek mit adnom.
be:IMPRES who:DAT what:ACC give:INF.1SG
‘There is something I can give to everyone.’
\[
\forall x \in \text{man} \rightarrow \text{I can give something to } x
\]

(32) **Hungarian** (Lipt´ ak 2003:410)
Van kit kire bízni/bízzunk.
is who:ACC who.to trust:INF/SUBJ.1PL
‘Everyone can be trusted to someone.’

The **coordination paraphrase** was used by Rudin (1986), the first scholar to observe the existence of multiple wh-MECs (to the best of my knowledge), and also by Pancheva-Izvorski (2000), though only in an example apparently constructed according to Rudin’s example.

(33) **Bulgarian** (Rudin 1986:193)
Imaˇ s li s kogo k˘ude da otides?
have:2SG Q with who where that go:2SG
‘Do you have somewhere to go and someone to go with?’

(34) **Russian** (Pancheva-Izvorski 2000:41)
Tebe est’ kuda s kem pojti?
you:DAT BE:PRES where with whom go:INF
‘Do you have somewhere to go and someone to go with?’

This paraphrase remains faithful to the relative clause-like nature of MECs, while not giving up the apparent symmetry between the two wh-words. Yet, this comes at the cost of adding extra structure, in particular the coordination.

Alexander Grosu has been using what we could call the **pair paraphrase**. He treats the two wh-words as a single pair of individuals, which gets subsequently relativized.
(35) Grosu (2004:417/418)

a. **Russian**
   
   U nego est’ kogo с kem poznakomit’.
   
   at him:GEN is who with whom introduce:INF
   
   ‘He has pairs of individuals ⟨a, b⟩ such that he can introduce a to b.’

b. **Serbo-Croatian**
   
   Mi više nemamo kome šta da pošaljemo.
   
   we no.longer NEG:have who what SBJ send:1PL
   
   ‘We no longer have pairs of individuals ⟨a, b⟩ such that we can send a to b.’

c. **Hungarian**
   
   Nincs kit kivel összepárosítanunk.
   
   is:NEG who:ACC who:with up.match:INF.1PL
   
   ‘We don’t have pairs of individuals that we can match.’

Like the coordination paraphrase, also the pair paraphrase is interesting in that it attempts to reconcile the two mutually incompatible properties: the relative clause-like nature and the symmetry between the wh-words. Coming up with a formal account of this paraphrase would require an extra effort, though, in particular the switch from abstracting over two individual variables to abstracting over a single individual-pair variable.

The last type of paraphrase, used e.g. by Ceplová (2007), is what I call the **event paraphrase**. It formulates the meaning of the MEC not in terms of the variables introduced by the wh-words, but rather in terms of the event in which the variables are involved.

(36) **Czech** (Ceplová 2007:35)

[Context: Everyone has to keep introducing people to other people, but Josef refuses to continue and a friend is trying to defend him.]

Josef už opravdu nemá koho komu představit.

Josef already really NEG:have who:ACC who:DAT introduce:INF

‘Josef is done with all introductions.’

The event paraphrase represents yet another way of dealing with the multiple wh-MEC duality: it involves relativization, though this time of an event rather than individual variable, and the two wh-words, presumably quantified over by the existential closure, remain in a symmetric relation.

To the extent that these paraphrases are truth-conditionally distinguishable, one should ask which one of them is correct and whether there is a single correct paraphrase at all: perhaps MECs in different languages, or even different MEC tokens, are to be paraphrased (i.e. truth-conditionally characterized) differently. In what follows, I attempt to tackle this problem, arguing against the relative clause paraphrase and the distributive paraphrase, and in favor of the symmetric paraphrases.
6.3.2 Evaluating the paraphrases

First I discuss two of the six paraphrases that are “non-symmetrical”, i.e. where the individual wh-words are distinguishable in terms of their quantificational force, scope, or both. I show that these paraphrases, or rather their corresponding logical forms, are problematic and make wrong predictions. Then I turn to the class of symmetric paraphrases and show that they are compatible with the facts.

The distributive paraphrase

Among the six paraphrases above, the distributive one clearly stands out in that it attributes a different quantificational force to the two wh-words: the hierarchically higher wh-word is assigned universal force while the lower one an existential force. The relevant example is repeated below:

(37) Hungarian (Lipták 2000:163)
Van kinek mit adnom.
be:IMPRS who:DAT what:ACC give:INF.1SG
‘There is something I can give to everyone.’

Lipták (2000), as well as Surányi (2005), explicitly claim that the interpretation (and in case of Surányi also syntactic structure) of (37) is equivalent to the interpretation of (38), given in logical terms in (39) (Surányi’s formulation).

(38) Hungarian (Surányi 2005/Lipák 2000:163)
Jánosnak van mindenkiek mit adnom.
János:DAT be:IMPRS everyone:DAT what:ACC give:INF.3SG
‘John has something to give to everyone.’

(39) \( \forall y [\text{Person}(y) \rightarrow \exists x [\text{Thing}(x) \land \Diamond \text{Give}(j, y, x)]] \)

However, as observed by Lipták (2000), the two types of sentences diverge in interpretation in case the matrix existential verb is negated. While the universal quantifier in (38) scopes below negation, see (40b), the universally interpreted wh-word in (37) Lipták claims, must scope above negation, see (40a).

(40) Hungarian
Nincs kinek mit adnom.
be:NEG who:DAT what:ACC give:INF.1SG
‘There is nothing I could give to everyone of them.’
\( \forall x \in \text{Human} \rightarrow \neg \exists y \in \text{Thing} : \Diamond \text{Give}(j, x, y) \)
b. Lipták (2000:164)
?Nincs mindenkiek mit adnom.
be:NEG everyone:DAT what:ACC give:INF.1SG
‘I cannot give something to all of them.’
\( \neg \forall x \in \text{Human} \rightarrow \exists y \in \text{Thing} : \Diamond \text{Give}(j, x, y) \)
The assumption that the wh-word takes scope over the matrix verb is suspicious for at least two reasons. Firstly, fronted wh-words are known to always take surface scope. Secondly, wh-words in MECs never scope higher than the MEC-embedder (see (22.7)), making (40a) the only known exception. Interestingly, there is a way to arrive at the same truth-conditions without making the problematic assumption that the wh-word scopes above its embedder. One could simply assume that the wh-word *kinek* ‘who’ is a narrow scope existentially construed indefinite rather than a wide scope universal. Thanks to the general logical equivalence (41), (42) is truth-conditionally equivalent to (40a).

\[
\forall x [\neg P(x)] \equiv \exists x [P(x)]
\]

(41)

(42) **Hungarian**

Nincs kinek mit adnom.
be:NEG who:DAT what:ACC give:INF.1SG
‘There is nobody to whom I could give something.’

\[
\neg \exists x \in \text{Human} \exists y \in \text{Thing} : \Diamond \text{Give}(sp, x, y)
\]

(43) **Hungarian**

Végre Jánosnak van kinek mit adnia
(finally) János:DAT be:IMPRS who:DAT what:ACC give:INF.3SG
a. ‘Finally John has something to give to everyone.’
b. ‘John has things to give to people.’

If (43b) is indeed a licit interpretation of the MEC in (43), it not only makes the interpretation in (42) expected, it raises even more doubts whether the universal reading actually exists. In order to test this, we need to use another scope taking element which would disambiguate the narrow-scope existential reading from the contested wide-scope universal reading. Placing an existentially construed indefinite pronoun in the subject position of the matrix verb seems like a good test. If the higher wh-word maps to a universal quantifier that outscopes matrix negation, it is expected to outscope a matrix (non-specific) indefinite

---

14This is especially clear in so-called Baker ambiguities (Baker 1968) also referred to as the wh-triangle phenomenon, cf. Dayal (1992), illustrated in (i): while the in situ wh-phrase *which book* can scope either in the embedded clause or in the matrix clause, giving rise to the ambiguity between (ia) and (ib), the fronted wh-word *where* can only scope in the embedded clause. Consequently, the readings in (ic) and (id) are ungrammatical.

(i) Who remembers where Mary keeps which book?

a. For which person *x*, *x* remembers where Mary keeps which book
b. For which person *x* and which book *y*, *x* remembers where Mary keeps *y*
c. *For which person *x* and which place *z*, *x* remembers which book Mary keeps at *z*
d. *For which person *x*, which book *y*, and which place *z*, *x* remembers that Mary keeps *y* at *z*
and distribute over it. If, on the other hand, the wh-word is a narrow scope indefinite, it will never be able to scope in the matrix clause and distribute over another matrix indefinite. This test is presented in (44). The interpretation of (44a) clearly favors the narrow scope existential construal. The result is further supported by the infelicity of the continuation in (44b), which is expected if (44a) means (44a-i) but not if it means (44a-ii).

(44) Hungarian (Anikó Lipták, p.c.)

a. Valakinek nincs kinek mit adni
someone:DAT NEG:is who:DAT what:ACC give:INF
(i) ‘Some person x was such that x could not give things to any person y.’
(ii) *’Every person y was such that there was some person x such that x could not give things to y.’

b. #... de van mit adni egy embernek.
but is what:ACC give one person:DAT
... but x could give things to some person.’

The following example shows that the indefinite valaki ‘someone’ can be outscoped by the true universal minden fiú ‘every boy’. This reduces the potential worry that the wide-scope universal reading (44a-ii) is ruled out for some independent reason rather than by its complete absence.

(45) Hungarian (Anikó Lipták, p.c.)

Valakit meghívott minden fiú.
someone:ACC invited every boy:NOM
‘Every boy invited someone.’

After a closer scrutiny of Hungarian multiple wh-MECs, we can uphold the generalization that wh-words in MECs never outscope matrix quantifiers. In conclusion, even if the distributive paraphrase reflects the intuition of native speakers of Hungarian (and supposedly for any other language), the distribution semantics is not a property of the wh-word, as claimed by Lipták (2000), but rather a property of an independent distributive operator located in a sequence of functional projections (cf. Koopman and Szabolcs 2000). The crucial evidence showing this comes from scope: while the scope of distributivity located in quantificational DPs is limited only by quantifier raising, the scope of a DP-independent distributive operator is fixed by the functional sequence. We saw that the facts of Hungarian multiple wh-MECs match the latter pattern, i.e. the strictly local (embedded) scope. This conclusion is comforting with respect to the overall picture of quantification in MECs, as the generalization that wh-words are quantificationally fully dependent on the matrix verb can be upheld. Therefore, when it comes to quantificational force, the distributive paraphrase is no different from whichever other paraphrase turns out to be the right one.
The relative clause paraphrase

Let us now turn to the relative clause paraphrase. This paraphrase differs from the others in that it establishes an asymmetry between the two wh-words. This asymmetry is primarily scopal, in particular, the two wh-words scope independently of each other. Notice that in all the other paraphrases, leaving the distributive paraphrase aside, the scopal relation between the wh-words is “neutralized”, much like in unselective binding configurations (cf. Nishigauchi [1990]). Admittedly, it is not immediately clear whether the difference between scopal asymmetry on the one hand and scope neutralization on the other is significant in any way. Notice that the three propositions ‘there is an individual x such that there is an individual y such that x can be introduced to y’ (≈ relative clause paraphrase), ‘there is a pair of individuals that can be introduced to each other’ (≈ pair paraphrase), and ‘there is an individual x and an individual y such that x can be introduced to y’ (≈ modal+indefinite paraphrase), are hardly truth-conditional distinguishable.

The only condition under which the two scopal properties could be torn apart is one involving an additional quantifier. This quantifier can take a scope in between the two existential quantifiers only if the scope between them is not neutralized. If such intermediate scope of an additional quantifier is possible, then the relative clause paraphrase is the right one, if it is not, then the neutralized scope paraphrases are favored. In order to test this, consider the following two scenarios. 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 (46) could only be felicitously uttered by the boss of the organization A but not by the boss of the organization B.

