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Operator Movements in Embedded Clauses

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Operator Movements in Embedded Clauses

Abstract

The syntactic structure and semantic interpretation of embedded clauses has been a topic widely discussed in recent literature. There are three distinct threads of discussion that, to the best of my knowledge, have not been brought together and treated in a systematic fashion to date.

One line of research, known under the umbrella term "CP/DP parallelism", deals with analogous syntactic effects observed in the clausal and nominal domains. Discussions on this subject usually focus on external syntax, and largely ignore variation among clause types. Meanwhile, research done on the syntax of object clauses concentrates primarily on how to characterize and formalize the different classes of embedded clauses (dating back to the introduction of the concept of factivity into the discussion in the early 70's), noting in passing that one but not the other type of object clause actually shows nominal properties.

We are led to suppose that, if there are two syntactically different kinds of object clauses with one of these being 'nominal' in some sense, the classic CP/DP parallelism can be interpreted in two ways. Either it is the case that one but not the other clause type shows a parallel with nominal expressions (with the other not sharing the relevant properties with DPs), or it may well be – as I will argue in this work – that DPs are similarly split into two categories, and the CP/DP parallelism is in fact complete, with CP1 behaving analogously with DP1, and CP2 showing similarities to DP2. The question then becomes what the dividing property is for both categories, a property that is applicable to both CPs and DPs. Note that the classically used concepts of factivity, assertion, etc. will not be suitable as they do not readily translate into the nominal domain. I will present an overview of reported and novel data as relates to this issue, and conclude that the property dividing both CPs and DPs into two syntactically distinct classes is referentiality. I present arguments that one class of object clauses (formerly referred to as factive, given or non-asserted clauses) pattern with referring expressions cross-linguistically, and referential DPs also display some of the properties often attributed to this class of CPs (e.g. weak islandhood). While referentiality is not a concept that is commonly applied to clauses, I provide definitions to show that this makes sense semantically as well, and in fact assuming that referentiality is the core property of one class of CPs eliminates a number of empirical difficulties and counterexamples faced by accounts appealing to factivity or givenness.

A third, seemingly unrelated issue is the derivation of temporal adverbial clauses. This topic, although dealt with in a few relatively well-known works, has somehow not received much attention in the literature. One idea that has been around for a couple of decades is that some adverbial clauses are derived via operator movement, essentially (although this is not always explicitly stated) through a form of relativization. I will claim (in accord with some of the literature, see references below) that we need to distinguish two kinds of operator movement: long movement of a temporal operator from inside VP, and short movement of an event operator originating just outside TP. The second of these is what is referred to as "event relativization", and I

claim that the referential CPs discussed in the realm of object clauses are an instantiation of this derivation. The diagnostics for this derivation include islandhood and the absence of main clause phenomena such as certain kinds of topicalization, and these are shown to derive from intervention with the posited operator movement. With this, I depart from the usual assumption that the syntactic difference between object clause types comes down to complexity in the form of truncation or extended projections of CP. Rather, referential CPs are treated as one subclass of CPs that are derived via this short operator movement, and include also conditionals and some temporal adverbial clauses. This, naturally, has the implication that if we are to posit a structural parallel between referential CPs and DPs, we are led to conclude that referential DPs must also be derived through operator movement on their left periphery. I show that this is not far-fetched, and can be supported with extraction data suggesting that referential DPs are also subject to intervention effects.

The discussion is organized as follows.

Chapter 1 deals with object clauses. After an introduction, I present an overview of some crucial theoretical points and data observations from the literature. I focus on the insights and data that turn out to be important for my account, and discuss how each thread of reasoning can be woven into the analysis I argue for here. Then I go on to present arguments for the view that the dividing line between the two types of complement clauses is based on referentiality. I show that a diverse set of properties of referential CPs (RCP) falls out naturally if we assume that they are referring expressions, and contrast the effects of factivity, givenness and referentiality to show that this is in fact the correct generalization. I present the technicalities of the event relative analysis of RCPs, and tie this in with the CP/DP parallelism and extraction issues. The last section in this chapter presents the conclusions, and relates the outcome to the topic of Chapter 2, namely event relatives in the temporal domain.

In Chapter 2, I focus on diagnostics and syntactic/semantic effects associated with P-elements that introduce clauses derived via long operator movement and ones introducing event relatives in Hungarian. The two Ps that turn out to be the most interesting from this perspective are the suffix *-ig* 'until/for/while' and the postposition *óta* 'since'. I look at the properties of *-ig* in detail, with special attention to its interaction with negation and other operators, as well as the bearings of the Hungarian facts on the 'until-debate'. Having established the existence of two types of temporal relativization in Hungarian, I turn to data from English to show that the distinctions drawn seem to be relevant there as well. In particular, I discuss long-distance dependencies in temporal adverbial clauses and outline the relevance of the findings of this chapter to the said construction in English, especially with respect to the role of specificity in the movement of the relative operator out of a weak island. The two relativization strategies demonstrated for Hungarian are attested in English as well. Finally, in the last section, I tie in the results of this chapter with the outcomes of Chapter 1, and provide a paradigm of clauses derived by operator movement.

Chapter 1: Object clauses and referentiality

1 Introduction and background

This chapter focuses on the syntax and semantics of finite object clauses. The debate surrounding the construction (exemplified in (1)) goes back to the classic paper "Fact" (Kiparsky & Kiparsky (1970)) where it was first suggested that a semantic property (i.e. *factivity*[1]) of the main verb is reflected directly in the syntactic structure of the complement clause.

(1) a. Vasya thinks (that) Charlie keeps eating his food. (non-factive)
b. Vasya resents that Charlie keeps eating his food. (factive)

The seminal paper (henceforth *K&K*) argues that factive verbs take a more complex complement than non-factives do, and attributes this complexity to the added element of presupposition that they enforce on the embedded clause. On the K&K account, the implementation involves the embedded clause being subordinated to a nominal head, which roughly corresponds to the noun "fact" and yields the presupposition. This view, the canonized analysis until recently, has been challenged by various authors and from various angles (more on this below, in Section 2).

One objection has been that the syntactic and semantic effects associated with the factive/non-factive distinction by K&K and others to follow do not split neatly along the factivity line. Authors arguing against (or for a refinement of) the Kiparskian line have brought additional concepts such as contextual givenness/novelty, prosodic prominence, assertion, speaker orientation, and most recently referentiality to the discussion. As noted in Heycock (2005), there are a lot of concepts on the table, some of which clearly overlap with each other, but there is also a lot of confusion with respect to the relationship among these concepts. In particular, while there are a lot of intriguing data observations in the literature, there is no consensus on which effects are primitive and which ones are derived, or which module of grammar (syntax, semantics, pragmatics, phonology) each observation belongs to.

Another line of debate has focused on the syntactic implementation of the idea that complement clauses come in two basic varieties. Irrespective of what the dividing line is (whether it is factivity or something else entirely) authors seem to agree that we need to differentiate two clausal structures. Apart from a handful of exceptions, analyses usually define this difference in terms of complexity, additional functional structure that encodes some semantic element that the author considers 'marked'. In the Kiparskian camp, this marked

[1] 'Factivity' is crucially a property of the matrix verb that selects a sentential complement. The property imposed on the complement itself is 'presupposition', meaning that in (1b) (unlike in (1a)) the speaker assumes the embedded proposition to be true, a stance that is not necessarily held by the matrix subject (hence common factive verbs such as 'deny' or 'contest'). This difference is often muddled by the use of 1st person subjects in examples in the literature – so I have changed these throughout when borrowing example sentences.

element is *presupposition* or *givenness*. In the anti-Kiparskian camp, it is *assertion*, *speaker orientation*, or *illocutionary force.* The additional structure is then made responsible in one way or another for the syntactic effects that differentiate the two clause types: extraction possibilities, long-distance licensing and scope, various kinds of constrained movements into the left periphery, the appearance of 'extra' functional elements, and so on. All of these analyses share the intuition that the syntactic effects observed in the two kinds of complement clauses are in direct correspondence with their interpretation but there is no agreement as to whether this semantic difference stems from the selecting verb or the clause itself, and whether the syntactic difference is external to the complement CP (as in: some functional shell, or point of attachment) or internal to it (as in: the CP's left periphery).

In what follows, I hope to add to this debate along the following lines. I assume (in accordance with much of the literature since K&K) that there are in fact two kinds of finite clauses but argue that these are differentiated by the property of *referentiality* (as first suggested in de Cuba & Ürögdi 2009a) rather than factivity or givenness (as proposed in competing accounts). With this, I join authors who seek to derive the syntax of complement clauses from the properties of the CP itself rather than from the lexical semantics of the selecting verb. My argumentation is based on the assumption that *factivity* belongs in the lexical semantics of embedding verbs, which enforces truth-conditional presupposition on the verb's complement. It does not, however, influence syntax directly. It will turn out that some syntactic objects – due to a conflicting interpretational requirement – are not suitable complements to factive verbs. This effect, I argue, is a derived effect as there is no direct correlation (i.e., derivational connection) between the verb's factivity and the clause type of the complement. Meanwhile, *givenness*/*novelty* is contextually defined, a pragmatic notion that is also not expected to interact with syntax directly. Once again, there may be syntactic objects or positions that, indirectly, exclude particular pragmatics but the connection is not a direct one (i.e., contextual givenness does not determine syntactic structure). I show arguments from syntax, semantics and prosody to differentiate the effects of referentiality from those of factivity, givenness and focus. The basic testing ground is Hungarian and English but a number of pieces of evidence come from other languages as well.

The property of referentiality is well known to be relevant in a number of different syntactic processes, including cases where referential phrases are subject to different movement constraints than non-referential ones; various restrictions on extraction out of referential domains; association with pronominal elements (clitics, expletives); interactions with scope-taking elements; and so on. In support of the claim that complement clauses are differentiated by the property of referentiality, I show that *referential CPs (RCP)* (of which factive embedded clauses are a subset) do in fact pattern with referring expressions cross-linguistically. I suggest that the reason much of the literature has assumed that factive embedded clauses (a misclassification to begin with) are basically nominal expressions is that they share with DPs a property that has mostly been ascribed to nominals, namely referentiality. Meanwhile, *non-referential CPs (NCP)* (which encode speech acts) turn out not to share the relevant properties with referring expressions, although they are no more and no less 'nominal'. For now, I will define RCPs and NCPs as follows (adapted from de Cuba & Ürögdi 2009a):

(2) **Referential CP (RCP):** a referential entity that denotes a proposition without illocutionary force (a sentence radical in the sense of Krifka 1999); a semantic object encoding a proposition/question which the complex sentence (the embedding context) positions in the dynamics of conversation. As such, an RCP in itself does not constitute a speech act and cannot be used as an utterance.

Non-referential CP (NCP): a non-referential semantic object denoting a speech act with illocutionary force, i.e., one which involves a conversational move. An NCP can thus be a matrix sentence, or an embedded clause subject to various restrictions.

In some respects, the definition offered above is similar to that proposed by Melvold (1986): "Complements of non-factive predicates represent propositions, while complements of factive predicates represent presuppositions. Expressions which denote a proposition have as their extension a truth value. Expressions denoting a presupposition, on the other hand, are definite descriptions of events. They are neither true nor false; rather they refer or fail to refer to an object in the world, namely an event. Thus one important semantic difference between the clausal complements of non-factive and factive predicates is that only the latter are referential." While I agree with Melvold in claiming that factive complements (and other RCPs) are referential entities, I would argue that these propositions still carry truth value – this is exactly what makes them propositional and a suitable complement to attitude verbs, for example. Thus, truth value is not what separates RCPs from NCPs – on the account I propose here, the missing ingredient in an RCP is illocutionary force. There have been many allusions to similar definitions in the literature but, in my view, these have not been formal or precise in any way. In fact, K&K already suggest in a tentative final section of their paper that "truth and specific reference [may be] reducible to the same concept", citing Frege's idea that the reference of a sentence is its truth value. While this does not appear to be intuitively correct, we can say that the reference of a sentence is more or less its truth conditions (i.e., the conditions determining the state of affairs which make the sentence true), which is, I think, what is meant by Kallulli (2006) when she mentions Frege's 'Gedanke' in this context. Nevertheless, the most applicable formulation comes from Krifka (1999, 2001) (adopted also by McCloskey (2005)), who separates sentences into illocutionary force and the 'sentence radical', the latter being either a truth-conditional expression (a proposition whose truth can be evaluated) or potentially a referential expression (as in exclamations, for example). So, on this view, a sentence radical is already a fully formed proposition but it does not yet contain any indication of the purpose for which it will be used in conversational dynamics. As such, sentence radicals are easily embeddable since they themselves involve no operation that affects the conversation in any way. Rather, as we will see later, it is the embedding context that carries this information. The embedding of speech acts, meanwhile, is highly restricted. (For example, as K&K already point out, sentential subjects tend not to allow a 'non-factive' – i.e., non-referential – interpretation.) The same split carries over to questions in a trivial way: some predicates (such as *wonder*, for example) embed true question acts while others (such as *know*) do not. The latter type of verb embeds a sentence radical that happens to contain a variable. These are

questions that are sometimes referred to as 'resolved questions': while the answer is not necessarily known to all discourse participants, the context in which the embedded question appears does not carry instructions for filling in the variable. For details of this with many examples, I refer the reader to Krifka (1999, 2001) as well as McCloskey's discussion thereof (to which I return below). In short, in what follows I will take the reference of an RCP to be such a sentence radical (although I will offer further comments on this issue when I discuss the difference between the two clause types below, in Section 3.1).

The core data come from Hungarian (some of which has been reported in de Cuba & Ürögdi 2009a), where a clausal expletive associates with complement clauses, and appears in the matrix clause in positions to which the complement itself 'should' but cannot move. The expletive appears both with embedded statements and questions, and both the conditions on its appearance and its interpretation are clearly conditioned by the referentiality of the clause with which it associates.

Relating the restrictions observed in certain embedding contexts to the referentiality of the CP itself is attractive because not only does this account divorce these effects from the selecting verb completely, but it also makes reference to a property that has been shown to be relevant in syntax in other realms. Unlike 'assertion', 'presupposition' or even 'givenness', referentiality is neither a property that is limited to the clausal domain, nor one that needs to be defined with reference to lexical semantics or discourse factors. That said, it is far from uncontroversial that a) referentiality is a syntactic feature or a property that is otherwise encoded in syntax, and b) referentiality is relevant in domains other than the nominal one. In what follows, I will argue that the property of referentiality is not limited to nominals but applies to CPs in the same way. The central idea is that referential CPs are event relatives (derived by short operator movement) as opposed to speech acts. Event relatives have been discussed by a few authors in the temporal domain (among them, Lipták 2005, Haegeman 2007, and Ürögdi 2009). A rough definition and schematic structure is as follows.

(3) a. **Event relative:**

A relative clause where the relativized constituent is TP, and as such, the relative clause refers to the entire eventuality denoted by the TP. Event relativization is a syntactic operation that creates a referential proposition from an event, which can now be used as argument.

b. **Structure** (adapted from Haegeman 2007)**:**

$[_{CP}\ OP_i\ C\ \ldots\ [_{XP}\ t_i\ [_{TP}\ \ldots\ ]]]$

Event relativization has been formalized in a number of ways, and here I will argue for a derivation along the lines of (3b) (although I return to a more precise formulation in Section 4.4). The idea is that there is an event variable housed in a functional projection just outside TP, with which TP (=the event) stands in a predicational relationship. This event operator moves up to Spec,CP in event relativization. There have been other implementations of event relativization in the literature (notably, Lipták (2005), for whom the moved element is a Rel head, namely a relative determiner) and I will reflect on the issue of head vs. phrasal

movement in Section 4.4. For now, I will assume that some version of Haegeman (2007 and subsequent work) is correct, and the event operator is phrasal and housed in some functional projection dominating TP from where it raises to Spec,CP in the standard manner. The nature of XP here is not very important for our purposes – I discuss its properties in 4.4 also.

The adaptation of this concept to object clauses and the structural implementation are inspired by some fairly recent but largely unrelated works. Event relativization is discussed in the realm of temporal embedding (and adverbial clauses in general) by Lipták 2005 and Ürögdi 2009 among others (see references cited by these works and in Chapter 2 here). The generally held view is that event relatives are a structural alternative to nominalization, since the same semantics is derived via nominalization in some languages like Hindi and Basque, for example. This is interesting because factive embedded clauses (or rather, what I refer to as RCPs here) have been noted to show a number of parallels with, and to a certain extent alternate with, nominal phrases, a fact that has been taken to suggest structural parallels between nominal expressions and these clauses (more or less literally) by various authors. In K&K's work, the nominal nature of factive clauses was assumed to result from an actual nominal involved in their structure. A more recent proposal by Haegeman & Ürögdi (2010a,b,c), however, argues that what Haegeman refers to in earlier work as factive embedded clauses are derived via operator movement (in essence, event relativization). This movement creates an intervention effect that is called upon to explain earlier observations by Haegeman (2006) (among others) related to the unavailability of certain (moved or base-generated) elements in the left periphery of such clauses. This 'truncation' of the left periphery, a stipulation in earlier works that was loosely related to 'speaker orientation' (i.e., the idea that factive embedded clauses do not feature their own 'speaker' the way that non-factives do) now receives a principled explanation. While I am sympathetic to the operator movement account and adopt the basic idea, there are two central issues that require qualification. One, what is it in 'factive' embedded clauses that is relevant for the operator movement at hand? More specifically, why should these clauses exhibit an operator chain that is otherwise attested only in a narrow subset of relative clauses? And two, how can the account be made compatible with all the counterexamples to factivity-based analyses that have been brought up in the literature? The answer to the questions I want to suggest is that Haegeman's account needs to be refined somewhat to accommodate the relevant data and to make the account more general – and the missing link is the relationship between the operator movement suggested and the property of referentiality. I argue that a) giving up the factivity distinction in favor of referentiality, and b) tying the T-to-C operator movement she suggests to other event relatives on one side and referential nominal expressions on the other side eliminates a number of stipulations from her account.[2] The refinement of the Op movement account actually predicts some of the data that have been problematic for Haegeman (e.g. the difference in the availability of aboutness topics /acceptable/ and contrastive topics /out/ in factive embedded clauses, and the sudden reappearance of contrastive topics when the clause itself is

[2] I will also offer a refinement of Haegeman's account with respect to the contrast between temporal relative clauses and event relatives (which involve short operator movement) in Chapter 2.

contrastive[3], or the different compatibility of 'event-related' and non-event-related adverbials; intervention effects with various elements like focus or negation; etc.).

Deriving referentiality effects from operator movement has a number of advantages. One is the above mentioned tightening of the definition of the intervention effects we observe in certain embedding contexts. Another is that we can draw upon related accounts from other domains to show that positing operator movement in some phrases but not in others of a certain category (in this case, CP) is not unprecedented. In particular, Campbell (1996) argues for an operator chain in the left periphery of referential DPs that involves a specificity operator in Spec,DP binding a variable in the subject position of a small clause containing the NP as its predicate. While worded differently, this structure is more or less the same as the one proposed here for CPs (see (3b)). Picking up on Campbell's idea coupled with a suggestion in den Dikken's (2006) 'Phase Extension', I show that RCPs pattern with referential DPs not only externally but also internally. In a brief section on the internal structure of the DP, den Dikken suggests that referential DPs involve N-to-D movement, rendering them phases – while non-referential DPs are not inherently phasal since they do not involve predication. The common thread in these accounts is clear: all of them seek to derive referentiality as a form of movement, positing a layer of predication within the relativized phrase. The parallelism between referential DPs and CPs, a desirable outcome given the long-standing intuition that these categories are somehow inherently similar, goes a long way towards explaining the syntactic independence of RCPs that mirrors that of referential DPs (e.g. movement options and extraction possibilities, i.e. weak islandhood). This line of reasoning has the consequence that, given den Dikken's dynamic phase theory, RCPs are phases while NCPs (speech acts) are not, unless they are the root clause. This can shed new light on the relative ease of extraction from non-referential embedded clauses: instead of the 'escape hatch' type of analysis (cf. de Cuba (2007)), it makes direct extraction possible out of NCPs. Meanwhile, extraction out of phasal CPs (RCPs) must proceed through Spec,CP, which enforces certain restrictions on this movement.

Picking up on this last point, in the final section I also discuss the issue of extraction. The island effects witnessed in object clauses are well-known, although there is absolutely no consensus whether they are to be attributed to syntax, semantics, or both (in case these two are in one-to-one correspondence with one another). This is not surprising since weak islands in general are under debate precisely from this perspective. Syntactic accounts have appealed either to a type of 'barrier' (e.g. K&K's assimilation of factive islands with complex NP islands) or to an 'escape hatch' (e.g. de Cuba's (2007) *c*P-shell, whose specifier allows elements to extract that would otherwise be trapped inside CP). Meanwhile, semantic analyses (e.g. Szabolcsi & Zwarts 1993) have suggested that weak islands are generally semantic domains running into difficulties of interpretation. In any event, if we exile 'factivity' into the domain of lexical semantics, it is hard to imagine a principled, compositional account that would derive these island effects from the factivity of the selecting verb. Even a semantic account would need to make reference to the properties of the domain of extraction, rather than a feature of the main verb. With this in mind, I argue that extraction difficulties out

[3] Cf. Bianchi & Frascarelli (2009) for discussion of this issue; see also below.

of RCPs constitute a subcase of the more general restriction on variables inside referring expressions, which is syntactically derived from the operator chain in the left periphery of the relevant expressions.[4] A re-examination of well-known facts from Fiengo & Higginbotham (1981) yields the result that the contrast the authors observed with respect to extraction out of definite vs. indefinite DPs comes down to referentiality rather than definiteness, and that the referentiality of the extractee also plays a part, meaning that the problematic DPs are weak islands (cf. also Melvold (1986) for an account appealing to definiteness).

The chapter is organized as follows. Section 2 presents an overview of some crucial theoretical points and data observations from the literature. Rather than give a full overview of the works on this topic (for which I refer the reader to Heycock (2005) and de Cuba (2007)) I focus on the insights and data that turn out to be important for my account, and discuss how each thread of reasoning can be woven into the analysis I argue for here. Section 3 presents arguments for the view that the dividing line between the two types of complement clauses is based on referentiality. I show that a diverse set of properties of RCPs falls out naturally if we assume that they are referring expressions, and contrast the effects of factivity, givenness and referentiality to show that this is in fact the correct generalization. Section 4 outlines the event relative analysis of RCPs, and ties this in with the CP/DP parallelism and extraction issues. Section 5 presents the conclusions, and relates the outcome of this chapter to the topic of Chapter 2, namely event relatives in the temporal domain.

2 Literature overview

Since the seminal K&K paper, the debate on the structure and interpretation of embedded clauses has more or less taken as a given the idea that clauses come in two varieties, and that these are differentiated by their interpretation, which in turn yields different syntactic structures for them. Neither tenet of this hypothesis is trivial. First, it is far from obvious what counts as a relevant "semantic property" since there exist many kinds of interpretive distinctions that are pragmatic in nature and are not expected to play a part in semantic representation since they do not correlate with truth-conditional distinctions. Such a contrast can be found, for example, between the notions of "presupposition" and "givenness": while the first is normally taken to be relevant for the sentence's truth-conditions, the second is a pragmatic notion that is discourse-defined. (More on this below.) Second, even if we identify the right (set of) semantic feature(s), it is a hypothesis (rather than a solid fact) that semantics maps onto syntactic structure one-to-one. For example, the semantically

[4] This brings my account close to Melvold's (1986) observation that factive islands are similar in strength to wh-islands – on her account, the violation results from an iota operator on the left periphery of both definite DPs and factive complements binding the event position within the phrase and blocking operator movement to the left periphery. Melvold does not differentiate between definiteness and referentiality in this respect, and relies heavily on lexical semantics in predicting complementation patterns. Also, as mentioned above, her account assigns no truth value to factive complements, which does not seem to yield the right semantics. Nevertheless, Melvold's paper is the first to bring referentiality (or definiteness) to the discussion of clausal complementation, and the first to allude to the fact that the 'nominal' nature of factive complements could simply be this property. I return to Melvold's analysis in Section 4.4, in the discussion of DP/CP parallels.

relevant feature of factivity has been argued to be active in syntax (by K&K and much work to follow) but there have also been significant analyses of factive islands (most notably Szabolcsi & Zwarts 1993) that make semantics entirely responsible for the difficulty of extraction from a factive complement. In what follows, I start out by sketching the K&K argumentation for the two hypotheses that have been more or less canonized since their paper: a) that factivity, as a basic semantic property of embedding verbs, is the type of property that (unlike strictly lexico-semantic properties) is relevant for distinguishing the two kinds of complement clauses that these verbs can select, and b) that this semantic property maps onto syntactic structure *directly*, and therefore we should expect factivity to determine syntactic structure. Since I will argue against both hypotheses here, it is important to understand where they come from.

Once it is established that there are in fact two types of complement clauses that are differentiated by semantics, syntax or both, it becomes interesting to investigate where the dividing line lies and how it manifests itself. With respect to the dividing property, there have been a number of refinements offered of the K&K account. It has been observed that factive complements bear some kind of relationship to nominal expressions, that they are more often than not discourse given, and that they behave similarly to relative clauses in some respects. Syntactic implementations have, in turn, been advanced to encode these intuitions. Discussing some of the more significant works from the literature, I go through these ideas one by one to show what core data they have been based on, what the author concluded from them, and what the actual consequence of each observation is. Since every account is based on certain assumptions, I attempt to abstract away from these and take the author's insight as a starting point for compiling the facts that an account such as this one must cover.

2.1 Two types of clauses (Kiparsky & Kiparsky 1970)

The idea that there are two types of complement clauses stems from observations in K&K, who noted that embedding constructions show two distinct patterns, and that this contrast appears to correlate with the factivity of the main verb. Their starting point is that there are two classes of predicates, those that presuppose the truth of their complement (factives) and those that do not (non-factives).

(4) a. ***Factives:*** regret, resent, hate, comprehend, forget, grasp, like…
b. ***Non-factives:*** believe, claim, say, assert, think, conjecture…[5]

Factives and non-factives differ in the semantic restriction they impose on their complement. In factive (5a), the truth of the sentential complement is presupposed, and the sentence is infelicitous if the complement clause expresses a statement that is known to the speaker to be untrue, while in non-factive (5b) there is no

[5] I do not discuss non-verbal embedding predicates here, although many of K&K's examples feature such structures. I have adapted some of K&K's examples to the current discussion.

such commitment, and the truth-conditions or pragmatic acceptability of the complex sentence are unaffected by the truth of the complement.

(5) a. John resents that it is raining (#but I don't see a drop of rain!).
b. John says that it is raining (but I don't see a drop of rain!).

While at first glance the structures in (5a) and (5b) appear to be identical, K&K note a number of interesting distinctions between constructions featuring factive verbs and those with non-factives. These contrasts come in two flavors. One, the range of complements – in addition to finite CPs – that each verb type is able to take is different. Two, even when they take finite clausal complements, the constructions built with the two verb types display different syntactic properties. These two contrasts are clearly distinct, since the first contrast implies that different syntactic objects necessarily receive different semantic interpretations, such as being presupposed vs. asserted (K&K's distinction). Meanwhile, the second contrast is based on the assumption that this correlation holds in both directions: different interpretations necessarily imply different structures.

Observations of the first type, that is, differences in complementation options available to factive and non-factive verbs, include that a) factive verbs are compatible with DP complements headed by the N "fact" (6); b) only factive verbs can take gerunds as complements (7); and c) only non-factive verbs are compatible with infinitival complements (8) or participate in the 'accusative-infinitive' (ECM) construction (9).

(6) a. He made clear the fact that he doesn't intend to participate.
b. * He asserts the fact that he doesn't intend to participate.
(7) a. He regrets having agreed to the proposal.
b. * He believes having agreed to the proposal.
(8) a. * He regrets Bacon to be the real author.
b. He believes Bacon to be the real author.
(9) a. * He resents Mary to have been the one.
b. He believes Mary to have been the one.[6]

The authors show that these properties appear to split along the factivity line, and are productive to the extent that ambiguously factive/non-factive verbs are disambiguated by these structures (10).

(10) a. They reported the enemy to have suffered a decisive defeat. (non-factive)
b. They reported the enemy's having suffered a decisive defeat. (factive)

[6] It should be noted that the use of infinitival complements is actually quite limited, and it is unavailable with a number of common non-factive verbs as well such as 'say' or 'think'.

A verb like 'report', which can be used both factively and non-factively, can take either a gerund or an infinitive as its complement but with a discernible effect on the interpretation.

Note that the fact that the property of factivity apparently prevents a verb from taking a particular type of complement (or rather, particular complements can apparently only be interpreted as presupposed, and are thus incompatible with non-factive verbs) does not necessarily have the consequence that all complements will show a difference based on the factivity of their selector. Take the semantic property of animacy, for example. Some verbs are semantically compatible only with animate objects (e.g. as in the case of experiencer objects), and some syntactic objects can denote animate beings (like noun phrases) while others cannot (like gerunds). This will have the consequence that gerunds will not be suitable objects to verbs that require an experiencer object, see below.

(11) a. * The draft scared John's entering the apartment.
b. The draft facilitated John's entering the apartment.

Still, we probably do not want to say that the gerund in (11a) is different from the one in (11b), or that noun phrases (which can be either animate or not) necessarily have two different syntactic structures based on their animacy. They may, but this does not follow from distributional patterns like (11).

Perhaps the difficulty of generalizing the distributional argument is the reason that much of the literature since K&K has focused primarily on the second type of contrast, arguing that finite CPs subordinated to different verb types are structurally different. In fact, K&K discuss only two observations in this realm. Firstly, Neg-raising (12) is only available with non-factive verbs.

(12) a. * I don't regret that he can help doing things like that.
b. I don't think that he can help doing things like that.

We now know that it is far from obvious that Neg-raising and NPI-licensing are subject to the same conditions, or that Neg-raising is a syntactic phenomenon at all (cf. Gajewski's (2005) recent work on the topic). In fact, 'say', which is a non-factive verb that does not classically allow Neg-raising (13), does permit long-distance NPI-licensing (14).

(13) a. I didn't think he was coming. > Neg-raising reading: I thought he was not coming.
b. I didn't say he was coming. > * Neg-raising reading: I said he was not coming.
(14) I didn't say that he had stolen anything. (NPI-licensing is OK)

In any event, whether or not the long-distance licensing of NPI's is related to the classic Neg-raising construction shown in (12), and whether or not it is a syntactic phenomenon at all, it appears to have a clear correlation with the distinction between the two clause types.

Second, K&K show that subject raising (which they take to be a precondition on having an infinitival subject) is not possible with factive complements (see example (9) again).

To sum up, K&K tie together the following correlations:

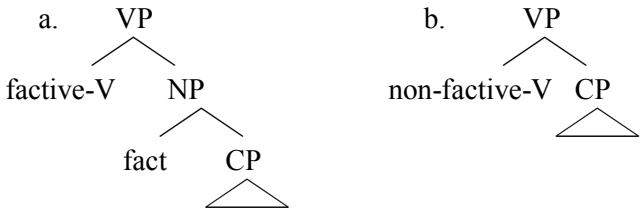
(i) only factive verbs can select a noun+complement structure like "the fact that…",

(ii) factive complements are syntactically opaque to certain types of operations, and

(iii) we know (from Ross 1966) that complex NPs are opaque,

and conclude that factive complements must be complex NPs, as in (15).

(15) Updated Kiparskian structures



Then they go on to derive the properties noted above from the structures in (15). Syntactically, the complex NP proposed under factives yields the opacity, while semantically, the presence of the head noun 'fact' in the deep structure renders the complement clause presupposed.

This is something of a logical leap, however. Given the transformational framework of the time, K&K assume that the different factive complements (gerunds, complex NPs, CPs) are necessarily 'transformationally' related since they all encode the same deep structure, as in (16).

(16) a. John regrets the fact that Mary lost. – deep structure and one possible surface form

b. John regrets that Mary lost. – derived by deletion of *the fact*

c. John regrets Mary's losing. – derived by a transformation producing the gerund

In the current framework, however, there is no necessary correlation between the different types of complement and in fact there cannot be one, given their different numerations. So, it becomes highly questionable that such distributional arguments will hold up, leaving the assumption of an empty head noun in (16b) a stipulation. It needs to be examined whether factive complements do in fact pattern with complex NPs in terms of opacity (which they do not, as has been noted by Melvold (1986), a.o.) and even if they did, we would only have indirect evidence for the presence of the silent head noun. Further, even if there are two different ways of deriving what look on the surface like the same sentential embedding construction, it is not clear that this difference directly correlates with the factivity (or any other semantic property) of the selecting verb. Suppose that there are two different syntactic objects encoded by the same surface string. Such is the case, for one, with certain relative clauses and questions, such as *[who likes Mary]*.) Their difference can be derived from a number of factors. They mean different things (i.e., they have different numerations, and

receive different semantic representations). They occupy different positions in syntax (with relative clauses necessarily embedded, and questions being able to stand alone). They appear in various constructions, as in (17).

(17) a. I saw the man [who likes Mary].
b. I asked [who likes Mary].
c. I found out [who likes Mary].

To the extent that we posit different numerations (or deep structures, in K&K's terms) for the three occurrences of the same string above, it becomes redundant to make reference to the environment in which they occur (such as the semantic difference between 'ask' and 'find out').

Despite its shortcomings and now dated machinery, the K&K paper inspired a fruitful debate in the literature, some of which I review below. At first, subsequent works began to question the basic tenet of K&K that it is in fact factivity that provides the dividing line between the construction types. Convincing observations (primarily from Germanic languages) were reported to show that there are syntactic differences between what look like simple sentential complements, and the data indicated that 'factivity' may not be fine-grained enough to account for these. A number of classifications were proposed to try and cut the pie in the right way, some more successful than others but none entirely satisfactory. Meanwhile, other authors moved away from attempting to derive the two structures from some feature of the embedding verb, and explored accounts where the contrast correlates with the semantics of the complement clause itself, and is only indirectly related to the verb's properties. I briefly discuss both of these types of approaches below, before turning to a quick overview of the most influential syntactic and semantic implementations.

2.2 Verb types: more fine-grained distinctions

While K&K primarily explore selectional restrictions applying to factive and non-factive verbs (or perhaps interpretational constraints on different syntactic objects such as infinitives vs. gerunds), much of the subsequent literature picked up on another aspect: on the idea that even when the two verb types take finite CP complements that look, on the surface, identical, these complements still disguise a difference in syntactic structure that encodes their semantic properties. The reason for this shift is that this line of research has proved extremely fruitful, and a great number of cross-linguistic observations were made to support the idea that sentential complements do come in two varieties. Some of these observations are the following. It has been noted that factive embedded clauses constitute weak islands (18); resist movement to their left periphery such as negative preposing (19) or topicalization (20)[7]; appear to be incompatible with the

[7] These have become known as "embedded root phenomena" (cf. Heycock (2005) for an overview), the idea being that embedded clauses that allow such operations are like main clauses, while complement clauses resist them by default. I

insertion of certain types of adverbials (21); and are, by and large, less liberal than non-factive complement clauses in terms of complementizer drop (22)[8].

(18) a. * How$_i$ do you regret that you behaved t_i?
b. How$_i$ do you think that you behaved t_i?

(19) a. * John resents that never in his life will he be a rock-star.
b. John says that never in his life will he be a rock-star.

(20) a. * John resents that this book, he will have to re-read.
b. John says that this book, he will have to re-read.

(21) a. * John resents that Mary is probably not coming.
b. John says that Mary is probably not coming.

(22) a. John resents *(that) Mary arrived late.
b. John says (that) Mary arrived late.

While these correlations appear quite straightforward and clear-cut based on English, the early 70s saw the appearance of a number of influential papers (e.g. Hooper & Thompson 1973; Erteschik-Shir 1973; a.o.) that presented a more fine-grained view of verb classes. The concept of 'bridge-verbs' (roughly a subclass of non-factives; Erteschik-Shir 1973), for example, was used by a long line of papers dealing with embedded verb-second (EV2) movement in Scandinavian (Vikner 1995, Holmberg & Platzack 1995, Watanabe 1992, Iatridou & Kroch 1992, etc.) The relevant facts for Swedish (in very broad terms, but see de Cuba 2007; Bentzen et al. 2007a,b; Wiklund et al. 2009 among others for recent discussion) are as follows. V2 in Swedish is evidenced by the position of the verb with respect to negation: when the verb precedes negation as in (23), we observe that V2-movement has taken place. EV2 is *generally* possible although optional under bridge verbs (24) but unacceptable under factive verbs (25) and negated main verbs (and inherently negative verbs) (26).

(23) **Swedish**

Rickard	*läste*	*inte*	*boken*	*i dag.*
Rickard	read	not	book-the	today

'Rickard didn't read the book today.'

(24)

Dan	*tror*	*att*	*Rickard*	*läste*	*inte*	*boken*	*i dag.*
Dan	thinks	that	Rickard	read	not	book-the	today

'Dan thinks that Rickard didn't read the book today.' (EV2 order)

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will discuss this later on but for now it is better to stay theory-neutral – so I will stick to the data observations at this point.

[8] Some of these observations are rather rough, and will require detailed discussion and revision later on.