(46) Czech

Organizaci jsem rozpustil, protože příští rok už by organization be:1SG dissolved because next year already would nebylo v každé zemi o čem koho přesvědčovat.
NEG:be in every 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 [\text{Country}(x) \rightarrow \exists y, z \text{[Issue}(y) \land \text{Official}(z) \land \text{we persuade } x \text{ about } y \text{ in } z]]]
B *\neg [\exists y [\text{Issue}(y) \land \forall x [\text{Country}(x) \rightarrow \exists z \text{[Official}(z) \land \text{we persuade } x \text{ about } y \text{ in } z]]]]

This example shows that the universal quantifier cannot scope in between the
two wh-words, even if such a scopal relation is made perfectly salient. The negative formulation of the example serves two purposes. Firstly, it facilitates a reading under which the universal quantifier scopes in the embedded clause and thus “forces” a potential scopal interaction with the wh-words, which have to scope in the embedded clause for independent reasons. Secondly, it creates a logical configuration where the specific reading (46B) can be false in a situation where the non-specific reading (46A) is true, or, more precisely, where the truth of the non-specific reading does not entail the truth of the specific reading.\footnote{In affirmative contexts non-specific readings of indefinites with respect to universal quantifiers entail their specific counterparts, which makes it impossible to construct a \textit{bona fide} example where the former would be true without also the latter being true. I am grateful to Ivano Caponigro (p.c.) for making me aware of this entailment issue.}

This is a solid argument against the relative clause paraphrase and in favor of the view under which both wh-words are quantified from a single existential source, leading to the scope neutralization.

The relative clause paraphrase also has problems accounting for the grammaticality of examples like (47). The reason is that \textit{proč} ‘why’ would essentially have to be treated as an indefinite pronoun rather than a relative operator—a situation that never obtains in any other context and, to the best of my knowledge, even in any other language. (Notice that the relative ordering of the two wh-words—\textit{kdo ‘who’} and \textit{proč ‘why’}—in no way affects the acceptability, a fact that may have to do with the lack of superiority effects in Czech.) The ungrammaticality of the bare wh-indefinite \textit{proč ‘why’} in Czech, in comparison to \textit{co ‘what’} or \textit{komu ‘who’}, is illustrated in (48).

\begin{verbatim}
(47) Czech
Nemá si \{ kdo proč / proč kdo \} stěžovat.
NEG:has REFL who why / why who complain
‘Nobody has any reason to complain.’
\end{verbatim}

\begin{verbatim}
(48) Czech
a. Přijde-li co komu vhod, smí si to odnést
come-COND what:ACC who:DAT handy may REFL it take
domů.
home
‘If anything comes handy to anybody, he can take it home.’

b. *Přijde-li co proč na špatnou adresu, musí se to
come-COND what:ACC why to wrong address must REFL it
poslat zpátky.
send back
‘If anything comes to a wrong address for any reason, it must be
sent back.’
\end{verbatim}

In conclusion, the relative clause paraphrase, or, more precisely, the logical representation associated with it, does not hold up at closer scrutiny. I discussed two issues that are problematic. The relative clause paraphrase predicts that the

two (or more) wh-words in multiple wh-MECs scope independently. I provided some evidence supporting the opposite view, namely that the scope of the wh-words is neutralized. The second problematic prediction is that the lower wh-word is an indefinite pronoun rather than a (relative) operator. I proved this to be false by showing that even wh-words like ‘why’ can occur in the lower-wh-position, despite the fact that the word for ‘why’ can never function as an indefinite.

**Symmetric paraphrases**

The above discussion left us with four remaining paraphrases: the modal plus indefinites paraphrase, the pair paraphrase, the coordination paraphrase, and the event paraphrase. All of them share two essential characteristics: they assign both wh-words an existential construal and the scope of the two wh-words is neutralized. For this reason, I call them symmetric—they have both symmetric scope and force. In light of the arguments given above, I take this to be a desirable property.

How can we decide which one of the four remaining paraphrases/logical forms is the correct one? Notice first that all the semantic representations appear to entail one another. The only aspect in which they differ is the relative scope of the quantification over individuals and worlds. However, this difference is only apparent—what determines the scope of the individual variable with respect to the world variable is not the position of the quantifier but rather the world variable with respect to which the restrictor of the individual variable is interpreted. Thus, if my overall analysis is on the right track, even the pair-paraphrase where the quantification over individuals scopes over the modal, is such that the restrictors of the individual variables involved in the pair are interpreted with respect to the worlds introduced by the modal. The equivalences are stated schematically in (49).

\[
\begin{align*}
\Diamond \exists x, y[P(x, y)] & \quad \text{modal + indefinites paraphrase} \\
\Leftrightarrow & \exists x[\Diamond P(x)(y)] \land \exists y[\Diamond P(x)(y)] & \text{coordination paraphrase} \\
\Leftrightarrow & \exists x, y[\Diamond P(x, y)] & \text{pair paraphrase} \\
\Leftrightarrow & \Diamond \exists x, y[P(e)(x, y)] & \text{event paraphrase}
\end{align*}
\]

Suppose that \(x\) is a ‘human’, \(y\) is a ‘thing’, and \(P\) is the relation ‘read’. Then, in prose, ‘someone can read something’ iff ‘there is someone who can read (something) and there is something that he can read’ iff ‘there is a pair of someone and something such that he can read it’ iff ‘it is a possible event that someone reads something’.

The truth-conditional equivalence, if real, leaves the choice among the four paraphrases upon criteria that are independent of semantics. Below, I turn to developing an account that requires a minimal modification to the overall
account of MECs argued for here.

6.3.3 Multiple wh-MECs in the event-extension account

Why exactly are multiple wh-MECs problematic for the event-extension account? The problem lies essentially in a type-mismatch. The sub-predicate that selects the MEC, i.e. BE, is specified to select an expression of type \langle s, \langle e, vt \rangle \rangle, an intensional relation between individuals and events. When the MEC involves more than one wh-word, its type is necessarily different—each wh-word raises the arity of the relation by one. For instance, a double wh-MEC is of type \langle s, \langle e, \langle e, vt \rangle \rangle \rangle—an intensional relation between two individuals and an event. The goal is therefore to define BE in such a way that it can select for MECs of different types.

As a starting point, let me repeat the semantics of the MEC-selecting BE (i.e. \(BE^{MEC}\); I simply write BE for parsimony).

\[ BE \smallfrown \lambda w \lambda Q(\langle s, \langle e, vt \rangle \rangle) \lambda e \exists e'[\exists x e'[\exists x e[\exists w \exists e' \exists x e'[\exists e'' e''[Q(w)(x)(e') \land e = e' \to e'' = \theta]]]] \]

Modifying the semantics of BE for the purpose of selecting double wh-MECs requires fixing a number of things in the representation above. First of all, as already mentioned, the argument \(Q\), standing for the MEC, must be of a more complex type—\langle s, \langle e, (e, vt) \rangle \rangle rather than \langle s, \langle e, vt \rangle \rangle. Secondly, the existential quantifier over individuals must be allowed quantify over two individual variables and, last but not least, the theta-role associated with the event predicate Be must be allowed to be attributed to more than one variable. After these modifications, we arrive at the following lexical entry:

\[ BE_{double} \smallfrown \lambda w \lambda Q(\langle s, \langle e, (e, vt) \rangle \rangle) \lambda e \exists e'[\exists x e'[\exists x e[\exists w \exists e' \exists x e'[\exists e'' e''[Q(w')(x')(e'') \land e = e' \to e'' = \theta]]]] \]

Unfortunately, (51) cannot be correct. The reason is that the part of the formula that identifies both individual variables with the theta-role of the event Be, i.e. \(\theta(e') = x \land \theta(e') = y\), has an unwanted consequence, namely the entailment \(x = y\). This is obviously wrong: the two variables introduced by the wh-words never corefer. In order to fix this problem, we have to reconsider the notion of “theta-roles” (expressions \(\theta(e)\)). So far, I have assumed that they are of type \(e\). In order to make things work, we have to assume that they are of type \(\langle e, t \rangle\), i.e. they are properties of individuals. Consider the modified version of (51), where \(\theta(e') = x\) is replaced by \(x \in \theta'(e')\) (and similarly for \(y\)).

---

16The property status of \(\theta(e)\) should be generalized and used across the board. For expository reasons, though, I will use it only for the purpose of multiple wh-MECs. In all other cases, I stick to the convention used so far, i.e. that \(\theta(e)\) is in the domain of entities.
(52) \( \text{BE}_{\text{double}} \rightarrow \lambda w. \lambda Q. \exists x. \exists y. [\exists e'. \exists x. \exists y. [\exists e''. \text{Exist}(e'') \wedge e = e' \rightarrow e'']] \)

Let us illustrate how (52) works. Consider the example below. (I use the modal+indefinites paraphrase for expository reasons. What will become crucial now are the truth conditions formally expressed below.)

(53) Czech
Maruška má s kým o čem mluvit.
Maruška has with whom about what speak:INF
‘Maruška can speak to somebody about something.’

The semantics of (53) is computed as follows. The structure before wh-movement (node \( \mathbf{1} \)) is a full description of the embedded event which corresponds to a vP (see the discussion in Chapter 4). Once again, I simplify and for expository reasons treat the complex event of speaking as a single event specified by “theta roles” \( \text{Ag}(e) \), \( \text{With}(e) \), and \( \text{About}(e) \). In accordance with the background assumptions given in §4.4.1, wh-words map to lambda operators and contribute variable restrictions—\( \text{Thing} \) and \( \text{Human} \). The MEC (node \( \mathbf{3} \)) denotes an intensional relation between two individuals—corresponding to the two wh-words—and an event of speaking. The structure is selected by \( \text{BE}_{\text{double}} \) (node \( \mathbf{1} \)), which asserts the existence of some objects that correspond to the variables introduced by the wh-words.

(54) 

\( \mathbf{1} \rightarrow \lambda w. [\text{Speak}(w)(e) \wedge \text{Ag}(e) = m \wedge \text{With}(e) = x \wedge \text{About}(e) = y] \)
\( \mathbf{2} \rightarrow \lambda w. [\text{Speak}(w)(e) \wedge \text{Ag}(e) = m \wedge \text{With}(e) = x \wedge \text{Human}(x)] \wedge \text{About}(e) = y [\text{Thing}(y)] \)
\( \mathbf{3} \rightarrow \lambda w. [\text{Speak}(w)(e) \wedge \text{Ag}(e) = m \wedge \text{With}(e) = x [\text{Human}(x)] \wedge \text{About}(e) = y [\text{Thing}(y)]] \)
\( \mathbf{4} \rightarrow \lambda w. [\text{Speak}(w)(e) \wedge \text{Ag}(e) = m \wedge \text{With}(e) = x [\text{Human}(x)] \wedge \text{About}(e) = y [\text{Thing}(y)]] \)
\( \mathbf{5} \rightarrow \lambda w. [\text{Speak}(w)(e) \wedge \text{Ag}(e) = m \wedge \text{With}(e) = x [\text{Human}(x)] \wedge \text{About}(e) = y [\text{Thing}(y)]] \)
\( \mathbf{6} \rightarrow \lambda w. [\text{Speak}(w)(e) \wedge \text{Ag}(e) = m \wedge \text{With}(e) = x [\text{Human}(x)] \wedge \text{About}(e) = y [\text{Thing}(y)]] \)
Node $\textbf{9'}$ represents the truth conditions of (53). The sentence is true in $w$ iff there is a complex event $e$ which corresponds to the extension of $e'$ to $e''$ and there are two individuals $x$ and $y$ such that $x$ and $y$ are in the state $e'$ of being existent in $w$ and it is possible (given that the circumstances are as in $w$) that Maruška speaks with $x$ about $y$.

We arrived at an intuitively appealing analysis of MECs with two wh-words. The semantics is constructed in full concord with the overall event-extension approach as well as with the desirable symmetric paraphrases of multiple wh-MECs—both wh-words have the same scope and the same force. The only remaining problem is to generalize the lexical entry of BE so that it can take MECs with an arbitrary number of wh-words and thus avoid the unpleasant ambiguity between BE, BE$_\text{double}$, BE$_\text{triple}$, etc. In order to do this, we have to allow BE to take any expression from the following union of domains: $D_{\langle s, e, v, t \rangle} \cup D_{\langle s, e, \langle e, v, t \rangle \rangle} \cup D_{\langle s, \langle e, e, v, t \rangle \rangle} \cup \ldots$ How can we define this potentially infinite union of domains? A simple way to achieve this is to define complex types in terms of function application. Suppose that there is a function $f$ in our type theory that is defined as follows:

\begin{align*}
\text{(55)} & \quad \text{If } \sigma \text{ and } \tau \text{ are types, then } f(\sigma)(\tau) = \langle \sigma, \tau \rangle \text{ (also a type).} \\
\end{align*}

The definition above relies on the old insight that sets can be defined in terms of their characteristic functions (see Heim and Kratzer 1998 for an accessible discussion and references). Now, we need to add the recursive step, producing arbitrarily complex types:

\begin{align*}
\text{(56)} & \quad \text{For any natural number } n \geq 2 \\
& \qquad \text{a. } f_1(\sigma)(\tau) = \langle \sigma, \tau \rangle \\
& \qquad \text{b. } f_n(\sigma)(\tau) = \langle \sigma, f_{n-1}(\sigma)(\tau) \rangle \\
\end{align*}

Now, this definition allows us to characterize the type of MECs generally as follows:

\begin{align*}
\text{(57)} & \quad \langle s, f_n(e)(\langle v, t \rangle) \rangle \\
& \quad \text{(for any natural number } n \text{, corresponding to the number of fronted wh-words)} \\
\end{align*}

In order to see that (57) indeed characterizes the correct type, consider the
following equation, deriving the type of MEC with three fronted wh-words (so that \( n = 3 \)):

\[
\begin{align*}
(58) & \quad \langle s, f_3(e)((v, t)) \rangle \\
& \quad = \langle s, \langle e, f_2(e)((v, t)) \rangle \rangle \\
& \quad = \langle s, \langle e, \langle e, f_1(e)((v, t)) \rangle \rangle \rangle \\
& \quad = \langle s, \langle e, \langle e, \langle e, (v, t) \rangle \rangle \rangle \rangle \\
& \quad \text{by (56b)} \\
& \quad \text{by (56b)} \\
& \quad \text{by (56a)}
\end{align*}
\]

With this simple function-based definition of types, we can provide the general semantics of BE. The variable \( n \) ranges over all natural numbers and its value is determined by the number of wh-words in the MEC selected by BE. The number \( n \) determines the type of \( Q \)—the variable standing for the MEC—as well as the number of variables that BE existentially closes. All of the variables are assigned the theta-property of BE, i.e. being existent, and all of them are applied to \( Q \).

\[
(59) \quad \text{For any natural number } n \text{ such that } n \text{ equals the number of wh-words in the MEC}
\]

\[
\begin{align*}
& \quad \text{BE}_n \rightsquigarrow \lambda w \lambda Q(x, f_n(e)(v, t)) : \lambda e, \exists x_1, \ldots, x_n[\text{Exist}(w)(e') \land x_1 \in \theta(e') \land \\
& \quad \ldots \land x_n \in \theta(e') \land \exists w' \in C(w) : \exists e''[Q(w')(x_1, \ldots, x_n)(e'') \land e = e' \rightarrow e'']]
\end{align*}
\]

In summary, I showed that the semantics of the MEC-selecting predicate BE can be generalized and it is therefore possible to avoid stipulating a whole range of minimally ambiguous predicates, specified for selecting MECs with a particular number of wh-words.

6.3.4 (Multiple) wh-movement

In \( \S 2.2.2 \) I observed that multiple wh-MECs are only possible in multiple wh-fronting languages. The relevant contrast is repeated below:

\[
(60) \quad \begin{align*}
\text{a. } & \quad \text{Bulgarian [Rudin 1986:193]} \\
& \quad \text{Imaš li s kogo kúde da otides?} \\
& \quad \text{have:2SG q with who where that go:2SG} \\
& \quad \text{‘Do you have somewhere to go and someone to go with?’}
\end{align*}
\]

\[
\begin{align*}
\text{b. } & \quad \text{Spanish (Cintia Widmann, p.c.)} \\
& \quad \text{*Todavía tengo con quién hablar sobre qué.} \\
& \quad \text{still have:1SG with who speak:INF about what} \\
& \quad \text{‘I still have somebody with whom I can speak about something.’}
\end{align*}
\]

As I argued earlier Šimík (see 2009a), the multiple wh-MEC generalization should not be stated over language-types but rather over multiple wh-movement as such. Consider the following observations. Czech multiple wh-interrogatives are typically formed by multiple wh-movement, as in (61a), however, single wh-movement is also an option, as in (61b) (given that certain discourse conditions are satisfied; see Šimík to appear).
6.3. Multiple wh-MECs

(61) Czech (adapted from \(\text{ˇSim\'ık 2009a:192}\))
   a. \(\text{ˇRekni mi, komu \(s\) \(\text{ˇcím}\) pomohl.}\)
      tell me who be:2sg with what helped
   b. \(\text{ˇRekni mi, komu \(s\) pomohl \(s\) \(\text{ˇcím}.\)}\)
      tell me who be:2sg helped with what

‘Tell me who you helped with what.’

Despite this optionality of movement in multiple wh-interrogatives, multiple
wh-MECs can only be formed by multiple wh-movement.

(62) Czech
   a. \(\text{Nem\'ám \(komu\) \(s\) \(\text{ˇcím}\) pomocít.}\)
      neg:have:1sg who with what help:inf
   b. *\(\text{Nem\'ám \(komu\) pomocít \(s\) \(\text{ˇcím}.\)}\)
      neg:have:1sg who help with what

‘I can’t help anybody with anything (because there’s nobody and
nothing).’

The most favorable generalization is therefore that wh-words in MECs are
only licensed if they undergo wh-movement. Under this view, the prohibition
on multiple wh-MECs in Spanish and other languages is merely a subcase of
the general prohibition on wh-in situ in MECs. How can this generalization
be explained? Throughout, I have assumed that wh-words map to lambdas,
following Groenendijk and Stokhof (1984) and Heim and Kratzer (1998). The
generalization gives us an opportunity to strengthen the assumption and say
that only moved wh-words map to lambdas (contra Groenendijk and Stokhof
1984). If that is the case, then wh-words that remain in situ will not have
an effect on the semantic type of the MEC and and the variables that they
introduce would not be interpreted as belonging to the set of existent objects.
Notice that if this reasoning is correct, it constitutes an argument against covert
wh-movement (see Huang 1982), favoring alternative ways of interpreting wh-in
situ, such as unselective binding (Pesetsky 1987).

6.3.5 Conclusion

In this subsection, I discussed multiple wh-MECs in detail. I started out by
trying to determine their correct truth conditions. I showed that of the many
different existing paraphrases of multiple wh-MECs (and their corresponding
truth conditions) only the symmetric ones can be correct, i.e. paraphrases which
attribute the two (or more) wh-words identical scope (immediately below the
selecting predicate) as well as identical force (existential). In line with this
insight, I developed a simple account of multiple wh-MECs within the event-
extension semantics. I demonstrated that only a minimal change is needed—a

19The example in (62b) is grammatical only if the in situ wh-phrase \(s\) \(\text{ˇcím}\) ‘with what’ is
interpreted as interrogative—giving rise to an echo-question reading.
modified lexical entry of the MEC-selecting predicate BE, which can be defined generally so that it can select MECs with any number of wh-words. The fact that not all languages can form multiple wh-MECs is explained by the assumption that only fronted wh-words can function as lambda abstractors.

In the rest of the thesis, I will only deal with single wh-MECs and will therefore stick to the original lexical entry of BE. The reader should keep in mind that I do this only for the sake of notational simplicity.

6.4 Control in MECs

In §5.4 I showed that three types of empty MEC subjects should be distinguished. Some MECs contain a trace after subject raising, others contain a PRO, and yet others a pro. In this section, I look more into the issue of obligatory control in MECs. I develop the idea put forth in §4.3.3 where I argued for a specific way of identifying the reference of participants within a complex event structure. The basic idea was that some atomic event predicates do not select standard event extensions, i.e. expressions of type \( \langle s, vt \rangle \), but rather event extensions with an unsaturated participant argument position, i.e. expressions of type \( \langle s, \langle e, vt \rangle \rangle \). Such predicates then identify the reference of the missing argument with the reference of their own participant argument. The general semantic format of such predicates is given in (63) for some arbitrary predicate PRED. Notice that the extension argument of PRED, corresponding to Q, has an unsaturated participant argument slot. The variable that corresponds to the participant argument, i.e. \( x \), is bound by the participant argument of PRED itself.

\[
(63) \quad \text{PRED} \rightarrow \lambda w s \lambda Q \langle s, \langle e, vt \rangle \rangle \lambda x e \exists e' [\text{Pred}(w)(e') \wedge \theta(e) = x \wedge \\
\exists e'' [Q(w)(x)(e'') \wedge e = e' \rightarrow e'']] 
\]

I argued that predicates of this type include the MEC-embedding BE, as well as predicates like BUY, which characterize processes leading to possessive result states and which make it possible to interpret sentences like *Dave bought a book* just like *Dave bought himself a book*. In this section, I build on this simple idea, rooted in so called property analyses of control (Williams 1980; Chierchia 1984, 1989a), and extend it for the purpose of reference identification under control. I will propose that an expression can be of the relevant type \( \langle s, \langle e, vt \rangle \rangle \) not only by virtue of not having its argument position saturated, but also by opening the argument slot at a higher level, by operator movement. The operator responsible for this process corresponds to PRO.

\[^{20}\text{The competing view of control, the so called propositional analysis, goes back at least to Chomsky (1981) and holds that control constituents are of propositional type, PRO is an individual variable, and control itself is a syntactically constrained relation of binding (cf. Koster (1984) or, in some approaches, movement (Hornstein 1999).}\]
6.4. Control in MECs

The main challenge in devising the property-based system of control in MECs is that MECs themselves are of the same semantic type as control constituents, i.e. \( \langle s, \langle e, vt \rangle \rangle \). This semantics accommodates reference sharing between the (matrix) argument of BE and the (embedded) argument that corresponds to the wh-word. It is immediately clear that establishing another reference-sharing relation at the edge of MEC is not trivial: the MEC would have to have two individual argument slots open and therefore be of type \( \langle s, \langle e, vt \rangle \rangle \). A similar assumption was made by Chierchia (1989b) in his analysis of control in purpose clauses—a problem which is intimately related to the problem of control in MECs, since the two constructions belong to the same type—the possibility clause (see Chapter 4 and esp. § 4.5). However, dealing with double abstracts leads to non-trivial complications in the reference-sharing system. Moreover, in § 6.3 I argued that this semantic type corresponds to MECs with two wh-words. As it stands, the system would predict that a sentence like ‘John has where PRO to sleep’ would be interpreted as ‘John has some place and some person such that that person can sleep in that place’, obviously a wrong interpretation. In order to meet this challenge, I will propose that the control relation is established MEC-internally, before wh-movement even takes place. The control predicate responsible for this is the applicative head postulated in § 5.4.4 for Russian MECs. I will argue that the presence of this head in MECs can be generalized, at least for MECs selected by stative predicates.

The rest of this section is organized as follows. In § 6.4.1 I devise an analysis of control in Russian MECs, called MEC-internal control, and propose that it should be applied more generally. In § 6.4.2 I turn to one of the puzzling observations made in this thesis, namely that subjects that are wh-words are the only subjects that are capable of replacing an obligatorily controlled PRO. I will argue that the relevant observation and generalization receives an elegant explanation within the present assumptions about control and fronted wh-word semantics. § 6.4.3 is a brief note on interpreting raising MECs and § 6.4.4 concludes the section.

### 6.4.1 MEC-internal control

In § 6.4.1 I concluded that Russian MECs exhibit a special pattern of control in that the controller appears to be within the MEC itself rather than external to it. An example and the proposed syntactic representation are given in (65). The PRO moves to the edge of the TP (possibly to SpecTP), where it is formally licensed by the defective (infinitival) T, and the whole TP is selected by an applicative head. The participant argument of this head is assigned dative and controls the embedded subject. After that wh-movement takes place and the whole structure is selected by the MEC-embedding BE\(^{\text{MEC}}\) (simplified as BE henceforth). The way the subject Maše gets into the matrix is by raising (not
illustrated in the tree below).

(65) **Russian**

Maša est’ s kem rabotat’.

Maša:DAT be:IMPRS with who work:INF

‘There’s somebody that Maša can work with.’

The applicative head postulated here looks rather special since it selects for a TP rather than for a VP or vP, as usually assumed (cf. Pylkkänen 2002). The present proposal concerning the applicative nature of the head should therefore be taken as tentative. What seems to support it, though, is the fact that Russian purpose clauses (“rationale clauses” in the terminology of Faraci 1974; see §4.3.1) can accommodate a dative constituent, the function of which resembles the one of the MEC dative subject: it has a comparable semantic import, including the obligatory control relation. Consider the following example and the dative-marked *mne* ‘me’.

(66) **Russian**

On prišel čtoby mne ne obedat’ odnoj.

On came in.order me:DAT NEG eat:INF alone:DAT

‘He came so that I would not have dinner alone.’