(25) * *Dan ångrade att Rickard läste inte boken i dag.*
Dan regretted that Rickard read not book-the today
'Dan regretted that Rickard didn't read the book today.' (no V2 possible)

(26) * *Jag tror inte (att) Rickard läste inte boken i dag.*
I believe not (that) Rickard read not book-the today
'I don't believe that Rickard didn't read the book today.' (no V2 possible)[9]

These data present a number of serious problems for the K&K account. Firstly, it looks very much like it is the EV2 clauses that are likely to be more complex, given that they allow for freer movement to their left periphery. This is especially so given the now-classic Den Besten (1983) analysis of V2 that argues that verb-second arises via verb-movement to C with the preverbal constituent fronting to Spec,CP – making it difficult to derive embedded V2 when C is filled by a complementizer. This has given rise to the so-called 'CP-recursion' analyses (more on this below; cf. Heycock (2005) and the references cited therein) that argue against the syntactic implementation proposed in the K&K paper. Still, the Swedish data in (23-26) do support the K&K idea that there are two structurally different kinds of finite CPs, and the question remains what determines the occurrence of one or the other in a particular environment. It is clear that (26) already calls into question a purely factivity-based analysis since – if we take the K&K theory literally – a non-EV2 clause should be interpreted as presupposed, which it clearly is not, as shown by the example. This, among other things, has paved the way for more fine-grained verb classifications.

Hooper & Thompson 1973 (*H&T* henceforth) examine contexts in which movement to the left periphery, strongly constrained in factive complement clauses, occurs freely in English embedded clauses, concluding that this type of movement can only occur in clauses that are 'asserted'. They divide factive and non-factive verbs into five distinct groups according to whether or not their sentential complements can be asserted. These are given in (27). This division cuts across factivity lines, with the complements of *A*, *B* and *E* being asserted, and of *C* and *D* not asserted.

(27) **Hooper & Thompson 1973**

Non-factives

Class A: say, report, assert, claim, be obvious, be sure…

Class B: think, suppose, believe, imagine, it seems, it appears…

Class C: doubt, deny, be (un)likely, be (im)possible, be (im)probable…

Factives

Class D: resent, regret, bother, be sorry, be strange, be interesting…

[9] Examples adapted from de Cuba 2007.

Class E: realize, learn, discover, know, recognize, find out…

Cattell (1978), in an investigation of *why*-extraction in English, modifies H&T's categorization of predicates that take sentential complements. He divides these verbs into three classes: Volunteered-stance, Response-stance, and Non-stance. The classes are divided by appealing to a notion of shared background belief in a discourse. A partial listing of the verbs in Cattell's classes is given in (28). Cattell notes that only Volunteered-stance verbs allow why extraction (29).

(28) **Cattell 1978**

Volunteered-stance verbs: claim, report, decide, think, say, feel, assume…

Non-stance verbs: regret, doubt, emphasize, remember, forget, recognize…

Response-stance verbs: confirm, admit, accept, deny, agree…

(29) a. Why do they think (that) Sue killed Harry? (VS – ambiguous)

b. Why do they accept that Sue killed Harry? (RS – not ambiguous)

c. Why did Richard comment that Sue killed Harry?[10] (NS - not ambiguous)

Interestingly, as noted first by Hegarty (1992), the verbs that allow *why*-extraction in English match more or less perfectly the class of verbs that permit EV2 (for example in Danish, as confirmed by Vikner 1995). This indicates that the difficulty of classifying embedding verbs to match the wide range of observations and contrasts in this realm is a cross-linguistic issue. The more numerous the attempts at re-classifying the verb types, the more it becomes apparent that this is a rather hopeless enterprise. While a number of authors have started moving away from the factivity distinction, adopting and adapting one of these classifications to try and match them to the facts (cf. Bentzen et al.'s (2007a,b) analysis of EV2 based on H&T; or Hegarty's (1992) and later de Cuba's (2007) version of Cattell's system; a.o.), the terminology and the definitions used to define verb classes have also shifted away from defining and characterizing the verbs themselves, and began to make more and more reference to the status of the complement clause. In my view (to be explicated in detail in the subsequent sections) this line is a lot more promising both from an empirical and from a theoretical point of view. Empirically, as many authors have convincingly shown, most verbs (contra K&K) are not predetermined for taking one or the other complement type. Rather, a particular semantics is associated with each construction that may or may not be compatible with the lexical semantics of a verb. From a theoretical perspective, meanwhile, it is certainly more attractive to take a compositional view and derive a syntactic element's interpretation from its own structure, rather than by making reference to its selector and the broader syntactic environment (e.g. negated main verb) where it occurs. In the next section, I

[10] Cattell's examples as adapted by de Cuba 2007, who changed the verb "deny" into "accept" in (29b).

briefly review a few significant approaches that make reference to the properties of the complement, before moving on to an overview of syntactic proposals.

2.3 Presupposition, givenness and assertion (Hegarty; de Cuba; Bentzen et al.; Kallulli)

In this section, I will briefly review some accounts that, seeking alternatives to a factivity-based analysis, propose to derive the contrasts observed between the two types of complement clauses from something other than solely the selecting verb. While all of these accounts are a step towards the direction that I will take in this proposal, they are hybrid accounts in the sense that they more or less assume that the factors that clearly play a role in these constructions (selecting verb; presupposition of the complement; discourse status of the complement; syntactic effects) *should* overlap to a great degree or even align perfectly. I will argue that each of these factors operates independently. Nevertheless, all of these accounts have brought something very insightful to the table.

Hegarty (1992) notes a wide range of interesting data showing that simply referring to factivity, or even a particular verb, is not enough to predict syntactic differences. He notes, among other things, that factive verbs do not behave uniformly with respect to adjunct extraction, and that some factive verbs (like *learn* or *inform*) are much more liberal in this respect than some non-factives (like *accept* or *agree*). He also notices that even the same verb does not always display the particular syntactic phenomena traditionally associated with its verb class. For example, the ability to take an *it*-complement (as in (30)) appears to correlate with the discourse status of the complement clause.

(30) I was talking to our agents in Russia yesterday,
a. and they noticed that Max went to Moscow last week.
b. and they noticed **it** that Max went to Moscow last week.
(Hegarty 1992:6; Ex. 18.)

While it is true that most factives have the *option* of taking an *it*-complement, the example featuring the pronoun is clearly different from the one that does not. (30a) is felicitous in a situation where the proposition [Max went to Moscow last week] is entirely new to the hearer, while (30b) is most natural if the speaker assumes that the hearer knows about this. Note that this does not make the verb *notice* non-factive in (30a), still strange if the speaker does not presuppose the truth of the complement. This is crucial because this data indicates (although Hegarty himself does not explicitly draw this conclusion) that a) presupposition and contextual givenness are distinct properties, and b) some syntactic effects respect givenness (as in (30)) while others may be influenced by presupposition (or some other, third factor – like islandhood, as (30a) and (30b) are equally resistant to *why*-extraction). This clearly shows that these factors operate independently, a point I return to later on.

In the past decade, a number of authors have argued for a discourse-based account of the syntactic effects affecting sentential embedding constructions. Building on Cattell's verb classes and Hegarty's generalizations, de Cuba (2007) analyzes EV2 in Swedish, among other data, with reference to "Novel complement taking" and "Familiar complement taking" predicates. He also shows that non-factive verbs are typically able to take either clause type as their complement, clear indication once again that reference to factivity is not the way to go. Somewhat similarly, Bentzen et al. (2007a,b) adopt H&T's verb classes to predict the availability of EV2. Meanwhile, Biberauer (2002) argues, based on Afrikaans data, that the optionality of EV2 under bridge verbs is also only apparent: in her test data, only potentially strongly assertive verbs and informationally salient embedded clauses featured 'genuine' (i.e. non-subject initial) V2. In a way, all of these accounts represent a shift in the same direction: placing the responsibility for the syntactic effects observed on *pragmatics* (discourse factors), rather than semantics (as K&K had done). While this may appear attractive empirically at first – given the abundance of discourse-related phenomena in this realm – it is a far from straightforward theoretical move to associate syntactic structure with discourse factors. As far as I know, there are no known syntactic processes that are *directly* conditioned by factors like contextual givenness or novelty. We do know of syntactic phenomena that *indirectly* correlate with discourse factors (e.g. focusing or extraposition) but it is unclear whether we should allow discourse properties to actually dictate syntactic structures, and, even if we were forced to make this dubious move, how such a system could be implemented in current syntactic theory.

A paper that attempts to do away with this problem is Kallulli (2006). She assumes, building on a Kiparskian syntax, that presupposition and givenness are essentially the same thing, and that using one or the other syntactic construction (so: a N+CP complex or a simple CP complement) will yield the appropriate semantic interpretation. What she calls 'triggering factivity' renders, on her view, *believe* factive in an example similar to the Hegarty example featuring *it*-complements (31).

(31) a. *Er glaubte, dass Peter verstarb (aber tatsächlich lebt er noch).*
he believed that Peter died (but factually lives he still)
'He believed that Peter died (but in fact he is still alive).'

b. *Er glaubte es, dass Peter verstarb (*aber tatsächlich lebt er noch).*
he believed it that Peter died (but factually lives he still)
'He believed it that Peter died (*but actually he is still alive).'[11]

On this account, syntax, semantics and pragmatics are in full overlap: the *it*-complement, syntactically a Kiparskian complex NP, turns a non-factive verb into a factive one, and hence the complement clause is interpreted as given. There are many problems with this analysis, however[12] (cf. de Cuba & Ürögdi 2010 for

[11] Examples from Kallulli 2006:212 (her example 5). I have changed the gloss to (31a) to show the contrast better. In Kallulli's opinion, the same factivizing effect is found with English *it*-complements.
[12] I return to a detailed discussion of the presupposition / givenness / referentiality distinction later.

detailed argumentation). One problem is that (31b) is not actually factive, as evidenced by a similar example (32) below.

(32) John was the most horrible boyfriend who couldn't be trusted for a second. Yet, I believed it that he would marry me. What an idiot I was!

The pronominal *it* clearly refers to something implicit in the context (John's false promise or my misguided belief) but it does not make the proposition [he would marry me] presupposed, or even explicitly contextually given. Another problem is that *believe* appears to be the only non-factive verb (as already pointed out by Hegarty) that can take an *it*-complement at all. Also, the class of elements 'triggering factivity' on Kallulli's view (*it*-complements; modals; prosodic cues) do not form any kind of natural class, and it is hard to imagine how they could be directly associated with syntactic structure. Nevertheless, there is an important insight in this paper that I want to emphasize, namely that syntactic structure can enforce (or at least make accessible) particular interpretations that, to the extent that they are compatible with the lexical semantics of the elements involved, will become available (and accommodated if needed).

Even from this brief discussion it should have become clear that there is a lot of terminological and theoretical confusion in the literature. On one hand, the semantic/pragmatic terms (presupposition, assertion, givenness, novelty, and so on) are not used consistently, and it is not clear in which module of grammar they should be placed and reckoned with. On the other hand, even if the terminology is straightened out, there is this lingering (in my view mis-)conception that either the different categories (e.g. presupposition and givenness) should be somehow matched up (as in Kallulli's work), or one of them should be chosen as the main factor that determines syntactic structure (as in de Cuba 2007 or Bentzen et al. 2007a,b, who place pragmatics above semantics). As Heycock (2005) points out in a summarizing paragraph: "*There is […] an irreducibly semantic/pragmatic component to the puzzle; although the initial analyses in terms of "assertion" presented many problems of definition and explanation, no later work that has attempted to go beyond the stipulation of environments in which the various root phenomena obtain has been able to do without appeals to concepts such as factivity, assertion, presupposition, etc.* […] *However, some of the fundamental questions remain unanswered, and in fact practically unaddressed. In particular, what is the precise nature of the distinction between non-root and root clauses?*" I leave these questions aside for now, and turn to some non-Kiparskian syntactic implementations of the contrast between the two types of complement clauses. I will return to the question raised above in Section 3, where I propose a particular solution to this puzzle.

2.4 Syntactic implementations (Haegeman; McCloskey; de Cuba; Bentzen et al.)

In the preceding section I outlined some arguments and data from the literature to show that the original K&K account, which derives syntactic structure from the factivity of the main verb, is most likely untenable.

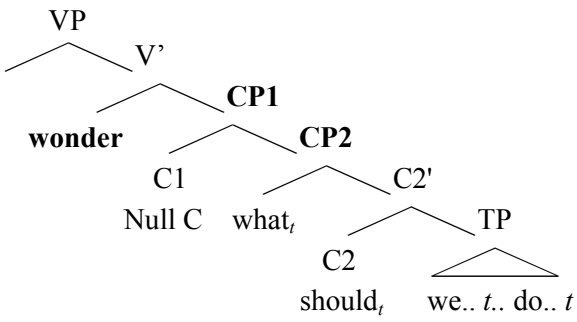
Counterproposals vary as to whether they see the potential problems with the K&K proposal as minor issues that require refinement, or as conceptual problems that necessitate a wholly new approach. But even if we leave aside for now the question of whether the two relevant categories are factive vs. non-factive (with reference to the main verb), presupposed vs. asserted / given vs. novel (with reference to the complement clause), or something else entirely, there is also a whole other line of debate regarding what the syntactic structure of the two clause types looks like. In recent years, the K&K hypothesis that factivity is more marked semantically and thus syntactically has been called into question by a number of papers, some of which I review below.

The first and most convincing arguments that, in complete opposition to the K&K account, it is by and large factive complements that are simpler (reduced, impoverished, unmarked) structurally come from literature on EV2 in Scandinavian, where – as mentioned above – CP-recursion has long been called into play to account for the possibility of V2-movement in the presence of an overt complementizer. Inspired by these accounts but working with English data, McCloskey 2005 shows that in Irish English dialects, embedded T-to-C movement (not normally allowed in complement clauses in English) can occur under *wonder*-type predicates. In (33), subject auxiliary inversion (SAI) is available under non-factive *wonder* but not under factive *found out*.

(33) a. I wonder what should we do. [Irish English]
b. *I found out how did they get into the building.

McCloskey proposes that factive verbs select a single CP structure, while *wonder*-type predicates select a recursive CP, as in (34).[13] For McCloskey, selectional restrictions rule out SAI in a typical subordinate clause. Since verbs L-select particular complementizers, head movement into those C-positions will give rise to violations of L-selectional requirements. No such violation occurs in (34), as *wonder* selects a recursive structure where the lower CP-layer is available for SAI.

(34) **CP-recursion structure**



(McCloskey 2005:20)

[13] McCloskey (2005:40) also presents declarative non-factive SAI examples from Belfast English, citing Henry 1995.
(i) They wouldn't say which candidate they thought [$_{CP}$ should we hire].
(ii) I'm not sure which one I think [$_{CP}$ should we buy].

McCloskey claims that the availability of the complex structure under a predicate like *wonder* (and its unavailability under a predicate like *find out*) derives from the fact that the complement of a question predicate like *wonder* is a different semantic object from the complement of a resolutive predicate like *find out*, albeit both are realized as embedded questions. What is important to note is that semantic complexity (which, roughly, comes down to Ginzburg & Sag's (2000) distinction between questions and facts, or Krifka's (1999) concept of question acts and sentence radicals) corresponds to syntactic complexity. On McCloskey's semantics, adopted from Krifka (1999), speech acts are more complex than sentence radicals by definition, since the former properly contain the latter – a relationship that is mirrored in their syntax. The analysis extends naturally to predicates that embed declarative sentences. The consequence for syntax-semantics mapping is that the contrast between an object clause embedded under a factive and one embedded under a non-factive (or, in fact, a matrix sentence) is to be found in this additional layer of structure. McCloskey identifies this "extra element" encoded by the recursive CP as the locus of illocutionary force. As noted by McCloskey himself, his proposal is reminiscent of (and clearly compatible with) the CP-recursion analysis of embedded verb-second (EV2) constructions in Scandinavian languages (Vikner 1995, Holmberg & Platzack 1995, Watanabe 1992, Iatridou & Kroch 1992, among others. See Heycock 2005 for a summary), where clausal complements of 'bridge verbs' can optionally exhibit verb-second (V2) word order.

In an updated version of the CP-recursion analysis, de Cuba (2007) argues that unconstrained recursion in the CP domain is certainly not a desirable outcome, but constraining CP recursion is technically very difficult. He suggests instead that the higher CP layer is actually a functional shell around CP (which he labels *c*P) housing a semantic operator which removes the speaker from responsibility for the truth of the embedded proposition, making non-factive embedding constructions with untrue complement clauses felicitous. The replacement of the recursive CP with a functional element has a number of advantages, including the fact that the account generalizes to complements that are TPs (infinitives) or small clauses. Meanwhile, the operator de Cuba posits in *c*P is used to derive a range of effects from the lack of EV2 under negated verbs to long-distance NPI licensing. A major contribution of this work is that – unlike most if not all works on the topic – it deals with a wide variety of languages (English, Swedish, Hungarian, Basque, Serbo-Croatian) and a large pool of data (including EV2, English topicalization, adjunct placement, wh-extraction and factive islands, pronominalization, expletive replacement, and complementizer drop). While I will explore a different avenue here, a version closer to my account is found in de Cuba & Ürögdi (2009a).

Haegeman 2006 also argues for a more articulated CP structure under non-factives. In a discussion focusing primarily on adverbial clauses, she adopts a Rizzi (1997) style CP-field, with 'peripheral adverbial clauses' and non-factive complement clauses having a full left periphery (like root clauses), and 'central adverbial clauses' and factive complements having an impoverished left periphery.

(35) a. Peripheral adverbial clause:
[Sub Top Focus Force Fin]

b. Central adverbial clause:

[Sub Fin]

This structural difference is exploited to account for the fact that peripheral adverbial clauses allow Main Clause Phenomena (MCP) such as topicalization and speaker oriented adverb placement, while central adverbial clauses do not: the positions designated for these phenomena are present in (35a) and missing in (35b). Haegeman then speculates that factive complements, like central adverbial clauses, are structurally impoverished[14]. It is important to note that while Haegeman (2006) shares with McCloskey the intuition that non-factivity (rather than factivity) is more marked semantically and syntactically, she places the distinction inside the embedded CP. In later work (see Haegeman 2007, 2009, 2010a) this picture is significantly revised, albeit maintaining the idea that the relevant contrasts derive from a structural difference related to factivity. The recent Haegeman proposals eliminate the stipulation of the "truncated" left periphery and provide a principled account of why these projections are unavailable – an approach that I will adopt in part here, as the idea that (as opposed to the Scandinavian tradition) the distinction between the two clause types could be placed inside the clause, in the discourse- and speaker-related domains, has proven quite promising.

2.5 The 'nominal' nature of factive complements (K&K)

Before moving on to the main section of this chapter, I do want to briefly mention a line of accounts that have, perhaps indirectly, been inspired by some of the insights in K&K. There is a long-standing intuition among researchers that there is something inherently nominal in some (usually but not always factive) CPs, an idea that has manifested itself in many ways, including the extensive literature on 'CP/DP parallelism' (cf. Abney (1987), Szabolcsi (1983, 1994), Aboh (2005), Hiraiwa (2005) a.o.). This is an interesting avenue because it is far from obvious that there is anything semantically shared between a proposition and an individual. Nevertheless, K&K's complex NP analysis of factive embedded clauses does, in my view, encode this very intuition. In particular, if we abstract away from the syntactic implementation (which, if the authors cited in section 2.4 are correct, is all wrong anyway), the idea that clauses that are not asserted (or novel, or defined by property X) but rather presupposed (or given, or defined by property Y) are somehow more similar to a DP than to a matrix clause seems to be intuitively correct and shared by a number of authors. Notably, there have been a few analyses that have made this intuition explicit. Melvold (1986), for one, argues that factives are similar to definite NPs in that they refer to events (so they have no truth value), while non-factives are more like indefinite NPs and they assert propositions (and are associated with truth value). Capturing the nominal nature of factive clauses from another angle, Aboh (2005) shows that in Kwa languages, factive CPs are actually relative clauses rather than finite CPs. I return to the Kwa data in

[14] Bentzen et al. 2007a,b adopt Haegeman's (2006) proposal and apply it to EV2 in Mainland Scandinavian languages. Bentzen et al. propose that Topic and Force are the loci of EV2 movement, ruling out EV2 in factive clauses like (35b). It is important to note, however, that Bentzen et al. do not appeal to factivity as Haegeman 2006 does; rather, they use Hooper & Thompson's classification.

somewhat more detail below but what is important is that Aboh connects the nominal interpretation of factive CPs to the fact that they are relative clauses (but still clauses) and not actual NPs or DPs (like in the K&K account, recently adopted by Kallulli 2006). The most recent proponent of this view is Haegeman (2009, 2010a), where she argues that factive embedded clauses are in fact always relatives. A fine-tuned version of her analysis (developed recently in Haegeman & Ürögdi 2010a,b,c) will be adopted here and discussed in detail below.

2.6 Summary

In this section, I have provided an overview of some of the most prominent works in the literature on sentential embedding. The leading ideas that I will investigate in the following sections are the following: a) finite CP complements, which look uniform on the surface, actually come in two structural varieties, and it is this syntactic difference between them that yields (at least some of the) contrasts observed; b) one of these CP types is roughly presupposed / contextually given / nominal in nature, while the other is asserted / contextually new / more like a matrix sentence; and c) the properties in (b) should somehow be sorted out to yield a clean split between the clause types with one set of syntactic, semantic and pragmatic properties on one side and another set on the other side. In what follows, I will take (a) as given, and argue that the syntactic difference comes down to operator movement (cf. Haegeman 2007). I will reject (c) completely, and claim that there is no reason at all to expect these sets of properties to correlate with each other (and in fact they do not) since they operate in different modules of grammar. Finally, with respect to (b), I will show that the dividing property between the clause types is referentiality, which typically loosely corresponds to presupposition and contextual givenness but this match is far from perfect, as expected, since there is no direct relationship among them. Meanwhile, the 'nominal flavor' of one CP type is in fact its referentiality.

3 Referential and non-referential CPs

As discussed in the previous sections, there are two main lines of debate in the literature surrounding sentential embedding constructions. One issue is the precise structural difference between the two clause types. The reader will recall that the original Kiparskian idea, namely that factive complements are actually complex NPs rather than simple CPs, has been called into question by the CP-recursion literature as well as by advocates of other syntactic proposals. I return to this question in Section 4. The other issue is what (semantic or pragmatic?) property differentiates the two types of clauses, or, in other words, what motivates the structural difference between them. Once again, the K&K proposal that it is the selecting verb's factivity that determines the choice between the two kinds of complement clauses has been challenged in light of cross-linguistic data showing that factivity does not always correctly predict the structural contrasts observed. The idea I will discuss in this section (first proposed in de Cuba & Ürögdi (2009a)) is that none of

the factors discussed in the literature as relevant for distinguishing the two clause types split the pile of data correctly, and this is because neither factivity (a lexico-semantic property) nor givenness (a discourse property) play a direct role in syntax. Rather, what differentiates the two structurally different clause types is referentiality.

The section is organized as follows. First, I run through some of the classic diagnostics for the difference between the two clause types. It becomes obvious that these syntactic effects do not split along the factivity-line, and only some effects (which are not directly syntactic in nature) respect givenness. While most of the literature concerns itself with fine-tuning these concepts to get them to match up, I argue that there is no reason to expect them to coincide at all (contra the original Kiparskian idea that factivity is reflected in syntax). Rather, factivity should be treated as a lexico-semantic affair of the verb itself, which imposes restrictions on the truth-conditions but not the syntax of the sentence. Givenness, a pragmatic factor, also does not correctly predict either semantic differences (there appears to be no direct correlation between factivity and givenness) or syntactic effects (as, for example, novel factive complement clauses are still islands and still resist long-distance NPI-licensing). After introducing the terminology and providing a loose semantic definition of referential CPs (RCP) and non-referential CPs (NCP) (more or less along the lines of Krifka's (1999) distinction between sentence radicals and speech acts), I show that, as expected on the definition I offer, non-factive verbs are freely able to take RCPs as their complements, while true factives are incompatible with NCPs. This is because referential propositions are a superset of presupposed ones, so presupposed complements are RCPs by definition. This new split is supported by the data since many of the effects traditionally associated with factivity are attested with non-factive constructions but not vice versa. To clear up the terminological confusion, I also demonstrate that referentiality does not coincide with contextual givenness fully since the syntactic effects associated with RCPs are independent of context. This is because referentiality as used here is not a discourse-defined concept. Pragmatic effects that are attested with non-factive and factive constructions to equal measure (e.g. contextual novelty) are shown not to be reflected in syntax at all. In addition to looking at well-known and novel English data, I widen the range of discussion by including clausal expletive constructions in Hungarian and conclude with a brief look at data from other languages.

3.1 Introducing the referentiality distinction

In de Cuba & Ürögdi (2009a) – a paper that focuses primarily on Hungarian – we argue for the thesis that the syntactic structure of a complement clause is directly mapped from the clause's semantic type, which can be read off the phrase itself without reference to external factors (such as the selecting verb). In particular, we argue against approaches making reference to the factivity of the main verb in analyses of the internal

structure of embedded clauses. We claim that clauses do in fact come in two varieties, RCP and NCP[15]. An RCP is a referential entity that denotes a proposition without illocutionary force (a sentence radical in the sense of Krifka 1999), a semantic object encoding a proposition which is used in discourse via the mediation of its embedding context (e.g. the complex sentence may make an assertion about the embedded proposition). When the complement clause is an RCP, the sentence's information focus (in a neutral, no-contrast context) is the matrix predicate. NCPs, meanwhile, are non-referential semantic objects denoting speech acts (propositions offered up for consideration or open questions). When a verb takes an NCP as its complement, the information focus of the complex sentence is the complement.[16] We define RCPs as follows:

(36a) **RCP:** • a **referential** entity that denotes a proposition without illocutionary force (a sentence radical in the sense of Krifka 1999)

- the proposition need not be contextually given but will invoke a reference set, hence such propositions can be contrastively focused or used as topics
- referentiality is a weaker requirement than contextual givenness or factivity

  > (truth-conditionally) presupposed propositions are referential (reference set invoked: true propositions; known or unknown statements about the real world)

  > contextually given propositions are referential (reference set: context)

  > these three properties (presupposition, givenness and referentiality) are not in full alignment because they operate in different modules of the grammar

[15] I have amended the definition somewhat in order to fit the current discussion better. Also, please note that in de Cuba & Ürögdi (2009a) and subsequent joint work, we refer to the two clause types as CP (here: RCP) and *c*P (here: NCP), a labeling convention that we adopt from de Cuba's own work on the subject (introduced in de Cuba 2007). Since I do not adopt the syntactic implementation, only the semantic definition, here, I have replaced the labels throughout this discussion to guarantee consistency and transparency of discussion.

[16] For a definition of the two complement types that is similar to ours up to this point (but diverges from ours due to the fact that it involves a direct relationship between predicate types and complement types), see McCloskey 2005 and his discussion of Krifka 1999, Ginzburg & Sag 2000.

I return to all aspects of the above definition in the discussion below. The intuitive reasoning, however, should be clear. Presupposition means that something is taken by the speaker to be true in the real world, which clearly does not mean the same thing as contextual givenness, since the context may be populated by propositions both true and false. This much is known from Hegarty's (1992) above mentioned examples. Presupposed also does not entail given: contextually new propositions used in a factive context are accommodated by the hearer as "the speaker assumes that I hold this proposition true", and either taken to hold true from that point on or contested. In our view (to be detailed below), referential propositions subsume presupposed and contextually given ones and more: non-presupposed and contextually new propositions can also be used referentially, just as referring DPs can also be new to the context. Loosely speaking, RCPs can be taken to refer to states-of-affairs or possible worlds. Meanwhile, non-referential CPs receive the following definition:

(36b) **NCP:**
- a **non-referential** semantic object denoting a speech act
- an unresolved proposition or an open question
- since speech acts must contain at least some novel element in order to be felicitously uttered, it follows that the proposition encoded by an NCP cannot be presupposed

  > using a speech act is infelicitous in a situation where the speaker assumes that the entire content of the proposition is known (to be true) to the hearer

  > since factive contexts impose the opposite requirement (namely, the speaker assumes that the hearer accepts the truth of the complement) an NCP embedded under a factive V results in semantic clash

Once again, the basic intuition behind the definition is that, given the syntactic distinction between a proposition used referentially and a speech act, using a speech act under a factive verb gives contradictory instructions to semantic interpretation, and is thus infelicitous. Using a factive verb implies something like "we both accept that this proposition holds true, and I will now say something about it" while using the speech act means something like "I am widening the context". The two intentions are clearly contradictory, so such constructions will fail to receive an interpretation.

While it is perhaps somewhat controversial to label complement clauses as "referential", I would like to add some observations here to make the point and the discussion below clearer[17]. The reasoning I follow here is admittedly indirect to some extent. I demonstrate (based on the literature reviewed above, as well as on additional evidence I present below) that the property characterizing RCP's (or, complement clause Type 1) is *not* factivity, contextual givenness or nominal structure in the literal sense (as in K&K). Meanwhile, as I also show, RCPs display a host of properties that render them parallel to referring expressions, while NCPs (or complement clause Type 2) show similar behavior to non-referential nominals. This means that, all else

[17] Thanks to the two reviewers of my thesis for prompting me to be more precise on these points.

being equal, referentiality is a good candidate for the dividing property between the two complement types. Then we are faced with two questions: How is referentiality relevant for explaining the syntactic properties of both DPs and CPs? And what does it mean, in a semantic sense, for a CP to be referential?

It is noteworthy that, even for DPs, it is not entirely clear what aspect or manifestation of referentiality is relevant for syntax. Take the issue of extraction out of a weak island, for example. There has been a long-standing (and, to some extent, unresolved) debate on whether the argument status, the referential index, the theta role, the specificity, or the D-linking of the extractee is what makes the movement possible. (See, among many others, Rizzi 1990 and Cinque 1990.) It is also an open question whether the relevant property is an inherent characteristic of a particular phrase, or something that can be manipulated in syntax (for example, whether a particular syntactic structure can enforce this property on a raised phrase – e.g. in a sentence like *How many points are the judges arguing about whether to deduct?*[18], where, due to the extraction, we are forced to interpret the *wh*-phrase as picking a particular cardinality out of a contextually defined reference set of cardinalities under discussion). While this debate is a very interesting one (and I will offer a particular syntactic implementation below that partially sheds light on these issues) I cannot undertake to resolve all the questions arising here in full.

As far as the interpretation of "referential clauses" is concerned, there are various formulations of this property in the literature, albeit not very many, since this way of looking at clauses is relatively new. Still, K&K already allude to the idea that clauses may refer, and they suggest (based on Frege) that their reference might be their truth value or the set of their truth conditions. Meanwhile, Bhatt & Pancheva (2006), in a paper on conditionals that I discuss in a bit more detail below, propose that the reference of a conditional clause is the set /a subset of those worlds that make the proposition true. The idea here (proposed in Schlenker 2001) is that *if*-clauses are referring expressions, so "*if it rains tomorrow* refers to that world in which it rains tomorrow which is *most similar* to the actual world" just as "*the dog* [...] refers to that dog in the domain of discourse which is *most salient* for the speaker" (from Schlenker). In fact, Schlenker presents syntactic evidence in favor of this proposal, namely that *if*-clauses behave in a parallel fashion to referring expressions when it comes to binding. The relevant examples are below:

(37) a. *John, we like him*.

b. # *If John is dead or alive, then Bill will catch him.*

c. [*If it were sunny right now*]$_i$ *I would see* [*people who would then*$_i$ *be getting sunburned*].

d. * *I would then*$_i$ *see* [*people who would be getting sunburned* [*if it were sunny right now*]$_i$].

e. *Because I would then*$_i$ *hear lots of people playing on the beach, I would be unhappy* [*if it were sunny right now*]$_i$

[18] Example from Kroch 1989.

As (37a-b) show, similarly to left dislocation with nominals, *if*-clauses can undergo contrastive topicalization, in which case *then* behaves as the associate of the clause (a "world pronoun"). This is evidenced by the fact that (37b) is odd: given the contrastive reading on the fronted clause, we receive instructions to consider worlds where "John is dead or alive" as having viable alternatives, with the implication that it is in these alternative worlds that Bill will not catch him. Apart from unlikely scenarios where John does not exist at all or is a being that is neither dead nor alive, such alternative worlds do not exist and therefore the contrastive topicalization of the *if*-clause results in a pragmatic clash. Now, if we accept that *then* is a pronoun associated with the fronted clause, we can observe that this pronoun and its associate are subject to the same binding conditions (Condition C) as referring expressions in general: the binding of the clause by the pronoun is not allowed, and this linear order is only permissible if the pronoun is embedded (as in (37e)), thereby no longer c-commanding its associate. Based on facts like these, Schlenker and Bhatt & Pancheva conclude that it makes sense to treat *if*-clauses as referential.

Thus, this suggestion is not without precedent, although it clearly requires more detailed semantic and syntactic exploration that falls outside the scope of this thesis. So, for the purposes of this discussion, I will continue to use this label as a convenient and insightful way of differentiating the two clause types.

It is worth noting that matrix sentences (clearly speech acts) are subject to the same restrictions as embedded speech acts, which supports the general idea that a) some embedded sentences are speech acts while others are not, and b) speech acts must contain some novel element in order to be acceptable. Observe the following contrasts:

(38) Speaker A: Obama won the elections.
Speaker B: i. # Obama won the elections.
ii. # I think that Obama won the elections.
iii. I am happy that / You THINK that [Obama won the elections].
iv. Obama won the ELECTIONS (… but will he win public opinion?)
v. I think Obama won the ELECTIONS (… but …)

As the above contrasts show, a matrix sentence that is entirely contextually given (i) is not felicitous, and such a proposition is not acceptable as the complement to a non-factive verb either in a neutral context (ii). These two contexts involve a speech act (NCP), which must contain some novel element. As (iii) shows, not all embedding contexts have this restriction: A factive predicate or an emphatic non-factive one (with an RCP complement) is perfectly fine with a complement that is completely given. Example (iv) shows that this is not an 'echo-effect' since the addition of focus to the same string renders the proposition an acceptable speech act, and the same holds when the speech act is embedded, as in (v). This is because some element

now in the sentence (here: the contrast on the object) adds something to the context. Similar effects are discussed by McCloskey (2005) for questions[19]:

(39) Speaker A: Obama won the elections.
Speaker B: i. # Who won the elections?
ii. # I wonder who won the elections.
iii. Joe found out / I was WONDERING who won the elections.

Note that (i) above is only good in case Speaker B did not quite catch Speaker A's statement (as an echo question). Hence, open vs. resolved questions like those above receive analogous treatment to embedded statements. The answer to an open question (a speech act) cannot be known to the speaker, while the same restriction does not apply to resolved questions, which – as shown by (39iii) – can be embedded under both factives and non-factives. The point made by (38) and (39) is the same: felicity conditions on speech acts are identical regardless of whether they are matrix or embedded. Notice that the correlation only holds in one direction: speech acts are not acceptable complements to factive verbs because of the requirement that they contain at least one element open to consideration (making them an open statement or question, rather than a resolved one such as the complement of 'found out' in (39iii), for example). This prevents NCPs from being a proper complement to a factive verb since factives lexically impose a truth-conditional presupposition on their complement. There is no reason, however, to expect non-factives to restrict their complement in any way. Non-factives are the unconstrained option in the sense that their complement *can* but does not have to be a speech act. For example, a focused non-factive can easily take a resolved proposition (38iii) or question (39iii) as a complement. As I will show below, non-factives do in fact often have the possibility of taking an RCP complement – subject to various restrictions and yielding certain semantic effects. The point here is simply to show that a) some contexts require a speech act, b) these contexts show that speech acts must be 'unresolved' in the sense of widening the context, and therefore c) speech acts are not suitable complements to factive verbs as they cannot be presupposed.

The prediction of the definitions above is that syntactic differences do not correspond to factivity or givenness, since neither the factivity of the main verb, nor the givenness of the complement clause is in one-to-one correspondence with the choice of complement (RCP or NCP). Thus, we expect all syntactic, semantic and prosodic effects traditionally associated with factivity to be observed in non-factive contexts as well in cases wherever the embedded proposition is a referential CP (an option that is more or less freely available on this account). In such contexts, non-factive constructions pattern with factive ones in a number

[19] Examples and discussion based partially on the following observation by McCloskey:
"If we take seriously the idea that speech acts may be embedded as complements to certain predicates […] then we will expect that the effect of their characteristic felicity conditions will be felt in the embedded context and not at the root. So in a case like (i):
(i) I wonder will Bush win the November election. [Irish English]
the complement to *wonder* will be felicitous only if the issue of Bush's electoral success is unresolved for the referent of the experiencer argument of *wonder* at the present time."

of ways but, crucially, remain non-factive since the semantic type (and syntactic structure) of the complement is not in direct correlation with truth value or presupposition. Empirically, if the referentiality distinction is correct and non-distinct from the well-known referential property of nominal expressions, we predict that RCPs will pattern with referring expressions cross-linguistically. In what follows, I explore these two predictions.

3.2 The role of referentiality in Hungarian clausal expletive constructions

In this section, I present an account of the distribution of clausal expletives in Hungarian sentential embedding constructions. In this language, both declarative and interrogative embedded clauses can be 'doubled' by an expletive in the matrix clause. The so-called 'wh-expletive' construction is somewhat better known (primarily from work by Horvath (1995, 1997, 1998)) thanks to its similarity to 'partial wh-movement' constructions in various languages. (See Fanselow 2006 for an overview and references, and Horvath (1995, 1997, 1998) for arguments that the Hungarian construction is actually an instance of a wh-expletive standing in for the entire complement clause, rather than 'partial movement' of the embedded wh-phrase. More on this below.) The clausal expletive associated with embedded statements is less documented (but see Kenesei 1992, 1994; Kiss 2002 a.o.). In what follows, I show that the two clausal expletives are actually the same thing, modulo the [wh] difference. Further, I demonstrate that their appearance in the main clause is dictated by the referentiality of their associate, i.e. the complement clause. The argumentation proceeds as follows:

(i) I show that, in a neutral, no contrast context, there is one pattern available for only non-factive embedding constructions and another that is compatible with both verb types. This shows that the choice between the two patterns cannot be determined based on factivity.