What is the exact semantic role of APPL in MECs? What is the type of its complement and how is the control relation established? I would like to propose that APPL expresses benefactive semantics, i.e. the stative event predicate **Ben**. (The semantics can also be malefactive, which is an alternative that I abstract away from for simplicity.) As usual, apart from the event variable, this
predicate introduces a participant argument slot. The participant that fills in this slot is then interpreted as somebody who is in the state of benefitting. What this person benefits from is the existence state expressed by the selecting predicate. The MEC further elaborates on this benefactive state by specifying the “manner” of benefitting (for instance, in (65), Maša can benefit from the existence of some \( x \) by working with \( x \)). At the same time, the participant argument of APPL functions as a controller of the embedded subject.

As the tree in (65) illustrates, the access to the embedded subject is achieved by the movement of PRO, which is construed as a lambda operator binding the subject variable. This implements the pattern of control proposed above. Nevertheless, the question arises how APPL gets access to the embedded event variable, given that the complement is a TP, a structure that typically maps to expressions that characterize worlds rather than events. I ignored this problem in Chapter 4, since the categorial status of the MEC was not at issue yet. Since I have nothing insightful to say about this problem, I will somewhat stipulatively assume that the event variable can undergo quantifier (existential) disclosure, a mechanism introduced by Dekker (1993) for the purpose of indefinite DPs bound by adverbial quantifiers. It is possible that the assumed existential disclosure of the event variable is in fact facilitated by the APPL head. If this proves to be a tenable hypothesis, we could further assume that the APPL head comes about as a part of MEC-embedding predicates more generally, e.g. the Russian MEC-embedding \( est' \)`be' is not just a lexicalization of \( BE \), but rather \( BE+APPL \). MEC-embedding predicates would thus come with an in-built functional head which facilitates the absorption of the event extension argument—by disclosing the embedded event variable.

The lexical entry of APPL is given in (67). In accordance with the present proposal about control predicates, APPL relates an evaluation world \( w \) with the relation \( Q \), which corresponds to the control constituent, an individual \( x \), APPL’s participant argument, and an event \( e \) such that there is an event \( e' \) that denotes a state of \( x \)’s benefitting and \( e \) equals the extension of \( e' \) to some \( e'' \) which is characterized by \( Q(w)(x) \). Notice that the saturation of \( Q \)’s individual argument by \( x \)—participant argument of APPL—corresponds to the desired control relation.

\[
(67) \quad \text{APPL} \rightsquigarrow \lambda w \lambda x \lambda e \lambda e' \exists e'' [\text{Ben}(w)(e') \land \theta(e') = x \land \exists e'' \{ Q(w)(x)(e'') \land e = e' \rightarrow e'' \}]
\]

The partial semantic computation of the truth conditions of (66) is given in (68). The control constituent (node ❶) has an open individual argument slot binding the subject of the MEC, thanks to the fact that PRO is construed as a lambda-operator. It is fed into the control predicate APPL (node ❷).
which identifies the reference of the embedded subject with the reference of its participant argument, namely Maša (node \textcircled{3}). After the wh-movement takes place and the frontal wh-word binds its trace, the structure (node \textcircled{9}) is selected by the familiar MEC-embedding predicate $BE$ (node \textcircled{10}).

(68) \begin{align*}
\text{(a)} & \Rightarrow \lambda w \lambda x \lambda e [\text{Work}(w)(e) \land \text{Ag}(e) = x \land \text{With}(e) = y] \\
\text{(b)} & \Rightarrow \lambda w \lambda Q \lambda x \lambda e \exists e' [\text{Ben}(w)(e') \land \theta(e') = x \land \exists e'' Q(w)(x)(e'') \land e = e' \rightarrow e''] = (67) \\
\text{(c)} & \Rightarrow \lambda w \lambda x \lambda e \exists e' [\text{Ben}(w)(e') \land \theta(e') = x \land \exists e'' [[\text{Work}(w)(e'') \land \text{Ag}(e'') = x \land \text{With}(e'') = y] \land e = e' \rightarrow e''] \\
\text{(d)} & \Rightarrow m \\
\text{(e)} & \Rightarrow \lambda w \lambda x \lambda e [\text{Ben}(w)(e') \land \theta(e') = m \land \exists e'' [[\text{Work}(w)(e'') \land \text{Ag}(e'') = m \land \text{With}(e'') = y] \land e = e' \rightarrow e''] \\
\text{(f)} & \Rightarrow \lambda w \lambda Q \lambda x \lambda e \exists z [\text{Exist}(w)(e'') \land \theta(e'') = z \land \exists w' \in C(w) : \exists e'' [Q(w')(z)(e''') \land e = e'' \rightarrow e'''] = (59) \text{in 4.3.2} \\
\text{(g)} & \Rightarrow \lambda w \lambda e \exists e'' \exists z [\text{Exist}(w)(e'') \land \theta(e'') = z \land \exists w' \in C(w) : \exists e'' [[\text{Ben}(w')(e') \land \theta(e') = m \land \exists e'' [[\text{Work}(w')(e'') \land \text{Ag}(e'') = m \land \text{With}(e'') = z [\text{Thing}(w')(z)] \land e''' = e' \rightarrow e''' \land e = e'' \rightarrow e'''']] \\
\text{(h)} & \Rightarrow \lambda w \lambda e \exists e'' \exists z [\text{Exist}(w)(e'') \land \theta(e'') = z \land \exists w' \in C(w) : \exists e'' [[\text{Ben}(w')(e') \land \theta(e') = m \land \exists e'' [[\text{Work}(w')(e'') \land \text{Ag}(e'') = m \land \text{With}(e'') = z [\text{Thing}(w')(z)] \land e''' = e' \rightarrow e''' \land e = e'' \rightarrow e'''']]
\end{align*}

The node \textcircled{8′} (derived from \textcircled{8} by existentially closing $e$) represents the final truth conditions. The sentence in \textcircled{65} is true iff there is some $x$ such that the existence of $x$ leads to Maša’s state of benefitting, which state in turn extends to Maša’s working with $x$. The realization of the state of benefitting and the activity of working are not actual facts but rather just circumstantial possibilities, whose truth is conditioned by the existence of $x$ (among other contextually determined circumstances).

Let us now move on to cases of control in which the existence of the applicative head does not receive clear empirical support. These cases include virtually all other types of control MECs, i.e. MECS in Spanish, Portuguese, etc. (see \textcircled{65,66}), as well as Russian MECS selected by dynamic predicates such as ‘buy’, which display no overt applicative argument. Two examples are given below:

(69) \begin{align*}
\text{(a)} & \text{Spanish} \\
Pablo tiene con qué escribir. \\
Pablo has with what write:INF \\
‘Pablo has something with which he can write.’ \\
\text{(b)} & \text{Russian} \\
Maša kupila čem pisat’. \\
Maša bought what:INST write:INF \\
‘Maša bought something with which she can write.’
6.4. Control in MECs

So far, I analyzed the predicate ‘have’ as AT+BE and ‘buy’ as BUY+(AT)+BE. I assumed that the controller of the MEC-subject is the participant argument of AT (or BUY). Under this assumption, the PRO would have to move to the edge of BeP, in order to be accessible to the putative control predicate. However, this is at odds with the assumption that PRO needs licensing by an infinitival T head, since there is no such T head at the edge BeP. PRO would therefore remain unlicensed. A possible way out of this problem is to adopt the speculation introduced above concerning the general incorporation of APPL into MEC-embedding predicates (modulo raising MECs; cf. §6.4.3). Under this modified view, ‘have’ would correspond to (AT)+BE+APPL and ‘buy’ to BUY+(AT)+BE+APPL. The PRO would move to the edge of TP and the variable bound by it would be referentially identified with the participant argument of APPL, just like proposed above for Russian. On that assumption, the Spanish example in (69a) would receive the structural analysis in (70), where the subject Pablo (previously assumed to be generated in SpecAtP) is generated in SpecApplP, picks up the beneficiary semantics, and is subsequently formally licensed in the matrix.

(70) \[ \text{AgrSP Pablo} \text{1 [BeP BE [ApplP with what [ApplP t1/i APPL [TP PROi write]]]]} \]

The situation with dynamic predicates is slightly more intricate, since the argument of APPL might still be needed to be referentially identified with the argument of AT or BUY. It is not immediately clear how this should be done, since these atomic predicates do not have direct access to ApplP. I leave this issue aside for the moment, also because I have not clarified yet what the empirical facts are. Do arguments of dynamic predicates like ‘buy’ actually (whether they are in SpecAtP or SpecBuyP) obligatorily control the MEC subject? Or is the situation one of non-obligatory control? This issue will have to be kept for future investigation.

6.4.2 The quirky behavior of wh-subjects

In this subsection, I will provide an argument in favor of treating PRO as a lambda and, by extension, treating obligatory control constituents as properties rather than propositions. The argument is drawn from an observation made in §2.2.3 and discussed again in §5.4.2. The observation is that in languages in which MECs exhibit obligatory control wh-subjects are the only types of MEC-subjects that can be overt and, at the same time, referentially disjoint from the matrix subject. Consider an example from Hungarian:

\[ \text{Preliminary research, conducted shortly after the submission of this thesis (Simk} \text{2011)} \text{, reveals that arguments of dynamic predicates generally do not obligatorily control the embedded empty subject. Moreover, Roumyana Pancheva (p.c.) informed me that embedded subjects of non-obligatory control MECs (in Bulgarian) do not seem to exhibit animateness restrictions, suggesting a complete absence of the APPL head in the relevant structures.} \]
(71) **Hungarian** (Anikó Lipták, p.c.)

a. Nekem van ki elmenjen a postára.
   I:DAT be:IMPRS who:NOM go:SBJ.3SG the.post.office.to
   ‘I have somebody who can go to the post office.’

b. Péter van (* Anna) kit küldjön a postára.
   Péter is ( Anna) whom send:SBJ.3SG the.post.office.to
   ‘Peter has someone who {he,/*Anna} can send to the post office.’

In some languages, e.g. Portuguese and Spanish, the use of wh-subjects is accompanied by an exceptional use of the subjunctive mood, as illustrated by (72a), and contrasted with (72b). Notice that other types of subjects are incapable of triggering the use of the subjunctive, (72c).

(72) **Spanish** (Cintia Widmann, p.c.)

a. No tengo quién me {ayude /* ayudar}.
   NEG have:1SG who me:DAT help:SBJ.3SG / help:INF
   ‘I don’t have anyone who can/will help me.’

b. Esa familia no tiene de qué {vivir /* viva}.
   that family NEG have:3SG of what live:INF / live:SBJ.3SG
   ‘That family has nothing to live of.’

c. *No tengo qué leas.
   NEG have:1SG what read:SBJ.2SG
   ‘I don’t have anything for you to read.’

This observation, valid in too many languages for it to be accidental, can be characterized by the following generalization:

(73) **The wh/PRO generalization**

PRO in MECs is in complementary distribution with wh-subjects.

That is, the subject position of obligatory control MECs is either filled with PRO or with a wh-subject. Every other subject is strictly ruled out. This generalization receives a natural explanation under two assumptions: (a) PRO and wh-subjects are indistinguishable at LF, (b) no other type of expression (referential expressions, quantifiers) is like PRO or wh-subjects (at LF). Now, let us verify that these two conditions are indeed satisfied under the present set of assumptions. In [1.1.1], I argued that wh-words map to lambda-operators. In case wh-words are in the subject position, it follows that they are lambdas that bind the closest argument position, i.e. the subject position. This semantic mapping is exactly what I just proposed for PRO, as well. The differences between the two are three: (i) wh-words are overt, (ii) they introduce variable restrictions, and (iii) they might have different formal licensing requirements (cf. the Spanish case in (72)). However, these differences need not concern us here. The overtness of an expression is something that LF cannot see, anyway. The variable restriction is not a property of the fronted wh-word, but rather of the trace/copy that it binds. And finally, formal licensing is a matter of narrow
6.4. Control in MECs

syntax, not LF. This means that the condition (a) is satisfied. How about the condition (b)? Is there any other expression that could be of the same LF type as PRO or wh-subjects? The answer is negative. All other fronted constituents are categorematic, i.e. they are assigned a type and combine with their complement by function application. This holds of quantifiers, as well as topicalized or focalized constituents. In general, after such a constituent is applied to its sister, the property is transformed to a proposition. And according to the present proposal, propositions are unfit for the selection by control predicates.

It is a virtue of the property type analysis of control constituents that it can unify the semantics of wh-words and PRO, to the exclusion of any other type of expression, as it captures the generalization in (73). Notice that the propositional analysis of control constituents fails to capture this wh/LF generalization. I take this to be a rather strong argument in favor of the property type analysis of control, as well as the syncategorematic treatment of wh-words.

Let us now move on to the semantics of MECs with wh-subjects. As it turns out, the analysis proposed thus far cannot be mechanically applied to this type of MECs. The reason is that, unlike in the standard instances with PRO, the reference of the variable bound by the wh-subject cannot be identified with the reference of the participant argument of APPL. If that was the case, then (72a), repeated in (74), would have the unattested interpretation in (74a), rather than the one in (74b). Arguably, the interpretation in (74a) is blocked by Heim’s (1982) novelty condition on indefinites, which prohibits indefinite pronouns to pick out previously introduced referents, or alternatively by condition C (if wh-words qualify as R-expressions under the present account).

\[ (74) \]

Spanish

\[
\text{No tengo quién me ayude.}
\]

\[
\begin{array}{ll}
\text{NEG} & \text{have:1SG who } \text{me:DAT help:SBJ:3SG} \\
\text{a. } & \text{‘I don’t have anyone such that the person can benefit from helping me.’} \\
\text{b. } & \text{‘I don’t have anyone such that I can benefit if that person helps me.’}
\end{array}
\]

---

23Tarald Taraldsen (p.c.) drew my attention to another wh-subject phenomenon, illustrated in (i).

\[ (i) \]

Spanish (Bosque and Moreno 1984:164)

\[
\begin{array}{ll}
\text{No sabemos quiénes ir a París.} & \text{NEG know:1PL who:PL go:INF to Paris} \\
\text{a. } & \text{‘We don’t know who of us should go to Paris.’} \\
\text{b. } & \text{‘I don’t know who could/should go to Paris.’}
\end{array}
\]

As witnessed by the contrast above, the condition on the wh-subject in this case is exactly reverse from the one observed in MECs: in order for the wh-subject to be licensed, its reference has to be included in the reference of the matrix subject. A detailed comparison between this phenomenon and the wh/PRO generalization will have to wait for another occasion.
This means that the semantics of APPL, given in (67), has to be modified for the purpose of selecting complements with wh-words rather than PRO. I propose the modification in (75), where APPL\textsubscript{wh} is just like APPL except that it has one more argument slot—\(\lambda y\), which binds the variable introduced by the wh-word and thus helps the wh-word “percolate” to the maximal projection ApplP, where it can be exploited by BE. In this way, the variable bound by the wh-word “goes intact” through the semantics of APPL. APPL’s participant role is instead assigned to an independent argument (\(x\)), which corresponds to the first person singular pro in (74).

(75) \[ \text{APPL}_{\text{wh}} \rightarrow \lambda w \lambda s \lambda Q(\langle x, (e, v) \rangle) \lambda x \lambda e \lambda e' \exists e''[\text{Ben}(w)(e') \land \theta(e') = x \land \exists e''[Q(w)(y)(e'') \land e = e' \rightarrow e'']] \]

The example in (74) receives the following representation:

(76) \[
\begin{array}{c}
\text{AgrSP} \\
\text{BeP} \\
\text{ApplP} \\
\text{ApplP} \\
\text{ApplP} \\
\text{APPL}_{\text{wh}} \\
\text{TP} \\
\text{vP} \\
\text{t1} \\
\text{t2} \\
\text{who2} \\
\text{helps me}
\end{array}
\]

The semantic computation proceeds as follows. The wh-word is generated in the highest argument position of the MEC, i.e. as the agent of helping. It raises to the edge of TP where it maps to a lambda-operator. Its trace contributes a variable restriction. Notice that in order for the wh-word to be formally (case) licensed, the mood must be finite, i.e. subjunctive. This is in accordance with the observation discussed above, namely that wh-subjects in Spanish represent the only one type of subject which elicit the use of the subjunctive. The wh-clause (node \(\mathbf{1}\)) is selected by the specialized head APPL\textsubscript{wh} (node \(\mathbf{2}\)), which introduces its participant argument (node \(\mathbf{3}\)), but does not identify its reference with the reference of the wh-bound variable. The variable bound by the wh-word remains lambda-bound even at the level of ApplP thanks to APPL\textsubscript{wh}’s additional argument slot \(\lambda y\). The result (node \(\mathbf{5}\)) is fed into BE (node \(\mathbf{6}\)).

(77) \[
\begin{array}{c}
\mathbf{1} \rightarrow \lambda w \lambda x \lambda e[\text{Help}(w)(e) \land \text{Ag}(e) = x[\text{Human}(w)(x)] \land \text{Th}(e) = \text{sp}]
\end{array}
\]
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\[ \theta \leadsto \lambda w \lambda Q \exists x \lambda y \lambda e \exists e' [\text{Ben}(w)(e') \land \theta(e') = x \land \exists e'' [Q(w)(y)(e'') \land e = e' \rightarrow e'']] \]

\[ \theta \leadsto \lambda w \lambda x \lambda y \lambda e \exists e' [\text{Ben}(w)(e') \land \theta(e') = x \land \exists e'' [\text{Help}(w)(e'') \land \text{Ag}(e'') = y[\text{Human}(w)(y)] \land \text{Th}(e'') = \text{sp}] \land e = e' \rightarrow e'']] \]

\[ \theta \leadsto \text{sp} \]

\[ \theta \leadsto \lambda w \lambda e \exists e' [\text{Ben}(w)(e') \land \theta(e') = \text{sp} \land \exists e'' [\text{Help}(w)(e'') \land \text{Ag}(e'') = y[\text{Human}(w)(y)] \land \text{Th}(e'') = \text{sp}] \land e = e' \rightarrow e'']] \]

\[ \theta \leadsto \lambda w \lambda e \exists e''[\text{Exist}(w)(e'') \land \theta(e'') = z \land \exists w' \in C(w) : \exists e'''[Q(w')(z)(e''') \land e = e'' \rightarrow e'''']] \]

The final truth conditions are given in \( \theta \). They match (74b) rather than (74a), as desired. The sentence is true if the speaker can profit from the existence of some \( z \) such that \( z \) can help the speaker.

Let us now consider the case of Russian MECs with wh-subjects. The situation in Russian is special in that there is no way to formally license two overt disjoint subjects. While Spanish, by exceptionally allowing the subjunctive, can license both the wh-subject and the matrix subject by nominative-marking, no such option exists in Russian, since Russian MEC-embedding BE is intrinsically impersonal and cannot license any overt subjects. The only overt-subject licenser is the head that assigns the dative, i.e. arguably APPL.\(^{24}\) It seems that this situation has three possible outcomes, schematically illustrated in (78). The first option, (78a), is that Russian does not allow wh-subjects at all, whether above or below APPL. The second option, (78b), is that in the presence of the wh-subject, no other subject is allowed, be it covert or overt. In that case, the wh-subject is generated as the participant of APPL. The third option, (78c), is that in the presence of the wh-subject, no overt subject is allowed.

\[ (78) \]

\[ a. \quad [\text{Bep} \text{ BE} [\text{AppP} \{\text{wh-subj}\} [\text{AppP} \text{ subj} \text{ APPL} [\text{TP} \{\text{wh-subj}\} \ldots ]]]] \]

\[ b. \quad [\text{Bep} \text{ BE} [\text{AppP} \text{ wh-subj} \text{ APPL} [\text{TP} \ldots ]]] \]

\[ c. \quad [\text{Bep} \text{ BE} [\text{AppP} \text{ PRO_arb} \text{ APPL} [\text{TP} \text{ wh-subj} \ldots ]]] \]

Already from 5.3.4 we know that perhaps the most sensible outcome—the complete prohibition on wh-subjects—does not correspond to facts. Which one of the other two options is realized? \textit{Prima facie}, (78c) appears to be disfavored.

\(^{24}\)The exception is a situation where BE is supplemented with AT, in which case the matrix subject can be realized by a prepositional phrase. However, this situation is incomparable with the presently discussed one, since prepositional subjects in Russian do not obligatorily control the embedded subject. See the discussion in the conclusion of 5.3.4.
as it relies on the postulation of an empty category, probably an arbitrarily interpreted PRO

However, if wh-subjects in MECs are really close relatives of PRO, as assumed and argued here, (78c) is preferred over (78b). In order to decide between the two, we can use the test applied to [74] for Spanish: if the referent introduced by the wh-subject is interpreted as the participant of APPL, i.e. the benefactive, then (78b) is correct. If not, then (78c) seems inevitable. The following test shows that the latter is the case and hence, (78c) is correct

(79) Russian (Aysa Arylova, p.c.)
Nad etoj problemoj bylo komu rabotat’.
on that problem be:PAST who:DAT work:INF
a. *‘There is somebody such that he can benefit from his own existence by working on that problem.’
b. ‘There is somebody such that somebody (else) can benefit from his existence by his working on that problem.’

This finding further supports the present theory under which wh-subjects in MECs correspond to PRO, which is in turn analyzed as a lambda binding the closest argument variable.

Before I wrap up this subsection, one reservation with respect to the present analysis of Russian wh-subject MECs should be mentioned. In [5.4.4] I observed that wh-subjects bear a significant formal resemblance to their non-wh counterparts. In particular, wh-subjects are dative-marked and they must be animate. The latter fact is repeated below:

(80) Russian (Aysa Arylova, p.c.)
#Bylo čemu osvešt’ strait.
be:PAST what:DAT light:INF strait
‘There was something that could light the strait.’

Throughout this subsection, I have assumed that the dative case as well as the animacy restriction has its source in the applicative head. However, now I propose that the wh-subject is not in the same position as its non-wh counterparts, i.e. it is not in SpecApplP. There are two possible ways of resolving this paradox. One option is that it points to a (potentially fundamental) flaw in the present reasoning. The other option is to assume that the wh-subject in fact does get formally licensed by APPL, without actually entering into a thematic relation with it. The structural closeness suggests that the latter solution could be tenable (the wh-subject appears at the edge of the phrase which is selected by APPL). I leave this problem open and assume that it is not a significant

\[25\] Notice that I assume that arbitrarily interpreted PRO is a default argument-filling mechanism that is in need of no formal licensing (cf. [5.4]).

\[26\] Lena Karvovskaya (p.c.) correctly points out that (79a) can have the reading that the person benefits from his/her own existence. What is important, however, is that this reading is accidental, it is not a part of the entailment.
Interim summary

In this subsection, I discussed the puzzling phenomenon of wh-subjects in MECs, first observed in §2.2.3. I argued that the present theory in fact makes a correct prediction about their behavior, as it derives the wh/PRO generalization (73) which states that wh-subjects and PRO in MECs are in complementary distribution. The generalization is derived by the conjunction of two assumptions about the made in the present thesis, namely that wh-words, as well as the obligatorily controlled PRO are syncategorematic expressions, which map to logical lambdas. This construal makes wh-subjects and PRO indistinguishable at the relevant level of representation.

6.4.3 A note on raising MECs

In §5.4.1 I argued that raising MECs are to be analyzed as vPs. Since there is no evidence that the subject of raising MECs is thematically constrained in any way, there is no reason to postulate the APPL head. An example of a raising MEC, along with its proposed structure is given in (81) (irrelevant projections are omitted).

(81) Jana má kde plavat.
Jana has where swim:INF
‘There is some place where Jana can swim.’

The interpretation of raising MECs is fairly straightforward. The subject Jana is interpreted in situ, in SpecvP. Its movement to AgrSP is optional and meaningless. As opposed to control MECs, it seems reasonable to assume that the event variable is not existentially closed, nor otherwise quantified. It is therefore freely available for BE to use. After the wh-movement, which proceeds completely standardly (within the present account where wh-movement reduces to adjunction), the MEC (node (1)) denotes a possibility clause, i.e. an expression of type $\langle s, (e, vt) \rangle$. The MEC is selected by BE, as usual.
The final truth conditions of (81) are in 31′. The sentence is true iff there is some place such that its existence leads to the possibility to realize an event of swimming in that place such that Jana is active in that event.

Wh-subjects in raising MECs are also non-problematic. Since there is no PRO, wh-subjects do not compete for binding the highest argument variable with any other element and MECs with wh-subjects are therefore run-of-the-mill raising MECs. The only difference between MECs with wh-subjects and other types of MECs is that the wh-subject cannot raise out of the MEC and its case feature must be valued at a distance.