(ii) I provide evidence that the choice between the two patterns bears no connection to contextual givenness, eliminating a pragmatic explanation based on discourse factors.

(iii) I propose that the appearance of the clausal expletive in the matrix clause is dictated by the requirements of its associate: it surfaces whenever and wherever the associate (the CP) is required to move but cannot (due to independent restrictions). This is quite standard.

(iv) I argue that the environments where the complement clause is required to move into some preverbal position can be predicted perfectly if we posit a referentiality contrast between the two types of complement clauses (NCP available only to non-factives, and RCP freely compatible with any verb type) since, in Hungarian, referential and non-referential (DP) complements are well-known to be subject to differing movement requirements.

(v) In conclusion, I show how the proposed referentiality distinction between CP complements can account for a variety of facts, including the interpretation of wh-expletives.

3.2.1 The distribution of the clausal expletive *azt*

The clausal expletive *azt* (Dem+Acc) appears with finite object clauses, and shows two different patterns. Pattern I is illustrated below under (40):

(40) **Pattern I**

a. *Péter* ***(*azt)*** *sajnálja* *hogy* *havazik*
Peter Dem-ACC regrets C snows
'Peter is sorry that it's snowing'

b. *Péter* ***azt*** *mondta* *(hogy)* *havazik*
Peter Dem-ACC said C snows
'Peter said that it's snowing'

In a neutral context, only non-factive verbs feature *azt* in the preverbal position. This pattern is quite robust, so there are no true factive verbs that allow *azt* to appear before the verb in a neutral context.[20] However, there is another pattern in which both verb types participate, as shown in (41):

(41) **Pattern II**

a. *Péter* *sajnálja/mondta* *hogy* *havazik.*
Peter regrets/said C snows
'Peter regrets/said that it's snowing.'

b. *Péter* ***AZT*** *sajnálja/mondta* *hogy* *havazik.*
Peter Dem-ACC regrets/said C snows
'What Peter regrets/said is that it's snowing.'

As witnessed in (41), the generalization about Pattern I only holds in one direction. In a neutral context, both non-factives and factives can appear without *azt* (while, as (40) shows, only non-factives are possible with *azt*). When the complement is focused, both verb types are preceded by *azt*. So, one way of formulating the generalization is that Pattern I shows a factivity distinction while Pattern II does not, since in (41) there is no difference between factive and non-factive verbs. On the current proposal, this is easy to explain since the prediction is that non-factives will have two complementation options (RCP and NCP) while factives are restricted to one (RCP). This means:

- Pattern I shows that the appearance of *azt* in (40b) is a reflection of the non-factive verb taking an NCP complement. Since factive verbs are not compatible with an NCP complement, the structure in (40b) is unavailable for them.

[20] By 'neutral context' I mean a sentence without any contrastive focus. This is crucial because Hungarian is very sensitive to focus, so we must isolate the effects of contrast. I return to the issue of focus below.

- Since Pattern II shows no distinction between factive and non-factive verbs (the two verb types behaving exactly the same in this pattern), we are dealing with an RCP complement here.
- With respect to the appearance of the clausal expletive, we can conclude that **(a)** when the complement is an NCP (as in (40b)), the expletive is required in a neutral context, while **(b)** when the complement is an RCP, the expletive is only required when the embedded clause is focused (cf. (41a) vs. (41b)).

In what follows, I argue that the above patterns and generalizations follow straightforwardly from the idea that the distinction between the two complement types is their referentiality. Assuming that *azt* is a clausal expletive that appears whenever the embedded clause is required to move up to the matrix clause due to some independently motivated syntactic requirement, I show that the motivation behind clausal 'movement' to the matrix clause (via the expletive) has to do with the [+/- referential] property of the complement clause. The basis of the argument is analogy between the movement requirements to which DPs are subject in Hungarian and the constraints observed in sentential complementation.[21]

Given our hypothesis that factives are restricted to taking RCP complements while non-factives can appear with either complement type, the structures for (40) and (41) are as follows:

(42) **Pattern I:**

$[_{TP}$ azt$_i$ mondta$_j$ /*sajnálja$_j$ $[_{PredP}$ t$_i$ t$_j$ $[_{VP}$ t$_j$ $[_{NCP}$ t$_i$ …]]]]

Dem said / *regrets

[21] In this discussion, I restrict my attention to object clauses and the behavior of the clausal expletive in these constructions. As pointed out by Anikó Lipták in her review of this thesis, similar questions are raised by oblique complement clauses that are associated with a pronominal, such as:

(i) *Péter számít arra, hogy Mari megnyeri a lottót.*
Peter counts Dem-on Comp Mary wins the lottery-Acc
'Peter is counting on Mary winning the lottery."

In these constructions (unlike in the object clauses I discuss here) the pronominal element can never be left out. This, however, is in line with the analysis I present here, namely that the pronoun surfaces whenever the clause would need to occupy a position that it cannot – be it a discourse-related position like focus, or a case position (as is presumably the case in examples like (i)). While this is likely the right analysis, it does not shed any light on whether the pronominal in examples like (i) can be used as a diagnostic of the properties of the associated clause – it seems obligatory regardless of the discourse properties or referentiality of the complement clause. It should be noted, however, that in these oblique examples the "az+Case" pronoun alternates with the analogous personal pronoun in postverbal position:

(ii) *Péter számít rá, hogy Mari megnyeri a lottót.*
Peter counts 3rd sg-on Comp Mary wins the lottery-Acc
'Peter is counting on Mary winning the lottery."

(i) and (ii) seem quite similar, but there is an important difference: only "arra" can be topicalized or focused, while "rá" can only appear post-verbally (illustrated with focus below):

(iii) *Péter ARRA/*RÁ számít, hogy Mari megnyeri a lottót.*
Peter Dem-on/3rd sg-on counts Comp Mary wins the lottery-Acc
'What Peter is counting on is Mary winning the lottery."

As such, it is still possible that "arra" is associated with RCPs while "rá" is an associate of NCPs – this would be interesting since with object clauses the expletive pronoun associated with both clause types is the same one. While this is a worthwhile avenue to explore, I have to leave it aside for later research at this point.

Since this is the pattern that shows a contrast between factives and non-factives, it follows that this pattern (involving *azt* in the preverbal position in a neutral context) must involve an NCP complement. We see that an NCP is represented in the preverbal position by the clausal expletive *azt*, an option that is unavailable in factive constructions because factive verbs cannot take NCP complements.

(43) **Pattern II:**

(a) $[_{TP}$ sajnálja$_j$ /mondta$_j$ $[_{PredP}$ t$_j$ $[_{VP}$ t$_j$ $[_{RCP}$ …]]]]
regrets/said

(b) $[_{TP}$ AZT$_i$ sajnálja$_j$ /mondta$_j$ $[_{PredP}$ t$_j$ $[_{VP}$ t$_j$ $[_{RCP}$ t$_i$ …]]]]
Dem regrets/said

In this pattern, we posit an RCP complement, given that both verb types are able to occur in this pattern. What we can conclude is that an RCP need not be represented in the preverbal position in a neutral context but when the RCP is focused, *azt* appears in the preverbal (focus) position.

Note that the generalizations above are mere descriptions of the surface constructions for now, and are heavily dependent on hypotheses that require proof. So now, I will show that there is a solid reason why an NCP must always be linked to the preverbal position, while an RCP only moves to the matrix clause if it associates with a discourse position like contrastive focus or contrastive topic. I claim that the different syntactic requirements to which NCPs and RCPs are subject follow directly from the assumption that NCPs are non-referential while RCPs are referential.

In Hungarian, there is a well-known requirement for non-referential expressions to leave the VP and move into the preverbal field of the sentence. The preverbal position houses a number of different elements – secondary predicates and bare nominal (non-referential) arguments, in particular. Kiss (2002) explains that 'postverbal argument positions [in Hungarian] are reserved for referential expressions' because 'arguments of the verb can be legitimized in one of two ways. In the unmarked case they have referential legitimacy […] Non-referential expressions can be legitimized by obtaining predicative legitimacy in the assertive part (i.e., the operator field) of the predicate.' (cited from Kiss 2002:29-30, who credits Alberti 1997). Descriptively what this means is that non-referential arguments (e.g. bare nominals or particles) cannot stay in their VP-internal base position but must move up into the preverbal position (often referred to as the 'verb-modifier position', the locus of complex predicate formation) where they form a phonological phrase with the verb and are interpreted as the sentence's information focus:

(44) *János keringőt táncolt. / *János táncolt keringőt*
John waltz- Acc danced John danced waltz-Acc
'John was waltzing' (example from Kiss 2002)

This requirement of Hungarian explains the contrast between Pattern I (40) and Pattern II (41) in a straightforward way. *NCPs* (which are only possible with non-factive verbs) must be associated with the preverbal position (which roughly corresponds to information focus and bears main sentence stress) because they are non-referential, and hence they *are subject to the same requirement as other non-referential expressions in Hungarian*. Not only does this correlation explain why the complement clause in (40b) must be associated with the preverbal position, but it also relates to the cross-linguistic observation that NCPs (referred to by previous works as 'non-factive' or 'asserted' complement clauses) are somehow part of the assertion (rather than the background) of the sentence. In Hungarian, such relations are expressed in surface syntax, with the preverbal position(s) expressing the information focus (i.e. main assertion) of the sentence.[22]

With respect to Pattern II, which is available to either verb type given that it involves an RCP complement, we once again find evidence for the referentiality of the object clause. As predicted by our hypothesis, an RCP, being referential, is not subject to the requirement of movement to the preverbal position, and is fine in the postverbal field. Therefore, the expletive *azt* is not needed in a neutral context when the complement is an RCP (see (41a)) since the expletive is only generated when the complement, due to an independent requirement, must move into the preverbal field. No such requirement applies to referring expressions, hence the grammaticality of (41a) regardless of the selecting verb. As shown by (41b), however, an RCP, like all other referring expressions, can be focused, in which case it needs to move (via the expletive) into the matrix focus position. Since (single) contrastive foci in Hungarian are always found in the position left-adjacent to the main verb, this, once again, is not a special requirement. What we find, then, is that *an RCP is subject to the same requirements as referring expressions in general*.

Given the patterns established above, we are left with an important question, namely, what is the semantic contribution of the type of complement selected in these constructions. Since it is clear that non-factive verbs are compatible with both NCP and RCP complements, it becomes possible to contrast these to tease apart the effects of referentiality from other related factors. Firstly, it is important to see that putting a non-factive verb into a 'factive construction' (contra Kallulli's (2006) conception of 'triggering factivity') does not render the construction factive. This is crucial because it eliminates the objection that the verbs that participate in both constructions are actually lexically ambiguous between a non-factive and a factive meaning. Once it has been established that the non-factive verbs appearing in Pattern II (with an RCP complement) are still non-factive, givenness (discourse factors) must also be isolated. I show that there is no

[22] This generalization is sketchy at best – but this issue has received a lot of attention in the literature, so I won't go into it in detail here. One of the issues debated in this context is whether or not contrastive focus (available to any element that bears contrast to others in a reference set) and information focus (or an element taking part in complex predicate formation, as witnessed in examples like (44)) are structurally differentiated in Hungarian. I have argued in an entirely different context that these two positions are in fact distinct, and can be told apart in particular in predicate fronting constructions, where 'predicate modifiers' (i.e. elements that form a complex predicate with the verb) can and must front along with the verb in predicate topicalization, while contrastive foci, negation and other TP-level operators cannot. (See Ürögdi 2006 for arguments.) For this reason, I will label the relevant positions as Spec,PredP and Spec,TP respectively, while noting that this is far from uncontroversial. However, since this question has no direct bearing on the current discussion, I will not go into it here, and note that the current analysis is equally compatible with the view that predicate modifiers, contrastive focus (and possibly negation) are all housed in the same position in Hungarian.

givenness requirement in Pattern II. This yields a true minimal pair, where we can look at a non-factive verb taking a novel proposition as its complement that can be either referential or non-referential. Such an example is given in (45):

(45) **Context:** *Marinak hirtelen rengeteg pénze lett, de egyikünk sem tudja, honnan.*
'Suddenly, Mary ended up with a lot of money but none of us know how.'

a. *János* ***azt*** *állította, (hogy) Mari megnyerte a lottót.*
John Dem-Acc claimed Comp Mary won the lottery-Acc
'John claimed that Mary won the lottery'

b. *János állította, hogy Mari megnyerte a lottót.*
John claimed Comp Mary won the lottery-Acc
'John claimed that Mary won the lottery'

Both (45a) and (45b) are neutral sentences in the sense that they do not involve any contrastive element.[23] Thus, the presence of *azt* in (45a) signals that the complement is non-referential (NCP), while it is referential (RCP) in (45b) since no clausal expletive appears (despite the neutral, non-factive interpretation). The complement is not presupposed in either (a) or (b), as the context shows, meaning that it is not necessary to have an NCP complement (indicated by the presence of *azt*) for the non-factive meaning to surface. In other words, having a referential complement does not force presupposition on the complement clause. In addition, the complement clause is new information (not given) in both examples. Once again, this means that having an RCP complement does not necessarily require that the embedded proposition be contextually given. The sole detectable difference between (45a) and (45b) is the information structure of the examples: while the complement clause constitutes the information focus of the complex sentence in the (a) example (which is in accordance with the fact that the NCP complement occupies the information focus position via the expletive *azt*), the main assertion of the complex sentence in (45b) is the main verb itself (the complement is a referring expression about which the complex sentence makes an assertion). I will discuss prosodic effects associated with this difference in prominence between the minimally different examples in section 3.4.2. For now, suffice it to say that the prominence relations in (45b) are exactly those that are typical for factive constructions (cf. Kallulli (2006)): the main verb carries prominence, and the complement clause behaves like a true argument of the verb. What is important to note, however, is that although this construction (a non-factive verb with an RCP complement) shares certain characteristics with factive embedding constructions (namely, prosodic and information structural relationship between the selecting verb and the

[23] Actually, the string in (45b) could be a case of verb focus (contrastive focus on the verb, as in 'claimed but did not know'), which would make the examples a non-minimal pair. There is, however, a strong prosodic difference in Hungarian between verb focus and neutral verb-first constructions (the verb is prominent in both but only verb-focus constructions feature post-focal compression on the complement). (See Ürögdi & Ishihara (2008) and Ishihara & Ürögdi (2011) for discussion.) Thus, the verb focus interpretation is easy to eliminate.

complement clause), this does not render the construction factive or necessitate a contextually given complement.

To sum up, so far we have established that there is evidence from Hungarian for the existence of two structurally different complement clauses (although I have not talked yet about the exact structural difference between these). This difference is evidenced by the presence or absence of the clausal expletive *azt* in the matrix clause in positions (such as: the preverbal predicate modifier position or contrastive focus) to which the associate (the CP) should but cannot raise. There are two different patterns witnessed in sentential embedding. One pattern is available only to non-factive verbs (which can take an NCP complement) while the other pattern is acceptable with any main verb (the pattern involving an RCP complement). Both complement types can be represented by the clausal expletive *azt* in the matrix clause but whether or not the CP needs to move to the matrix clause (and hence be represented there by the expletive) is dictated by the referentiality of the CP. Non-referential arguments must always raise to the preverbal field, so an NCP complement will require the expletive in a neutral context. Meanwhile, there is no such requirement for referring expressions, so no *azt* will appear with RCP complements unless the complement clause is contrastively focused. I have shown that this structural difference does not correlate with factivity or givenness, since minimal pairs featuring a non-factive verb with a novel complement that differ only in the referentiality of the complement clause (as evidenced by the expletive) can readily be constructed.

3.2.2 Wh-expletive constructions in Hungarian

Wh-expletive constructions, as illustrated in (46), provide additional evidence that the distribution of clausal expletives in Hungarian falls out from the referentiality of their associate.

(46) *Mit* *gondolsz,* *hogy* *ki* *fog* *nyerni?*
what-Acc you-think Comp who Fut win-Inf
'Who do you think will win?'

The construction involves an accusative case-marked pronominal (in this case, a wh-pronoun) occupying the matrix wh-position, while the lower wh-phrase remains inside the embedded clause, occupying the canonical wh-position in the complement. There is a significant amount of literature on this construction cross-linguistically (see Fanselow 2006 for a review), with the central issue being whether there is a movement chain between the two wh-phrases. The two options are as below.

(47) a. $[_{CP2}$ wh-Expl$_i$ V … $[_{CP1}$ C … wh-1$_i$ V … t$_i$]]
b. $[_{CP2}$ wh-2$_i$ V … $[_{CP1}$ t$_i$ C … wh-1$_j$ V … t$_j$]]

In (47a), the "partial movement" derivation, a portion of the long-distance wh-movement is performed by the embedded wh-phrase, which moves as high up as the standard wh-position in the complement (Spec,TP in this case as the structure is based on Hungarian) and the movement to the matrix clause is carried out by the expletive, which is coindexed with its associate, extending the scope of the embedded wh-phrase up to the matrix clause. Meanwhile, in (47b), there is no derivational relationship between the two wh-phrases. The embedded question is formed via normal wh-movement, while the matrix wh-word is an expletive that stands in for the entire complement clause.[24] Clearly, the derivation in (47b) is in accordance with the current analysis, since it treats the wh-word *mit* as an expletive for the complement clause (which is easy to derive on analogy with *azt*). In fact, Horvath (1997) convincingly argues that this is in fact the right derivation at least for Hungarian. In what follows, I will present a quick overview of the relevant data. It will turn out that, while I agree in spirit with Horvath's approach, some of her data and generalizations require revision. Nevertheless, her work supports the general idea that *mit* is a clausal expletive similar to *azt,* and, as such, it should be expected to show referentiality effects in the same way. I go on to present novel data from Hungarian wh-expletive constructions to demonstrate that this expectation is born out.

Arguing against the 'partial movement' analysis of scope-marking constructions (cf. McDaniel (1989), Rizzi (1992), and much subsequent work – see Fanselow (2006) for a review), Horvath (1997) suggests that the embedded wh-construction in Hungarian can be better analyzed as an instantiation of the type of indirect dependency proposed by Dayal (1994). As shown in the schematized derivation in (47b), the structure proposed by Horvath does not involve any derivational relationship between the embedded wh-phrase and the wh-expletive occupying the matrix wh-position. Rather, the expletive is generated in object position with the embedded clause as its associate, and is subsequently moved up to the matrix wh-position to fulfill the wh-criterion. This derivation is argued by Horvath to be the correct one for Hungarian (although she claims that German and Hindi both feature different structures that yield similar surface forms, evidence that at least three different strategies are employed by languages in this respect – I do not have anything to say about the non-Hungarian examples here), contra, for example, Kiss (1987), who argues against the existence of this construction in Hungarian, claiming that the seemingly 'matrix' and seemingly 'embedded' clauses in examples like (46) actually involve two separate sentences (so, a case of pseudo-embedding). Some of Horvath's argumentation is based on data that I will contest below (e.g., the alleged unavailability of the wh-expletive construction with embedded yes-no questions) but some of her arguments are quite convincing. For one, she shows that the wh-expletive must have originated in a case position because the case it carries cannot have been inherited from the contentful wh-phrase in any way (and is actually often incompatible with it). In fact, the case appearing on these expletives in Hungarian is not a default case but precisely the case one would expect to appear on an argument in the position where the CP occurs (i.e., direct or indirect object, or oblique argument). Further, Horvath shows a long line of evidence illustrating the fact that

[24] I base the structures above on Hungarian, where run-of-the-mill wh-movement raises the wh-phrase to Spec,TP, rather than Spec,CP. This is not important because I am only using these structures to illustrate the two derivational options. For a discussion of how these apply to different languages, refer to Horvath (1997).

restrictions applying to long-distance wh-movement and the wh-expletive strategy are different when it comes to certain island effects and scope relations. From this, she concludes that treating them as alternatives of the same scope-marking operation is mistaken because this would leave these contrasts unexplained. I will not go through Horvath's arguments in detail here – for these, I refer the reader to her work (see also Horvath (1995, 1997, 2000) – although I return to a discussion of some of her observations and data below. For now, I will take it as a given that some version of (47b) is the right way to analyze this construction in Hungarian, and go on to discuss the relevance of the construction to the topic at hand.

As discussed above, factive embedded clauses are well-known to be weak islands, that is, they disallow the extraction of a non-referential wh-phrase, as illustrated in (48).

(48) a. How do you think that the mechanic fixed your car? (Answer: With a wrench.)
b. * How do you resent that the mechanic fixed your car? (no low-scope answer)

This fact has received a number of explanations from various authors. While K&K attribute the opacity of these complements to the fact that they are complex NPs on their account, Melvold (1986) points out that 'factive islands' are weaker than complex NP islands, and these violations are in fact closer to wh-island violations in strength and distribution. De Cuba (2007) provides an analysis that capitalizes on the adjuncthood of the violating wh-phrases, an analysis that is unlikely to be correct since, as pointed out by many authors, the main criterion for extractability appears to be referentiality, not argumenthood. In fact, Szabolcsi & Zwarts (1993) argue that the "factive island" violation is semantic in nature, as non-referential variables inside a weak island yield an uninterpretable semantic object. I return to the issue of long-distance extraction later on. What is important for now is that Hungarian shows a different pattern. First of all (as noted in de Cuba & Ürögdi (2009a,b)) the factivity contrast in (48) is not witnessed in Hungarian.

(49)	* *Hogyan*	*gondolod/sajnálod,*	*hogy*	*a szerelő*	*megjavította*	*az autót?*
	how	you-think/you-resent	Comp	the mechanic	fixed	the car-Acc

As (49) shows, Hungarian does not exhibit a contrast between factive and non-factive verbs when it comes to extraction of a non-referential wh-phrase from the complement, calling into question approaches making reference to 'factive islands' – and I return to this point in Section 4.4, where I discuss long-distance wh-movement. For the current discussion, what is important is that Hungarian uses a different strategy for expressing something like (48a), where a non-referential variable can clearly be construed inside the complement: if the English equivalent can receive a perfectly well-formed LF, it is obvious that no semantic story is going to rule out the same in Hungarian. Therefore, the fact that the structure in (48a) is never available in Hungarian must somehow be related to the availability of the wh-expletive construction, illustrated in (50).

(50) *Mit* *gondolsz,* *hogy* *hogyan* *javította meg* *a szerelő* *az autót?*
what-Acc you-think Comp how fixed Prt the mechanic the car-Acc
'How do you think the mechanic fixed the car?'

Note, however, that the semantic structure of (50) is not exactly the same as that of the English 'equivalent' in (48a) since only in the English structure does the wh-phrase (*how*) actually take matrix scope. If Horvath's analysis is correct, the embedded wh-phrase in (50) actually stays inside the complement clause both in surface structure and at LF, and matrix wh-scope is marked by the wh-expletive, which stands in for the complement clause and not the embedded wh-phrase. In any event, what (50) shows is that there is no problem with a non-referential variable inside an NCP in Hungarian either, but instead of long-distance movement we get the wh-expletive construction. It then becomes interesting to compare wh-expletive constructions and their interpretations to see whether the referentiality restrictions observed with the declarative examples are witnessed in this construction as well. In what follows, I discuss some data from Horvath as well as some novel examples to show that in fact the referentiality of CPs is supported by this construction.

For some speakers, wh-expletive constructions are only acceptable with non-factive verbs (or, in the terms of this account, with NCP complements). I do not have anything insightful to say about this, except that with RCP complements there is always a movement option when the wh-phrase in question is referential (and the construction is bad otherwise, given the universal ban on non-referential variables bound over a weak island boundary, cf. Szabolcsi & Zwarts 1993), so we get the following contrast, based on the referentiality of the wh-phrase to be moved.

(51) a. *Melyik* *vendéggel* *mondtad/sajnálod,* *hogy* *kiabáltál* *tegnap?*
which guest-with you-said/you-regret Comp you-yelled yesterday
'Which guest did you say/do you regret that you yelled at yesterday?'
b. **Hogyan* *mondtad/sajnálod,* *hogy* *viselkedtél* *tegnap?*
how you-said/you-regret Comp you-behaved yesterday
'How did you say/*do you regret that you behaved yesterday?'

When the wh-expression is referential, as in (51a), the long-distance movement is acceptable since RCP is a weak island. Meanwhile, when the wh-phrase is non-referential, as in (51b), the extraction is bad. Of course, the interpretation of (51b) will be impossible if the complement clause is an RCP – which is always the case if the verb is factive but only one of the options if the verb is non-factive. When a non-factive verb like *mond* 'say' takes an RCP complement, therefore, it will behave just like a factive in disallowing the extraction. Thus far, however, a semantic account will cover this data. When the non-factive verb takes an NCP complement, though, semantics should have no problem with this construction, and this is when we arrive at the wh-expletive structure as in (50). Given that the wh-expletive construction is never the only option for

factives, this may be the reason behind some speakers not using the wh-expletive construction with factives at all.

What is interesting to note, however, is that for speakers who accept the wh-expletive construction with any embedding verb there is a difference between factives and non-factives in this realm. With a non-factive verb, any wh-expression can appear in the embedded clause. This is expected since non-factive verbs have the option of taking an NCP complement, which imposes no restriction on the referentiality of variables inside it. Meanwhile, with factive verbs, where the only option for complementation is RCP, the wh-expletive construction is just as bad as long-distance extraction if the embedded wh-phase is non-referential (see (53b)).

(52) a. *Mit* *gondolsz,* *(hogy)* *kivel* *beszéltél?*
what-Acc you-think Comp who-with you-spoke
'Who do you think that you spoke to?'

b. *Mit* *gondolsz* *(hogy)* *hogyan* *viselkedett?*
what-ACC you-think C how he-behaved
'How do you think he behaved?'

(53) a. *Mit* *sajnálsz,* *hogy* *kivel* *beszéltél?*
what-Acc you-regret Comp who-with you-spoke
'Who do you regret that you spoke to?'

b. **Mit* *sajnálsz,* *hogy* *hogyan* *viselkedett?*
what-Acc you-regret Comp how he-behaved
Intended: 'How do you resent that he behaved?'

Note that Horvath (1997) reports data similar to (53b) as grammatical, which, if correct, would actually be unexpected, given the apparently universal ban on non-referential *wh*-expressions construed inside a factive complement (cf. Szabolcsi & Zwarts 1993, and the observation that it is in fact D-linking – and not argumenthood – that is crucial for escaping a factive island). In contrast to Horvath's data, my informants either do not accept the *wh*-expletive construction with factive verbs at all, or accept it only if the *wh*-expression can be interpreted as referential. Horvath actually uses an example similar to (53b) (which, again, she marks as grammatical) to argue for the hypothesis that there cannot possibly be a movement relation between the wh-expletive and the embedded wh-phrase, since this chain would clearly involve a non-referential wh-element crossing a weak island boundary. While I agree with the main conclusion of Horvath's paper (namely that there is no chain, movement or other kind, that connects the wh-expletive and the embedded wh-expression) I have not found any speakers that accept (53b) with a non-referential interpretation on the embedded wh-phrase. This is to be expected, given Szabolcsi & Zwarts' observation that this semantics seems to be universally bad. In this sense, the referentiality requirement on the embedded

wh-phrase (a universal requirement) and the referential interpretation of the entire complement clause could, in principle, be independent effects.

Interestingly, Horvath herself also notes a particular kind of correlation between the D-linking of the complement clause and its participation in the wh-expletive construction. The observation is that Hungarian wh-expletive constructions exhibit negative island effects just in case the complement clause is interpreted as non-D-linked. With matrix verbs that require a D-linked complement clause, the negative island effect is obviated or at least significantly weakened.

(54) a. **Mit nem gondolsz, hogy kivel beszélt Mari?*
what Neg you-think Comp who-with spoke Mary
Intended: 'Who is the person you don't think Mary spoke to?'
(example from Szabolcsi & Zwarts 1993, cited by Horvath)

b. *Mit nem ismert be János, hogy hányszor hamisította az aláírásodat?*
what Neg admitted Prt John Comp how-many-times forged your signature - Acc
'Forging your signature how many times did John not admit to?' (Horvath's example)

The observation is that a predicate like *beismer* 'admit' prefers a referential complement, while an open predicate like *gondol* 'think' prefers a non-D-linked one. It appears that the wh-expletive is, accordingly, able to escape the negative island in (54b) but not in (54a), presumably because this is a weak island created by negation, and the wh-expletive is referential in (54b) but not in (54a). This clearly fits in with the current proposal, since the contrast can be explained if the complement clause in (54a) is an NCP, while it is an RCP in (54b). This means that the embedded wh-phrase must also be interpreted referentially in (54b), which is true (as shown also by the English translation). There is also a prediction that, to the extent that the complement can be construed as referential, an example like (54a) should actually be acceptable in some contexts. Such a context is hard to construct with a verb like *think*, and it does appear to be the case that some verbs take referential complements more easily than others. Note, however, that this preference is not tied to factivity in any way, since *beismer* 'admit' is also non-factive in this context. It seems that the contrast is simply a consequence of how easy or difficult it is to construct a reference set made up of things said, thought, admitted, and so on. While it is pragmatically normal to imagine that (as in (54b)) a number of different claims have been made about John, some of which he did not admit to, it is harder to envision a context where there is a set of thoughts involving Mary speaking to different people, some of which John did not have. Nevertheless, the point is that to the extent that the complement CP is referential, the wh-expletive can escape a negative island, clear indication of its referential properties.

The above contrast is interesting because we now have two related arguments to tie together. One, Horvath's argument (which is in accordance with the present, more general account of clausal expletives)

that the wh-expletive in these Hungarian constructions stands in for the complement clause (and not the embedded wh-phrase). Two, the observation that the wh-expletive itself shows referentiality contrasts in that it can escape islands more easily when it is referential. Given these two, it is clear to see that the wh-expletive cannot inherit its referentiality from the embedded wh-phrase, and hence must reflect the referentiality of the clausal complement with which it is associated. For this argument to hold, it is important to accept Horvath's analysis of wh-expletive constructions, or some other analysis that posits no chain between the two wh-phrases. This is because in the cases when the wh-expletive is referential (i.e., when its associate is an RCP) the embedded wh-phrase will also be obligatorily referential. It seems, however, that these two properties are syntactically independent of each other. At the same time, obviously the two constraints are instances of the same thing: a ban on the binding of non-referential variables inside a referential domain. While this is clear when looking at extraction out of a referential DP, it is less clear when talking about extraction out of a CP (although the current proposal assimilates these two categories from this respect) and even less straightforward when it comes to islands created by negation. I return to this issue in Section 4.

Support for the claim that there is a referentiality requirement on the wh-expletive in constructions formed with factive verbs (which does not apply to the non-factive counterpart) comes from the following contrast.[25] The wh-expletive in (55) is interpreted as referential, so the existence of an answer is presupposed. This requirement does not apply in (56), where the wh-expletive can be interpreted non-referentially (although it can, of course, also be referential).

(55) a. *MIT* *sajnál* *János,* *hogy* *kivel* *randizott* *Mari?*
what-Acc regrets John C who-with dated Mary
'Who does John regret that Mary has dated?'

b. *# Semmit.* *Nem* *is* *ismeri* *Marit*
nothing-Acc Neg prt knows Mary-Acc
'Nothing. (i.e. 'Nobody.') He doesn't even know Mary'

(56) a. *MIT* *mondott* *János,* *hogy* *kivel* *randizott* *Mari?*
what-Acc said John C who-with dated Mary
'Who did John say that Mary has dated?'

b. *Semmit.* *Nem* *is* *ismeri* *Marit*
nothing-Acc Neg prt knows Mary-Acc
'Nothing. (i.e. 'Nobody.') He doesn't even know Mary'

[25] The test is modeled after Horvath's (1997) example (55), albeit with somewhat different results.

The contrast is similar to that observed with *which* vs. *what* questions in English. Once again, this confirms the claim that the complement clause must be interpreted referentially under a factive verb (given that these verbs can only take RCP complements) while it may be non-referential under a non-factive verb. Recall now the semantic characterization of NCP complements: these are 'speech acts' or 'open questions' that happen to be embedded. Apart from the referentiality contrasts discussed above, evidence can also be found for the idea that non-factive verbs have the option of embedding an open question, a possibility that is not open to factive verbs. First, observe the contrast in (57).

(57) a. Speaker A: *Mit* *gondolsz,* *(hogy)* *kit* *látott* *Mari?*
what-Acc you-think Comp whom saw Mary
'Who do you think Mary saw?'
Speaker B: *Pétert.* */ ? Azt,* *hogy* *Pétert.*
Peter-Acc. / Dem-Acc Comp Peter-Acc

b. Speaker A: *Mit* *sajnálsz,* *hogy* *kit* *látott* *Mari?*
what-Acc you-resent Comp whom saw Mary
'Who do you resent that Mary saw?'
Speaker B: *Azt,* *hogy* *Pétert.* */ * Pétert.*
Dem-Acc Comp Peter-Acc Peter-Acc

The contrast demonstrates that answering the question embedded under a non-factive verb directly (as in: '*Pétert.*') is felicitous, presumably because the NCP complement is an actual questioning act. Meanwhile, the same answer is not possible with an RCP complement – even though the question is well-formed. This is because the question in (57b) does not contain an open question in the complement. Rather, the question refers to a set of possible sightings by Mary, of which Speaker B resents one – and the answer must specify this. This is what the grammatical answer reflects, since it fills in the variable provided by the wh-expletive, not the embedded wh-expression. Of course, the same kind of answer is also possible in (57b) – but marginal, given the difficulty of construing the reference set of thoughts about sightings by Mary, one (or more) of which Speaker B must identify.

Finally, a related observation is that non-factive verbs, which have the option of embedding NCPs, can also embed yes-no questions in the wh-expletive construction (contra Horvath 1997, who marks such examples as ungrammatical), as in (58). Factive verbs cannot embed such question acts.

(58) *Mit* *mondott* *János,* *hogy* *haza-jön* *vacsorá-ra?*
what-Acc said John Comp home-comes dinner-for
'Did John say he was coming home for dinner?' ('What did John say – is he coming home?')

Once again, this confirms two things. One, the wh-expletive is not an associate of an embedded wh-phrase but of a [+wh] CP complement, for the simple reason that examples like (58) do not feature a wh-phrase in the complement clause. Two, the embedded CP in these cases can be any sort of questioning act, as long as it is a true question. It is important to note that the interpretation of (58) is not that of a question choosing from the two-member set [he will come home] and [he will not come home]. There is no presupposition that John must have said either that he is coming home or that he is not coming. In fact, a "Nothing, I haven't even seen John." answer is even felicitous. The point here is that the embedded question is an open yes-no question, evidenced by the fact that a "Yes." or "No." answer is a possible response to (58).[26]

To sum up this section, we have seen that an approach to Hungarian wh-expletive constructions taking its cue from Horvath's (1997) account coupled with the current proposal provides evidence that clausal expletives in Hungarian reflect the referentiality of their associate. This, in turn, supports the view that it is referentiality that distinguishes the two main types of CPs. In the following section, I turn to evidence from other languages as well as prosody to further prove this point.

3.3 Additional evidence: RCPs pattern with referring expressions

In this section I briefly sketch some evidence that RCPs pattern syntactically with referring expressions. Most of this evidence is impressionistic at best, and much more careful research is needed to establish these

[26] As I mentioned above, Horvath states explicitly that such constructions (yes-no questions in wh-expletive structures) are ungrammatical, and it is true that many speakers find these examples questionable. Anikó Lipták suggested to me in her review that these structures are not cases of true embedding but rather two separate sentences, a.k.a. "split questions". While this is a possibility, I have found many attested examples that cannot be analyzed this way:

(i) *Mit gondolsz, hogy nem-e túl kicsi a Römi egy ilyen nagy hidegvérűhöz?*
what-Acc you-think Comp not-Prt too small the Römi a such big cold-blooded (animal)?
"Don't you think that Römi is too small for such a large cold-blooded animal?"

(ii) *Mit gondol, hogy vajon mindannyian rendelkezünk-e telepatikus képességgel?*
What-Acc you-think(formal) Comp Prt we-all possess-Prt telepathic ability
"Do you think that we all possess telepathic abilities?"

As the examples above show, these embedded yes-no questions can contain question particles like "-e" or "vajon. Further, many examples can be found where the construction is followed by something that can only be interpreted as a reply to the embedded question – clear indication that we are dealing with an embedded question act (so, the question does not refer to what thoughts the listender entertains but to the answer to the embedded question):

(iii) Q: *Mit gondolsz, hogy ő feldolgozta-e már?*
what-Acc you-think Comp he processed-Prt already
"Do you think he has got over it already?"
A: *Hát, részben.*
well in-part
"Well, partially."

Of course, split questions are also possible in Hungarian (with a different intonation pattern) but, at least in my dialect and in the dialect(s) that the above examples come from, yes-no questions can easily be embedded in wh-expletive constructions, which is what we would expect if speech acts can be embedded in general. However, nothing in my analysis hinges on this issue: for those speakers for whom these examples are unacceptable, there could easily be a way to rule them out independently, without affecting the argumentation referring to embedded wh-questions.

patterns clearly. Nevertheless, the abundance of examples from various languages pointing in this direction indicates that this account is on the right track.

The first set of observations (from de Cuba & Ürögdi 2009a) comes from the realm of association of sentential complements with different types of pro-forms. Data from English shows that different chunks of structure are replaced by different elements. *Do-so* replacement targets VP, as in (59a), while *it*-replacement works for referential arguments as in (59b). What is important is to note that [so] replaces something predicational, while [it] stands for something referential.

(59) a. Bill tried the cake, and John did [$_{VP}$ so] too
b. Bill tried the cake, and John tried [$_{DP}$ it] too

Under a non-factive, as in (60a), the phrase *that Bill had done it* can be replaced with *so* (just like the VP *ate a cake* in (59)), or with *it*. However, only *it* is available under the factive predicate in (60b).[27]

(60) a. John supposed [$_{NCP}$ that Bill had done it], and Mary supposed [it/so] too
b. John regretted [$_{RCP}$ that Bill had done it], and Mary regretted [it/*so] too

In the terms of the present analysis, we can say that *so* is able to replace non-referential NCP, while the pro-form *it* can be substituted for referential RCP. Since non-factive predicates are compatible with either NCP or RCP, we predict that either substitution will be fine, as in (60a).

Hungarian has a similar pattern when it comes to replacement by pro-forms. Most non-factive verbs are compatible with the pro-form *úgy* 'so' as well as with *azt* (although the choice is reflected in a slight difference in interpretation).[28] Factive embedded clauses do not allow association with *úgy*.[29]

(61) a. *János úgy gondolta, hogy holnap indulunk.*
John so thought Comp tomorrow we-leave
'John thought that we would leave tomorrow'
b. **János úgy sajnálja, hogy holnap indulunk.*
John so regrets Comp tomorrow we-leave
Intended: 'John regrets that we leave tomorrow'

[27] Data in (60) from Kiparsky & Kiparsky (1970:362); labels and interpretation from de Cuba & Ürögdi (2009a).
[28] The choice of *úgy* implies more uncertainty than *azt*, and in fact *úgy* is possible with the semifactive *know* which does not take *azt.* (cf. the English *I know so*) This fact indicates that semifactives are compatible with an NCP, although the difference between *azt* and *úgy* in this domain should be examined further.
[29] Kiss 2004 discusses this construction, noting that *úgy* has the same distribution as *azt*, but not taking *úgy* to be an associate of the embedded clause.

The pattern is not exactly the same as in English because Hungarian *azt* (unlike English *it*) can stand for either an NCP or an RCP, showing that it is not inherently specified for referentiality – while English *it* appears to be more constrained, at least in object position.[30] (Note that English *it* is not necessarily restricted in terms of contextual givenness or factivity either, cf. constructions like *It seems that it's going to rain tomorrow.* where the associated CP is neither factive, nor contextually given. This raises the question where the givenness effect with *it* comes from in the Hegarty examples like (30) – I believe that the answer lies in prosody but cannot offer a full explanation here.) Nevertheless, it is noteworthy that *úgy* cannot be used in cases where we predict the complement clause to be of the category RCP. For instance, *úgy* cannot stand for a contrastively focused complement.

(62) **János ÚGY gondolta, hogy holnap indulunk (nem úgy, hogy…)*
János so thought Comp tomorrow we-leave Neg so Comp
'John thought that we would leave tomorrow, and not that …'

Given these facts, *úgy* patterns structurally with *azt* in associating with CP complements as a clausal expletive – but with the difference that *úgy* appears to be restricted to NCP complements like the English *so*. Although I am clearly simplifying here, this preliminary survey shows that pro-form replacement correlates with the referential vs. non-referential property of the complement clause.

Another piece of evidence for treating RCPs as referential expressions comes from the observation (Den Dikken 2008, citing Reeve 2007) that in English *it*-clefts, only referential clefted XPs are compatible with the *wh*-pronoun *which.* Factive complements, interestingly, are readily acceptable with *which*, while non-factives can also be acceptable with the right context.

(63) a. It's this book that/which I want to read. (referential)
b. It's a doctor that/*which I want to become. (predicative, non-ref.)
(64) a. It's that John didn't show up that/which Jane resents. (referential CP)
b. ?It's that the thief is John that/which Jane claims. (referential CP)[31]

[30] This duality of the pro-form *az* is not limited to clausal complementation. For example, while this pronominal is primarily used as a demonstrative pronoun (as well as definite article), *az* can also be used to replace nominal or adjectival predicates in answering patterns (i) and coordinated structures (ii):

(i) A: *János boldog? / János tanár?*
John happy John teacher
'Is John happy?'/ 'Is John a teacher?'
B: *Az.*
Dem
'Yes.' (Lit.: '(He is) that.')

(ii) *Péter gazdag, és János is szeretne az lenni*
Peter rich and John also wants Dem be-Inf
'Peter is rich, and John also wants to be rich'

[31] In de Cuba & Ürögdi (2009a) we reported the data in (64b) to be ungrammatical – but later testing has shown that it is in fact acceptable (as expected) although somewhat marginal. The marginality probably has to do with the fact that,

As shown by (63), non-referential phrases like nominal predicates cannot be associates for a *which*-clause. (The pronoun *that* does not have this restriction.) So, to the extent that an object CP is a suitable clefted element for the *which*-clause to associate with, this shows that it patterns with referring expressions with respect to the relevant property. Now, looking at (64) we see that the factive predicate *resent* is clearly compatible with *which*, since its complement is obligatorily referential. When it comes to the non-factive *claim*, the example is altogether a bit marginal because of the interference of the (perhaps less marked) option of having a non-referential complement with this verb. Clefting with non-factive verbs is not perfect at all, and the reason for this is probably semantic, in that it is not so easy to construct a reference set for beliefs or claims – but to the extent that it is made possible by the context, there does not appear to be a strong contrast between *that* and *which* in (64b). Once again, this preliminary observation suggests that the embedded CP in the clefting examples in (64) patterns with referential DPs (rather than predicative elements).

Another set of interesting data come from Albanian and Greek (Kallulli 2006) where a clitic pronoun normally associated with referential DPs shows up with factive embedded clauses.[32] In an account that argues in favor of the K&K analysis of embedding constructions, Kallulli notes that in Albanian and Modern Greek a clitic pronoun that normally associates with factive embedded clauses can also appear with non-factive verbs but in this case the examples ((65/66b)) have a 'factive flavor'.[33]

(65) **Albanian**

a. *Besova* *se* *Beni* *shkoi* *(por në fakt ai nuk shkoi)*.
believed-I that Ben left (but in fact he not left)
'I believed that Ben left (but in fact he didn't)'

b. *E* *besova* *se* *Beni* *shkoi* *(*por në fakt ai nuk shkoi)*.
It CL,ACC believed-I that Ben left (but in fact he not left)
'I believed the fact that Ben left (*but in fact he didn't)'

(66) **Modern Greek**

a. *Pistepsa* *oti* *o Janis* *efije* *(ala stin pragmatikotita den ejine kati tetio)*.
believed-I that the Janis left (but in reality neg happened something such)

b. *To* *pistepsa* *oti* *o Janis* *efije*
itCL,ACC believed-I that the Janis left
*(*ala stin pragmatikotita den ejine kati tetio)*.
(but in.the reality not happened something such)

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with most non-factive verbs, it can be difficult to construct a reference set of thoughts, utterances, claims and so on from which the it-cleft picks out one. As (64b) attests, this is only difficult but not impossible.

[32] Note that Kallulli interprets the Albanian data in a very different way, taking it to support K&K's analysis.

[33] Examples (65) through (68) are taken from Kallulli 2006.

Whether or not these examples actually become factive is a debated issue. I return to the same question with regard to Germanic examples in section 3.4. Kallulli, on one hand, appears to claim that givenness and factivity are more or less the same thing: "One question that arises is what the connection (if any) between 'givenness' and 'presupposition' is. [...] To say that a sentence is 'presupposed' can mean one of two things: Either it is assumed to be true, or the proposition expressed by the sentence ('der Gedanke' in the sense of Frege) has been mentioned before. But in spite of this, as Manfred Krifka (personal communication) points out, this distinction mostly seems to be blurred, in the sense that propositions that are presupposed (i.e., assumed to be true) are 'given' (either in the immediate context, or via world knowledge), and that contextually 'given' propositions are most often taken to be true. In view of this, the difference between the factive and the non-factive uses of 'believe' […] may be reasonably stated in terms of information structure." This stance is debatable, however, as I will discuss in the next section. For now, suffice it to say that Kallulli goes on to show that the clitic at hand – the one responsible for the alleged 'factivizing' of *believe* in (65b) and (66b) – is normally an associate of topics. In the nominal domain, the same clitic is associated with DPs that receive a topic interpretation. Accordingly, obligatorily non-topical (or non-referential) DPs like those in existential *there*-sentences can never be doubled by this clitic, as shown by (67) and (68).

(67) **Albanian**

a. *Ana* *lexoi* *libr-in*.
AnnaNOM read book-theACC
'Anna read the book.'

b. *Ana* *e* *lexoi* *libr-in*.
AnnaNOM 3S,CL,ACC read book-theACC
'Anna read the book.'

(68) **Albanian**

*(*I)* *kishte* *minj* *në gjithë apartamentin*.
3PL,CL,ACC had miceACC in all apartment.the
'There were mice all over the apartment'

In (67) we see that a definite DP is not clitic-doubled always, but only when it is a topic. The interesting point about the examples in (67) and (68) is that they are highly similar to the Hungarian *azt*-examples in this sense. The generalization seems to be that (a) non-referential phrases can never be doubled by the clitic, and (b) referential ones are clitic-doubled whenever they are topics. This means that referentiality and topichood are the two conjoined prerequisites on the clitic-doubling – similarly to Hungarian, where the appearance of the pronominal *azt* seems to be tied to the requirement for the internal argument to be associated with a particular syntactic position. So, in contrast to Kallulli's analysis, which assumes that the presence of the clitic is something "extra" that is an instantiation of a K&K-style functional head associated with factivity, an alternative analysis is possible that makes Albanian and Greek directly analogous to Hungarian. The idea

would be that the presence of the clitic is tied to the referentiality of the object *indirectly*: when an internal argument needs to be associated with a higher topic position, it is doubled by the clitic. Since topics are typically referential, this is not possible for non-referential arguments. Given that non-factives accept both a referential and a non-referential argument, they are not barred from the clitic-doubling structure. However, I would differ from Kallulli in saying that the contrast between the (a) and (b) examples in (65) and (66) comes down not to factivity but to referentiality of the complement, a distinction that will hopefully become much clearer in the next two sections.

3.4 Presupposition, givenness and referentiality

A question that has been touched upon in all of the previous sections is the relationship between presupposition, contextual givenness, and referentiality. In the literature, various stands have been taken on this issue. At one extreme, Kallulli (2006) assumes that presupposition and givenness are essentially the same thing, and as such, both of these are reflected in syntax. On the other hand, Hegarty (1992) convincingly shows that at least some syntactic phenomena are conditioned by givenness rather than presupposition, since minimal pairs can be constructed where both examples are factive but only one contains a given complement clause, and only this one features an *it* pronoun (claimed to reflect factivity by K&K) (cf. (30)). In contrast, the present account argues that syntactic differences are dependent upon the referentiality of the complement clause, a concept that was first introduced into this debate by de Cuba & Ürögdi (2009a) and, as such, has not been subjected to sufficient discussion to date (although see Haegeman & Ürögdi 2010a,b,c for a particular syntactic implementation that differs from the original, and replies in the same volume for discussion). In what follows, I first discuss in some detail the Kallulli proposal, which represents one of the extremes in this respect, and show that – while presenting some interesting data and observations – the account is based on a misinterpretation of the data and a general misguided notion of 'presupposition' that blurs the line between presupposition and contextual givenness. I argue that this is not only unnecessary but conceptually wrong, since the two concepts stem from different modules of the grammar. I show that neither of these concepts correctly determines syntactic structure, which, I have argued above, is conditioned solely by the referentiality of the complement clause. I present novel prosodic evidence from Ishihara & Ürögdi (2011) to support this tripartite distinction.

3.4.1 Presupposition not the same as givenness

In Kallulli (2006), the following main claims are made:
(i) The [+presupposed] or [+given] status of an embedded CP (which she takes to be essentially the same thing) must be marked by an extra functional projection in the syntax.
(ii) The head of this projection must either be realized by (a) or (b):

a. an expletive element of some sort (a pronoun, modal, or clitic)

b. destressing or deaccentuation of the embedded CP

The implicit claim is that presupposition, givenness and deaccenting go together. In fact, this correlation is taken to be productive to the extent that factivity can be 'triggered' by an expletive pronoun (69b) or a modal (69c,d) with a non-factive verb like *believe*.

(69) a. I believed that John left (but in fact he didn't).
b. I didn't believe **it** that John left. *In fact he didn't.[34]
c. I **can** believe that John left (*but in fact he didn't).
d. **Can** you believe that John left? *In fact, he didn't.

As alluded to in earlier sections, there are a number of problems with this account, which are discussed in some detail in de Cuba & Ürögdi (2010). One of the empirical issues is that this 'triggering' of factivity – even if it exists and the examples in (69) hold up – is not very productive at all. Firstly, modals other than *can* do not seem to trigger factivity in the same way.

(70) Bill **may/might/will/could** believe that John left (but in fact he didn't).

As illustrated in (70), these modals do not affect the factivity of the predicate *believe*, so the 'factivizing' effect witnessed in (69) appears to be a specialty of *can*, rather than the modal construction. Why *can* should be special in this respect is a good question and I do not have a solid answer, but the point is that other modals, which presumably occupy the same position, do not have the same effect on the interpretation.

Another, more serious problem is that the same triggering of factivity does not seem to work with other non-factive verbs like *think, assert* or *say.*

(71) a. *I thought/asserted/said it that John left.
b. Can you think/assert/say that John left? (still non-factive)

If there was a structural correlate to factivity, which was embodied by the pronominal *it* or the modal *can*, why do we not see the same effect in (71)? Of course, to be fair, it is possible to soften Kallulli's analysis and say that the presence of this extra Kiparskian structure is a prerequisite for factivity but does not directly trigger it. This may well be the case, or, rather, it may be that certain structures or combinations of semantic

[34] The judgment comes from Kallulli (2006). Actually, (69b) can be grammatical given the right context:
(i) *(Even though everyone was saying it,) I didn't believe it that John left. (And I was right:) In fact he didn't.*
As discussed below, I believe the 'factivizing' effect with these examples is only apparent. In fact, Melvold (1986) also notes in a footnote that while adding *finally* to a "believe it that…" construction favors the factive reading, adding *actually* to the same sentence yields a strongly non-factive interpretation:
(ii) *Mary finally believes it that Bill is allergic to her cat.*
(iii) *Mary actually believes it that Bill is allergic to her cat, but everyone knows that he isn't.*
I agree with Melvold that whatever is going on in examples like (ii) is an idiosyncratic property of *believe.*

items are compatible with a factive interpretation while others are not. But, if there is no one-to-one correspondence between factivity and structure, factivity cannot be a direct correlate of syntax and whatever we are looking at in (69) is unrelated to factivity. There does seem to be an effect of introducing a modal to the structure but this effect is not 'factivizing'.

Rather, what appears to be happening is that, due to the presence of the modal (or negation), prosodic and information structural prominence shifts to the matrix clause, and this renders these constructions similar to factive constructions, where this prominence relation is the default. In fact, Kallulli, noting this fact, also claims that prosodic prominence on the main verb induces factivity.

(72) I didn't see John leave my party, but then he called me from his home phone. Now it was obvious. I believed that John left.

(example from Kallulli 2006)

However, as pointed out in Ürögdi & Ishihara (2008), this stems from the confusion between "referentiality" and "presupposition". Observe (73) with main stress on 'believed':

(73) John was such a liar, and yet I believed that he would marry me. What an idiot I was!
(example from Ürögdi & Ishihara 2008)

It is true, as Kallulli observes, that in a neutral factive construction the main verb has highest prominence, while in a neutral non-factive construction it is (prototypically) the embedded clause.

(74) a. John resents that Mary is coming tomorrow.
b. John thinks that Mary is coming tomorrow.

However, this prominence relation is not obligatory by far (cf. (73): non-factives can also bear main stress), and it does not correlate with novelty of information (cf. (75): factives can also introduce new information, showing that prosodic prominence is not directly related to factivity or givenness).

(75) Q: Why is John so sad and angry today?
A: He resents that Mary is coming tomorrow.

I return to the issue of prosodic prominence in more detail in the next section. For now, I conclude that there is ample evidence against blurring the line between the lexico-semantic property of factivity (which implicates truth-conditional presupposition), givenness (which is defined by the discourse context containing both presupposed and simply mentioned or implied propositions) and referentiality (which is dependent upon

whether or not the proposition or question at hand has illocutionary force or is used as an argument, and which actually determines the syntactic behavior of the CP).

3.4.2 Prosodic evidence: Ishihara & Ürögdi (2011)

To conclude this section, I will review the experimental results presented in Ürögdi & Ishihara (2008) and Ishihara & Ürögdi (2011), which confirm the separation of factivity, givenness and referentiality as independent factors, only the last of which plays a role in syntactic structure.

The above works (I&Ü henceforth) take as their starting point the proposal by de Cuba & Ürögdi (2009a), namely that factivity, contextual givenness, contrastive focusing, and syntactic structure (i.e. referentiality) operate independently, and aim to show how these factors interact in determining prosodic structure. The test case used is sentential embedding constructions in Hungarian, as discussed in detail in section 3.2 above. The theoretical claim is that syntactic (structure of the left periphery), semantic (factive vs. non-factive), pragmatic (given vs. new), and prosodic (de-accented vs. prominent) effects should not be expected to align on two sides of a single dividing line since they do not correlate directly. Rather, these factors operate independently in different modules of grammar.

First of all, while it has been shown that certain (presumably) syntactic effects correlate with contextual givenness (as in the Hegarty example in (30)), it is far from obvious that givenness and factivity bear any connection to each other. It is true (as Kallulli points out) that factive embedded clauses are presupposed to be true and *often* given, while non-factive embedded clauses are *often* new information introduced to the context. (Some related observations from Germanic come from Biberauer (2002), who shows that embedded V2 in Afrikaans correlates with informational salience. See also Bentzen et al. (2007a,b) for the introduction of "main assertion", and de Cuba (2006) for a discussion of "novel-complement-taking" vs. "familiar-complement-taking" predicates.) Thus, the idea that truth-conditional presupposition somehow implicates contextual givenness (and vice versa) seems attractive. However, as the examples below show, factivity/non-factivity and givenness/novelty operate independently: factive verbs can take a new complement (in which case the presupposition is accommodated by the listener), and still behave like factives syntactically as well.

(76) A: So, how do you look back on your vacation in Paris?
B: Well, I certainly don't regret that I met my ex-boyfriend/*anyone.
A: Did you really? I had no idea you two were still in touch…

(77) A: Why is Peter grinning from ear to ear? Is he happy that he won?
B: Oh, no. He's happy that his best friend is coming for a visit.

As (76) and (77) show, there is no conversational difficulty involved in a factive verb introducing a contextually new complement clause. This happens in both examples, and neither exchange is marked in any

way. While the lexical semantics of a factive predicate encodes that the truth of the embedded clause is presupposed by the speaker, there is no requirement that the proposition at hand be known to the listener at all. When it is novel to the context, the listener will accommodate the presupposition and understand that the speaker assumes the embedded proposition to hold true. It is important to note, as shown in (76B), that not only does this scenario remain factive but the syntactic construct also continues to behave like factives normally do, so long-distance NPI-licensing is ungrammatical.

Similarly, a non-factive verb can take a given complement without presupposition.

(78) A: Did Mary claim that John is lazy, or that John is dishonest?
B: She claimed that John is lazy, but I totally don't agree with her.

In (78), we have an example where B's reply is clearly a non-factive use of *claim* (given the continuation) but the embedded proposition is explicitly given in the context. Such examples are trivially easy to construct, showing that givenness and factivity are not in direct correlation. Thus, I&Ü take it as a hypothesis that there is no one-to-one mapping between givenness/novelty and factivity.

Turning to the issue of the relationship between factivity and prosodic prominence, as shown above, prosodic prominence on a non-factive verb does not render the example factive, and neither is there a requirement that the embedded proposition be contextually given.

(79) John was such a horrible boyfriend who could not be trusted for a second, and yet I <u>believed</u> that he would marry me. What an idiot I was!

Similarly, a factive verb can easily introduce a novel proposition, but will still retain prominence.

(80) Q: Why is John so sad and angry today?
A: He <u>resents</u> that Mary is coming tomorrow.

Therefore, the hypothesis (contra Kallulli (2006)) is that prosodic prominence does not correlate directly with factivity or with givenness/novelty of information.

Given the widely accepted assumption that prosody is mapped from syntax, our goal was to identify the syntactic reason behind prominence relations between the selecting verb and the sentential complement. In particular, in I&Ü we assumed that syntactic differences are mapped onto prosodic differences, since prosody takes syntactic structure as its input. Therefore, wherever a particular analysis posits a syntactic contrast, we would expect to see a prosodic difference as well. The converse, however, is not necessarily true: Prosodic effects do not result from syntax alone but pragmatic factors also play a role. (cf. Selkirk 1984, Nespor & Vogel 1986, Truckenbrodt 1999, Samek-Lodovici 2005, a.o.) Thus, the competing syntactic accounts yielded the following diverging predictions:

(i) 'Factivity determines syntactic structure': Prosodic patterns should crucially contrast for factivity, while we may or may not expect to see the effect of givenness. If information structure (givenness/novelty) is kept constant, the effect of factivity should be visible.

(ii) 'Factivity correlates with givenness/novelty of information, which in turn determines syntactic structure': We do not expect to see a givenness effect if factivity is kept constant, since these two factors go hand in hand. Sentences where the embedded clause is given should show prominence on the verb and should be interpreted as factive. Sentences with a novel embedded clause should show prosodic prominence of the complement clause and should be non-factive.

(iii) 'Factivity is lexico-semantic, givenness is pragmatic, syntax is independent of both': If givenness is successfully controlled, we do not expect to see a significant factivity contrast. We do (or at least can) expect both factive and non-factive examples to show givenness effects. We expect novel embedded clauses of the NCP type to contrast with novel embedded clauses of the RCP type in that the matrix verb should retain prosodic prominence in the latter, despite the novel complement. We may expect NCP complements to show matrix-like prosody.

To test the above predictions against each other, we set up an experiment controlled for the following three factors (examples provided below):

Factor 1: Contrastive focus

Options: (a) no contrast; (b) contrast on complement CP; (c) contrast on main V

Factor 2: Givenness of the complement CP

Options: (a) novel to the context; (b) given in the context

Factor 3: Factivity

Options: (a) non-factive; (b) factive

Contrastive focus was added to the set of conditions basically for control, since we wanted to make sure that prominence (either on the selecting verb, or on the embedded clause) does not come from a misinterpretation of the context and hence from contrastive focus. By comparing simple V-prominent patterns with V-focus patterns, for example, this factor could be eliminated. There was also an additional condition to look at since, as the reader will recall from the discussion of Hungarian, a non-factive, new, non-contrastive condition may or may not feature the pronominal *azt* (which, on the current account, correlates with the NCP/RCP contrast, cf. example (48)). This set-up yielded a 3x2x2+1 design, with a total of 13 conditions per set. In each set (of four sets tested), two embedding verbs (one factive and one non-factive) and one complement clause were used.

The factors we were looking at were controlled the following way. For example, (81) shows a condition eliciting focus on the complement CP, while (82) involves V-focus. ('C' stands for context (which was also read out by the speakers) while 'T' stands for target.)

(81) **Contrast on complement CP, new complement, nonfactive V:**

C: *Úgy hallottam, mintha Józsi azt állította volna, hogy Nórát elveszi egy milliomos. De rosszul hallottam, amit mondott.*
'I thought I heard Józsi claim that a millionaire would marry Nóra. But I heard wrong.'

T: *Józsi azt állította, hogy Noémi megnyerte a nagydíjat a lovin.*
Józsi azt claimed Comp Noémi Prt-won the grand-prize-Acc the race-at
'What Józsi claimed was that Noémi had won the grand prize at the horse races.'

(82) **Contrast on V, given complement, nonfactive V:**

C: *Józsi bebizonyította, hogy Noémi megnyerte a nagydíjat a lovin?*
'Did Józsi prove that Noémi had won the grand prize at the horse races?'

T: *Józsi állította ugyan, hogy Noémi megnyerte a nagydíjat a lovin, de nem bizonyította be.*
Józsi claimed Prt Comp Noémi Prt-won the grand-prize-Acc the race-at But Neg proved-Prt
'No. Józsi CLAIMED that Noémi won the grand price at the horse races but didn't prove it.'

In the set of 13 conditions, these examples were contrasted with their minimal pairs in every aspect (givenness, focus, and factivity). For example, givenness was controlled in a way that 'novel' embedded clauses were entirely (in all parts) new to the context (as in (81) above) while 'given' was taken to be basically repetition from the context. Two examples are given below.

(83) **New complement clause, no contrast, non-factive V:**

C: *Az osztálytársaim érezték, hogy egy szerencsés dolog történt, de nem tudák, mi lehet az.*
'My classmates sensed that something fortunate had happened but didn't know what.'

T: *Józsi állította, hogy Noémi megnyerte a nagydíjat a lovin.*
Józsi claimed Comp Noémi Prt-won the grand-prize-Acc the race-at
'Józsi claimed that Noémi had won the grand prize at the horse races.'

(84) **Given complement clause, no contrast, non-factive V:**

A: *Képzeld, most hallom Zolitól, hogy Lóri elveszi Nórát feleségül.*
'Guess what. I just heard from Zoli that Lóri would marry Nóra.'

B: *Én már tegnap tudtam.* *Zoli* *mondta,* *hogy* *Lóri elveszi Nórát feleségül.*
I already yesterday knew Zoli said Comp Lóri Prt-takes Nora-Acc wife-as
'I have known since yesterday. Józsi said that Lóri would marry Nóra.'

Factivity was controlled in a trivial way, by varying the verbs with the same complement clause. It is important to note that the contexts were constructed carefully to make sure that V-prominent non-factive structures are actually clearly non-factive (as in (83) for example). In addition, non-factive verbs were tested in two different no-contrast constructions (with or without *azt*, which we took to signify the syntactic difference between NCP – a speech act –, and RCP – a referential complement clause). We wanted to confirm that in the latter case the main V is still prominent.

(85) **NCP complement ('azt')) vs. RCP complement (no 'azt', no contrast, new complement:**
A: *Hallottál mostanában valami hírt a régi osztálytársainkról?*
'Have you heard any news of our old classmates recently?'
B: *Most hogy említed, hallottam.*
'Now that you mention it, I have.'
Zoli ***(azt)*** ***mondta,*** *hogy* *Lóri elveszi Nórát feleségül.*
Zoli azt said Comp Lóri Prt-takes Nora-Acc wife-as
'Now that you mention it, I have. Zoli said that Lóri is going to marry Nóra.'

The experiment was set up as follows. We tested 6 speakers of a similar age group (3 male; 3 female), 4 sentences per condition, recorded 3 times (using 3 different pseudo-randomized orders of the entire stimuli). In each condition, 5 or 6 words were measured for F0-Max, Min (MSub, *azt*, MVerb, C, ESub, EVerb). Finally, the results were normalized, yielding the following conclusions.

(I) Prosodic difference between NCP vs RCP

Prosodic evidence was found for the syntactic difference between the two types of complement CP structures in minimally contrasting conditions (no contrastive focus; non-factive verb, novel complement clause). NCP complements (indicated by the presence of 'azt') displayed matrix-like prominence on the embedded clause, with significantly higher peaks than any other novel embedded clause in the test set. Also crucially, in the 'azt' examples the complement clause was relatively more prominent compared to the selecting verb than in the no-'azt' conditions. This difference does *not* correspond to factivity since the contrast was found between novel complement clauses embedded under clearly non-factive verbs (as in example (85) with or without 'azt').

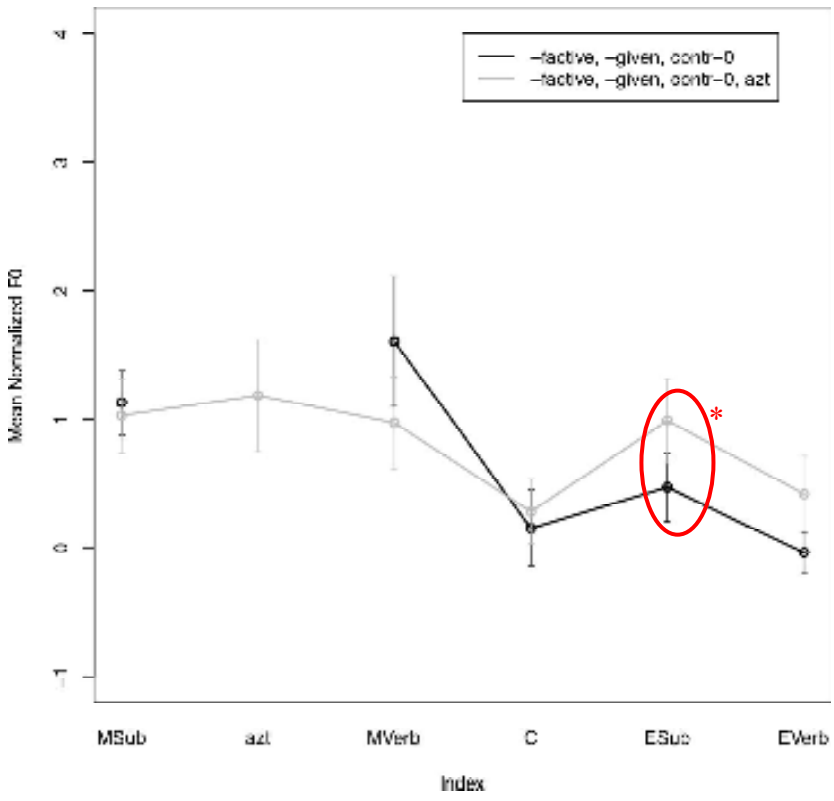


Figure 1: Mean F0-Max of the measured words in the [–factive, –given (novel), no contrast] conditions with 'azt' (gray line) and without 'azt' (black line).

(II) Givenness effects are independent of factivity

Since both factive and non-factive conditions showed significant givenness effects, it is clear that factivity does not correlate directly with givenness. When factivity was carefully controlled, givenness was still visible. We concluded that givenness should be treated as a pragmatic effect.

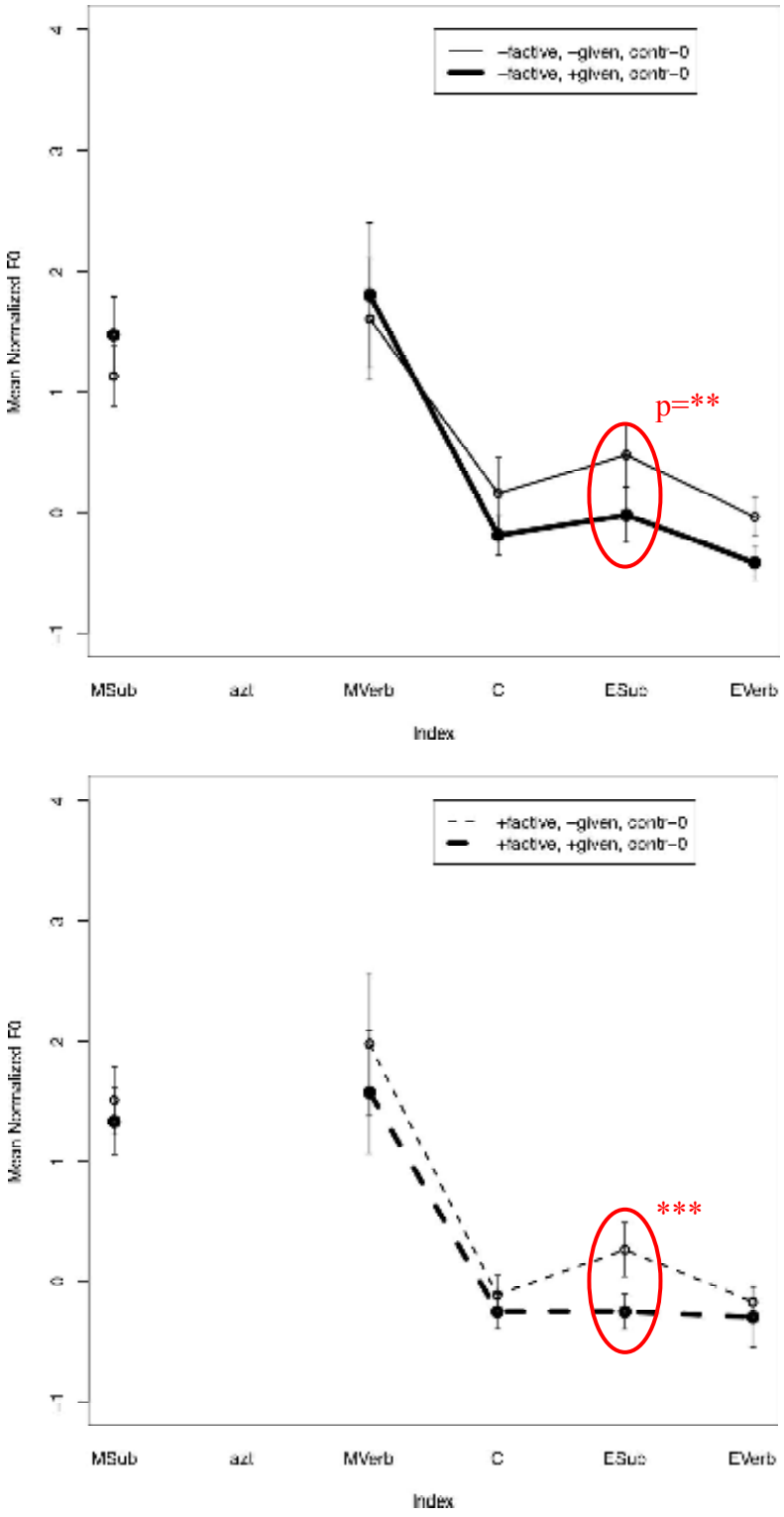
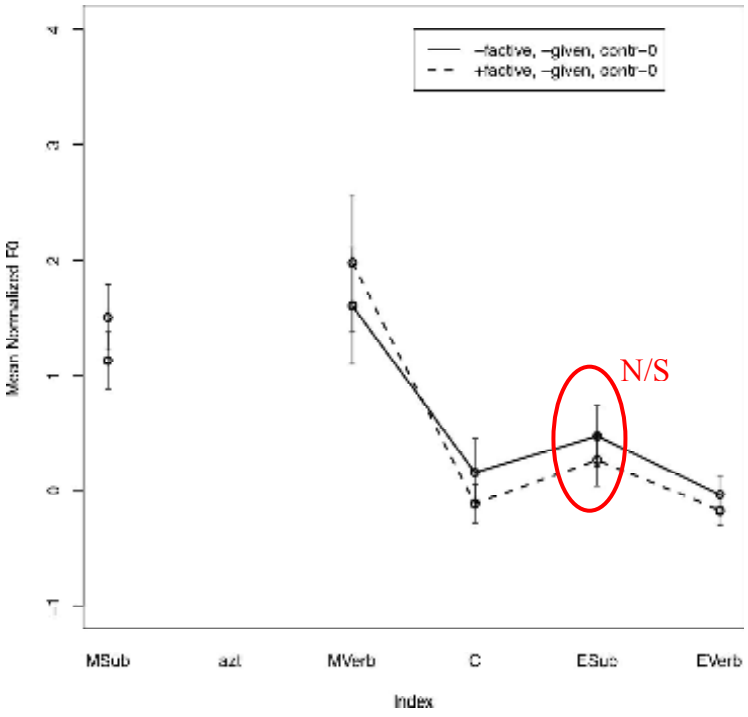


Figure 2: Mean F0-Max of the [no contrast] conditions with a novel embedded clause (thin line) and a given embedded clause (dashed line). The matrix verb is non-factive (Left) or factive (Right).

(III) No significant factivity effects

Though some minor differences were found between non-factive and factive complements (factive embedded clauses tended to be slightly less prominent), effects were much less consistent or significant than givenness effects. Crucially, the basic contour of no-contrast conditions was the same regardless of factivity when givenness was held constant: all featured main prominence on matrix V. This is predicted if all of these feature an RCP complement. We concluded that the slight tendency of factive constructions to show less prominence on the embedded clause than their non-factive counterparts do is due to fact that, by and large, factive embedded clauses are more often contextually given than not. Nevertheless, the effects of factivity were not statistically significant and the basic prominence relations in the sentence were not affected by factivity, which is what we were expecting.