6.4.4 Conclusion

This section was devoted to formalizing the control relation between the matrix subject and the embedded MEC subject. I argued that control in MECs can be captured by the system of sharing argument reference within complex events, developed in §4.3.3. I argued that complications in the reference-sharing system that arise in analyses like Chierchia’s (1989b) due to the double-abstract nature of MECs (or, more generally, possibility clauses), can be avoided if one takes seriously the observations about Russian MECs made in §5.4.4. In particular, what Russian seems to suggest is that the controller of the MEC subject is not located MEC-externally, but rather MEC-internally. I argued that the control predicate is an applicative head APPL. This head functions as a sort of bridge between the MEC and the matrix context: by incorporating into the MEC-embedding BE, it mediates the embedded event-structure and the matrix event structure. This is why the participant argument of APPL can be formally licensed in the matrix clause, which in turn creates the impression that it is base-generated MEC-externally. I also discussed the issue of wh-subjects and the fact that they are in complementary distribution with the obligatory controlled PRO. I argued that this phenomenon, called here the wh/PRO generalization, receives a natural explanation under the present assumptions of control and fronted wh-word semantics. Finally, I briefly discussed the issue of raising MECs and showed that the computation of their truth conditions is straightforward.

(82) ① ⇝ λwλxλe[Swim(w)(e) ∧ Ag(e) = j ∧ Place(e) = x]
② ⇝ λwλQλe′∃x[Exist(w)(e′) ∧ θ(e′) = x ∧ ∃w′ ∈ C(w) : ∃e’’]
③ ⇝ λwλe′∃x[Exist(w)(e′) ∧ θ(e′) = x ∧ ∃w′ ∈ C(w) : ∃e’’ [Swim(w′)(e’’)(e) ∧ Ag(e) = j ∧ Place(e) = x] ∧ e = e’ → e’’]
③′ ⇝ λw∃e∃e′∃x[Exist(w)(e′) ∧ θ(e′) = x ∧ ∃w′ ∈ C(w) : ∃e’’ [Swim(w′)(e’’)(e) ∧ Ag(e) = j ∧ Place(e) = x] ∧ e = e’ → e’’]
6.5 BE and its participant argument

So far, I have attributed the headlessness of MECs to the reduction of the participant argument position from the argument structure of the MEC-selecting existence predicate BE. The situation is schematically represented in (84)—for concreteness the simplified structure of (83). For clarity, I represent the argument position reduction by a strikeout.

I argued that the argument reduction takes place by applying a sort of antipassive morpheme, designated here as ANTIPAS. This morpheme applies directly to the predicate BE, as standardly assumed for arity-changing operators, so that the representation in (84) should in fact be (85).

Now, I would like to suggest that there is an alternative analysis, in which the direct object position is filled by an empty nominal, PLACE in this case (and THING or PERSON in other cases), as in (86). For convenience, I will refer to (85) as the antipassive analysis and to (86) as the empty-object analysis.
Notice that (86) is fundamentally different from the original empty-NP analyses, such as the one of Plann (1980) (see §5.1.1 for discussion). Plann treated the empty NP as the head of the MEC, which led to a number of problems, including the ones of locality and coordination: unlike run-of-the-mill headed relative clauses, MECs are transparent for extraction and do not tolerate coordination with NPs. Under the alternative analysis in (86), however, no such problems arise. The empty nominal is not the head of the MEC: it occupies an entirely different argument slot and the MEC remains a clause, categorically speaking. Given the fact that the problems of the headed analysis can be sidestepped, the empty-object analysis in (86) is at least as plausible as the antipassive analysis in (85)—both are equally stipulative in that they depend on postulating an empty category (the arity-reducing ANTIPAS and the empty nominal PLACE, respectively).

The question therefore is: Is there any empirical ground that favors one analysis over the other?

Before I move to empirical arguments, let me spell out the truth conditions of (85) and (86), in order to show that the two cannot be distinguished semantically. The lexical entries of the two types of predicates are given below. The antipassive analysis uses the familiar predicate BE, as designed above for MECs. I relabel it as BE-ANTIPAS for clarity. The empty-object analysis, on the other hand, utilizes the non-reduced BE, call it BE-PART. The participant argument slot of BE-PART is to be filled by an intensional property \(P\)—corresponding to an indefinite NP. The reason why the argument is a property/indefinite is that MECs must eventually be interpreted as narrow scope existentials and the variable introduced by the argument must therefore be existentially closed by the BE, which would not be possible if the argument was an individual (see also footnote 27).

\[
\text{(87) BE-ANTIPAS} \rightsquigarrow \lambda w_\exists \lambda Q_\exists x_\exists e_\exists v_\exists x'[\exists x_{\text{Exist}}(w)(e') \land \theta(e')] = x \land \exists w' \in C(w) : \exists v'[\exists x'_{\text{Q}}(w)(x)(e'') \land e = e' \rightarrow e'']
\]

\[
\text{(88) BE-PART} \rightsquigarrow \lambda w_\exists \lambda Q_\exists P_\exists x_\exists e_\exists v_\exists x'[\exists x_{\text{Exist}}(w)(e') \land \theta(e')] = x \land P(w)(x) \land \exists w' \in C(w) : \exists v'[\exists x'_{\text{Q}}(w)(x)(e'') \land e = e' \rightarrow e'']
\]

The derivation of the truth conditions of (85) and (86) is given in (89) and (90) respectively. In order to save some space, I ignore the semantic derivation internal to the MEC (see §4.4.2 for the full version), as it is identical in the two analyses and therefore immaterial for the present discussion. I invite the reader to pay attention mainly to the composition of node ③ and ④ in (90)—a step that is missing in the derivation (89). In this step, the empty indefinite PLACE, represented as an intensional property, is introduced into the structure and the variable it introduces is identified with the participant argument of the

\[27\text{The reservation with respect to the empty-nominal analysis, which has to do with the existential quantification. So far, I have assumed that the existential quantification is an epiphenomenon of the antipassivization. In the empty-object analysis, the existential quantification (and the corresponding indefiniteness of the participant argument) must be stipulated, in order to capture the facts. I put this reservation aside for the moment.}\]
predicate BE-PART.

\begin{align*}
\text{(89)} & \quad \lambda w \lambda x \lambda e [\text{Go}(w)(e) \land \text{Ag}(e) = \text{sp} \land \text{Goal}(e) = x \mid \text{Place}(w)(x))] \\
\text{(90)} & \quad \lambda w \lambda Q \lambda \exists \lambda \exists x \lambda \exists \exists [\text{Exist}(w)(e') \land \theta(e') = x \land \exists w' \in C(w) : \\
& \quad \exists e''[Q(w')(e'') \land e = e' \rightarrow e'']] \\
\end{align*}

After existentially closing off the event variable, we arrive at the following two propositions: (91) expressing the truth conditions of (85) and (92) of (86). In prose, (85) is true in w iff there is a complex event e which corresponds to the extension of the state e' of being existent into the event e'' of going and there is some x such that x is in the state e' in w and it is possible (given that the circumstances are as in w) that I participate in the event e'' of going to some place x. Similarly, (86) is true in w iff there is a complex event e which corresponds to the extension of the state e' of being existent into the event e'' of going and there is some place x in w such that x is in the state e' in w and it is possible (given that the circumstances are as in w) that I participate in the event e'' of going to the place x.

\begin{align*}
\text{(91)} & \quad \lambda w \lambda \exists \exists x \lambda \exists \exists [\text{Exist}(w)(e') \land \theta(e') = x \land \exists w' \in C(w) : \\
& \quad \exists e''[\text{Go}(w')(e'') \land \text{Ag}(e'') = \text{sp} \land \text{Goal}(e'') = x \mid \text{Place}(w')(x)] \land \\
& \quad e = e' \rightarrow e''] \\
\text{(92)} & \quad \lambda w \lambda \exists \exists x \lambda \exists \exists [\text{Exist}(w)(e') \land \theta(e') = x \land \text{Place}(w)(x) \land \exists w' \in C(w) : \\
& \quad \exists e''[\text{Go}(w')(e'') \land \text{Ag}(e'') = \text{sp} \land \text{Goal}(e'') = x \mid \text{Place}(w')(x)] \land \\
& \quad e = e' \rightarrow e'']
\end{align*}

Now, notice that the only difference between (91) and (92) is the level to which the variable x, corresponding to the direct object, is restricted. In (91), it is sufficient if x is a ‘place’ in w’, i.e. in some of the worlds circumstantially accessible from w in which ‘I go to x’ is true. In (92), on the other hand, x must be a ‘place’ in both w and w’. Thus, the truth conditions (92)—the empty-object analysis—are slightly more difficult to satisfy than the ones of (91). However, it is not clear to me whether this small difference is empirically
relevant at all. To the extent that it is not, the two sets of truth conditions are identical.

If the semantics is practically indistinguishable, the question remains: Which of the two analyses is superior? It turns out that there are a number of empirical and conceptual arguments for both positions. I start with a convincing argument in favor of the empty-object analysis. In 6.5.1 I show that what was treated in Planit (1980) as headed infinitival relatives, should in fact be treated as MECs with an overtly filled participant argument position of BE. The idea is that if overt NPs can fill the position, covert ones can, too. In 6.5.2 I show that a similar situation is attested in Czech. In particular, Czech can fill the participant argument position of BE with an overt weak quantificational determiner.

In 6.5.3 I show once more the phenomenon of matching effects, pointing out that previous theories of MECs have neglected a problematic aspect of the lack of matching effects in MECs. I will suggest that the empty-object analysis provides an interesting solution to this problem. In 6.5.4 I discuss the problem of MECs as targets of passivization. In the baseline event-extension analysis, passivization is predicted not to be possible, which is indeed true for some languages (Spanish). Yet, in other languages (Russian), passivization is available, though only in a limited manner. I will show that the empty-object analysis once again provides an interesting solution to the observed pattern. In 6.5.5 I discuss a conceptual argument in favor of the empty-object analysis, drawn from the fact that many MECs exhibit polarity sensitivity. The last subsection, 6.5.6, turns to the problem of apparent MEC-modification. While in the antipassive version of the event-extension analysis, modification of MECs should be prohibited due to type-mismatch, the empty-object analysis allows for modification, by virtue of the presence of the weak NP participant. I will show that both analyses might be needed. Finally, 6.5.7 concludes the section.

6.5.1 Apparent headed relatives in Spanish

An indirect argument in favor of the empty-object analysis of MECs comes from Spanish infinitival headed relatives (IHR). As briefly pointed out in 5.1.1 Planit (1980) demonstrates that to some extent IHRs in Spanish resemble MECs. The most striking resemblances are the following two.

Just like MECs, IHRs in Spanish are highly restricted in distribution. The example in (93a) shows that IHRs are acceptable under verbs like tener ‘have’ or encontrar ‘find’, but are ruled out from the subject position, (93b), or from the object position of non-MEC-selecting verbs (not illustrated by Planit).

28In fact, this only holds of cases of direct object relativization, relativization of other positions (PPs) is not affected. I have no explanation for this and will continue discussing only the relevant type of IHRs—those that behave like MECs.
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(93)  
\[ \text{Spanish (Plann 1980:128)} \]
\[
a. \quad \text{Ana no \{tiene / pudo encontrar\} ningún libro que leer.} \\
   \quad \text{Ana NEG has / could find any:NCI book that read:INF} \\
   \quad \text{‘Ana {doesn’t have / couldn’t find} any book to read.’} \\
b. \quad \text{Un libro (* que leer) ha llegado por correo.} \\
   \quad \text{a book that read has arrived by mail} \\
   \quad \text{‘A book (to read) has arrived by mail.’} \\
\]

Secondly, Spanish IHRS must be interpreted as non-specific indefinites, as in (94a). Consequently, definite heads, (94b), and specific indefinite heads, (94c), are not allowed.