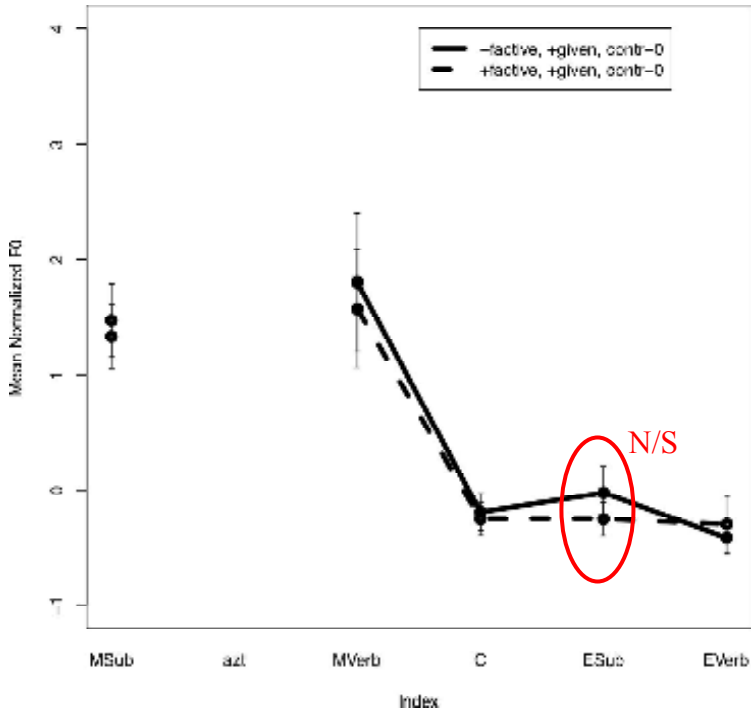


Figure 3: Mean F0-Max of the [no contrast] conditions with a non-factive verb (solid line) and a factive verb (dashed line) conditions. The embedded clause is novel (Left) or given (Right).

To interpret and sum up the results of the prosodic investigation carried out in I&Ü, it is instructive to look back at the different predictions made by the various syntactic accounts dealing with this construction. It is clear that these results are fully compatible with referentiality-based analysis proposed in de Cuba & Ürögdi (2009a) and also in this thesis, namely, the claim that factivity is lexico-semantic, givenness is pragmatic, and syntax is independent of both. The lack of a prosodic effect of factivity can be explained if this is treated as lexico-semantic information, as prosody is considered to be insensitive to the semantic content of lexical items. A 'givenness effect' has been often reported in the literature and considered to be a crucial factor in the prosodic realization of a sentence (e.g., Féry & Samek-Lodovici 2008). Lastly, the experimental results also suggest that the syntactic difference between RCP and NCP is reflected onto prosody. A non-referential complement clause encoding a speech act is realized with a more matrix-like prosody than a referential complement.

The other available analyses would run into trouble in accounting for our experimental results. On an analysis where factivity is directly encoded in syntax, we would expect to find a prosodic correlate of such syntactic contrast. It is true that under the assumption that prosody can only see lexical categories but not functional categories, this fact might not be a problem in itself because the syntactic difference predicted by this line of analysis may only involve an invisible functional projection. (This does not solve the problem faced by the classic K&K analysis, where a lexical – nominal – head tops factive complements, but one can imagine plausible updates of this analysis that overcome this technical issue. Such a functional update of K&K is proposed by Kallulli (2006), among others.) However, this would still leave the contrast illustrated

in Figure 1 unexplained since both prosodic contours appear compatible with the same verb on a fully non-factive interpretation. The Kallulli-style analysis, where factivity is assumed to correlate with givenness, faces a number of further problems. Firstly, our results clearly show that factivity and givenness are not directly related factors: the former has no significant effect, while the latter has an independent and significant effect. This is clear from the conditions to begin with and is confirmed by the experimental results. Secondly, Kallulli's line of analysis assumes a direct correspondence between factivity, presupposition and prosody, meaning that a non-factive verb appearing in a 'factive-like' prosodic pattern should receive a factive interpretation (with its complement interpreted as contextually given). This clearly does not hold, as evidenced by example (85) and Figure 1: regardless of the fact that when there is no *azt* with a non-factive verb (in our terms, when it takes an RCP complement) the main verb is significantly more prominent than the complement clause (as is the default case with factive constructions), this does not render the interpretation factive or necessitate a given embedded clause. Thus, we conclude that prosody confirms that the three factors (factivity, givenness, referentiality) are independent.

4 Event relativization: RCPs derived by operator movement

In this section, I offer a particular syntactic implementation of the idea discussed in the previous sections, namely that what differentiates the two types of finite complement clauses is the property of referentiality. The section is organized as follows. Starting out from the most recent proposal by Haegeman (2007, 2009, 2010a) – an operator movement analysis of the 'impoverished' left periphery of certain embedded clauses – I show that the missing ingredient in that analysis is precisely the referential property of CP, which goes a long way towards explaining why certain elements should be interveners to the proposed operator movement while others are not. (See Haegeman & Ürögdi 2010 a,b,c, for this updated implementation of Haegeman's theory.) In Hungarian, for example, aboutness topics are allowed but contrastive topics are disallowed in the left periphery of RCPs, a restriction that appears to be lifted when the RCP itself is contrastively focused. (Similar observations with respect to differences between topic types when it comes to their availability in 'impoverished' clauses are mentioned also by Haegeman, and are recently discussed in detail by Bianchi & Frascarelli (2009) for Italian and English – I also offer some tentative comments on these data.) This pattern is not too difficult to reconcile with the intervention account Haegeman proposes. If we posit that the operator that moves in these event relative constructions is [+wh] (or [+Op] in Haegeman's work), it is easy to see that aboutness topics will not be interveners because they are featurally simpler than contrastive topics. The obviation of this restriction in contrastively focused RCPs is derived from a featural enrichment of the event operator that now encodes the contrastivity of the relativized event (represented as a [+δ] or D-linking feature) and is thereby able to overcome intervention. Given this formulation of the operator-movement analysis, I then go on to relate the proposed derivation to the structure of referential DPs (cf. Campbell (1996), den Dikken (2006)), suggesting that referentiality is syntactically and analogously derived in both

types of phrases, yielding, among other things, similar constraints on extraction. This structural parallel between RCPs and referential DPs adds a novel consideration to the long-standing discussion on CP/DP parallelism, and strengthens the referentiality-based account of complement clauses.

The section is organized as follows. In 4.1, I review Haegeman's earlier (2006) and more recent (2007, 2009, 2010a) proposals in some detail. The earlier proposal added novel data observations and a new implementation to the line of work claiming that – contra K&K – it is in fact factive complement clauses that are 'impoverished' compared to their non-factive counterparts. The particular implementation Haegeman proposes is truncation of the Rizzi (1997)-style functional field in the CP domain of the relevant clauses. In the later papers, this truncation is derived via the movement of an operator from the IP-field into CP, which results in an intervention effect, blocking various kinds of MCP from occurring in the clauses thus derived. The analysis deals in most detail with adverbial clauses (which I return to in Chapter 2) but Haegeman extends it to factive complements, which she argues to be similarly truncated. In 4.2, I present related data and observations that support the view that 'factive complements' (or what I refer to here more precisely as referential CPs) are in fact event relatives. I show data from English that demonstrates the similarities between these clauses and relative clauses. I also discuss Aboh's (2005) and Collins's (1994) work on the Kwa factive construction, which arguably instantiates overt event relativization. 4.3 explores in some technical detail the feature make-up of the operator that creates intervention effects in RCPs. I show how the properties of the CP itself (which, presumably, are a superset of the properties of the moved operator that is attracted to the CP domain) predict clearly the class of elements that are interveners in that clause, since – as discussed by Haegeman – only elements that are featurally 'too similar' to the operator will block its movement. The discussion here centers on the general unavailability of contrastive topics in the CP domain of embedded clauses. 4.4 draws a parallel between referentiality in CPs and DPs, and outlines the implications of this account for extraction/island effects associated with referring expressions. 4.5 concludes this section.

4.1 Op-movement analysis of the impoverished left periphery

In this section, I provide an outline of the most recent version of Haegeman's operator-movement account of the 'impoverished' nature of the left periphery of certain clause types. I go through some of the data observations (for the full range of data, I refer the reader to Haegeman's work) and show how the account predicts the unavailability of certain elements and movements (commonly labeled 'main clause phenomena' or MCP for short) that are acceptable in matrix clauses. Then, I go on to argue that an essential element of the account is that this operator movement takes place in referential phrases, and renders the clause a headless relative.[35] Recall that other evidence in previous sections (for example, the fact that clausal

[35] The referential property of complement clauses is also hinted at in Arsenijević (2009):
"FCCs [i.e., finite complement clauses] do not contribute to the truth-value of their matrix clauses for the following reason. The […] truth value of FCC directly takes part in a predicate used for reference to an object. *The object referred*

expletives associated with RCPs are able to escape negation islands) has also pointed towards this fact, namely that the referential property of RCPs is encoded in the CP-layer of these phrases. Thus, altogether a Haegeman-style account turns out to be entirely compatible with the referentiality-based account I propose.

In Haegeman (2006) it is argued that certain clause types – reduced clauses – have what looks like an impoverished left periphery. Simplifying a bit, the central observation is that certain elements cannot appear in the CP-domain of these clauses that are normally fine in matrix clauses or other – call them full – clauses. The idea is that reduced clauses resist main clause phenomena (MCP) because they are impoverished in comparison with root clauses. Observe:

(86) a. *I haven't seen Mary since she probably left her job.
b. I won't be seeing Mary, since she probably will be leaving early today.

Speaker-oriented adverbs like *probably* are one instance of root phenomena discussed by Haegeman (among others). Starting out from this observation, Haegeman differentiates two types of adverbial clauses, central and peripheral, where only the latter are compatible with speaker-oriented adverbs. She attributes this to the fact that central adverbial clauses are missing the left-peripheral positions responsible for speaker anchoring and other related functions:

(87)	a.	Central adverbial clause:	Sub				Fin
	b.	Peripheral adverbial clause:	Sub	Top	Focus	SD	Fin
	c.	Root clause:		Top	Focus	SD	Fin

Modifying a Rizzi (1997) style cartographic structure somewhat, Haegeman argues that the lack of speaker deixis (SD) also entails the lack of Topic and Focus projections, these also being part of the same semantic zone as speaker orientation. In the second part of the paper, Haegeman extends this proposal to complements of factive predicates, suggesting that factive embedded clauses also exemplify reduced clausal structure, as illustrated under (87a). Basically (as is explicitly mentioned in the paper) Haegeman's approach is not incompatible with McCloskey's (2005) characterization of full clauses as speech acts. The syntactic implementation, however, is very different, as are the predictions.

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to is usually predicated over in the matrix clause, and apart from possible reference failure, no interaction emerges between FCC and the matrix clause." (emphasis mine)
However, it should be noted that he does not differentiate between different types of complement clauses (e.g. those that do and those that do not allow MCP), claiming that they are all derived via the relativization of embedded Force. Thus, his account would need to say something more about the data discussed here – esp. since his relativization site is too high to derive intervention effects relating to the domain below the CP layer. For this reason, I do not discuss his account here in detail.

The core observations I want to focus on here are the following. First of all, it is a rather well-known fact that epistemic modality is generally not permitted in adverbial clauses, so speaker-related adverbs, for example, are barred from occurring in temporal and conditional adverbial clauses[36]:

(88) ??* When/if frankly he is unable to cope, we'll have to replace him.[37]

Second, the same clause types are also incompatible with argument fronting:

(89) a. * While this paper I was revising last week, I thought of another analysis.
b. * If these exams you don't pass, you won't get the degree.

Interestingly, no such restriction applies to circumstantial adjuncts in the same construction:

(90) If on Monday we haven't found him, we'll call the RSPCA.

Haegeman (2007) and previous papers on this topic discuss a wide range of data from Romance and other languages that pertain to this issue but for the discussion here these two core observations will suffice. The point is simply that some elements are disallowed in the left periphery of 'reduced' clauses while others are acceptable, which is not straightforwardly reconcilable with the clause-truncation account exemplified in (87). In particular, Haegeman postulates a special position for adjuncts, ModP, in order to accommodate data like (90). This position is, on this analysis, dominated by ForceP, and as such, it is not affected by the lack of Force and related projections. Given that TopP is taken to be unavailable in clauses without Force, the contrast between the ungrammaticality of argument fronting and the acceptability of circumstantial adjuncts results.

This kind of weakening of the account presents certain technical difficulties, but there is a deeper conceptual problem (which is noted by Haegeman also), namely that the dependence of Topic on Force is a questionable issue. While it is conceivable that speaker-oriented adverbials are not possible (either syntactically or semantically) in clauses without illocutionary force, the availability of topics does not appear to conform to this regulation. There are two issues to consider here. One, as discussed by Haegeman, there are a number of clause types that arguably carry illocutionary force (e.g. imperatives) that, nevertheless, disallow argument fronting. An example is given below:

(91) Your essay, leave *(it) in my pigeon hole this afternoon.

[36] This picture is a bit more complex than presented here but I will return to a much more detailed discussion of temporal adverbial clauses in Chapter 2.
[37] Data (89-91) from Haegeman (2006).

Even if the restriction is tightened to 'assertive force', the correlation is not perfect as other clause types (e.g. gerunds or small clauses) that are presumably not asserted do allow argument fronting:

(92) That solution Robin having already explored *t* and rejected *t*, she decided to see if she could mate in six moves with just the rook and the two pawns.
(from Culicover & Levine (2001:297), cited by Haegeman (2007)

The second issue is that even 'topics' do not form a uniform class with respect to whether or not they are allowed in reduced clauses. For example, as also discussed by Haegeman, it is somewhat mysterious that English argument fronting is unacceptable in this context while Romance clitic left dislocation (CLLD) is grammatical. It is quite clear (Haegeman (2007) cites Frascarelli & Hinterholzl (2007), and see also Bianchi & Frascarelli (2009) to which I return below) that topics are not of one uniform class, and that different topics are not equally bad in reduced clauses. One way of accounting for this (as proposed in Haegeman (2006)) is to say that these different kinds of topics front to different positions, and some but not all of these positions are affected by truncation. In particular, a lower topic position such as that targeted by CLLD, remains available. But there is another avenue opened up by the operator movement/intervention account, which is what I turn to now.

Haegeman (2007) proposes an account that is aimed at eliminating the stipulations from the 'truncation' analysis. To recap briefly, what needs to be captured is that some but not all topic-like elements and other MCP are disallowed on the left periphery of certain clauses (some adverbial clauses, some conditionals, factive complements, and possibly others). The two questions that require attention are: (a) what exactly the elements (moved or base-generated) are that are barred from the relevant positions – and why these and not others, and (b) what exactly the environments are where these restrictions apply – and why these and not others. In my view, Haegeman (2007) offers a very promising (although admittedly partial) answer to these questions. The reasoning is the following. Based on the argument-adjunct asymmetry[38] illustrated in the contrast between (89) and (90), she notes that syntactic contrasts showing such differences between the behavior of arguments and adjuncts typically involve movement. By and large, arguments do and adjuncts do not interfere with movement chains. One example is given below:

(93) a. ?? The student *to whom* <u>your book</u> I will give tomorrow.
b. The student *to whom* <u>tomorrow</u> I will give your book.

In (93), the relevant moved element is in italics, and the potential intervener is underlined. The observation is that the fronted argument 'your book' blocks the movement of the wh-phrase 'to whom', while the same wh-movement is unaffected by the adjunct 'tomorrow'. This suggests that whatever is wrong with the example

[38] I will show in a bit that this contrast can be interpreted in a different way, which, however, does not take away from the validity of the argument that is outlined in this section.

in (89) could have something to do with intervention. Namely, if there is a movement chain crossing the topic field in (89) and (90), this movement chain could be blocked by argument fronting in (89) but not by the circumstantial adjunct in (90).

Adjuncts are not normally responsible for intervention effects (cf. Haegeman (2003)), although the reasons behind this are less than clear. I return to the discussion of this contrast below. The point here is simply that the argument-adjunct asymmetry observed in this contrast is suggestive of a movement account, which has actually been proposed by a number of authors for adverbial clauses. Originating with Geis (1970) and picked up by Larson (1990), the idea has been around in the literature that (at least some) adverbial clauses are derived by operator movement. In fact, Larson (see also Lipták (2005), Ürögdi (2009)) shows that temporal adverbial clauses are not uniform in this respect. Some involve long operator movement from inside the clause, while others do not. The latter type may still, however, contain a shorter operator chain. (Larson tentatively suggests that temporal adverbial clauses that do not show evidence of long operator movement potentially feature a T-to-C chain. I return to this issue in Chapter 2.) In any event, it is not uncommon to assume that adverbial clauses such as *when*-clauses, for one, are basically relative clauses – and as such, they can be expected to exhibit intervention effects. As for conditionals, it has also been suggested that they are derived by operator movement. Bhatt & Pancheva (2006) argue that conditional *if*-clauses are free relatives that feature the movement of a 'world operator' in the left periphery. The resulting headless relative basically denotes a possible world, so it is essentially an event relative of sorts. Therefore, it becomes attractive to view the unavailability of MCP in these clause types as an intervention effect.

One observation that supports this idea is that the contrast observed between English argument fronting and Romance CLLD is also evidenced in wh-movement patterns. In English, a fronted topic creates an island for wh-movement but Romance CLLD does not result in any degradation. This suggests that – for whatever reason – fronted clitics are not interveners to movement the way that fronted arguments are. Although the reasons for this are not well understood at all, this fact does indicate that CLLD – just like English fronted adjuncts – for some reason does not create an intervention effect, and hence indirectly suggests that the reason fronted clitics are acceptable on the left periphery of clauses that otherwise do not permit MCP is that they (unlike some other fronted elements like topics) do not interfere with the movement of the proposed operator.

Now, the discussion of the operator movement account has, so far, focused on a movement derivation for adverbial clauses (more or less accepted in the literature) and conditionals (not uncontroversial but argued for by some authors, cf. Bhatt & Pancheva (2006)). It is much less orthodox, however, to posit that some object clauses (in Haegeman's work: factive complement clauses; in the terms of the present analysis: referential CPs) are also derived by operator movement (although see Arsenijević (2009)). This is, however, what is tentatively suggested in Haegeman (2007) and elaborated in Haegeman & Ürögdi (2010 a,b,c), based on the observation that these complement clauses – more or less similarly to 'central' adverbial clauses and conditionals – also resist a wide variety of MCP, including those that I have discussed above: English argument fronting and the insertion of speaker-oriented adverbials. So in the next section, I provide some

cross-linguistic evidence to show that this idea is not all that far-fetched because factive complements do pattern with relative clauses in a number of contexts. This is indirect evidence that an operator-movement analysis of the properties of RCPs is at least possible and plausible. In the subsequent section, I discuss the technicalities of this operator movement to show that the property of referentiality is an essential ingredient for predicting what elements will induce intervention effects.

4.2 Factive complements patterning with relative clauses

In English, it has been observed that only factive predicates are easily compatible with relative clauses as complements. Observe the following examples:

(94) a. I resent / remember / regret / forgot what you did.
b. * I think / said / claimed what you did.

The correlation is far from being straightforward. For example, there are a number of factive verbs that do not take relative clause complements:

(95) I remember / forgot /* resent /* regret who stole the jewels.

Nevertheless, the observation stands that – just like gerunds – relative clause complements appear to be compatible with factive verbs. It seems natural to assimilate this fact to a related issue, namely that only factive and semi-factive verbs seem to take noun+complement structures as their object:

(96) a. I resent / remember / know the claim that John stole the jewels.
b. * I think / said / claimed the story / idea / X that John stole the jewels.

Since K&K, it has been assumed that this tendency is related to the run-of-the-mill clausal complementation of factive verbs, which were argued by K&K to take a silent nominal complement in all cases. This noun heading the object CP was supposed to be 'fact'. It is interesting to note, however, that 'the fact that…' constructions actually do not pattern with noun+complement constructions, but rather with headed relative clauses. Observe the following contrast:

(97) a. John made the claim that the watch was stolen but later retracted the claim.
b. ?? John remembers the fact that the watch was stolen, and he resents the fact.

In these elliptical contexts, 'the fact that…' structures pattern with externally headed relatives as in[39]:

(98) ?? John knows the person that stole the watch, and he hates the person.

This suggests that even when factive verbs do take 'the fact that…' constructions as their complement, in fact they are taking a headed relative clause as object. The question is not so much why only some verbs are able to take certain types of DPs as complements. It is clear that at some level in the lexicon, factive verbs form a class of sorts, and it is also clear that we have plenty of cases of idiosyncratic selectional requirements in our grammar. The interesting question for us here is: what exactly is relativized in an example like (97b) if that is in fact a relative clause? First of all, the CP subordinated to 'the fact' does not at first glance seem to contain a gap that could be associated with the nominal head. I want to suggest, however, that (97b) nevertheless features a relative clause, and what is relativized is the event argument associated with TP – via the same operator movement that I propose takes place in all referential complement CPs, resulting in an event relative interpretation and structure.

Before going into technical details of how event relativization is supposed to work, it is instructive to take a short detour and consider factive constructions in Kwa languages, where factive complements are formally relative clauses. As described by Collins (1994) and Aboh (2005) in detail, these languages feature factive complements that are in many cases homophonous with relative clauses, although they can be distinguished by certain syntactic and semantic tests. In what follows, I will briefly introduce the data (for details, I refer the reader to the above authors) and then say something about how this data pertains to the discussion at hand. The obvious reason for talking about these data is that in these languages factive complements are quite clearly relative clauses, a nice example of the structure that is proposed for referential CPs in general here. The more interesting issue raised by the Kwa data, however, is how these factive complements differ from run-of-the-mill relative clauses. I discuss both of these topics in turn below.

Aboh (2005) presents data from Kwa to support the claim that, in these languages, factive complements are derived by relative operator movement. Observe the following:

(99) a. *Kòfí wɛ́ xɔ́ àgásá (lɔ́) (lɛ́)*
Kofi Foc buy crab Det Num
'KOFI bought the [aforementioned] crabs.'

b. *Kòfí wɛ́ xɔ́ àgásá ɖàxó [ɖě mí wlé] lɔ́ lɛ́*
Kofi Foc buy crab big that[Rel] 1pl catch Det Num
'KOFI bought the [aforementioned] big crabs that we caught.'

[39] See also Aboh (2005) for the observation that 'the fact that...' structures pattern with 'event relatives', although Aboh (albeit tentatively) suggests that other N+complement constructions are analogously derived.

c. *Àgásá* *dàxó* *ló* *lɛ́* *[dě* *mí* *wlé]* *vɛ́* *ná* *Kòfí*
crab big Det Num that[Rel] 1pl catch hurt for Kofi
'The fact that we caught the aforementioned big crabs hurt Kofi.'
*'The aforementioned big crabs that we caught hurt Kofi'

The example in (99a) shows the basic structure of the DP in Gungbe[40]. (For a more detailed discussion, see Aboh (2005).) (99b) shows that the usual position of relative clauses in this language is between the nominal head and the D layer (represented here by the determiner and the numeral). This is the same as the position of adjectives, which is suggestive of an analysis where relative clauses are adjoined to the head noun. However, what look at first glance like regular relative clauses, headed by the relative complementizer as in (99c), can also appear after the determiner and the numeral. In this case, however, the interpretation changes: the usual relative clause meaning disappears and the construction is interpreted as a complement clause. Aboh argues, however, that the construction in (99c) does not feature a noun+complement structure but rather a 'truncated relative clause'. That the two receive different interpretations is clear from, among others, examples like the one below (discussed by Collins (1994) as well as Aboh):

(100) *Àgásá* *ló* *[dě* *Kòfí* *wlé]* *nyón,* *àmón* *àgásá* *ló* *kpàkpà* *má* *nyón*
crab Det that[Rel] Kofi catch good but crab Det itself Neg good
'The fact that Kofi caught the crab was a good thing but the crab (itself) wasn't good/sweet.'

As the authors point out, the fact that the above sentence does not lead to a logical contradiction shows that the two constructions (relative clause and factive clause) clearly receive different interpretations.

Aboh (2005) provides an analysis of the contrast between run-of-the-mill relative clauses and 'factive clauses' in Gungbe. Firstly, he assumes that clausal and nominal structures (CPs and DPs) are very closely analogous, to the extent that they feature the same three main domains: the predicative part (VP and NP); the inflectional part (TP and ΣP); and the left periphery (CP and DP). On this view, the D-domain is also split up on analogy to a Rizzi-style left periphery, into number, focus and topic – functional layers that are occupied in Gungbe by distinct morphological items. Based on the ordering restrictions on these elements (which are realized in this language as particles), Aboh argues that the Gungbe DP is derived by movement of ΣP leftward to Spec,NumP and then Spec,TopP in order to check number and specificity features. This results in a default ordering as below:

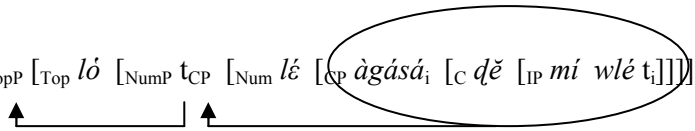
(101) $[_{DP}\ [_{D}\ [_{TopP}\ távò\ [_{Top}\ ló\ [_{FocP}\ [_{Foc}\ tɛ́\ \ [_{NumP}\ t_{távò}\ \ [_{Num}\ lɛ́\ \ [_{ΣP}\ [_{NP}\ t_{távò}]]]]]]]]$

[40] Gungbe is a dialect of Fon, belonging to the Niger-Congo language group. It is often classified as a member of the Kwa family, although the status of Kwa is contested. It is spoken in south-east Togo and Benin.

The order that results from these movements is in fact what we find in relative clauses as well, with the particles encoding specificity, focus, and definiteness all following the head+CP complex. From this, Aboh concludes that relative clauses are subject to the same raising requirement as ΣP in the nominal domain, the only difference being that the complement of Num here is a relative CP[41]:

(102) *Kòfí xó àgásá [ɖě mí wlé] ló lé*
Kofi buy crab that[Rel] 1pl catch Det Num
'Kofi bought the [aforementioned] crabs that we caught'

(103) $[_{DP}\,[_{D}\,[_{TopP}\,[_{Top}\,\textit{ló}\,\,[_{NumP}\,t_{CP}\,\,[_{Num}\,\textit{lé}\,\,[_{CP}\,\textit{àgásá}_{i}\,\,[_{C}\,\textit{ɖě}\,\,[_{IP}\,\textit{mí wlé}\,t_{i}]]]]]]]]$



This derivation yields the correct order for regular DPs as well as for relative clauses. Factive clauses, however, feature a different ordering, as mentioned above. This is not the only contrast between the two similar structures, however. An important difference is that factive clauses may feature the fronting of not only nominal arguments but also the verb, as in the following example (104b):

(104) a. *Àgásá ló lé [ɖě mí wlé] vɛ́ ná Kòfí*
crab Det Num that[Rel] 1pl catch hurt for Kofi
'The fact that we caught the crabs hurt Kofi'

b. ***Wlé*** *[ɖě mí* ***wlé]*** *Àgásá ló lé vɛ́ ná Kòfí*
catch that[Rel] 1pl catch crab Det Num hurt for Kofi
'The fact that we CAUGHT the crabs hurt Kofi'

This construction is doubly interesting because it features a copy of the fronted verb inside the TP from which it has fronted, while no similar doubling is witnessed with nominal arguments. A construction that is subject to similar restrictions is predicate fronting (a.k.a. predicate clefting) which is also used in Gungbe. In that construction also, it can be argued that what looks like V-fronting is in fact remnant VP fronting (which is one of the possible derivations suggested by Aboh as well; cf. Ürögdi (2006) for such an analysis of predicate fronting in Hungarian). The idea is that the verb moves up to T in order to receive inflection, while a lower projection (VP or possibly PredP) encoding the event but without temporal anchoring is fronted into a topic position. Eventually both copies of the verbal head are pronounced: the inflected verb plausibly must be spelled out in T in order to host the inflection, while topics can arguably not be phonetically null, resulting in the obligatory pronunciation of the verbal copy in V (or Pred). What is interesting is that the 'factive clause' in Gungbe features the same kind of VP- or PredP-movement into Spec,CP, where it receives

[41] An implication of this proposed structure is that CPs are directly analogous to DPs on Aboh's account, without the mediation of a nominal head – meaning that relatives (such as also factive complements) are structurally analogous to and display similar behavior as DPs but not technically 'nominal' in any way. More on this below.

pragmatic emphasis. Aboh is somewhat vague about the pragmatic import of choosing, for example, (104b) over (104a), noting simply that the fronted element appears to be the most noteworthy part of the event denoted by the factive clause. So, for example, in (104a) Kofi should be most upset by the crabs caught by us, while in (104b) it is the *event* of our crab-catching that disturbed him. The relevance of these examples to the current discussion is that the internal argument in (104a) and the verb (or VP) in (104b) share some property that allows them to represent the event in this high designated position in such a way that the fronted element is what defines the event here.

There is actually a similar construction in Hungarian, as exemplified by (105) below:

(105) a. *Péter* ***[fel**-olvasta* *a **Hamletet*** *a **kertben]*** *(nem pedig úszott).*
Peter Prt-read the Hamlet-ACC the garden-in not Prt swim
b. *Péter* *[a **Hamletet*** *olvasta fel* *a **kertben]***
Peter the Hamlet-ACC read Prt the garden-in
c. *Péter* *[a **kertben*** *olvasta fel* *a **Hamletet]***
Peter the garden-in read Prt the Hamlet-ACC
'What Peter did was read out Hamlet in the garden (rather than swim).

The example comes from Kenesei (2009), who argues (based on Kenesei (1998)) that VP is focusable in Hungarian, and VP-focus "is realized in two varieties: (a) the main verb carries primary stress with all major constituents lined up following it and receiving primary stresses [as in (105a)]; and (b) one of the referential arguments or adjuncts is placed in focus position with the verb destressed and all other major constituents stressed behind the verb [as in (105b-c)]." The interpretation, meanwhile, is that of VP-focus, as shown by the continuation in the example: rather than featuring contrast on the element that is actually fronted into the preverbal focus position (underlined above), the contrast is on the entire event denoted by the VP. Interestingly, in Hungarian also, any element from inside the VP is possible to front in this construction but not the subject, since focusing the subject either results in narrow focus on this constituent, or in sentential focus as in (106) (also from Kenesei (2009):

(106) *[$_{Focus}$ "Kertész "Imre]* *kapta* *meg* *az "irodalmi* *"Nobel-díjat.*
K.I. received Prt the literature Nobel prize-ACC
'Imre Kertész has received the Nobel Prize for Literature.'

As discussed by Kenesei, (106) – with stresses on all the contentful constituents in the VP – is interpreted as sentential focus since it constitutes a felicitous answer to a 'What's new?' question. Thus, putting the subject into focus position does not result in a constituent-focus interpretation.

There is no canonized analysis of VP-focus construction in Hungarian (although see Kenesei's work and references cited there for discussion) but the analogy with the Gungbe examples is clear. In both cases,

we have a pragmatic function associated with the event denoted by the VP (or PredP), which involves fronting to a functional position – but for some syntactic reason, the targeted position is able to host only one phrase – and the fronting of the entire VP is ruled out by some trivial principle like anti-locality (the ban on movements that are too local). Some designated participant in the event is then fronted, and the entire event is interpreted in that position. Aboh argues that this is achieved by some 'event feature' shared by the verb and the relevant internal arguments, a feature that is probed by C in the factive construction. The technical details of the analysis are not so important for us here – I refer the reader to Aboh's work for the implementation. The crucial element is that some property of the event-related element (VP or an argument DP) is attracted to the Spec,CP position of the relative clause, resulting in an event relative interpretation. This is what will result in the distinct interpretation of factive clauses as opposed to relative clauses in Gungbe: what is relativized here is not a nominal element per se, but the event itself. This means that while 'factive clauses' are formally relative clauses, they do not actually relativize the element that appears in Spec,CP but rather the event originating in the TP domain. Meanwhile, the noted word order difference between relative clauses and event relatives falls out of the fact that, given a Kayne (1994) and De Vries (2002) style complementation analysis of relativization, the outer DP layer in a structure like (103), according to Aboh, is needed in order for the relative clause to function as an argument. On this view, D is basically a subordinator like C, forming a link between its complement and its selector. Aboh claims that event relatives do not qualify as arguments (which leads to their limited distribution as opposed to regular relative clauses), and as such, can converge without an external DP layer simply because they have "some relevant material in Spec,CP (e.g. wh-questions in matrix clauses)". Given the lack of the outer DP layer, there is also no TopP for the factive clause to front to. The details of the analysis are not so crucial for the present discussion, and actually have the strange consequence that factive clauses do not need to "check specificity" the way that relative clauses do – a claim that does not appear too intuitive. Regardless, the Gungbe data and Aboh's account are entirely relevant to the proposal advanced here because in Gungbe overt movement accompanies event relativization.

The question then becomes: what differentiates Gungbe from other languages (e.g. Germanic) where no overt fronting of any element happens in event relatives? In fact, Aboh outlines one possible solution for Germanic relative clauses and factive clauses, where the relative CP clearly does not front to Spec,TopP in either case. He argues that in these languages Spec,DP (in his system: Spec,TopP) is filled by a null specificity operator, or by a demonstrative as in French:

(107) a. $[_{DP}\ [_{TopP}\ Op_i\ [_{D}\ \textit{the}\ [_{NumP}\ [_{CP}\ \textit{table}_i\ [_{C}\ \textit{that}\ \ [_{IP}\ \textit{I bought}\ t_i]]]]]]]]\ldots$

b. $[_{DP}\ [_{TopP}\ \textit{Cette}_i\ [_{D}\ [_{NumP}\ [_{CP}\ [t_i\ \textit{table}]\ [_{C}\ \textit{que}\ [_{IP}\ \textit{j'ai achetée}\ t_i]]]]]]]\ldots$

Thus, the difference between the two language types comes down to the strength of the Top feature in the D-domain: strong in Gungbe, forcing movement, and weak in English, where a null operator can check this feature in overt syntax. Similarly, event relatives in the latter language type are derived not by movement to

Spec,CP but by the insertion of an "expletive DP" (i.e. *the fact*) that "binds the event head". This expletive can also be null, as shown by the structure below:

(108) $[_{CP}\ [_{DP}$ *the fact/* ∅$]\ [_{C}$ *that* $[_{IP}$ *John came*$]]]$ *worried me a lot*.

These constructions (basically, English RCPs) share the relevant property with factive clauses in Gungbe: on Aboh's account, they are relative clauses of sorts, given that they feature some kind of operator chain between the Spec,CP and the event head (which is presumably located in T). They do not, however, receive a regular relative clause interpretation, given their status as event relatives.

To sum up, evidence pointing towards the plausibility of analyzing RCPs as relative clauses – in particular, as event relatives – comes from two different directions. One, what have traditionally been labeled as 'factive complements' share a number of relevant properties with relative clauses, and are in fact formally relative clauses in some languages of the world. This, of course, does not in itself mean that factive complements *are* relative clauses. It simply means that relative clauses and what I refer to as RCPs share certain properties that NCPs do not have. If RCPs are not relative clauses, this pattern requires another explanation. There is, however, a second set of evidence (some of which I reviewed above in the discussion of Haegeman's recent work) that suggests that RCPs feature some form of operator movement on their left periphery. So it becomes attractive to posit that the relative clause-like properties of RCPs are due precisely to this operator movement. In the next two sections, I will make this idea more precise. In 4.3, I discuss some characteristics of the posited event operator that explain certain observations with respect to the class of elements barred from appearing on the left periphery of RCPs. In 4.4, meanwhile, I discuss parallels between referential CPs and DPs.

4.3 Intervention effects in RCPs

In this section, I want to say a bit more about the exact class of elements that are barred from appearing in the left periphery of RCPs, the precise characteristics of the event operator that is supposed to lead to the intervention effect observed in these constructions, and the consequences of these properties for the impoverishment of the left periphery. I suggest that the referential property of RCPs that I have argued for above relates very closely to these restrictions on the CP domain.

Not all left-peripheral elements behave uniformly when it comes to the ability to appear in complement clauses. The reader will recall from the discussion of Haegeman's work that it has commonly been assumed in the literature that topics are a root phenomenon, meaning that they can only appear in matrix clauses (or clauses with matrix-like properties, hence the term *embedded root phenomenon*). Haegeman (2006) and subsequent work argue that the availability of topics (just like that of other root phenomena, such as foci or speaker-oriented adverbs) is dependent upon the presence of speaker deixis in the clause. What this means in essence is that topics are allowed in clauses with illocutionary force, and barred otherwise. This – according

to Haegeman (2006) – provides evidence that some complement clauses (the clauses I refer to as NCP here – clauses that, although embedded, encode speech acts) have illocutionary force, making these clauses more complex than their counterparts that do not have illocutionary force, are not speech acts, and do not allow topics on their left periphery. While this robust generalization has been around for a while, there are two problems with it, as noted above (and also discussed in more recent work by Haegeman).

One problem is conceptual: it is somewhat unclear why topics should be dependent on illocutionary force or speaker deixis (a restriction that appears somewhat easier to motivate in the case of speaker-oriented adverbs, for example). The other problem is empirical: topics do not behave uniformly with respect to this property. I discuss this in more detail below but in general terms, there are differences among topics of different types and also among topics of different languages. The answer to the conceptual problem (as suggested by Haegeman (2007) and also adopted here) is that, in contrast to the solution proposed in Haegeman (2006), the impoverishment of the left periphery of RCPs is actually not ad hoc but due to the movement of an event operator from the TP domain to the CP field in these clauses. This renders the unavailability of certain elements in this domain of the clause an indirect intervention effect: the positions where speaker deixis, topic and focus are housed are unavailable because, if filled, the elements housed in these positions would interfere with the posited operator movement. Thus, the lack of speaker deixis and the barring of topics are correlates of the same operator movement but not necessarily connected to each other. This solution, while attractively simple, does not go very far towards answering the empirical question of how come some elements are interveners in this domain and some are not. As noted by Haegeman herself and discussed above, English topics are interveners while, for example, Italian CLLD does not pose a problem. (Similarly, circumstantial adjuncts do not result in an intervention.) In what follows, I look closer at the contrasts among different kinds of topics when it comes to their availability on the left periphery of RCPs (based partly on Bianchi & Frascarelli (2009), and partly on novel data), and argue that (a) topics, when disallowed, are in fact barred from the left periphery of RCPs due to an intervention effect related to the movement of the event operator, and (b) the elements that result in the intervention effect are precisely those that share the feature make-up of the operator. Thus, this section will provide additional evidence the posited operator movement in referential clauses, i.e. clauses in which the posited event relativization occurs.

The generally accepted view is that topics are by and large unacceptable in certain embedding contexts (such as conditionals, factive complements, temporal clauses, and so on) and that whenever they do seem to appear in these contexts are exceptions to this overall pattern (e.g., Romance CLLD or English adjunct fronting). The approach I want to take here instead (as discussed also in Haegeman & Ürögdi 2010 a,b,c) is to identify more precisely than before the class of elements that constitute interveners in these environments and derive the properties of this class from their feature make-up as it relates to the features of the operator whose movement they block. Given the general consensus (cf. Starke (2001)) that intervention effects arise when the features attracted by a probe form a subset of the features of the intervener (in other words, when the intervener contains all the relevant features of the probe and possibly more), it becomes rather

straightforward to suggest that the class of interveners should cover those elements that are featurally too similar to the operator.

In Hungarian, there are various blatant counterexamples to the sweeping generalization suggested in Haegeman (2006) (and later refined in subsequent papers) that – as illustrated in (87) – RCPs are truncated clauses where some projections in the left periphery (notably: topic and focus) are simply missing. As the examples below illustrate, factive complements, as well as complements of inherently negative predicates, are trivially compatible with both topic and focus:

(109) *János* *sajnálja / kétli,* *hogy* *Péter* *a szüleivel* *tegnap* *PETRÁT*
John regrets / doubts Comp Peter the parents-with yesterday Petra-Acc
látogatta *meg.*
visited Prt
'John regrets / doubts that Peter visited PETRA yesterday with his parents.'

As (109) shows, the RCP featured in the example is easily compatible with a subject topic, a non-subject topic, a circumstantial adjunct and a contrastive focus, without restrictions. While Hungarian focus occupies a lower syntactic position than, for example, English left-peripheral elements and is arguably housed in Spec,TP, its availability in RCP complements still shows that a semantic explanation attempting to derive an inherent connection between illocutionary force (or speaker deixis) and focus will not work. Syntactically, however, the grammaticality of focus in the Hungarian example is not necessarily relevant to evaluating the truncation account, given Haegeman's suggestion that left peripheral elements may occupy different syntactic positions in different languages, which can result in language-specific consequences for the lack of the positions shown in (87a). Thus, the presence of TP-level contrastive focus in the Hungarian example does not constitute an argument against the unbiased truncation of the left periphery suggested by Haegeman (2006). When it comes to the intervention account, however, it becomes unclear why this focus – unlike foci housed in higher Spec positions in other languages – should not interfere with the movement of the proposed operator. One way to explain this away is to say that the operator originates higher than Spec,TP, resulting in it (rather than focus) being the closest attractee for the probe in CP. An alternative, meanwhile, could be that (Hungarian) focus is featurally simpler than (or sufficiently different from) the operator, so it does not lead to an intervention effect. In Chapter 2, when I present data from temporal embedding clauses, it will become clear that the first explanation is on the right track since Hungarian focus can also create intervention effects when the operator in question moves from a VP-internal position as in, for example, temporal relative clauses. (See example (62) in Chapter 2 and the surrounding discussion.) As such, the availability of Hungarian focus in RCPs can be used as an argument for the structure I assume here, namely one where the event operator originates outside TP. As for the availability of topics, however, something more needs to be said to explain the contrast with English.

Now, in Hungarian (and I return to English below) it is relatively straightforward to distinguish at least two different kinds of topics, simple topics (say, aboutness or givenness topics, cf. Bianchi & Frascarelli (2009), which I discuss below) and contrastive topics. Both of these are typically fronted above TP (into what are generally taken to be recursive topic positions) but they are differentiated by a number of properties. On the intonation side, the two kinds of topics have different contours (L-H for contrastive topics and H-L for regular topics). Also, non-contrastive topics are recursive and can appear in a sentence without limitation while contrastive topics are unique (only one is permitted per clause). In terms of interpretation, contrastive topics invoke alternatives (cf. Büring's (1997) analysis of contrastive topic interpretation, among others) while simple topics simply associate the proposition to an individual in the context or invoke given information. Given all these differences, it is perhaps not surprising that the two kinds of topics do not behave uniformly in embedded contexts – even though they arguably occupy the same syntactic position. Observe example (110), showing that contrastive topics (underlined) --- unlike aboutness topics, as shown in (109) – are not normally allowed in RCPs:

(110) **János sajnálja / kétli, hogy <u>'Péter</u> tegnap PETRÁT látogatta meg.*
John regrets / doubts Comp Peter yesterday Petra-Acc visited Prt
Intended: 'John regrets / doubts that Peter visited Petra yesterday (while some other person visited someone else).'

As (110) shows, the generalization that topics (for whatever semantic or syntactic reason) are not allowed in RCPs is both too strong and misleading: the correct generalization, at least for Hungarian, seems to be that both contrastive foci and aboutness topics are acceptable, while contrastive topics are not. Given the positional difference between Hungarian and English focus, at this point it is more informative to concentrate on the differences between aboutness or givenness topics and contrastive topics, and derive this from the fact that (at least on a Büring-style analysis) contrastive topics – in addition to topic function – generate alternatives and in this sense behave like a higher-order focus. Featurally, then, they are more complex than aboutness topics since they encode an operator element that is missing from simple topics (which may or may not be base-generated in their high position but in any event they are not operators). Therefore, inspired by Haegeman's feature-based Op-movement and intervention analysis (adapted to the current account), Haegeman & Ürögdi (2010 a,b,c) propose the following schema for predicting intervention effects:

(111) a. *$[_{CP}\ Op_{Q}$ $XP_{Q+\delta}$ $[_{FP}\ t_{Q}\ [_{TP}\ V\ \ldots\ ]]]$ (contrastive topics)
b. $[_{CP}\ Op_{Q}$ XP $[_{FP}\ t_{Q}\ [_{TP}\ V\ \ldots\ ]]]$ (simple topics)

The simple idea formulated above is that the moved operator has a [Q] feature (basically, an operator or [wh] feature) which it shares with operator elements like contrastive topics. The [δ] feature is a D-linking feature

that encodes contrast. Thus, aboutness topics will be acceptable in RCPs, while contrastive topics will create an intervention effect, as shown by Hungarian (109) vs. (110).

I will now briefly present two lines of potential evidence to lend support to the account proposed above. One piece of evidence concerns data suggesting that whenever the posited operator is featurally more complex than [+Q], contrastive topics suddenly become acceptable. The first piece of evidence comes from a slightly marginal construction in Hungarian. Start with the following example:

(112) *János* *AZT* *nem* *tudja,* *hogy* *<u>Péter</u>* *tegnap* *kit* *látogatott* *meg.*
John Dem-Acc Neg knows Comp Peter yesterday who-Acc visited Prt
'What John doesn't know is whom PETER visited yesterday.'

This example is more or less uncontroversially acceptable to all Hungarian speakers. The crucial element is the embedded subject that, as shown by the translation, is interpreted contrastively since it generates alternatives. Given that the canonical focus position is filled by the wh-phrase (which, in Hungarian, occupies the same position as contrastive focus and is in complementary distribution with it), the embedded subject in (112) is presumably a contrastive topic.[42]

This is surprising, however, since the complement clause is an RCP in the example, and as such, it should not allow a contrastive topic on its left periphery. In fact, this position is only available to contrastive elements if the entire complement clause is interpreted as focus, as enforced by the presence of the clausal expletive *AZT* in the matrix clause. (See the discussion of this construction above in Section 3.2.) Now, to some speakers, this construction is only grammatical when the embedded clause is a (resolved) question but at least some speakers also accept the same structure with an embedded statement:

(113) %*János* *azt* *sajnálja,* *hogy* *<u>Péter</u>* *tegnap* *(pont)*
John Dem-Acc resents Comp Peter yesterday (precisely)
Marit *hívta* *el* *moziba.*
Mary-Acc called Prt cinema-to
a. 'Of all the relevant boys, the boy for whom John resents that it was MARY (and not another girl) whom he invited to the movies is PETER.'
b. 'Of all the relevant situations where a boy invited MARY (and not another girl) to the cinema, John resents the situation where the inviter was PETER.'

[42] This is supported by the fact that this position in these examples cannot be filled by certain elements (like negative quantifiers, for example) that typically occupy the focus position in Hungarian – these elements, being non-referential, are normally barred from topic position, and they are also not allowed in the relevant position in example (112). A slight issue concerns the intonation of these embedded contrastive topics, since they do not have L-H intontation as matrix contrastive topics do but their contour resembles that of foci: H-L intonation followed by deaccenting. This, however, is not necessarily a problem given the general deaccenting on the embedded clause, and the idea that contrastive topics are basically higher foci. Thanks to Shin Ishihara for discussion of the intonation of these examples. I will abstract away from this issue here.

To the extent that the example in (113) is accepted by a speaker, it has two interpretations that can be teased apart and result from different scope relations in the sentence. One involves the underlined element taking matrix scope – and in this case, the translation in (a) provides the closest equivalent in English.[43] The other interpretation, however, allows the relevant element to take true embedded scope (as shown by the other translation alternative, given in (b)). Without going into much detail of the complex scope interactions in the example, it is important to note that embedded scope for the contrastive topic is possible (if not preferred). This means that a contrastive topic position must be perfectly acceptable in this construction to speakers who accept (113) as grammatical. The availability of a contrastive topic in an RCP (as in the uncontroversial (112) and the somewhat more marginal (113)) is clearly related to the focused status of the complement clause itself. In a somewhat vague sense, we can say that in fact what is focused in these examples (at least when the embedded contrastive topic takes narrow scope) is the event that is relativized in the RCP complement. If this is so, then it is plausible that the event operator that participates in relativization here is featurally more complex than in the neutral examples.[44] In Haegeman & Ürögdi 2010b this is formalized as illustrated in (114) below:

(114) $[_{CP}\ Op_{Q+\delta} \quad XP_{Q} \quad \ldots\ [_{FP}\ t_{Q+\delta} \quad [_{TP}\ V\ \ldots\ ]]]$

The idea is that in cases where the entire event is focused, the event operator is featurally enriched to encode also a D-linking feature [δ]. (On this account, there is no featural difference between contrastive topics and foci, their differing behavior being derived solely from their syntactic positions and relative scope relations, i.e. the fact that contrastive topics always require a focus in their scope.) As such, elements with a single operator feature [Q] will not create intervention and will therefore become acceptable. The account also posits that in these cases contrast is encoded on the entire event that is relativized, and not on the contrastive elements inside the clause, and therefore the contrastive topic in the left periphery only acts as a placeholder for a variable and does not encode contrast to alternatives in a set (the alternatives being introduced by the event itself). Therefore, the contrastive topic is suggested to have only a [Q] feature in these constructions[45].

[43] This phenomenon is discussed by Bianchi & Frascarelli (2009) as a correlate of embedded contrastive topics known as 'root promotion'.

[44] Actually, Arsenijević (2009) makes a similar suggestion regarding the focusing of complement clauses (although he derives adifferent kind of conclusion from the data). He says: "the focalization actually targets the force of FCC [finite complement clause], specified on the noun [head assumed to dominate the proposed relative clauses], and also represented in the variable ForceP of the complement clause". In my understanding, this suggestion is essentially the same as the one made here, albeit the implementation is rather different.

[45] The question of where exactly the embedded contrastive topic takes scope, and whether or not it is actually a contrastive topic or some unusual case of focus is not trivial (and has been raised by both reviewers of this thesis). As regards the first part of the question, my view is that there is no featural difference between contrastive topic and focus other than the fact that contrastive topic has another focus in its scope (cf. Büring's work on this issue). As for the semantics of this construction, the main question for Hungarian is whether the expletive pronoun in the matrix clause marks the scope of the embedded contrastive topic (*Péter* in example (113)) or of the entire embedded clause (as formalized in my analysis and shown in (114)). The issue is hard to settle empirically because in a case like (113) both options seem to derive the same semantics: in one case, alternatives are generated by *Péter,* while in the other case by

For details, see H&Ü's paper. This will yield the required result that operator elements become acceptable in the left periphery of RCPs that are themselves contrastively focused, a previously unreported result.

Even this sketch of an analysis of the state of affairs in Hungarian shows that the situation with respect to the availability of certain elements in the left periphery of RCPs is more complex than most authors assume. There are differences among potential interveners, and also among languages. In English, for example (unlike Hungarian) topics in general have been claimed to be unacceptable in RCPs. This seems odd at first glance, and no plausible semantic explanation has been proposed for this generalization (and, in any event, a semantic explanation would run into problems when dealing with cross-linguistic counterexamples such as Hungarian topicalization or Italian CLLD). It has, however, been suggested that the reason for this rigidity of English is precisely the fact that English topics – unlike Hungarian topics or CLLD in Romance – are normally contrastive. If this is correct, than we actually expect them to behave like Hungarian contrastive topics. I now turn to this issue.

In a recent paper discussing topics as root phenomena, Bianchi & Frascarelli (2009) show convincingly that we need to distinguish three different kinds of topics (aboutness-shift topics, contrastive topics, and familiar/given topics), which receive distinct interpretations and behave differently in the syntax as well. In an essentially semantic analysis (based partly on Krifka's (2007) concept of common ground management) the authors argue that root restrictions apply only to topics that affect conversational dynamics. While I will not go into the details of their analysis here, I would like to discuss a few pieces of their data to show how the same contrast between different topics can also potentially be derived from a syntactic intervention analysis. The first (well-known) fact discussed by Bianchi & Frascarelli is the contrast between English topics and Italian left-dislocated clitics with respect to their grammaticality in non-root environments. Emonds (1970) was the first to note that English topicalization and left dislocation are *root phenomena* in that they are restricted to root and root-like contexts. Several authors have picked up this

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propositions of the form *For X, it was MARY that X invited to the movies yesterday.* where the contrastive element introduces a variable in its position. One type of example that can decide this issue is a case where the embedded contrastive topic takes unambiguously embedded scope, and I think such examples can be constructed:

(i) *Csak AZ aggasztott, hogy/amikor JÁNOST választották meg elnöknek.*
only Dem worried-me Comp/when John-Acc they-chose Prt president-as
(a) Only one thing worried me of all the things that happened: that John was elected as president. (i.e. Only one person was elected but other relevant things also happened.)
(b) A number of people were elected (e.g. one after the other) but this only worried me in the case of John.

(ii) *Csak AZ aggasztott, hogy/amikor JÁNOS ELLEN éppen MARI szólalt fel.*
only Dem worried-me Comp/when John-against particularly Mary spoke up
(a) There was only one person (John) against whom it was Mary who spoke up (I was only concerned about this incident) but other relevant things also happened.
(b) There were several people against whom it was Mary who spoke up but this only worried me in the case of John.

It appears that the (a) readings in both examples (with (i) a case of simple embedded focus, and (ii) a case of the construction at hand, namely an embedded clause featuring both a focus and a contrastive topic) involve embedded scope for the underlined element. If this is so (and this has been confirmed by a number of speakers in addition to my own intuition) these examples favor the analysis I propose here, whereby the entire embedded clause is contrastive, and this is indicated by the expletive taking matrix scope, while the embedded contrastive topic only serves to introduce a variable in the propositional alternatives. This analysis has no trouble deriving both the (a) and (b) readings above, while the alternative would need to say something extra about the (a) readings.

observation. Most notably, Hooper & Thompson (1973) argue that this restriction cannot be accounted for by a syntactic analysis because (they assume that) there is no systematic syntactic difference between the environments where root transformations can apply and ones where they cannot. For these authors, the core property of what they call *asserted* clauses is a semantic property with no necessary syntactic correlates. Transforming this observation into the terms of the present discussion, the question becomes whether certain well-defined classes of root phenomena are systematically allowed in NCPs and systematically disallowed in RCPs (suggesting that a syntactic analysis is at least possible), or whether this classification proves useless in predicting the availability of root phenomena (suggesting that the restrictions applying here are essentially pragmatic in nature). A case in point is Romance CLLD, which is generally allowed in non-root contexts without any restriction as to the clause being 'asserted' or having 'illocutionary force', in contrast to English topicalization:

(115) a. *Se gli esami finali non li superi, non otterrai il diploma*
if the final exams not them-pass.2.SG not obtain.FUT.2.SG the degree
'If you don't pass the final exams, you will not get the degree.'

b. *Che questo problema gli studenti non l'abbiamo potuto risolvere, mi sembra impossibile*
that this problem the students not it-have.3PL can.PART solve to-me seems impossible
'It seems impossible to me that the students have not been able to solve this problem.'

c. *E' strano che questo problema gli studenti non l'abbiamo potuto risolvere*
It's strange that this problem the students not it-have.3PL can.PART solve
'It is strange that the students have not been able to solve this problem.'[46]

(116) a. *If these exams you don't pass, you won't get the degree
b. *While her book Mary was writing this time last year, her children were staying with her mother

Haegeman (as mentioned earlier) proposes that Italian CLLD targets a topic position lower than that relevant for English, and this lower position is not dependent on the presence or absence of Force (or Speaker Deixis). This lower position is apparently not available in English (for unclear reasons). Bianchi & Frascarelli claim, on the other hand, that there is a deeper difference between Italian and English in this respect. While Italian CLLD may be the instantiation of any of the three topic types (aboutness topic, contrastive topic and givenness topic – these terms are used in the common way, for precise definitions and

[46] Examples from Bianchi & Frascarelli (2009).

intonational realizations, I refer the reader to the above authors), English instantiates only two kinds of topics, and these are realized by two distinct constructions. Left dislocation (LD) realizes aboutness-shift, while topicalization implements contrastive topics (examples from B&F):

(117) What can you tell me about John?
  a. John Mary kissed.
  b. *John, Mary kissed him.
(118) What can you tell me about John?
  a. *Nothing. But Bill Mary kissed.
  b. Nothing. But Bill, Mary kissed him.

Rodman (1974) argues that the fact that the topicalization in (117a) and the LD in (118b) constitute appropriate answers to the same question (where *John* is the aboutness topic of the previous sentence) shows that simple topicalization is used when the topic is established from previous context, while LD is used to shift aboutness (in essence, to produce contrast). Nevertheless, Bianchi & Frascarelli claim that contrast is also implicit in a topicalization construction like (117a): "the use of TOP induces the interpretation that John was kissed by Mary and somebody else wasn't." This means that English lacks one of the topic types (simple givenness topic) entirely, and both aboutness topics and contrastive topics involve an implicit or explicit contrast. Bianchi & Frascarelli derive the difference between English and Italian from this fact. To summarize their analysis, they note two important contrasts between aboutness and contrastive topics on one hand, and givenness topics on the other. One, the former but not the latter (can or must) involve contrast, and necessarily pertain to *common ground management*. Two, the former but not the latter are unique in the sentence. This second property explains the well-known recursivity of Italian CLLD: since CLLD can encode any of the three types of topics, one of which is recursive, this property of CLLD turns out to in fact characterize only one use of this construction, the one where it is used to implement givenness topics. Hence, CLLD does not necessitate special treatment (or a separate syntactic position) on this account since its compatibility with non-root contexts is expected on the givenness topic use: on this use, the topicalized element does not involve any shift in the common ground, and as such, does not require a speech act as host.

Turning to English in somewhat more detail, Bianchi & Frascarelli note a number of interesting, previously unreported properties of these constructions. I will not go into their data related to scopal properties of these constructions – for these, I refer the reader to their work. The most crucial observation for us here is that, for their informants, topicalization constructions turn out to be much more readily acceptable in non-root embedded contexts (e.g. factive complements, under matrix negation or negative predicates, and so on) than previously assumed:

(119) I am glad that this unrewarding job, she has finally decided to give _ up (12/15)

This is somewhat surprising in light of the observation (see above) that topicalization is normally contrastive in English.[47] Similar examples have been marked ungrammatical by many authors writing on this topic, as the following canonized example shows:

(120) * John regrets that this book Mary read. (Maki *et al*, 1999: 3, (2c))

If Bianchi & Frascarelli are right in assuming that in English, topicalization is contrastive by default, the unavailability of topics in RCPs is not surprising at all. In fact, provided the general consensus that topics are not allowed in factive complements in English, what is surprising is the relative acceptability of (119). Given the discussion of Hungarian, there are two possible explanations for (119). One possibility is that the topic in (119) is not contrastive after all. This, however, runs counter to the robust observation that, by and large, topics tend to be rather marked or outright unacceptable in RCPs in English. In addition, many of Bianchi & Frascarelli's examples enforce the contrastive reading on the topic, which still does not render the examples unacceptable:

(121) He tried to conceal from his parents that the maths exam he had not passed _, and the biology exam he had not even taken _ (13/15)

In fact, what is at first glance confusing is that a strong contrast on the complement clause – if anything – facilitates the acceptability of these examples. Notice, however, that there is an additional element here. While it is true that the topic in (121) is read contrastively in the sense that it generates alternatives (and, just as is usual for contrastive topics, it contains a contrastive focus in its scope, which also generates alternatives) the entire event of *not passing the maths exam* must also be contrasted with another event (in this case, *not even taking the biology exam*) for the example to be felicitous. To see this, observe the following example (122a), where the contrast is not on the entire event but on the topic only (unlike in the much better (122b):

(122) a.?? He concealed from his parents that the maths exam he had not passed, and the biology exam he also had not passed.

b. His parents resented that the maths exam he had not (actually) passed, he had only gone and signed up for the tests.[48]

As the examples in (122) show, it is not simply contrastivity on the topic that makes these examples acceptable. To the contrary, if there is no contrast on the entire event as well, the example will not work (as

[47] I will not have anything insightful to say about LD in English here.
[48] I have changed the examples somewhat because the use of the verb *try* could have an effect on the factivity of the embedded clause – which, in turn, could make the examples irrelevant.

indicated by (122a)). However, (122b) shows that the contrast on the event makes the example perfectly felicitous. This brings to mind the Hungarian examples, where contrastive topics were acceptable in an RCP just in case the RCP itself (or rather, the event relativized in the RCP) was interpreted contrastively. If this is the correct generalization, this means that the classic ungrammatical example in (120) should also improve, given a similar context. And this turns out to be the case:

(123) a. * John regrets that <u>this book</u> Mary read. (received judgment from Maki et al.)
b. John resents that this book Mary read from cover to cover, while the other (his favorite) she didn't even open.
c. John found out that this book Mary read from cover to cover, even though she had told him she could not read long texts because they gave her a headache.

As the examples in (123) show, the situation is far from being as straightforward as is commonly assumed. While it is true that the often cited example in (123a) is quite bad, this may simply be because of the lacking context that could provide the contrastive reading for the relativized event. This is supplied in (123b) (in an example modeled after Bianchi & Frascarelli's test cases) and in (123c) (in an example that enforces the contrastive interpretation of the entire event). Both examples are fully acceptable on a contrastive topic interpretation and intonation (rising on *this book* and with a peak on the focused element *cover to cover*). Thus, it turns out that (123a) is not so bad on a contrastive topic reading of *this book* (provided that the proper context is constructed) – and this is further supported by examples where the complement clause is focused via an overt method such as clefting:

(124) *What John regrets is that <u>this book</u> Mary read and commented on…*
(i) … while the other she didn't even open.
(ii) … and not the OTHER book.

Notice that there are two possible interpretations here (once again, corresponding to two different intonation contours). One is where the underlined element is interpreted with low scope inside the embedded clause, as a contrastive topic (once again, with the appropriate intonation, see above). In this case, both it and the focused predicate generate alternatives, so the entire event is contrastive. Thus, we have the conditions required for the contrastive topic to be acceptable inside the RCP. The second interpretation looks like a wide-scope reading on the embedded object, so the meaning is something like "It's for this book that John regrets that Mary read it and commented on it (and not for the other books that she read and commented on)." (Here, the intonation is different – we have a focus peak on *this book* and deaccenting after that.) On this reading, the only alternative generating element appears to be the direct object, calling into question the idea that the entire event is interpreted as contrastive here. Note, however, that there is another way of deriving this meaning, which is simply to say that the basis of the contrast is still entire events but these

events are more constrained in the interpretation under (ii): they are all book-reading-and-commenting events by Mary, of which John only regrets one. In (i), meanwhile, there are two elements generating alternatives, so there is more variety among the events that need to be considered. Deciding which of these two alternatives is the right one for deriving the meaning in (ii) is not so simple (cf. footnote 46. about Hungarian). Observe the following example. The context is that Mary is on a game show, where she has to answer a number of questions, including a bonus question that results in her winning a car.

(125) *What made John happy is that the bonus question Mary answered correctly.*

(i) Mary answered correctly a number of questions but only this one made John happy (he did not care about her answering the other questions).
.. focus and peak intonation on the DO, deaccenting after

(ii) Mary was asked a number of questions. The fact that she got this particular one right made John happy. (He did not care how she did on the others – he wanted the car.)
.. DO as contrastive topic with rising tone, focus and peak on *correctly*

As shown by the interpretations (i) and (ii), both readings can be paraphrased as involving contrast on the events. Interestingly, the reading that seems unavailable in (125) is one where the object is construed as a regular embedded focus, as in (126). Here, Mary has won the contest and can choose one prize: a car, a holiday or a gift voucher:

(126) ?? What John regrets is that THE GIFT VOUCHER Mary chose.

By picking a verb that does not easily generate alternatives or refer to an iterative event, we can eliminate the readings that are available for (125) above. This leaves only one logically possible interpretation for the example, one where it is the identity of Mary's choice that John regrets – and this reading appears to be unavailable. This is plausibly because this would be the only interpretation where there is no contrast on the events, only on the focused element.[49] In my view, this strengthens the argument that it is the focusing of the entire RCP that makes contrastive topics grammatical in these contexts, unlike in the standard case. Note that this explanation is not a pragmatic or semantic one (as, for example, Bianchi & Frascarelli's story is) since the same semantic construct is perfectly acceptable in Hungarian, where narrow-scope contrastive foci are

[49] According to Bianchi & Frascarelli, there is a related observation that *root promotion* (i.e. the embedded topic taking matrix scope, cf. Portner & Yabushita (1998)) is, for some reason, more readily possible for topicalization than Left Dislocation. Since embedded scope is not possible due to the fact that these are non-root contexts (without illocutionary force), the cases where root promotion is barred are rendered ungrammatical. This does not appear to hold, as embedded scope is at least possible for embedded topics. The different interpretations discussed in this section appear not to correlate with scope directly. Meanwhile, it is true that LD – which encodes aboutness topics that are also contrastive in English as they signify a shift in aboutness – is invariably out in non-root contexts, and cannot take wide scope over matrix constituents even in embedded root clauses. So the fixed scope of LD and its unavailability in RCPs is somehow related, which requires further investigation.

fine inside RCPs (see example (109)), meaning that it is not the semantic interaction between an RCP and a focus that rules out these examples in English. The problem with (126) is that we have a contrastive element (a focus) in the path of the operator that has not been featurally enriched to enable it to overcome the intervention created by the focused element. If the event which the operator relativizes is not itself contrastive, such enrichment will not be possible and the intervention effect will not be obviated. This problem does not arise in Hungarian, where focus does not find itself in the path of the proposed operator movement.

To sum up, the correct generalization for both Hungarian and English appears to be that there is nothing barring topics in general from appearing in RCPs but contrastive topics (i.e. all English topics) are interveners for the movement of the operator with which they share their feature make-up. This restriction is lifted when the RCP itself is contrastively focused. The explanation for this, according to the reasoning of the above paragraphs, is that in these cases it is in fact the embedded event that bears contrastivity, which is carried up to the CP domain via the event operator. Thus, the feature make-up of the operator is, in these cases, more complex than in the no-contrast case – and this renders the contrastive topic a less than perfect match for the probe in C.

4.4 Extensions: CP/DP parallelism and extraction

In this section I discuss two important issues that are closely related to the topic at hand, and have far-reaching consequences that I cannot go into in sufficient detail here: the parallel structure of CP and DP (and its semantic correlates), and the closely related question of the constraints on extraction from (i.e. the islandhood of) these constituents. While both of these topics warrant detailed discussion in their own right, here I will simply point out the directions that the analysis proposed here opens up for an approach that, in my view, is both intuitively appealing and empirically interesting.

The structural and semantic parallelism between CP and DP has been noted by many authors, and many important works have been written about the mileage that can be got out of treating these two types of phrases analogously (Abney (1987), Szabolcsi (1983, 1994), Aboh (2005), Hiraiwa (2005), among many others). In the realm of sentential embedding, some authors assume a strict parallel between CP and DP (see, for example, Aboh (2005) on the fine structure of the left periphery of the two projections), and even authors who do not discuss this issue explicitly operate on the tacit assumption that factive complements (or non-asserted, etc. complement clauses – as the analysis dictates) are "nominal in nature". In fact, even analyses that seek to derive the special properties of (a certain class of) finite complement clauses from relativization (rather than the simple stipulation of a nominal element a la K&K) often resort to positing a nominal head dominating these clauses (see, for example, Arsenijević (2009) or Haegeman's recent work). This intuition is left somewhat vague by most accounts of sentential complementation, although see the last section of K&K for a tentative suggestion that the nominal character of factive complements derives from the fact that they refer to truth values in the sense of Frege, and Melvold's (1986) suggestion that the nominal-like property of

certain CPs is in fact definiteness. This idea is made explicit here through the claim that the class of finite clauses subsuming factive complements is referential, a property that has traditionally been assigned to nominal expressions. In particular (as discussed in more detail in Chapter 2) I do not posit a nominal head in event relativization, operating on the assumption that the 'nominal nature' of RCPs is simply an informal intuition, and the reason RCPs pattern with *some* nominals is that they share the property of referentiality. This is a topic involving many intricacies that I will not go into here, but I would like to add a novel consideration to this line of research below. In particular, I sketch out a way to reconcile the operator movement (event relativization) derivation of referentiality in CP with a similar structural account of referentiality in DPs, building on Campbell (1996) and also den Dikken (2006). In my view, this line of investigation is promising because it (a) derives referentiality syntactically and in an analogous way in CP and DP, (b) accounts for the islandhood and other intervention effects observed with both, (c) explains the phasal properties of both DP and CP that only surface when the given phrase is referential, and (d) gives concrete form to the intuition that RCPs are "somehow nominal". For (d), the implication is that RCPs are not nominal at all (contra, for example, K&K's original idea, as well as, more recently, Haegeman (2009)) but they share an important property – referentiality – with certain DPs.

There is some indication in the literature that referentiality is syntactically derived, and thus referential DPs are structurally (i.e., not simply featurally) different from their non-referential counterparts. Before I go into two recent technical implementations of this idea, let me outline some relevant empirical data. One central piece of evidence to support a structural contrast between referential and non-referential DPs is the well-known observation that all DPs do not behave the same when it comes to extraction, which likens them to CPs in this respect. In particular, Fiengo & Higginbotham (1981) note that referential (specific) DPs are more resistant to extraction than non-referential ones, based on examples like (128):

(128) a. Who did you see pictures of?
b. * Who did you see the picture of?[50]

Based on such examples (and others where specific DPs turn out to be opaque not only to extraction but also to binding and so on), Fiengo & Higginbotham formulate the 'Specificity Condition', and go on to derive the constraints on extraction out of specific DPs. What is interesting is that these DPs are actually not strong islands (as den Dikken (2006) also notes in a footnote, cf. fn. 29.) but weak islands, since extraction becomes much easier if the wh-phrase in question is strongly referential:

(129) a. * Who did you read John's book about?
b. ? Which popular play did you read John's review about?

[50] Example from Fiengo & Higginbotham, who cite Chomsky (1973) for the observation.

The question is, then, how the account of referentiality in CPs relates to these facts about DPs. As noted in de Cuba & Ürögdi (2009a), there is a more perfect parallel between CPs and DPs if we assume that *CPs that are weak islands for extraction are referential entities* (as discussed in this proposal also), a desirable outcome for sure. From this perspective, the generalization is that *referential elements (DPs or CPs) are weak islands, disallowing the extraction of non-referential extractees.* This means that we need an account of referentiality that accommodates both CPs and DPs in a way that explains their (relative) opacity. The suggestion I want to make here is that referentiality derives from operator movement inside a referential phrase in both CPs and DPs, yielding the analogous constraints on both. One promising angle on this issue is offered by Campbell (1996), who proposes that referentiality in DPs is derived via an operator chain between Spec,DP and the subject of a small clause of which the NP is the predicate, as in the structure for 'the thief' below:

(130) **[DP** OP the [*sc* [e] thief]

In this structure, the nominal head is actually a predicate whose subject is the variable *e* that is bound by the specificity operator in Spec,DP. According to Campbell, the specificity operator is a kind of DP-internal topic, which links the internal subject position (and hence DP itself) to a referent identified previously in the discourse, yielding referential interpretation. An overt instantiation of the Spec,DP operator is demonstratives. In the conclusion to the paper, Campbell summarizes his account as follows: "I have presented an analysis of the syntax of specificity, in which the structure of a CNP parallels that of a full clause in several respects, primary among them being that it contains at its core a subject-predicate structure (a small clause), and that Spec,DP is a position to which operators move in CNPs that are specific." It is easy to see how this account parallels very closely the account I have offered here for referential CPs. While the phrase-internal subject in DPs is presumably nominal in nature as its semantic content derives from the NP it stands in a predicative relationship with, it is an event variable taking its value from the TP in clauses. Meanwhile, the analogy with demonstratives is strengthened by Hungarian, where the element in Spec,CP is spelled out by the same morpheme as the distal demonstrative (or the definite article for that matter). Thus, I will assume that Campbell's account is essentially correct and carries over to CPs in a more or less trivial way. A generalized structure for a referential phrase subsuming DPs and CPs would then look something like this:

(131) $[_{RDP/RCP}\ Op_i\ Sub_{(D/C)}\ \ldots\ [_{RelP}\ t_i\ [_{NP/TP}\ N/T\ \ldots\ ]]]$

The schematic structure in (131) involves an operator chain between a functional projection dominating the contentful part of the phrase (the nominal in the case of a DP, and the event in the case of a clause) and the left edge of the topic field of the referential phrase. (Note that Campbell does not assume that this chain arises via movement but rather takes it to be an operator-variable chain, while Haegeman explicitly talks

about operator movement. This does not seem to be crucial, especially given the long-standing debate on how relative clauses in general come about. So I remain agnostic on this issue.) The other points of parallelism are rather standard: D and C act as subordinators, mediating the relationship between the content of the phrase and the rest of the sentence/discourse. The left periphery in both cases is the discourse-related field where various elements such as topics and foci can appear, subject to certain restrictions (see, among others, Aboh (2005) for discussion). For now, I have labeled the starting site of the operator as RelP, which I take to be shorthand for a functional projection encoding a predicative relationship between a variable and the entity carrying its semantic content. I return to more detailed discussion of this projection in Chapter 2, which focuses in more detail on structural and semantic differences between event relatives and 'regular' relative clauses.

Now, I return to sentential embedding to show that RCPs are structurally analogous to referential DPs. It is well-established that factive embedded clauses are (universally) weak islands, disallowing the extraction of a non-referential *wh*.[51] In Hungarian, however, extraction of a non-specific wh-phrase from both factive and non-factive complement clauses is equally degraded[52].

(132) a. **Hogyan gondolod, hogy viselkedtél?*
how you-think C you-behaved
Intended: 'How do you think that you behaved?'

b. **Hogyan sajnálod, hogy viselkedtél?*
how you-regret C you-behaved
Intended: 'How do you regret that you behaved?'

Extraction of a referential wh-phrase is acceptable from either type of complement.

(133) *Kivel mondta/sajnálja János, hogy beszélt a partin?*
who-with said/regrets John Comp he-spoke the party-at
'(Of the guests) who did John say/does John regret that he spoke to at the party?'

Thus, in terms of long-distance wh-extraction, the sharp difference between factives and non-factives documented for English is not attested in Hungarian. Examples like (132-133) show that – in this particular construction – complement clauses to factive and non-factive verbs behave analogously in this language, which is unexpected if the ban on extraction is accounted for with reference to factivity. This is, however, easily explained on the referentiality-based account. (For a more detailed discussion, see de Cuba & Ürögdi

[51] For a treatment of factive islands in the spirit of K&K, arguing that the complexity of factive complements blocks extraction, see K&K, Cinque 1990, and Rizzi 1990, etc. For a treatment of factive islands under the extra structure for non-factives hypothesis, see de Cuba 2006, 2007. Semantic accounts of factive islands include Cattell 1978, Szabolcsi & Zwarts 1993, and Abrusán 2007. I will leave aside discussion of these analyses.
[52] Examples (130-131) and discussion from de Cuba & Ürögdi (2009a).

(2009a,b)). As in the case of wh-expletive constructions (see Section 3.2.2), the prediction here is also that whenever we do not see a contrast between factive and non-factive complements, we are dealing with an RCP complement, since this type is compatible with both factive and non-factive verbs. Meanwhile, a construction that is only available for non-factive verbs is predicted to involve an NCP complement. This means that the question raised by (132) and (133) is the same as that for English: why is RCP a weak island? What we see in both Hungarian and English is that the extraction of a non-referential wh-phrase is impossible out of an RCP in both languages – so this much appears to be universal. In fact, as evidenced by the DP examples (128-129) above, this pattern conforms to the more general ban on non-referential variables inside referring expressions. This ban is likely to be semantic (cf. a natural extension of Szabolcsi & Zwarts (1993)), although a syntactic explanation is also possible (as I sketch briefly below; see also de Cuba & Ürögdi 2009a,b).