(94)  
\[ \text{Spanish (Plann 1980)} \]
\[
a. \quad \text{Ana no tiene ningún abrigo que ponerse.} \\
   \quad \text{Ana NEG has any:NCI coat that put:on:REFL} \\
   \quad \text{‘Ana doesn’t have any coat to put on.’} \\
b. \quad *\text{Ana no tiene el abrigo que ponerse.} \\
   \quad \text{Ana NEG has the coat that put:on:REFL} \\
   \quad \text{‘Ana doesn’t have the coat to put on.’} \\
c. \quad Luis Vicente (p.c.) \\
   \quad *\text{No tengo algo de que hablar?} \\
   \quad \text{NEG have:1SG something:PPi of what speak:INF} \\
   \quad \text{‘I don’t have something (particular) about which I could speak.’} \\
\]

Notice that all these facts are quite mysterious under an analysis like Plann’s (1980), where the NP is a head of the infinitival relative; it is unclear why modification by a relative clause should impose any restrictions on NPs at all. The situation is different if the empty-object analysis considered here is adopted. Suppose that what appears to be the relative head in the examples above is in fact the participant argument of BE which is for some reason capable of having an overt exponent. What properties is it expected to have? First of all, it must be non-referential, i.e. it must denote a property rather than an individual, since using the latter would lead to a type-clash. This directly accounts for the ungrammaticality of (94b) and (94c), since both definites and specific indefinites are of type e. Now, if the putative IHR structures above are indeed MECs coupled with overt participant arguments, then they are expected to have the distribution of ordinary MECs. In structural terms, they can only appear as extension arguments of the availability predicate BE. Thus, the pattern in (93) is also predicted.

Now, if the indefinite NPs above are indeed arguments of BE rather than heads of the infinitival relatives, their presence is predicted to have no effect whatsoever on the transparency of the MEC/infinitival relative: the structure should remain transparent for extraction. This prediction is borne out, as already pointed out in §5.1.1. The relevant examples are given below.
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(95) Spanish (Luis Vicente, Paula Menéndez-Benito, p.c.)
   a. ¿ Con quién ya no tienes (un sitio) dónde ir?
      ‘With whom already NEG have:2SG a place go:INF’
      ‘Which person is such that there is no longer a place where you could go with that person?’
   b. ¿ Con quién ya no tienes (ningún libro) de qué hablar?
      ‘With whom already NEG have:2SG (any:NCI book) of what speak:INF’
      ‘Which person is such that there is no longer any book that you can speak about with that person?’

Another striking prediction of the MEC-based analysis of these apparent infinitival relatives concerns modality. From the literature on English (see esp. Bhatt [2006] and the references cited therein) we know that the semantics of infinitival relatives (as well as questions) is underspecified as for the force and flavor of their modality (though see Hackl and Nissenbaum [2003], who argue that there is at least one structural factor restricting it, namely the quantificational/determiner force of the RC head). This is also the case in Spanish infinitival relatives, which are ambiguous between possibility (96a) and necessity (96b) readings.

(96) Spanish (Luis Vicente, p.c.)
   Ya no tengo ningún sitio dónde ir.
   already NEG have:1SG any:NPi place go:INF
   a. ‘I no longer have a place where I could go.’
   b. ‘I no longer have a place where I have to go.’

Under the present assumptions, the reading in (96a) can be derived according to the lines of the empty-object flavor of the event-extension analysis of MECs, in which case the NP ‘ningún sitio ‘any place’ and the “relative clause” (in fact the MEC, or a kind of the possibility clause (PC)) ‘dónde ir ‘where to go’ both occupy an argument position of its own. This structural analysis is not available to the necessity reading in (96b), which presumably requires a true relative clause structure (as usually assumed for English). For clarity, the two structural descriptions are given below:

(97) a. \[\text{BeP ningún sitio [Be' tengo [PC dónde ir]]]}\] = (96a)
   b. \[\text{BeP tengo [DP ningún sitio [RC dónde ir]]]}\] = (96b)

Now, notice that the infinitival clause in (96) is transparent for extraction under the possibility reading (96a), but it is an island (in particular a complex NP island) under the necessity reading (96b). This means that sentences like those in (95) can only have the possibility reading, but not the necessity reading. This prediction is indeed borne out:
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In conclusion, Plann’s insightful observations about the analogy of IHRs and MECs, together with the fact that IHRs are transparent for extraction, constitute quite a strong argument in favor of treating Spanish IHRs (or at least the type discussed above) as MECs with the object position of BE occupied by an overt indefinite NP. If this reasoning is correct, we have an argument that the empty-object analysis of MECs must exist for independent reasons and cannot therefore be a priori ruled out for ordinary MECs.

In what follows, I discuss a number of observations as well as conceptual arguments that are relevant for the issue of the potential empty participant argument in MECs.

6.5.2 Overt quantificational determiners in Czech MECs

The phenomenon that I would like to discuss in this subsection was already hinted at in §2.2.6. It concerns a special type of MECs in Czech in which the MEC is apparently headed by a weak quantificational determiner such as moc ‘much’, hodně ‘a lot’, tolik ‘so much’, etc. Three examples are given below; the quantificational determiners are boldfaced.

There is no clear way of incorporating such quantificational determiners in the antipassive analysis. The empty-object analysis, on the other hand, offers a rather straightforward view of these examples: the determiner can be treated as a cardinality modifier of the empty nominal generated in the participant argument position of BE. There is evidence that seems to support this view. The
first piece of evidence is given by the case form of tolík ‘so.much’ in (99c). The form of the determiner is different in structural cases (nominative, accusative) and in and oblique cases (e.g. genitive): tolík vs. tolíka. In (99c), the determiner must appear in the structural case, suggesting that it cannot be treated as a modifier of the genitive-marker wh-word čeho ‘what’. At the same time, the determiner does not behave as a head of the MEC, since the MEC remains transparent for extraction. This is illustrated in all examples in (99), since the reflexive clitics (si in (99a) and se in (99b,c)) were base-generated in the MEC and climbed into the matrix (see §5.2 for a discussion of clitic climbing out of MECs). The example below shows the same for A-bar extraction:

(100) **Czech**

O komí sí už nemáte moc co říct t2 t1?

about who REFL already NEG:have:2PL much what say:INF

‘Who is such that you there is no longer much that you can speak about that person?’

Interestingly, in the presence of the quantificational determiner, the modification, discussed in the preceding subsection, is grammatical:

(101) **V lednici už nemá moc co jíst.**

in fridge already NEG:be:IMPRS what eat

‘There isn’t much to eat in the fridge anymore.’

In sum, Czech MECs with quantificational determiners provide evidence in favor of the empty-object analysis of MECs. Similarly to Spanish, also Czech seems to be able to fill in the participant argument position with an overt expression, though not with a full NP. The exact phenomenon requires more investigation.

Before I conclude this subsection, let me repeat an interesting observation made in §2.2.6 In some cases, basically limited to MECs with the wh-word ‘what’, MECs with quantificational determiners can lead to a universal modal force. The relevant example is repeated below:

(102) **Czech**

 Máš dost co dělat, chceš-li přijít včas.

have:2SG a.lot what do:INF want:2SG-COND come:INF in time

‘There’s a lot you have to/*can do if you want to come in time.’

This state of affairs is certainly not predicted by the present analysis, no matter if the antipassive or the empty-object analysis is chosen. Unfortunately, I will have to leave this problem aside for the moment. I hope to come back to it in future research.
6.5.3 Matching effects

Another argument that I would like to discuss relates to matching effects. MECs have always been viewed in opposition to free relatives in that their wh-words are not subject to case- or category-licensing from the matrix clause (see Šuñer 1983 for the first detailed discussion of matching effects in MECs; see also §5.1.1). Since Grosu (1987), the standard account of the contrast in matching effects between FRs and MECs has been that the former but not the latter are headed by an empty nominal category. Matching effects are then assumed to be an overt reflection of licensing that empty category. Since MECs involve no empty nominal head in the first place, no matching effects are expected.

While the fact that MECs (or their wh-words) need no case from the external context is well-known and has been richly discussed, the mirror image of this problem has never been considered. In particular, how is it possible that MEC-embedding verbs, or more precisely the functional structure associated with them, can go without assigning the accusative case? In the standard minimalist case theory, the functional head responsible for case-assignment is also in need of having its uninterpretable phi-features checked. Notice that this constitutes a problem for all the previous theories of MECs: if MECs are incapable of “absorbing” case, then they should also be incapable of checking the uninterpretable phi-features of the case-assigning head and the derivation should crash. Unless something more is said or some different case theory is adopted, this problem should be added to the stack of unresolved issues of all of the previous theories (see Table 6.1 in §6.1.3).

How about the present analysis? Especially the empty-object flavor of the analysis has a particularly elegant solution to this problem: the mutual phi-case relation between the functional case-assigning head and the object can be established in a completely normal fashion, while the MEC, not being in the canonical object position at all (in addition to not being of the right syntactic category), remains unaffected by this relation, which also immediately explains the lack of case-matching effects. For clarity, I illustrate the relevant contrast between the traditional analyses and the event-extension analysis (or more precisely its empty-object flavor) below. What counts as direct object in the respective analyses is underlined. Checking is designated by the dotted line and a strikeout of the relevant features.

(103) a. Traditional analyses: Phi on v remains unchecked

\[
\text{[vP v[\text{Phi}(!)]] [B-E P \text{BE } [\text{MEC(vP/CP)} \ldots ]]} \]

b. Event-extension analysis (empty-object flavor): Phi on v checked by the empty object

\[
\text{[vP v[\text{Phi}]] [B-E P \text{NP}\text{[Case]} \text{BE } [\text{MEC(vP/CP)} \ldots ]]} \]

How about the antipassive version of the analysis? It certainly shares the virtue of having a non-stipulative explanation of the lack of matching effects. How exactly the case-phi problem is resolved depends on the formal consequences of
the application of the argument-reducing antipassive morpheme—does it only reduce the argument position or also the case-assigner associated with it? If the latter is true, then the antipassive analysis is as good as the empty-object analysis; there is no case-phi relation whatsoever. If the former is true, then the analysis has the same problem as all the previous analyses—the case-phi relation fails to be established due to the absence of a suitable argument.

6.5.4 Passivization

The process of passivization is known to be intimately related to the direct object position. In the present system, this position corresponds to the participant argument position of BE, at least in predicates which can be passivized (basically dynamic predicates). From this perspective, the event-extension analysis, regardless of its flavor, correctly predicts that an MEC should never become the target of passivization. The reason is that it is not generated in the proper participant position. That passivization of MECs is degraded was first observed by Planeri (1980) for Spanish:

(104) Spanish [Planeri1980:126]
    *A quien consultar no fue encontrado por Julia.
    A who consult:INF NEG was found by Julia
    ‘No one to consult was found by Julia.’

However, as illustrated in (105a), passivization of MEC-selecting verbs is not completely ruled out, provided that the MEC itself remains in situ. If it moves, as in (104) or (105b), the result is ungrammatical.

(105) Russian (Aysa Arylova, p.c.; adapted from Pesetsky 1982:154)
    a. Bylo kupleno čem zakusit’.
       was bought what:INSTR eat.after.drinking.vodka:INF
    b. *Čem zakusit’ bylo kupleno.
       what:INSTR eat.after.drinking.vodka:INF was bought
       ‘Something to eat after drinking vodka was bought.’

The question is what constituent the passivization in (105a) targets and, by extension, what constituent is responsible for licensing the phi-features on T. As the present theory predicts and the examples in (105b) and (104) confirm, it cannot be the MEC itself. Firstly, it does not appear in the appropriate syntactic position and secondly, it does not possess the right features, i.e. phi-features. Once again, the empty-object analysis has a straightforward answer—it is the empty indefinite object that feeds the passivization.

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29I am setting aside the English-type passivization of indirect objects (*John was given a book*) and of prepositional objects (*The bed was slept in*). To the best of my knowledge, these passivization patterns are not available in most of the languages relevant for our discussion.
6.5. BE and its participant argument

(106) a. Traditional analyses: Phi on T remains unchecked
   \[ [TP \Theta[\Phi(1)] [\nuP \nuPpass [BeP BE [MEC(vP/CP) . . .]]] \]

b. Event-extension analysis (empty-object flavor): Phi on T checked
   by the empty object
   \[ [TP \Theta[\Phi] [\nuP \nuPpass [BeP NP[CASE] BE [MEC(vP/CP) . . .]]] \]

Under the antipassive analysis, there is no object whatsoever and passivization should therefore be ruled out across the board. A potential way out for the antipassive analysis is resorting to the German-style passivization, illustrated in (107a), which requires no direct (accusative) object to be present in the structure, which is shown by (107b), the active counterpart of (107a).

(107) *German*

   a. Dem Mann wurde nicht geholfen.
      the:DAT man was NEG helped
      ‘Nobody helped the man.’ (Lit.: ‘It was not helped (to) the man.’)
   b. Niemand hat { dem /* den } Mann geholfen.
      nobody has the:DAT / the:ACC man helped
      ‘Nobody helped the man.’

In this case, an empty expletive subject steps in to guarantee the licensing of the finite T. However, this strategy does not seem to be available in Russian, as shown by (108).