There is a difference between English and Hungarian when it comes to non-factives, however. In Hungarian, non-referential extractees can never be moved out of a complement clause, as (132a) shows. This means that when a non-factive verb selects an RCP in Hungarian, it behaves as expected and yields island effects, while when the non-factive selects an NCP (which is freely available as the other option) we get the wh-expletive construction. In English, meanwhile, the island effect is apparently obviated when the non-factive verb selects an NCP complement, hence the grammaticality of extraction from these clauses:

(134) *How$_i$ do you think that you behaved t_i?*

The example in (134) indicates that when an NCP complement is selected, the extraction becomes acceptable in English. This is what is expected because NCP is not an island on any account. I would argue, naturally, that in English also the verb "think" *can* select an RCP complement, which is an island, so the extraction of "how" would be ungrammatical. When an NCP is selected, however, the extraction is fine – an option that is not available in Hungarian, as discussed above.

There can be various explanations for the relative ease of extraction out of an NCP in English. According to a semantic account along the lines of Szabolcsi & Zwarts (1993), the semantic clash caused by a non-referential variable construed inside a referential domain does not obtain in case the complement is an NCP. This type of semantic account clearly favors analyses where a semantic property (such as referentiality) is made responsible for the difficulty of construing a semantic interpretation for a particular structure – and as such, the above noted parallel between extraction from referential DPs and RCPs is easily compatible.

A syntactic account (which is by no means exclusive of a semantic correlate), at the same time, would appeal to the structural distinction between referring expressions and non-referential ones. When it comes to CPs, this structural difference has been made explicit above. According to the event relativization account, the islandhood of RCPs is related to the operator movement on their left periphery: moved wh-phrases interfere with the movement of the operator, and thus CPs involving operator movement are rendered

islands. NCPs, which do not involve event relativization, do not give rise to this intervention effect. The feature-based version of the relativized minimality account (building on intervention) would yield the following structures for extraction patterns:

(135) $[_{CP}\ Op_i \quad \ldots [_{FP}\ t_i [_{TP}\ V \ldots]]]$

a. $*DP_Q \quad [OP_Q \quad t_Q \quad t_Q]$

b. $DP_{Q+\delta} \quad [OP_Q \quad t_Q \quad t_{\delta+Q}]$

As we can see, a wh-phrase that is simply [Q] – without a D-linking feature – cannot ove past the operator that shares this feature with it. Meanwhile, a D-linked wh-phrase – enriched with a [ó] feature – is able to perform the movement since the added feature it bears obviates the blocking effect. As such, the weak islandhood of RCPs is straightforwardly predicted on this analysis. (For more details, see Haegeman & Ürögdi 2010b.)

There is an alternative account for the transparency of NCPs that is opened up by den Dikken's (2006) analysis of phasehood, which I turn to now. First, I will briefly outline den Dikken's phase extension theory, and go on to suggest that the predictions of the account for an analysis of referentiality are not incompatible with the account sketched here (or with Campbell's proposal for referentiality in the DP). The distinct advantage of den Dikken's theory is that, if applicable to the current set of data, it has the prediction that only RCPs but not NCPs are phases, opening up a new avenue for an account of the ease of extraction from NCPs: on this story, NCPs are not islands because they are not phases, and therefore do not require extractees to stop on their left edge. This idea is attractive because it clearly assimilates the islandhood of referential CPs and DPs.

Den Dikken (2006) presents a 'dynamic' theory of phases labeled 'Phase Extension'. The central idea is that while core predicative structures constitute phases, other projections can acquire phasehood via head movement. So, a phrase that is not inherently phasal can become a phase if a lower phase head moves up to its head, thereby extending the lower phase. (For details of the analysis, I refer the reader to den Dikken's work.) A case in point is CP, which, den Dikken assumes, is not inherently phasal because it does not involve a predication relation between its specifier and complement. It does, however, dominate the vP phase indirectly, via TP, and can therefore become a phase if and only if we have head movement extending the vP phase up to CP. This idea has crucial consequences for locality of movement inside and out of CPs, since it entails that long-distance wh-extraction will only need to make a stop-over in Spec,CP if there is v-to-T-to-C movement in that clause. Otherwise, CP will not be a phase, obviating the need for movement to its edge, and therefore one-fell-swoop movement from the embedded Spec,vP to the matrix wh-position will become possible. As den Dikken points out: "For a language in which *v*-to-T-to-C movement proceeds only in root CPs, this entails that long *wh*-movement proceeds through the *v*P-edge position in the lower clause and then straight to Spec,CP in the matrix […] — the embedded CP is not inherently a phase and does not acquire phasehood either (because *v*, the head of the only inherent phase of the lower clause, does not raise up to it);

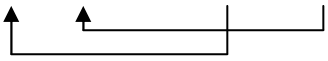
the matrix *v**P loses phasehood due to 'phase-extending' head movement of *v* via T up to the matrix C." On this view, therefore, the phasehood of CP (just like that of all other phrases that are not inherently phasal) hinges on movement. One example of derived phasehood of CP is v-to-T-to-C movement in English complement CPs, which (according to Pesetsky & Torrego (2001)) leads to the lexicalization of C as *that,* which is a prerequisite for overt movement or clefting of CP. This way, den Dikken derives the relative mobility (phonological independence) of CPs headed by *that*: obligatory *that* signals v-to-T-to-C movement, which in turn means that the CP has acquired phasehood. Also, as pointed out by den Dikken, having an EPP property (that is, attracting over material into the specifier) is normally associated with being a phase head. Since not all Cs are phase heads on this theory, but only those that have acquired this property from a lower phase head via head movement, it follows that whenever we see material attracted into Spec,CP, we can detect head movement from v up to C. Consequently, and this has important repercussions for extraction, any restrictions imposed by the embedded C on material passing through its specifier entail that the C in question has been rendered a phase head by v-to-T-to-C movement, since otherwise no material would pass through Spec,CP but would go directly to the matrix clause.

Interestingly, den Dikken makes an analogous suggestion for DPs, namely, that DP is not inherently phasal but can become a phase if and only if we have N-to-D movement. This movement only happens in referential DPs because, as discussed below, these DPs involve a predication relation inside the NP, yielding a phasal NP, which, in turn, has the capacity to render the DP a phase via head movement. Non-referential NPs, meanwhile, do not involve predication and are not phases themselves, and therefore lack the ability to pass phasehood upwards to DP. Den Dikken offers a partial account of this observation. As it stands, the Specificity Condition ('no specific DP may contain a free variable') as formulated by Fiengo & Higginbotham does not differentiate between different types of extractees, so the contrast illustrated in (129) is not expected. Nevertheless, the general opacity of referential DPs can be derived from the Phase Extension research program "on the assumption that specific noun phrases involve a predication relationship, within the noun phrase, between a(n abstract) specificity predicate and the projection of the head noun". (This is reminiscent of Campbell's suggestion for referential DPs, although on Campbell's account the noun itself is the predicate which takes an empty subject.) Specifically, den Dikken suggests that the definite article may be the lexicalization of the specificity predicate, which moves up to D via head movement, rendering specific DPs phases via inheritance of the phasehood of the specific NP. Non-specific NPs, meanwhile, are not phases because they do not involve a predication relation. (In this, the analogy with CP is imperfect, since vP presumably always involves predication, and therefore always constitutes a phase. This has the interesting consequence that only referential DPs show a strong parallel with CPs since a non-referential NP – unlike vP – cannot pass phasehood upward to the DP that dominates it.) Therefore, non-specific DPs have no way of becoming a phase because there is no phase from which they could inherit this property, and they will always be transparent to extraction since movement out of them will proceed in one fell swoop, rather than through Spec,DP. If we posit that the head movement rendering referential DPs phases also happens in RCPs, we derive the fact that not only non-referential NPs (as suggested by den Dikken) but also NCPs are non-phasal.

The remaining question that I want to touch upon is whether it is plausible to assume that the phase-extending movement proposed by den Dikken, the operator chain proposed by Campbell, and the Haegeman-style event relativization movement adopted for RCPs here can be reconciled to the extent as to derive the results outlined above. If it turns out that these accounts are compatible, then we can compound their predictions and derive referentiality in DP and CP in analogous ways. In addition, several results come for free, for example, the relative phonological independence of both RCPs and referential DPs, as well as the possibility of one-fell-swoop movement out of non-referential CPs.

There are two tenets of den Dikken's phase-extension account that are not held by the other relevant approaches. First, den Dikken explicitly claims (unlike Campbell) that there is no predicative relationship inside a non-referential NP, and second, this predicative relationship is what results in phasehood and necessitates phase-extending head movement. This is important for his account because if non-referential NPs were also to involve predication, we would expect that this phase could also be extended up to DP and non-referential DPs could also become phases. This is not necessarily so, however, since den Dikken convincingly shows that CPs differ in just this respect: some CPs feature movement from v to T to C, rendering them phases, while others do not. A similar story could be envisaged for DPs as well, even if all DPs involved a predicative layer at some point. Note also that this differentiation of referential and non-referential DPs based on predication significantly weakens the parallelism between DP and CP on this view because (as noted above) the 'core' of a CP (say, vP) presumably always denotes a predicative relationship regardless of whether it is an RCP or an NCP. That said, the analogy is not exactly right because the predication relation proposed by Campbell for DPs is external to the noun phrase, and as such is potentially not contradictory to den Dikken's account, and – carried over to the CP – not necessarily required in every clause. Once again, a generalized schema combining the insights of the accounts at issue would look like this:

(136) $[_{RDP/RCP}\ Op_i\ Sub_{(D/C)}\ \ [_{RelP}\ t_i\ [_{NP/TP}\ N/T\ \ldots\ ]]]$



The variable bound by the operator (i.e., the tail of the chain that arises either via movement or via a simple binding relation) takes its content from the TP/NP it dominates, yields referentiality via movement into the referential domain (i.e., topic field) of the CP/DP, and liaises between the contentful phrase and the embedding context/discourse. As such, both referential CPs and referential DPs arise via a generalized relativization operation, in entirely analogous manner. The relativized element (the associate of the operator) is TP/NP which, according to den Dikken, involves a layer of predication, which in turn renders it a phase. This layer of predication is plausibly Campbell's small clause (schematized as RelP above): basically, it involves a variable on which the TP/NP is predicated (i.e., which takes its denotation from the TP/NP). If so, this creates the preconditions for phase-extending head movement (T to C, and N to D, respectively, as argued for by den Dikken) that will render the referential CP/DP a phase -- and, as suggested by den Dikken

based on Pesetsky & Torrego (2001), get spelled out as the obligatorily pronounced C/D characteristic of 'moveable' CPs/DPs. The element of head movement does not form a part of Campbell's or Haegeman's accounts (or the basic proposal advanced in this chapter) but is not inconceivable. (Note that Lipták's (2005) proposal for event relativization is based on head movement, while a recent proposal by Gallego (2006) provides a 'mixed' account of relative clauses building on Pesetsky & Torrego's system that posits both traditional operator movement and head movement in relative clauses.) Nevertheless, rendering den Dikken's tentative proposal for referentiality in the DP compatible with Campbell's would require some technical modifications, and I will not be able to explore the theoretical and empirical consequences of this here. In particular, the relationship between C and D (a much-discussed issue) should be explored in detail, especially given the functional (wh, referentiality) and lexical correlations between these elements cross-linguistically (question words, complementizers, demonstratives and articles). I leave this issue open for further research, noting that, if tenable, it could potentially provide for a general, principled account of the effects of referentiality in both clausal and nominal domains.

5 Conclusions

In this chapter, I have explored the structure and interpretation of object clauses, a topic that has received a lot of attention in recent syntactic literature. I have argued for two basic claims. One, that there are in fact two structurally different finite clauses that can serve as direct objects to verbs of attitude and saying; however, these two clause types are not differentiated by factivity (a semantic property) or givenness (a pragmatic concept) but by referentiality. Thus, referential CPs (or RCPs for short) were argued to denote propositions without illocutionary force. RCPs cannot serve as speech acts but must be embedded. Meanwhile, non-referential CPs (or NCPs) contain illocutionary force and may be matrix or embedded clauses. I presented various types of evidence to show that RCPs pattern with referring expressions in a number of ways, and the environments in which they occur cannot be correctly defined with reference to the verb selecting them as object or to the pragmatic context. Contextual givenness, a property that is often associated with what I have labeled RCP, does not correlate with syntactic structure directly, and is not a necessary correlate of referential clauses. Factivity, meanwhile, has been claimed to be a lexico-semantic feature of certain verbs that is often associated with contextual givenness of the complement clause but, once again, not in a direct way that has any effect on syntax. The three factors of factivity, givenness and referentiality are therefore independent, with only the latter influencing syntax.

As for the syntactic difference that is claimed to result from the referentiality of the clause, I have argued for an analysis that builds on Haegeman's work on intervention, as well as joint recent work (Haegeman & Ürögdi 2010 a,b,c). The idea is that referentiality of the clause is derived via operator movement, essentially a relativization operation where the relativized portion of the structure is the entire eventuality denoted by the TP. The movement of this operator creates the semantic object I have referred to as an event relative,

which is the syntactic realization of an RCP on this account. Meanwhile, the operator movement is evidenced by various intervention effects that allow us not only to seek evidence for the proposed movement, but also to characterize more precisely the feature make-up of the operator and the path of its fronting movement.

In the final section of the chapter I have explored a new avenue in the realm of CP/DP parallelism. In particular, I have suggested that the often noted parallel between certain types of CPs (namely, the RCPs that are the subject of this chapter) and certain DPs (referential DPs) is precisely their referential property, which is derived via the same syntactic mechanism. As such, the parallel between CP and DP has been rendered more precise, with verifiable predictions for extraction and the structure of the left periphery. Some of this discussion has opened up questions that I will have to leave open for future research, especially with regard to the role of head movement.

In the next chapter, I will explore the technicalities of operator movement in embedded clauses in more detail. The analysis of temporal adverbial clauses (which have been claimed by various authors to involve operator movement and relativization in particular) will shed more light on the different kinds of operator chains that we can find evidence for in embedding contexts. I will argue that event relativization is attested in various contexts from temporal embedding to conditionals. With this, I hope to provide a more or less complete paradigm of clauses derived by relativization.

Chapter 2: Temporal adverbial clauses with or without operator movement

1 Introduction

In this chapter, I expand upon a topic that was mentioned only briefly in Chapter 1, namely the operator movement derivation of temporal adverbial clauses. The idea that (at least some) temporal clauses are derived via movement (which I will treat basically as relativization) is due to Geis (1970), and was picked up more recently by Larson (1987, 1990), Lipták (2005), Haegeman (2006, 2007), Ürögdi (2009) among others. The central observation by Geis leading to this line of accounts is based on data like (1)[53]:

(1) I saw Mary in New York before she claimed (t_i) that she would arrive (t_{ii}).
(i) Mary claimed that she would arrive in NY at time t_{ii} and I saw her before t_{ii}. (low reading, LR)
(ii) At time t_i, Mary claimed she would arrive in NY, and I saw her before time t_i. (high reading, HR)

The observation is that (1) is ambiguous between the so-called 'low' and 'high' construals, illustrated in the paraphrases given in (i) and (ii) above. The temporal argument of *before* appears to be associated with the lowest embedded clause in (i), which can be explained if it is actually moved from there (in the form of a silent operator). This idea is explicated in Larson (1990) (see more detail below in 1.1.1). It is also noted there that not all temporal clauses (or adjunct clauses introduced by a preposition) display the low construal:

(2) I didn't see Mary in New York while she said (t_i) she was there (t_{ii}).
*(i) Mary said that she was in NY during time t_{ii}, and I saw her during time t_{ii}. (LR unavailable)
(ii) During time t_i, Mary was saying that she was in NY, and I saw her during t_i. (HR available)

As shown in (2), clauses introduced by *while* do not permit the low reading. This, however, does not necessarily mean that these clauses do not derive via operator movement, as I discuss below. For example, other clause types that have been argued to involve operator movement include conditionals (cf. Bhatt & Pancheva 2006), which also do not allow the low construal, as illustrated in (3):

(3) I will leave if you say you will.

However, Bhatt & Pancheva (2006) do not consider absence of low construal an obstacle to the movement derivation of conditional clauses, proposing that the world operator that is moved to derive conditionals has

[53] Examples (1) and (2) from Larson (1990), who credits Geis (1970) for them.

to locally bind its variable. (See also Haegeman (2010b) for an implementation of the movement derivation of conditional clauses which derives the absence of low construal.)

Similarly, referential finite object clauses (RCPs; see Chapter 1, and also Haegeman & Ürögdi 2010b), which I argued in Chapter 1 to be event relatives featuring the movement of a relative operator, also do not allow the low construal (as pointed out in Haegeman & Ürögdi 2010b):

(4) John resents that Mary said that Peter is not coming.

Notice, however, that the operator chain that is posited for RCPs in Chapter 1 is a short or local chain between Spec,TP and Spec, CP, while the long operator movement deriving temporals as in (1) (at least on some accounts, e.g. Larson 1990 and Lipták 2005, but contra Haegeman 2007) originates inside VP among the temporal arguments of V. Therefore, even if we posit that all of these clause types are derived via operator movement, we will need to differentiate these cases based on whether or not they allow the low reading, and, correspondingly, the length and possibly type of operator chain that is featured in the clauses.[54]

In this chapter, focusing on different temporal adverbial clauses and abolishing conditionals to the occasional footnote, I claim that both temporal clauses allowing the low reading and ones that do not permit this construal involve operator movement. The central idea (building partly on insights in Larson (1990) and Lipták (2005)) is that *temporal relative clauses* differ as to whether the relative operator moves from the base position of the relativized time expression (as in standard relative clause formation) or originates in a high position (resulting in an 'event relative' structure and interpretation). Only clauses derived via long operator movement allow the long construal, while clauses featuring a more local operator chain (including a subset of temporal clauses as well as conditionals and RCPs, as illustrated above) do not.

In the main part of the chapter I focus on diagnostics and syntactic/semantic effects associated with this split within the temporal P-class in Hungarian – that is, P-elements that introduce clauses derived via long operator movement, and P-elements introducing 'event relatives'. The two Ps that turn out to be the most interesting from this perspective are the suffix *–ig* 'until/for/while' and the postposition *óta* 'since'. I look at the properties of *–ig* in detail, with special attention to its interaction with negation and other operators, as well as the bearings of the Hungarian facts on the 'until-debate'. I review the analysis of English *until-*

[54] Some authors (like Citko 2000) take the absence of the low reading in certain embedding constructions to be evidence that these constructions do not feature operator movement. Bhatt & Pancheva (2006), meanwhile, have this to say:
"What is special about conditionals is that we can only abstract over the situation/world variable of the highest predicate. That perhaps situation/world variables only allow local abstraction has been suggested by Heim (p.c., to Iatridou 1991)."

While this is far from being fully explanatory, at this point there is no principled explanation on the table for why short operator movement should not make the low reading possible (i.e. why it should be unable to form a long-distance chain). The only convincing and formal attempt I know of at resolving this issue is Lipták (2005), who posits head movement in event relatives, which is obviously more local and constrained than phrasal movement and thus explains the absence of long-distance dependencies. This account, however, can provide no insight into why event relatives should display the intervention effects discussed in Chapter 1 and also below. As such, I do not really have a satisfactory explanation for this contrast between the two clause types, which I now leave open for future research.

constructions presented in MacDonald & Ürögdi (forthcoming) where it is claimed that various effects associated with these constructions can be attributed to scope relations between *until* and other operators in the sentence. Having established the existence of two types of temporal relativization in Hungarian, I turn to data from English to show that the distinctions drawn here seem to be relevant there as well. In particular, I discuss long-distance dependencies in temporal adverbial clauses (Geis 1970; Larson 1990) and outline the relevance of the findings of this chapter to the said construction in English, especially with respect to the role of specificity in the movement of the relative operator out of a weak island. The two relativization strategies demonstrated for Hungarian are attested in English as well (see also Larson 1990), and differences in the availability of the so-called 'low readings' with particular P elements are due to the fact that in English prepositions always originate outside the adverbial clause regardless of the base position of the relative operator, while in Hungarian the P element and the operator are generated in a local relationship. Finally, in the last section, I tie in the results of this chapter with the outcomes of Chapter 1, and provide a paradigm of clauses derived by operator movement.

1.1 Temporal adverbial clauses and operator movement -- Overview

1.1.1 Geis (1970) and Larson (1987, 1990)

In the first well-known work discussing a movement derivation for temporal clauses introduced by a preposition, Larson (1990) argues that at least some temporal clauses are derived via the movement of a silent operator to their left periphery. As mentioned in the introduction, the main observation (which has since become more or less canonized as a diagnostic for a movement analysis) is due to Geis (1970), who observed that some multiple embedding constructions are ambiguous in the way illustrated in (1) above. The full set of examples (from Larson (1990), his (2), who cites Geis for them) is as follows:

(5) a. I saw Mary in New York **before** she claimed that she would arrive.
b. I encountered Alice **after** she swore that she had left.
c. I can't leave **until** John said I could leave.
d. I haven't been there **since** I told you I was there.

All of these examples are ambiguous because they allow both the "low" and the "high" reading (LR and HR). Larson argues that the ambiguity witnessed in (5) is of the same type as the one shown in (6):

(6) I saw Mary in New York **when** she claimed she would arrive.

Crucially, examples featuring "when" are standardly analyzed as involving wh-movement, and thus the surface ambiguity in (6) is more or less uncontroversially attributed to the fact that structurally the wh-phrase

"when" – or the null operator associated with this wh-pronoun, depending on the analysis – may be linked to the lowest or the middle clause. Thus, Larson concludes that a similar analysis is warranted for the examples in (5), and proposes the following implementation for these:

(7) $[_{PP}$ *before* $[_{CP}$ O_i C … $t_i]]$

where an IP-internal operator moves into the Spec of the CP selected by the preposition (for example, *before*). In what follows, I will refer to these constructions as 'temporal relatives' or TR for short.

Empirical evidence for the movement derivation comes from a few different sources. For one, the dependency that leads to the low construal is, just like wh-movement, unbounded, so multiply embedded clauses can also be associated with the temporal preposition, as in the three-ways ambiguous (8):

(8) I saw Mary in New York before John said that she claimed to be in the city.

Also similarly to well-known movement types, this dependency respects islands, as noted by Geis, so for example the insertion of a complex NP island between the preposition and the embedded clause blocks the dependency and the low reading becomes unavailable:

(9) a. I saw Mary in New York before she made **the claim** that she had arrived. (no LR)
b. I haven't been in Paris since I told you **the story** that I was there. (no LR)

Finally, Larson observes that the constraints that apply to the availability of the low reading in a particular language reflect those more general restrictions that the given language has on long-distance movement in general. In German, for example, unbounded wh-movement apparently does not exist and the language has much stricter restrictions applying to long-distance dependencies. In accord with this property, German embedding constructions do not allow the low reading. Swedish, on the other hand, behaves very similarly to English when it comes to long-distance movement, and the patterns that obtain with respect to the availability of the low reading as also parallel.

In terms of syntactic implementation, Larson assumes (as argued for in Larson (1985)) that the operator is of the category NP, so temporal arguments are essentially nominal. This is important for the analysis because this observation is exploited to explain why some but not all temporal prepositions allow the low construal. First of all, no low reading is attested in the following, non-temporal cases:

(10) a. I still respect John **although** he claims that he killed his mother. (no LR)
b. I visited New York **because** Mary dreamed that Max was there. (no LR)
c. I won't visit New York **unless** Bill promises Mary will be there. (no LR)
d. I won't visit New York **in case** Bill says Mary is there. (no LR)

The examples above may lead one to believe that the low reading is a property of temporal clauses but this is not entirely true because clauses introduced by temporal *while*, for example, also do not permit this reading (noted by Geis):

(11) I didn't see Mary in New York **while** she said she was there. (no LR)

This means that the low reading is not tied directly to temporal interpretation.

Looking at the English patterns, Larson observes that it is prepositions that can take either an NP or a CP complement that make the low reading possible. Observe that the relevant prepositions (*before, after, until* and *since*) can all take an NP complement like "yesterday". Meanwhile, connectives that cannot take a nominal complement like *while* do not make the low reading possible. Larson provides a syntactic account for this, which (briefly) works as follows. The operator that participates in the movement derivation of these temporal clauses (including *when*) is taken to be a nominal. Generated in an adjunct position inside the IP domain, this nominal – being far removed from the preposition but also not selected by V – does not receive case, so, unless it moves to a case position, it will cause the derivation to crash. By moving to the highest Spec,CP under the preposition, however, the operator becomes sufficiently local to the preposition to be case- and theta-marked by it. (Larson makes the assumption that Spec,CP is accessible in the domain of P.) Thus, even though the preposition in these cases selects a CP complement, it retains its case-assignment potential, which it can exercise in this configuration. This analysis, therefore, makes selection and case- and theta-marking independent of each other, and also supposes that multiple subcategorization properties do not result in lexical duplication but rather are allowed to play a role in a single derivation. Specifically, prepositions that can take both an NP and a CP complement make the long operator movement derivation possible, but *while,* for example, which cannot select NPs and thus does not assign case, is not suitable. Obviously, prepositions that only take NP complements (like *during*) are not relevant also.

Given the analysis above, Larson categorically states that the distinction between prepositions that do and do not allow the long-distance dependency is syntactic, rather than semantic. I will argue against this view below, and claim that it is not an accident that NP-selecting Ps participate in long operator movement constructions while CP-selecting ones do not. Essentially, I will claim that 'NP-selecting' prepositions take times as their complement, while 'CP-selecting' ones take fully formed eventualities (cf. also Lipták (2005)). Nevertheless, the basic spirit of Larson's analysis will be retained in my account as well. It is also noteworthy that, while several recent works have elaborated on the proposal that temporal adverbial clauses are essentially relatives, most of these authors (I discuss some of them below) do not capitalize on the distinction between the two P classes (the "low-reading class" and the "no low-reading class"). Particularly, the question that presents itself is, if there are temporal clauses that are not derived by operator movement but rather by a preposition taking a CP (a proposition) directly as its argument, where does the connective take its temporal argument from? Larson himself makes an interesting note on this subject, which I quote

here: "With temporal *while*, a plausible general view is that WHILE/DURING(t1,t2) obtains its t2 coordinate value through the adjacent C node. The idea might be implemented through the suggestion of Pesetsky (1982) that COMP is linked to INFL by a syntactic path, and hence to TENSE." As such, in my view Larson leaves open the possibility that *while*-clauses also involve an operator chain but this chain is more local than the one featured in *before*-clauses. Thus, it seems plausible to say that the different restrictions the two P-types enforce on their complement in fact reflect a deeper difference: *before*-type prepositions take actual temporal arguments (nominals) as their complement, and *while*-type prepositions take their abstract temporal specification from T. On this view, technically *before* does not have multiple subcategorization properties but always selects for a temporal nominal, whether an overt one (as in *before Monday*) or a covert one (as in clausal complementation, where it acquires the right argument by movement of the latter). *While*, on the other hand, always takes the temporal specification of a fully formed eventuality as its argument. I return to an account along these lines after a quick review of some more recent works on this topic.

1.1.2 Haegeman 2003, 2007 – MCP in adverbial clauses

In Haegeman (2003) and subsequent works, it is noted that adverbial clauses are not equally resistant to various syntactic operations usually treated under the label 'main clause phenomena' or MCP for short. In particular, Haegeman differentiates 'central' and 'peripheral' adverbial clauses based on this very property, that is, on whether or not they prohibit MCP. Observe just two pairs of examples[55]:

(12) a. *While this paper I was revising last week, I thought of another analysis. (central)
b. His face not many admired, while his character still fewer felt they could praise. (peripheral)
(13) a. *??John works best while his children are probably/may be asleep. (central)
b. The ferry will be fairly cheap, while the plane will probably/might be too expensive. (peripheral)

The contrasts above are between 'central' adverbial clauses that do not allow MCP like argument fronting or speaker-oriented adverbials or modals, and 'peripheral' adverbial clauses that do. In Haegeman (2003), these two clause types are differentiated in that peripheral adverbial clauses express propositions anchored directly to the speaker or to the speech time, while central adverbial clauses express events or states of affairs and are not anchored directly to the speaker or the speech time. As such, Haegeman proposes that central adverbial clauses lack certain left-peripheral positions that would accommodate the MCP illustrated above, as in:

(14) a.	Root clause:		Top*	Foc	Force	Fin
b.	Central adverbial clause:	Sub				Fin
c.	Peripheral adverbial clause:	Sub	Top*	Foc	Force	Fin

[55] Examples taken from Haegeman (2007), see that paper for citations of the sources.

This analysis predicts that central adverbial clauses will be resistant to fronting of various sorts that would require left-peripheral positions, as well as to the insertion of any element (e.g. speaker-oriented adverbs) that is semantically dependent on Top, Foc or Force.

While attractively simple (and in line with some other accounts deriving the availability of MCP and other properties from structural or "size" differences among clause types), the "truncation analysis" faces a number of empirical and theoretical problems, which are acknowledged in Haegeman (2007), where she suggests an alternative. One of the problems, perhaps the least severe one, is that the ban on left-peripheral elements in central adverbial clauses is not absolute. For one, even in English, only argument-fronting causes a problem, while adjunct-fronting is acceptable:

(15) I used to listen to them dutifully in the car until <u>one day</u> the car was stolen.
(from Haegeman (2007), who cites the *Observer*, 27.3.5 page 1 review col 3)

If the truncation account was to be taken literally, we would have no position in a structure like (14b) to host the fronted adjunct *one day*. Similarly, it is well-known that Romance clitic left-dislocation (CLLD) is permissible without problems in all adverbial clauses:

(16)

Quand	*cette chanson*	*je*	*l'ai*	*entendue,*	*j'ai*	*pensé*	*à toi.*
when	this song	I	it have	heard,	I have	thought	of you.

'When I heard this song, I thought of you.'

As pointed out by Haegeman (2007), while it is possible to claim that CLLD has a different semantics from English topicalization (and as such, is not dependent on Force) this line of argumentation is not particularly enlightening, and also runs against an explicit claim to the contrary by Delfitto (2002).

Finally and perhaps most importantly, the dependence of argument fronting on Force is dubious both from a theoretical point of view (it is unclear why topicalization should require illocutionary force) and empirically. Specifically, imperatives and yes-no questions are presumably associated with Force but resist topicalization in English, while gerunds – plausibly lacking Force – are much more tolerant to it:

(17) a. *This student's text, read tonight.
b. *This student's text, have you read?
c. That solution Robin having already explored t and rejected t, she decided to see if she could mate in six moves with just the rook and the two pawns. (Culicover & Levine (2001))

In short, Haegeman (2007) and subsequent work abandon the truncation analysis in favor of a more principled account of the facts cited above. The new analysis she explores (also adopted in Haegeman &

Ürögdi (2010a,b,c) and in Chapter 1) starts out from the observation that argument/adjunct asymmetries such as (12a) vs. (15) are reminiscent of similar patterns noted in movement environments like subject fronting or negative preposing. Namely, it has been observed that fronted arguments do and adjuncts do not cause an intervention effect in these constructions – observe the negative preposing example below:

(18) a. *Never in my life, beans, will I eat.
b. On no account, during the vacation, would I go into the office.

Given that intervention effects are generally taken to signify movement, if the patterns found in the left periphery of central adverbial clauses can be shown to be parallel to those found in environments where it is clear that the restrictions are due to intervention, this can be taken as evidence for an account that posits a movement chain that crosses the relevant positions (instead of stipulating that they are simply absent).

With this, Haegeman (2007) adds a novel argument to the related works positing operator movement in adverbial clauses (cf. Dubinsky &Williams (1995), Penner & Bader (1995), Desmets (2001), Zribi-Herts & Diagne (2003), and Demirdache & Uribe-Etxebarria (2004), among others). Basically, in addition to the availability of low readings, we can now take the presence or absence of MCP (with the fine-grained distinctions that I discuss in Chapter 1, and which I also return to below) as an additional indication of operator movement in a clause. Haegeman also notes that positing an essentially relative clause derivation for adverbial clauses can lead the way to understanding some, seemingly unrelated phenomena and facts. For example, in many languages a temporal subordinator formally corresponds to an interrogative phrase. In other cases, a temporal subordinator is morphologically related to an IP-internal temporal adverb. There are also languages like Dutch, where a temporal conjunction is etymologically related to a prepositional construction with a relative clause. Dutch *terwijl* ('while') is derived from the sequence preposition (*te*) followed by a definite determiner, the noun *wijl* ('while') and a relative clause.[56]

Since Haegeman's account relies on the fact that clauses disallowing MCP feature an operator chain across the positions where MCP could be expected, the question is whether this diagnostic cuts the pie in the same way as Geis/Larson's low reading tests. Even just looking at the examples above, it becomes obvious that it does not. For one, *while*-clauses are shown by Larson not to permit the low construal, and as such they can be argued not to feature the type of long operator movement that makes this reading possible. Meanwhile, on Haegeman's account, temporal *while*-clauses are classified as central adverbial clauses (at least when they specify a real temporal dimension of the main clause eventuality) and as such, they do not permit MCP. On

[56] For English *while*, Geis (1985: 6) postulates a similar analysis, though he treats *while* itself as a relative operator. On his account, *while*-clauses are restrictive relative clauses whose antecedents have been deleted.

Haegeman's story, it is only peripheral adverbial clauses that allow MCP since these, according to her, do not feature any kind of operator movement and are more or less assimilated to main clauses.[57]

Note, however, that this simply means that there may be more than two types of clause structure to distinguish. As pointed out above, in the discussion of Larson's work, the fact that *while*-clauses do not make the low construal possible does not necessarily mean that they do not involve operator movement. It is possible that they do – as tentatively suggested by Larson himself – but this movement is more local (takes place from the TP-domain into the CP-layer) and possibly involves the relativization of a different category. If some structural difference can be found between the operator movement in *before*-clauses and the one in *while*-clauses, the two analyses can easily be reconciled. Specifically, if we posit that *while*-clauses feature a short operator chain that crucially still crosses over the relevant left-peripheral positions, we predict that this chain will still result in intervention – while it may not make the long-distance dependency possible. This, roughly, is the line of analysis I will pursue in the main part of this chapter. First, though, let me turn to a recent account of conditional clauses in this spirit.

1.1.3 Clauses disallowing the LR: A note on conditionals and RCPs (Bhatt & Pancheva (2006))

As mentioned above and also in Chapter 1, there are certain clause types that have been claimed to involve operator movement by various authors, yet they do not make the low construal possible in multiple embedding constructions. These clauses are some temporals like *while*-clauses, causal adverbial clauses, factive complement clauses or RCPs (cf. Chapter 1) and conditionals, as shown below:

(19) a. I saw Mary in New York **while** she explained that she was there.
b. I visited New York **because** Mary dreamed that Max was there.
c. I resent that you said you will stay.
d. I will leave **if** you say you will stay.

While causals, factives and conditionals are not uncontroversially derived via operator movement, the movement derivation of temporals is more or less accepted. Larson (1990) says that temporals that do not allow the low construal probably do not feature operator movement (although he does not exclude the

[57] Sawada & Larson (2004) propose an alternative syntax and semantics for essentially the same set of data. They note, based on Hooper & Thompson (1973), that adverbial clauses like *when-, before-* and *after*-clauses resist root transformations like left dislocation while *because*-clauses allow these. Building on work by Johnston (1994), they argue that temporal adverbial clauses combine with an open event sentence to create a time-interval description which denotes the run-time of the maximal event it combines with. Since temporal clauses always restrict a (possibly covert) adverb of quantification, their content is presupposed by default (i.e., the existence of such run-time is given). Meanwhile, *because* takes a closed event sentence as its complement, and simply expresses a relation between two closed event sentences. As such, *because* applies to a 'larger' semantic domain since it contains an eventuality plus a quantifier. This extra element is, according to Sawada & Larson, encoded in syntax via an added projection in the left periphery, whose specifier is available to host, e.g., left-dislocated elements or multiple CLLD.

possibility of a T-to-C operator chain), but given Haegeman's intervention examples it seems quite clear that positing an operator chain that crosses at least the domain between TP and CP will get us the intervention facts quite easily. Recall that temporal while clauses resist, for example, argument fronting in English:

(20) a. *While this paper I was revising last week, I thought of another analysis.

Importantly, the same restrictions apply to the other clause types illustrated in (19):

(20) b. *I will go to New York because this exhibition I want to see there.
c. * I resent that this exhibition we visited.
d. * I will go to New York if this exhibition I can see while I'm there.