(108) *Russian* (Aysa Arylova, p.c.)

   *Maša* bylo pozvoneno.
   Maša:DAT was called
   ‘Somebody called Maša.’ (Lit.: ‘It was called (to) Maša’)

Thus, there seems to be no straightforward way of fixing the wrong prediction of the antipassive analysis that passivization of MEC-selecting verbs should never be possible. The empty-object analysis clearly fares better from this perspective.

6.5.5 Polarity sensitivity

As already pointed out in §2.2.2, speakers of various languages report that some MECs sound better when in a downward entailing context, typically under direct negation. The unacceptability of some MECs in upward entailing contexts ranges from slight degradation to complete ungrammaticality, as illustrated below for Slovenian and Spanish, respectively.

(109) *Slovenian* (Marko Hladnik, p.c.)

   today NEG:have / have when write:INF thesis:GEN/ACC
   ‘Today I don’t have time to write my thesis.’
An important aspect of the polarity sensitivity is its selectivity with respect to the type of wh-word involved. As discussed in §2.2.2, wh-words usually cluster in three groups: (i) those that form acceptable MECs in any context, (ii) those that form MECs in downward entailing contexts, and (iii) those that do not form MECs. The membership of wh-words in these groups is completely language-specific and appears to be idiosyncratic. Very few scholars have attempted to make sense of this puzzling non-uniform behavior. I am only aware of the suggestion of Kondrashova (2008), who proposes to rationalize the difference between wh-words that fall into group (i) and (ii) on the one hand and (iii) on the other in terms of a restriction on the existential quantification over the variables that the wh-words introduce. In particular, she suggests that only wh-words introducing individual variables can be quantified over by BE. Concerning the difference between groups (i) and (ii), the only suggestion I am aware of is the one of Agouraki (2005), who suggests that the polarity sensitivity is a property of an empty nominal heading the MEC. Indeed, it seems more reasonable to locate polarity sensitivity in indefinite pronouns than in bare wh-words, which have very few inherent properties to begin with. Therefore, also in this respect, the empty-object analysis appears to fare slightly better when compared to the antipassive analysis; it provides an indefinite, which, one could argue, can be an NPI and hence the locus of what appears to be the polarity sensitivity of MECs or wh-words in them.

6.5.6 Modification

In §2.2.1 I observed that languages differ in the availability of what appears to be MEC-modification. The original example comes from Izvorski (1998) and is repeated in (110). In this example, the phrase deˇzuren po tova vreme ‘on duty at this time’ appears to modify the the MEC koj da ti pomogne ‘who can help you’.

(110) a. Bulgarian (Izvorski 1998:163)
Edva-li ima koj da ti pomogne deˇzuren po tova
hardly have who SBJ you:DAT help on duty at this
vreme.
time
‘There is hardly anyone who can help you who is on duty at this time.’

Similar examples were reported to be acceptable in other languages, such as French or Spanish.
6.5. **BE and its participant argument**

(111)  

\[ \text{Il y a de quoi manger dans le frigo.} \]
\[ \text{it LOC have:3SG of what eat:INF in the fridge} \]
\[ \text{‘There is something that one can eat in the fridge.’} \]

b. *Spanish* (Cintia Widmann, p.c.)  
\[ \text{En la heladera tengo qué comer.} \]
\[ \text{in the fridge have:1SG what eat:INF} \]
\[ \text{‘There is something to eat in the fridge.’} \]

How are these examples to be analyzed? Clearly, the baseline event-extension analysis proposed in Chapter 4 will have a hard time accounting for the phenomenon of MEC-modification. The reason is that MECs are of the wrong semantic type. They would have to be of type \( \langle e, t \rangle \) (or \( \langle s, et \rangle \) in intensional systems) in order to be modifiable. Again, the empty-object analysis fares much better in this respect than the baseline antipassive analysis. The reason is that it provides a nominal argument, which is of type \( \langle s, et \rangle \), and therefore can be easily modified. Notice that the truth conditions match the intuitions of the speakers: ‘there is [something such that it is in the fridge] and I can eat it.’

Interestingly, as already observed in §2.2.1, not all languages allow for such modification. See the two examples below, which correspond to (110) and (111), respectively. (112a) has two readings, neither of which is the one that Izvorski reports for (111a): either the putative small clause predicate ve službě ‘on duty’ is construed as a modifier of the predicate pomoci ti ‘help you’ or as a depictive related to ti ‘you’, the object of ‘help’. Similarly, (112b) only has the absurd reading under which v lednici ‘in the fridge’ modifies the predicate jíst ‘eat (something)’.

(112)  

Czech

a. Sotva ti má kdo pomoci teď ve službě.  
\[ \text{hardly you:DAT has who:NOM help:INF now on duty} \]
\[ \text{‘There is hardly anyone who can [help you on duty].’} \]
\[ \text{‘There is hardly anyone who can help you while you’re on duty at this time.’} \]
\[ *\text{‘There is hardly anyone who can help you who is on duty at this time.’} \]

b. Mám v lednici co jíst.  
\[ \text{have:1SG in fridge what eat:INF} \]
\[ \text{‘There is something that I can eat while sitting in the fridge.’} \]
\[ *\text{‘There is something in the fridge that I can eat.’} \]

This pattern is replicated in some other languages, too, as illustrated by the following Slovenian and Polish examples.
(113) a. *Slovenian* (Marko Hladnik, p.c.)

Imam kaj jesti v hladilniku.

‘There is something that I can eat while sitting in the fridge.’

*‘There is something in the fridge that I can eat.’

b. *Polish* (Krzysztof Migdalski, p.c.)

Mam co jeść w lodówce.

‘There is something that I can eat while sitting in the fridge.’

*‘There is something in the fridge that I can eat.’

These facts in turn suggest that also the antipassive analysis is needed. In case of Czech, Slovenian, and other languages, it makes the correct prediction: there is no indefinite NP or another property-denoting expression in these constructions which could be modified. The only possible modification is one of the event expressed by the MEC, which gives rise to the pragmatically odd meaning, under which the sentences in (112b) and (113) are true if the event of eating takes place in the fridge.

### 6.5.7 Conclusion

I started this section by showing that there is an alternative structural description of MECs, which is minimally different from the one introduced in Chapter 4. While in the original proposal, the participant argument position of the MEC-embedding predicate BE is completely removed, thus accounting for the absence of any nominal “heading” the MEC, the alternative proposal has it that the argument position is available and is filled with a covert indefinite NP argument. After showing that these two alternatives, called here the antipassive analysis and the empty-object analysis, respectively, are truth-conditionally indistinguishable, I turned to a detailed discussion of a number of phenomena in order to determine which of the alternatives is preferable. Even though most of the arguments were indirect, they seem to have confirmed that the empty-object analysis is independently needed, at least for cases in which the participant argument position is overtly filled (in which case it is really an “object analysis”). On the other hand, there are also arguments suggesting that the antipassive analysis had better not be abandoned altogether. In summary, both of the two minimally different variants of the event-extension analysis are needed and therefore should co-exist, side by side. It remains to be determined whether the value of the “empty-object parameter” is fixed once and for all for a particular language or whether both values should be freely available to languages. The evidence tentatively suggests the latter. For instance, Czech generally follows the antipassive pattern, but as shown in §6.5.2, it allows, somewhat exceptionally, for the empty-object pattern as well, just in case the object position is filled by a weak quantificational determiner.

Allowing the co-existence of the two argument structure patterns might
at first seem like a significant weakening of the initial position, taken up in
Chapter 4 and a consequent loss of predictive power. On the other hand, one
could argue that this flexibility in fact follows from the general approach to
the existence predicate BE taken in this thesis. I have argued that the exis-
tence predicate is a “real” predicate in the sense that it has argument structure
of its own. It is well-known that the argument structure properties of various
predicates are subject to a good deal of variation, which might but need not be
morphologically marked. Among the processes affecting argument are passiviza-
tion (The book was read), medio-passivization (The book reads well), argument
drop (I read), argument incorporation, or anti-passivization. It is therefore not
surprising that one finds more flavors of the existence predicate BE as well.
The discussion in this section has further extended the argument structure ty-
ology of the existence predicate BE. The types can be classified according to
three parameters considered so far: (i) the presence/absence of the direct object
(participant argument) position (+DO), corresponding to whether BE is anti-
passivized, (ii) the presence/absence of the indefiniteness requirement imposed
on that object (+IR), corresponding to the semantic type of the direct ob-
ject required by BE (property vs. individual), and (iii) the presence/absence of
the extension argument position, accommodating the possibility clause (+PC),
either in the form of the so-called “purpose clause”, or the MEC. Various com-
binations of the parameter values give rise to at least six types of existence
predicates: (114a) represents a predicate that states the existence of individu-
als, imposing no indefiniteness restriction on its argument (which is of type $e$,
accordingly); (114b) is the classical English-type existential, which requires an
indefinite argument (type $⟨e, t⟩$); (114c) is the predicate that is used to select
English “purpose clauses” (see §4.3.1 for discussion); (114d) is a version of the
same predicate, which, in addition, imposes an indefiniteness requirement on its
object (see §6.5.1). Finally, (114e) and (114f) are the types that represent the
canonical “headless” MECS, where the the object (the participant argument) is
missing due to some sort of “emptiness” requirement (the empty-object analy-
sis discussed in this section), or where it is removed from the structure by the
antipassive morpheme (the antipassive analysis).

\[(114) \]

\begin{itemize}
\item[a.] $+DO, +DE, -PC$ (e.g. Czech) \\
\hspace{1cm} $[BeP ARG BE]$ \\
\item[b.] $+DO, +DE, -PC$ (e.g. English) \\
\hspace{1cm} $[BeP ARG-indef BE]$ \\
\item[c.] $+DO, -DE, +PC$ (e.g. English) \\
\hspace{1cm} $[BeP ARG [Be^c BE [PC . . .]]]$ \\
\item[d.] $+DO, +DE, +PC$ (e.g. Spanish) \\
\hspace{1cm} $[BeP ARG-indef [Be^c BE [PC/MEC . . .]]]$ \\
\item[e.] $+DO, +DE, +PC$ (e.g. Spanish) \\
\hspace{1cm} $[BeP ARG-empty [Be^c BE [MEC . . .]]]$ \\
\item[f.] $-DO, +DE, +PC$ (e.g. Czech) \\
\hspace{1cm} $[BeP BE [MEC . . .]]$
\end{itemize}
Clearly, the typological picture of the argument structure of BE that I have just offered raises more questions than it provides answers: What determines the presence or absence of various argument structure patterns in particular languages? Are more patterns (i.e. other combinations of the three parameters than the six listed above) attested? If not, why? For instance, why should the putative empty object in MECs (pattern (114e)) have to be indefinite? (In other words, why are there no definite MECs?—a question that does not arise in the antipassive pattern (114f), where the reduction of the argument position leads to the existential quantification over the variable that corresponds to the argument; see §4.4.) Whether the answers to these and similar questions can be systematically predicted or whether they will have to be stipulated in terms of lexical accidents remains to be determined in future research.

6.6 Summary

This chapter was devoted to a further exploration of the predictions and consequences of the event-extension analysis. I hope to have shown that its explanatory potential is very good. As opposed to previous analyses, it accounts for all the properties that have been considered essential for MECs, including their very limited distribution and modality. This comparison was carried out in §6.1 and §6.2. The only phenomenon not accounted for by the analysis as it was designed in Chapter 4 is the phenomenon of MECs with multiple wh-words. In §6.3 I showed that this shortcoming can be fixed quite easily without the loss of generality. A semantic elaboration of the syntactic discussion in §5.4, i.e. the discussion of raising and in particular control, was provided in §6.4. The challenge for the theory of control presented by MECs was first discussed by Chierchia (1989b) for purpose clauses. The problem is that MECs (and possibility clauses in general) generally contain two gaps whose reference needs to be identified with arguments in the matrix. Instead of introducing complications into the argument-sharing system proposed in §4.3, I used the Russian evidence put forth in §5.4.4 and argued that control in MECs takes place even before the MEC itself is complete. In that way, the problem of dealing with two gaps at the same time is avoided. The last section, §6.5, concentrated on the problem of the participant argument of the MEC-embedding BE. I relativized the original proposal according to which the argument slot is completely removed from the argument structure of the verb and hypothesized that it is present and filled with an empty nominal. The evidence put forth in that section supports an ambivalent position—both empty objects and and gaps in the argument structure might be needed in order to account for the facts.