The patterns in (19) and (20) indicate that a possible analysis (one that I pursued with respect to factive complements) is that these clauses involve a short operator chain, one that starts out in the TP domain and targets Spec,CP, and creates intervention effects in this relevant domain. Broadening the scope of this generalization to cover the other clause types in (19-20), we can label all of them RCPs, the syntactic reflex of event relativization, as at this point we have no reason to believe that they are further subdivided into different kinds of relative structures. The generalized structure for event relatives is then as follows:

(21) $[_{CP}\ OP_i\ C\ \ldots\ \ [_{FP}\ t_i\ \ [_{TP}\ \ldots\ ]]]$

The idea behind the implementation, as explained in Chapter 1, is that the relativized chunk of structure in these clauses is the entire event(uality) denoted by the TP, which is why I continue to use the shorthand 'event relativization' for this type of operation (see also Haegeman & Ürögdi 2010a,b,c; Lipták 2005). While it is possible that this is an oversimplification and the relativized element is not exactly the same in all of these cases, this will suffice for our purposes here. The simple semantics assigned to these structures (explored in detail in Haegeman & Ürögdi (2010b)) is that of a referring expression. As H&Ü point out, while we understand (more or less) what it means for a DP to be referential, it is less than clear what this property means for a CP. Yet, there is an intuitive way in which propositions without illocutionary force can be taken to refer to states-of-affairs or, as Bhatt (2010) words it, 'events/situations in the current world that [would] make the proposition true' – the modal added because there is no requirement that such situations actually exist in the real world. Just as referential DPs have the potential to refer even if the entity they could refer to is not present in the context and may not even exist, by analogy propositions need not be given or presupposed in order to be referential. As such, RCPs can serve as hypothetical conditionals while still behaving like referring expressions from a syntactic viewpoint (see also the discussion on pp. 32-33).

Bhatt & Pancheva (henceforth B&P) propose that conditionals are free relatives of possible worlds that are structurally fully parallel to temporal and causal adverbial clauses. They do not discuss factive

complements but in what follows I will assume that their analysis can easily extend to all the clause types in (19-20). Firstly, to show that *if* is in the CP domain and patterns with *when* (as opposed to, for example, prepositions like *before* or *after*), B&P cite anaphora facts such as:

(22) a. I will work until Joe leaves and Harry will work until then too.
b. *I will leave when/if Joe leaves and Harry will leave when/if then, too.
(vs. I will leave when/if Joe leaves and Harry will leave then, too.)

In fact, Kayne (1991) claims that conditional and interrogative *if* are the same category, and are both complementizers. This is not really crucial for B&P's analysis, and their account is compatible with placing *if* in Spec,CP. Another relevant fact is that conditional *if* blocks inversion, so *if*-clauses and inversion structures are in complementary distribution in conditionals. This fact once again shows that *if* is in the CP-domain but does not differentiate between treating *if* as a head or a phrase. This aside, B&P conclude that analyzing *if* analogously with *when* makes it possible to tighten the parallel between conditionals and questions, which is suggested by Kayne's proposal. Other parallelisms between conditionals and questions include the use of inversion in English, the use of the particle *li* in Bulgarian in both constructions, and some others. (See B&P for examples and discussion.)

Analyzing conditionals as involving operators or operator movement and as parallel to questions or other structures with wh-movement is not without precedent. Larson (1985) suggests that there is a covert operator in the Spec,CP of both conditionals and interrogative *if*-clauses. Geis (1985), meanwhile, proposes that conditionals are a species of relative clauses. In short, B&P claim that the two clause types involve similar structures, although ultimately they diverge in interpretation: while questions are interpreted as sets of propositions where the variable abstracted over is existentially quantified (B&P cite Hamblin (1973), Karttunen (1977) for analyses in a similar spirit), conditionals are free relatives. As such, conditionals are interpreted as definite descriptions, so the variable they contain is bound by a definite operator. Semantically, this means that conditionals are definite descriptions of possible worlds, and the abstraction they create is that of a world variable. B&P implement this intuition by saying that the element that is relativized in conditionals is the world variable, whose definite binder is the null operator in Spec,CP.

One of the issues that arise is the definiteness or referential property of these clauses. As discussed by B&P, two recent semantic treatments of conditional clauses analyze these clauses as plural definite descriptions (cf. Schein (2001), Schlenker (2001)), which is supported by Condition C facts like (23) (repeated from Chapter 1, p. 32.):

(23) a. [If it were sunny right now]$_i$ I would see people who would then$_i$ be getting sunburned.
b. *I would then$_i$ see people who would be getting sunburned [if it were sunny right now]$_i$
c. Because I would then$_i$ hear lots of people playing on the beach, I would be unhappy [if it were sunny right now]$_i$

As (23) shows, conditional clauses behave like referring expressions when it comes to binding since they can be anaphoric and are subject to obligatory disjoint reference. Therefore, it makes sense actually to treat them as a referential CP as I suggest above. In fact, there is another type of RCP that is formed by wh-movement and shows referential properties (as opposed to being an open question), observe:

(24) a. I wonder [who stole my car].
b. I found out [who stole my car].

While the complement clauses in (24a-b) have the same surface form, they receive different interpretations. The embedded clause in (24a) is a real question (an NCP in the terms introduced in the previous section), while the one in (24b) contains what McCloskey (2005) labels a 'resolved question', a question without illocutionary force and whose answer is not open for discussion. This is shown, among other things, by the fact that giving an answer to the embedded question is felicitous in (24a) (so, the hearer can respond "John") but this is not possible in (24b). Thus, we have analogues to show that wh-movement does not necessarily yield an open question and clauses derived by wh-movement can act as referring expressions.

The well-known challenge to the operator movement analysis of conditionals is the fact that they do not allow the low construal, as mentioned above. Observe the following contrast:

(24) a. I will leave when you say you'll do.
HR: I will leave at time t. At time t, you say that you'll leave (at time t0).
LR: I will leave at time t. You said that you would leave at time t.
b. I will leave if you say you will do.
HR: In situations s, you say you'll leave (in situations s0). In those situations s, I will leave.
*LR: You say that in situations s, you'll leave. In those situations s, I will leave.
(B&P, who cite Geis (1970), (1985))

As B&P note, *if*-clauses pattern with *because*- and *since*-clauses in this, which are also sentential functions. (They do not discuss factive complements.) They suggest that the reason this short operator movement that is featured in these clauses is not possible in a long construal is that the world variable requires a local binder, so long-distance movement of the chain's head is not possible. As supporting evidence, they cite German, where the same element *wenn* participates in the formation of both temporal and conditional clauses. When it is interpreted as a temporal pronoun, it makes the low construal possible, but when it forms a conditional, this reading is unavailable. Thus, it seems that whatever property – semantic or syntactic – the operators deriving these referential clauses share (in contrast to temporal wh-expressions that are moved from inside the IP) is the property that makes it impossible for them to be associated with a variable over a clause boundary. I leave this issue aside for now and return to the discussion at hand.

To sum up, there are a number of proposals in the literature to support the view that (1) a wide range of clauses including temporals, causals, conditionals and factive complements are derived by operator movement (as evidenced, among other things, by the unavailability of MCP in these clauses), but that (2) clauses derived by relativization come in at least two varieties, those that feature long operator movement from inside IP and allow the low reading, and those that feature a short operator chain and do not make the low reading possible. Clauses involving a more local operator movement are what is sometimes referred to vaguely as 'event relatives' where the clause is a free relative that denotes a state-of-affairs or a possible world; these clauses have referential properties. For simplicity's sake, I will, in what follows, label this type of clause as 'event relative' or ER for short, and I will reserve the label 'temporal relative' or TR for clauses that relativize an actual temporal argument from inside IP. This distinction will become relevant shortly.

1.1.4 The semantics of temporal relatives (Demirdache & Uribe-Etxebarria 2004)

Before returning to the main topic of this chapter, the structure and interpretation of temporal and event relatives in Hungarian, I would like to make some brief comments on another recent proposal that discusses temporal relativization, Demirdache & Uribe-Etxebarria's (D&UE) (2004) account of the semantics of temporal structures, as I believe it sheds some light on how exactly 'temporal arguments' should be envisioned. Up until now, I have used this term rather vaguely and have hinted that such arguments are somehow nominal in nature. D&UE make this intuition quite precise in their account. According to them, time spans (which can be introduced as arguments of tenses, adverbs or temporal connectives) are referential expressions, and can enter into anaphoric dependencies. Basically, time spans are taken to be discourse referents that are projected into syntax as temporal DPs (or Zeit-phrases, see Stowell (1993)). Tense, Aspect and time adverbials serve to establish simple logical relations between temporal arguments, such as precedence, inclusion and subsequence. D&UE take these three relations to be the only ones available in temporal structure.

In D&UE's structuring of temporal relations, times are projected in different places in the structure, and can be ordered with respect to one another. For example, T orders the reference time with respect to the assertion time (the time about which the predicate says something), while Asp orders the reference time with respect to the event time (in Spec,VP). In main clauses, the reference time is the utterance time. The assertion time is the time span about which the speaker makes an assertion, while the event time is the actual run-time of the event. Progressive, for example, is treated as the relation of 'inclusion', where the assertion time is included within the event time, resulting in an unbounded reading. If the utterance time is also included within the assertion time (so T also encodes 'inclusion'), we have the present progressive. Meanwhile, in perfect tenses the assertion time is ordered after the event time, so present perfect is encoded as T specified as the relation of inclusion, and Asp specifying subsequence. For details, see D&UE's paper.

Given that D&UE treat temporal arguments as basically DP's, it is no wonder that they can be variables (just like wh-phrases) and can be relativized in the usual manner. So, for example, prepositions like *before* or

after are taken to establish ordering relations between two assertion times, AST-T1 and AST-T2, the assertion times of the two clauses. Since AST-T2 is embedded (generated in Spec, AspP of the embedded clause, therefore inside the lower TP), it is plausible that it would need to move up to establish a local relationship with the preposition that takes it as one of its arguments. More precisely, D&UE claim that the clause selected by the preposition is a covert temporal relative predicated of AST-T2, where predication is established via null operator movement. A sentence like [Terry left after Kim arrived] is therefore analyzed as follows: *after* orders AST-T1 after the time AST-T2, which has the property of being a past time at which Kim's arrival occurs. AST-T2 acquires this property via the predication resulting from relativization. Notice, meanwhile, that AST-T2 (the assertion time of the embedded clause) is ordered with respect to the embedded event time via whatever relationship is encoded by the embedded aspectual head. When this relationship is non-trivial, like in a perfect tense, we get ordering between AST-T1 and the embedded event time, for example in a case like (25):

(25) They destroyed the building before Mary had spent time there.

Due to this ordering, it is not necessary to assume that the event time argument can be relativized, which would possibly cause a relativized minimality violation, given D&UE's structure. Still, the idea that the temporal argument abstracted over in temporal relatives originates from inside the IP, and that the structure yields ordering between the matrix and the embedded event times can be derived.

In what follows, I will remain relatively neutral on the exact base position of the temporal argument. Larson (1990) and Lipták (2005) place these arguments inside VP, while D&UE assume that they are generated as specifiers of TP, AspP and VP. All of these accounts, however, agree that these temporals are essentially nominal in nature and can be relativized without any exceptional mechanism. Event relatives, meanwhile, appear to relativize some element from outside TP, which has been formalized as the event argument of T, or as the world variable yielding a set of possible worlds that make the proposition true. Whichever formalization is correct, the structural and semantic difference between the clause types falls out. So I now turn to the main discussion of this chapter, namely the issue of how the temporal relative (TR) versus event relative (ER) distinction manifests itself in Hungarian temporal adverbial clauses.

2 Temporal adverbial clauses in Hungarian

2.1 Introduction and basic data

Hungarian has three types of temporal adverbial clauses, illustrated in (26-28):

(26) *Nem láttam* ***(az-óta), (a)mi-óta*** *dolgozik.*
Neg I-saw AZ-since (AZ-)MI-since he-works
'I haven't seen him since he's been working.'

(27) *Nem láttam* ***(az-óta), (a)mi-óta*** *elkezdett dolgozni*
Neg I-saw AZ-since (AZ-)MI-since he-began work-INF
'I haven't seen him since he started to work.

(28) *Nem láttam* ***az-óta, hogy*** *elkezdett dolgozni.*
Neg I-saw AZ-since Comp he-began work-INF
'I haven't seen him since he started to work.'

Without going into detail at this point, the three structures above are distinguished by whether or not the times of the two clauses are shared (yes in (26) where both clauses denote durative eventualities, and no in (27-28) where the embedded event is punctual). They also differ structurally: while the embedded clause in (26-27) is formally a relative clause introduced by a relative pronoun, in (28) it looks like a finite subordinate CP, as evidenced by the presence of the complementizer.[58] These structures are interesting from the point of view of the discussion in Section 1 because they represent variants on the possible clause types that can encode temporal arguments. (26) looks and behaves more or less like a run-of-the-mill relative clause. It is introduced by the relative pronoun plus the postposition *since*, and receives the usual interpretation of a relative clause construction, namely there is an argument that is shared between the two clauses (in this case, it is the temporal dimension of both eventualities). Compare this to a regular relative clause:

(29) *Nem láttam* ***(az-t), a-mi-t*** *festett.*
Neg I-saw AZ-Acc AZ-MI-Acc he-painted
'I haven't seen what he has painted.'

As (29) shows, the structure of a relative clause in Hungarian, including the relative pronoun (modulo the ending, which is accusative in (29) and *since* in (26)) is the same as that in (26). The account of this would be simple, given the cross-linguistic evidence that at least some temporal adverbial clauses are formed via relativization. However, (27) introduces a complication. At first blush, (27) looks exactly the same as (26). The problem is that the times of the two clauses cannot possibly be shared as the matrix clause is durative and the embedded clause is punctual. This means that something needs to be said about (27) that derives the relative clause structure but still allows for this interpretation. Finally, (28) looks most like the sentential

[58] In the examples above, I have not glossed "*az-*" (or its allomorph "*a-*") or "*mi-*". "*Az*" is the distal demonstrative pronoun/definite article in Hungarian, which can function as the pronominal head of relative clauses, while it also constitutes part of the relative pronoun. This is the same element as appears with an accusative ending as the clausal expletive with object clauses. "*Mi*" is a default wh-word meaning "what" that also serves as the wh-expletive in partial movement constructions. The combination of the two ("*a-mi*") is the relative pronoun "which". In what follows, I will gloss them as Dem and Wh respectively as these two elements appear relevant for relative clauses. To avoid confusion, I have glossed the finite complementizer as Comp (not as "that").

embedding constructions discussed in Chapter 1 – the embedded clause is introduced by the complementizer *hogy* rather than a relative pronoun, calling into question the temporal relative analysis. In what follows, I will proceed to provide a comprehensive account of the three clause types that derives the Hungarian data while appealing to the cross-linguistically relevant temporal vs. event relative distinction.

The morphosyntactic criteria separating the constructions above are whether or not the pronominal element co-indexed with the temporal clause (Dem+P) can or must be present in the matrix clause, what sort of element (relative pronoun or complementizer) heads the embedded clause, and – in the case of the relative pronoun – whether or not it is introduced by *a-*. Lipták (2005) gives a thorough analysis of structures (26-27) and the variation therein, focusing on how different suffixes and postpositions[59] (henceforth P elements, or P for short) behave in this construction. She observes that Ps fall into two different classes with respect to which of these constructions they can participate in, and what the syntactic and semantic properties of the resulting complex sentence will be. While it will turn out that her data are taken from one particular dialect in Hungarian and a number of counterexamples can be found to her generalizations, I retain the basic spirit of her analysis. I hope to show that the counterevidence I present can be accommodated via an intuitively appealing modification of Lipták's system, which also allows us to predict the availability of the construction illustrated in (28).

The discussion is organized as follows. The first part of this section reflects and hopefully improves upon Lipták's (2005) analysis of the relative clause constructions illustrated in (26-27). In section 2.2, I summarize Lipták's proposal, the main contribution of which is the appealing idea that Hungarian employs two kinds of relativization strategies in temporal clauses – temporal relativization and event relativization, basically as discussed in Section 1 –, which explains the diverging properties that the two classes of P elements show with respect to constructions (26-27). I continue by presenting apparent counterevidence to Lipták's claims, and then advancing my proposal for accommodating the new data in a modified version of her system. In 2.3, I outline some evidence to show that the suggested modification in the classification of temporal suffixes and postpositions actually reflects the semantics of these P elements, and results in a split in this class that appeals to their selectional properties rather than ad hoc lexical classes. I primarily focus on the exceptional properties of *–ig* 'until/while' and *óta* 'since'. Both of these Ps will turn out to show mixed behavior with respect to Lipták's diagnostics but this is no surprise since, as I show, these two P elements can participate in both temporal and event relativization, a duality that is evidenced by the availability of long-distance dependencies, the licensing of negative quantifiers, and a host of other syntactic and semantic effects. With respect to *–ig* 'until', I argue that, despite the structural ambiguity and other (dialectal) complexities observed with this suffix, the Hungarian data can be analyzed without positing two lexical entries for it. At the end of section 2.3, we arrive at a structural division with Ps taking times as their complement and forming temporal relative clauses via long operator movement on one side, and Ps selecting events and forming event relatives on the other. An interesting outcome of the modified classification is that the group

[59] In Hungarian, temporal (and other) relations are marked by suffixes (bound morphemes) and postpositions. The distinction will not play an important role in this discussion.

of P elements that can take an embedded event as their complement is the same as the group that can select a proposition and thus participate in a construction like (28) above. In what follows, I will refer to the temporal clauses illustrated in (26), (27) and (28) as temporal relatives (TR), event relatives (ER), and temporally interpreted finite clauses (TFC) for short. At the end of this chapter, I conclude by providing an overview of these temporal clauses, and relate their properties to those of other clause types that have been argued to involve operator movement (conditionals, referential clauses or RCP, as discussed in Chapter 1).

2.2 Lipták's (2005) classification of temporal P-elements in Hungarian

Lipták (2005) argues that in Hungarian there are two fundamental types of suffixes/postpositions, which in turn are used to construct two classes of temporal relative pronouns, the 'a-type' (or 'since-type') and the 'a-less type' (or 'before-type'), and she goes on to show that there are systematic differences between the syntactic structures formed with these two classes. The classes are defined in the lexicon, so all P elements (suffixes or postpositions) belong to one or the other class:

(30) a. **a-type (since-class)**: *-kor* "at"; *-korra* "by"; *óta* "since"; *-ig* "until/for"
b. **a-less type (before-class)**: *előtt* "before"; *után* "after"; *alatt* "during"; *közben* "during"

Lipták argues that the first class of P elements in (30) form temporal relative clauses, while the second class participate in event relativization. Her implementation of these two constructions is somewhat different from the one I have outlined above (in particular because she uses head movement, rather than phrasal movement, to derive the relative clauses), an issue that I return to later on. For now, in an intuitive sense, it suffices to say that the interpretation assigned to these two types of constructions is more or less the same as we have seen on English examples: temporal relatives abstract over a temporal argument from inside the IP, while event relatives relativize the fully formed event. More on this below. To keep the discussion simple, and to avoid confusion with English (where, as we will see, the dividing line between prepositions falling into one or the other class is not exactly the same as in Hungarian), I will avoid Lipták's labels and refer to the two classes of P-elements as the temporal relativization (TR) class and the event relativization (ER) class.

The properties that set apart the two classes for Lipták are as follows:

Property 1: Only TR-class relative pronouns feature the "a-" element

Lipták notes that while relative pronouns formed with temporal relativization Ps can optionally be introduced by *a-* without resulting in any meaning difference (31a), event relativization class postpositions normally do not combine with *a-*, and if they do, the meaning changes, and the relative pronoun is interpreted as referring to the event of the main clause (31b-c):

(31) a. *Péter* *boldog* ***(a)mi-óta*** *Anna* *itt* *van.*
Peter happy Dem-Wh-since Anna here is
'Peter has been happy since Anna has been here.'

b. *Tamás* *megjött,* ***(*a)mi-után*** *Zsuzsa* *elment.*
Thomas arrived Dem-Wh-after Susan left
'Thomas arrived after Susan left.'

c. *Tamás* *megjött,* ***ami*** ***után*** *Zsuzsa* *elment.*
Thomas arrived Dem-Wh after Susan left
'Thomas arrived, after which Susan left.'[60, 61]

For Lipták, this appears to be a steadfast morphological property that differentiates the two P classes, hence her labels 'a-class' and 'a-less class'. As we will see later on, not only is this type of morphological division descriptive and thus undesirable, the diagnostic also does not hold up in all dialects of Hungarian.

Property 2: Combination with nouns

While the clauses formed with members of the TR class can readily combine with nominal heads, the members of the ER class cannot:

(32) a. *A nap* ***(a)mi-kor*** *Anna* *megjött* *emlékezetes* *Péternek.*
the day Dem-Wh-at Anna arrived memorable Peter-DAT
'The day when Anna arrived is memorable for Peter.'

b. **A nap* ***mi-után*** *Anna* *megjött* *emlékezetes* *Péternek.*
the day Wh-after Anna arrived memorable Peter-DAT
Intended: 'The day after Anna's arrival is memorable for Peter.'

It appears to be the case that, for some reason, event relatives have a more difficult time combining with a nominal head, although at this point it is unclear why this should be.

Property 3: The availability of long-distance dependencies

In Hungarian (as in English), not all Ps allow the long-distance dependency leading to the 'low reading' discussed for English in Section 1 – according to Lipták, only members of the temporal relative class are compatible with this reading. The contrast is illustrated below:

[60] The examples in this section are taken from Lipták (2005), sometimes with minor, inconsequential modifications to facilitate exposition.

[61] Later I will show that this generalization only holds for one dialect of Hungarian, while another dialect allows the a- even in cases like (31b). These generalizations are from Lipták.

(33) a. ***Add-ig*** *maradok,* ***a-medd-ig*** *mondod,* *hogy* *maradjak.*
Dem-until I-stay Dem-Wh-until you-say Comp I-stay-Sub
HH: 'I will stay as long as you keep saying I should stay.'
LR: 'You tell me I should stay until time t. I'll stay until time t.'

b. ***Az-után*** *indulok,* ***mi-után*** *mondod,* *hogy* *Péter* *elindul.*
Dem-after I-leave Wh-after you-say Comp Peter leaves
HR: 'I'll leave after the time of you saying that Peter's leaving.'
*LR: 'You tell me Peter's leaving at time t. I'll leave after t.'

This, of course, is less than surprising, given that cross-linguistically it seems to be the case that temporal relatives can and event relatives (more precisely, clauses shown to involve short operator movement based on independent diagnostics like the availability of MCP) cannot make the long construal available.

Thus, Lipták convincingly shows that the two P classes are not simply lexical categories, albeit on her account the presence or absence of the *a-* element, as well as a particular P's membership of this or that class, is an idiosyncratic property specified in the lexicon. Nevertheless, the fact that the above properties coincide with a particular P's class membership leads her to posit two different syntactic structures for the two classes.

The members of the 'since-class' form **temporal relative clauses**:

(34) *a-mi-óta* *ismeri* *Annát*
[$_{CP}$ Dem-Wh-since$_i$ [$_{IP}$ he knows Anna e$_i$]]
'since he has known Anna'

where a temporal expression from inside the embedded clause is relativized in the standard manner. Crucially, the P involved in this construction also originates inside the relative clause, so the moved expression is a PP. Thus, (34) receives the interpretation [the time t since which he has known Anna].

Meanwhile, the postpositions in the 'before-class' form **event relatives** (or IP-relatives in Lipták's terms):

(35) *mi-közben* *Anna vásárolt*
[$_{PP}$ during [$_{DP}$ [$_{CP}$ [$_{RelP}$ Wh [$_{IP}$ Anna shopped]]]]]
'while Anna was shopping'

where "*mi*" is a relative determiner on Lipták's account that takes an IP (an event) as its complement. It is generated in the head of RelP and subsequently moves up via head-movement to combine with P. According

to Lipták's intuition, 'IP-relativization' is understood as an alternative to nominalization, so the meaning of (35) is akin to [*during Anna's shopping*].

An alternative way to view the construction in (35) is closer to the structure I proposed in Chapter 1 for referential clauses, namely to take the wh-element outside IP to be the event argument that is relativized by movement to Spec,CP, where it is local enough to the selecting preposition to function as its nominal argument. (Whether or not a DP layer is required for this is up for grabs. Lipták posits the presence of this layer because the resulting structure will be the argument of a preposition but this may or may not be necessary. There is an intuition that these structures are 'somehow nominal' but, as I argued in Chapter 1, the nominal nature may simply be their distribution or their referential property. So, in what follows, I will not posit a nominal layer in these structures, on analogy with other event relatives – although not much hinges on this decision.) This view gives us an additional handle on the difference between temporal relatives and event relatives in Hungarian: in the TR case, what is relativized is a temporal PP, while in the second case it is a deictic nominal element that is the eventuality itself encoded by the IP. This is exactly the intuition that has come up in the literature about the difference between the two clause types in cross-linguistic cases. So I will adopt a simplified structure similar to Lipták's (cf. Haegeman & Ürögdi 2010a,b,c):

(36) *mi-közben* *Anna vásárolt*
[$_{PP}$ during [$_{CP}$ Wh$_i$ … t$_i$ [$_{TP}$ Anna shopped]]]]]
'while Anna was shopping'[62]

It is not immediately obvious that this structure must necessarily be treated as a relative clause, since this makes it difficult to explain why the movement of a relative operator from inside the adverbial clause should be impossible when the postposition itself originates outside the clause. (In Section 4.1, I suggest that this is in fact what happens in English, where the preposition always starts out externally to the clause and the moved element is always nominal, much like in Larson (1990).) A number of possible answers come to mind. The reason might be found in morphology: a locality requirement between the postposition and the operator it takes as its complement. Notice that in a structure like (34), the P element and its argument start out in a local relationship and can then be moved as a single constituent (a PP). Meanwhile, this configuration never obtains in (35) or (36), where the P takes the entire clause as its complement, with the nominal requirement fulfilled by the moved operator. While the wh-element and the postposition do combine to yield the usual ordering via some mechanism, this may well be case a PF reordering. In any event, the two do not form a PP in the usual way, which may be related to the unavailability of long-distance extraction. In any case, the semantics one needs to account for is that the P here takes two eventualities as arguments. I return to syntactic evidence that the two constructions feature Op-chains of different lengths in section 2.3.3.

[62] I abstract away from the issue of the ordering of the postposition and the wh-element it takes as its complement. I have also re-labeled Lipták's IP as TP, to make the discussion more compatible with the rest of the chapter.

For now, the crucial contrast between (34) and (36) that I want to focus on is that (34) involves relativizing a temporal expression from inside the adverbial clause, which results in the sharing of this temporal specification between the two clauses, while (36) treats the relativized TP as a closed unit, with the relative operator originating externally to TP, the adverbial clause interpreted as an indivisible event, and the P functioning basically as a temporal connective. It will turn out that the presence or absence of "*a-*" does not differentiate clearly between the two groups (in another dialect, members of the 'before-class' are also consistently able to combine with *a-*) and I will later argue for a revision of Lipták's classification that will result (among other things) in partially moving *since* from the 'since-class' to the 'before-class', so I continue to avoid Lipták's labels and refer to the first class of P elements as the 'temporal relativization' (TR) class and to the second as the 'event relativization' (ER) class.

The intuitive appeal of Lipták's analysis, namely that there are two classes of P elements in the Hungarian temporal domain, which employ at least two different strategies for forming temporal adverbial clauses, is clear: For some Ps (like *–kor* 'at', for example) the correct interpretation obtains if we take the relativized chunk to be a time expression inside the embedded clause (resulting in a classic relative clause situation where the relativized phrase – in this case a time expression – is shared between the two clauses), while for other Ps (like *előtt* 'before' or *után* 'after') such a representation would yield the wrong interpretation. Lipták discusses this issue in detail (2005:148), based on examples like (37) (her (36)):

(37) [*Mielőtt* *Péter el-ment* *otthon-ról*] *meg-nézte* *a postá-já-t.*
wh-before Peter Prt-left home-from Prt-checked the post-his-Acc
'Before Peter left home, he checked his mail.'

As Lipták points out: "Unlike *since*-type clauses [temporal relatives], the meaning of a *before/after*-clause [event relative] cannot be derived by relativizing a *before/after*-expression [in Hungarian]. Relativizing a *before/after*-PP would result in a meaning that is crucially not the meaning of *before/after* clauses […]:

(38) a. [IP he left home t-before]
b. [CP rel-wh-before$_i$ [IP he left home e$_i$]]
c. '#the time before which Péter left (he checked mail)' [Lipták's (37)]

In other words, *before* does not originate from inside the temporal clause, unlike *until/since/when*-phrases, which modify the event in the relative clause. This simple meaning consideration then accounts for the fact that *before/after* clauses in Hungarian do not have an ordinary relative clause structure." Based on this argumentation, at least *before* and *after* can be shown in Hungarian to form event relatives, as this construction (unlike the temporal relative structure) yields the right meaning:

(39) a. before[CP wh_i … t_i [TP he left home]]
b. ‘before the time he left home’ or ‘before his leaving home’

Thus, Ps taking part in the event relativization strategy are essentially connectives taking two events as their arguments (which means that there is no necessary “shared” time between the two clauses – as there is indeed none with *before* or *after*, which involve no temporal overlap).

However, the intuitive basis for this classification only extends so far. There are two members of the ER class (*közben* and *alatt* both meaning ‘while, during’) that could go either way as far as their interpretation is concerned. The correct meaning of an expression featuring these postpositions could easily be derived through temporal relativization since ‘during’ is symmetrical, so the times of the two events always overlap. Lipták herself mentions this (her examples (38-39)), see below:

(40) a. [*Miközben* *Anna* *vásárolt*], *Péter* *meg-nézte* *a postáját*.
wh-during Anna shopped Peter Prt-checked the mail-his-Acc
‘While Anna was shopping, Péter checked his mail.’
b. [IP Anna shopped *t*-during]
c. [CP rel-*wh*-during$_i$ [IP Anna shopped e_i]]
d. ‘the time during which Anna was shopping, Péter checked his mail’

As we can see, the hypothetical temporal relative derivation yields the same interpretation as the proposed event relative derivation, as shown by (41) (structure mine):

(41) a. during [CP wh_i … t_i [TP Anna shopped]]
b. ‘during the time Anna shopped’ or ‘during Anna’s shopping’

Lipták also notes, however, that while *közben* and *alatt* are not necessarily classified as ER postpositions based on semantics, their syntactic behavior still likens them to *before* and *after*, suggesting that the characteristics dividing Ps into two classes are essentially syntactic in nature. While it appears that there are descriptively accurate ways of telling the two P-classes apart by looking at their morphology and their basic distributional properties, it is far from clear whether these contrasts stem from the lexical properties, the semantic interpretation, or the syntactic behavior of the P-elements at issue. So, before going any further, it is instructive to look again at the properties that – unlike temporal overlap as a diagnostic – unambiguously place *közben* and *alatt* in the ER class according to Lipták’s original diagnostics:

In Hungarian, **question words cannot be formed with Ps from the event relative class**:

(42) **mi-előtt* 'wh-before?' **mi-után* 'wh-after?' **mi-közben?* 'wh-during' **mi-alatt?* 'wh-during?'
(compare: *mi-óta* 'wh-since?', *mi-kor* 'wh-at?', *medd-ig* 'wh-until?'[63])

Lipták attributes this fact to a lexical gap, namely that for some reason these question words do not exist in Hungarian. This explanation has a descriptive flavor since it is unclear why these particular combinations should not exist. Note that the strings – even reanalyzed as single words – do exist as relative pronouns, so these postpositions can presumably take *mi* as their complement. Note also that even in questions these strings can appear – as Lipták also notes (her example (43)) – but in this case the question must refer to a specific event, not to a time:

(43) ***Mi közben*** *aludtál – az előadás* *vagy* *a vita* *közben?*
Wh during you-slept the talk or the discussion during
'During what were you sleeping – the talk or the discussion?'

This, however, comes as no surprise. Unlike TR suffixes and postpositions, ER Ps do not specify the relationship of an event to a time point/period, but the temporal relationship between two events. The "mi" part of these wh-phrases can thus only refer to an event, not a time – and as such, these *mi*+P complexes exist both in questions (cf. (43)) and as relative pronouns. This suggests that the contrast resulting in the relative markedness of question words formed with ER-class P-elements as compared to those with TR-class ones is due to semantic selection, and reinforces the idea that the ER class selects fully formed eventualities (rather than time points) as its arguments. This would mean that the participation of particular P-elements in this or that class is not arbitrary but rather systematic and based on core selectional properties.

ER class Ps cannot easily combine with a nominal head (see (32))

This is another property that, unlike the diagnostic of temporal overlap between the clauses, clearly places *közben* and *alatt* 'during' in the same class as *before* and *after* in Hungarian. Once again, since the basic defining property of the ER class is that these Ps take two events as arguments, this fact falls out naturally. Actually, we might expect that nouns with an eventive interpretation would accept PPs containing an event relative as their modifier, which is borne out:

(44) a. ? ***A beszélgetés*** ***mi-után*** *Anna megjött* *kellemetlen volt.*
the conversation Wh-after Anna arrived unpleasant was
'The conversation after Anna's arrival was unpleasant.' (cf. (32b)) (constructed example)

[63] The form *meddig* 'till when' involves some morphological complications that I abstract away from here.

b. *Jól* *telt* *az 1* ***óra*** ***mi-alatt*** *anya* *számot* *adott* *tudásáról.*
well went the 1 hour Wh-during mother proof-ACC gave her knowledge-of
'The hour while Mother gave proof of her knowledge went well.' (attested example)

If the semantics of *után* 'after' and *alatt* 'during' requires that they take two events as their arguments (one specified by the event relative) then the only way they can combine with a nominal head is if that head can be interpreted as an event with its own temporal reference. In (44b), we see that when the context forces the eventive interpretation of the nominal head, the sentence is grammatical. (The definite article before 'hour' makes it clear that we are talking about a particular hour-long event.) This, I believe, is good news for Lipták's account since in my view this is what we should expect, rather than a strict ban on event relatives combining with nominal heads. Her explanation for this alleged ban is that event relatives only *contain* a relative clause but are externally PPs. This may be so, but it is still unclear why a PP could not combine with a nominal head? The examples in (44) show that under certain circumstances (having to do with interpretation) these structures can in fact modify a noun. Thus, I suggest that this restriction is semantic, rather than structural, meaning again that what places P-elements into the ER class is semantic selection, rather than arbitrary lexical properties.

Based on the above, I will take the P's *selectional properties*, the presence or absence of *long operator movement (from inside TP in the adverbial clause)*, and the resulting *temporal relationship between the two clauses* to be the defining features of the two P-classes – and I will continue to operate under the assumption that whenever a P selects a time expression as complement, it will participate in temporal relativization, which in turn results in shared temporal reference between the two clauses, while a P that takes an event as complement will use the event relativization strategy, and in this case the two events may or may not overlap. In the next section I return to Lipták's syntactic tests, and show that this is in fact the most straightforward way of differentiating the two classes as well as accommodating what look like severe counterexamples to her generalizations. As it turns out, Ps that do not seem to fit the picture from a semantic point of view also misbehave syntactically, and vice versa. At the end of section 2.3, I also provide novel syntactic evidence (from Haegeman & Ürögdi 2010b) to support the syntactic contrast between the two constructions.

2.3 Temporal relatives and event relatives in Hungarian

In this section I aim to show that, albeit there is a lot of speaker variation with respect to the acceptability and interpretation of temporal adverbial constructions, there do emerge certain clear-cut patterns. My goal is to demonstrate that while counterexamples exist to many of Lipták's generalizations, these do not undermine the basic tenets of her theory, namely, the core difference between temporal and event relativization. The main points of this section are the following:

i) ER-class relative pronouns can also be introduced by *a-*, invalidating (at least for the dialect I deal with) a classification based on this morphological property. It turns out that for speakers who do allow *a-* with all Ps, the presence of *a-* results in a syntactic/semantic effect (albeit to varying degrees) that is somewhat different for the two P classes, suggesting a difference in the internal structure of the relative pronouns. In any event, it appears that an ad hoc morphological distinction between the two P-classes (i.e., the ability to be introduced by 'a') will not work, and more insightful syntactic and/or semantic motivation should be found for the contrasting behavior of the two classes.

ii) Syntactic diagnostics – I deal in some detail with the availability of low readings – do not always place Ps in the "correct" class according to Lipták's predictions. It turns out, however, that the P elements that exhibit unruly behavior with respect to the syntactic tests also induce unexpected interpretations. Accepting that the two related defining characteristics of the TR class are that a) the P should take a time expression as its complement; and b) this time should be shared between the two clauses as a consequence of relativization, we can proceed to redraw the line between the two groups. We find that this re-grouping makes for a scenario where the original prediction (that only members of the TR group allow the long-distance dependency) is borne out. This, in turn, supports the syntactic distinction between long operator movement (from inside TP) and event relativization, and I return to the technical details of these later on.

iii) As discussed in the introduction, an independent syntactic diagnostic for operator movement is suggested by Haegeman (2007) and subsequent work, namely, the availability of MCP in the left periphery of clauses. It is commonly assumed that temporal adverbial clauses do not allow MCP. This is the case in English, prompting Haegeman to treat all 'central' adverbial clauses under one umbrella, despite the fact that *before*-clauses and *while*-clauses contrast with respect to the availability of the low construal. I show, however, that the fact that Hungarian focus occupies a lower position than its English counterpart (cf. Chapter 1, and Haegeman & Ürögdi (2010b)), lower than the launch site of the operator in ER constructions, makes it possible to detect differences between TR and ER structures via intervention by focus phrases.

2.3.1 The availability of the 'a-forms'

As mentioned above, there is a dialect of Hungarian where the 'a-forms' are only available for certain P elements, namely the TR class. In this dialect, the difference seems to be lexicalized. There exists another dialect, however, where 'a-forms' are available with all P elements – see an example for each P below:

(45) a. ***Ami alatt*** *a nőstény ül, azalatt a hím hord neki ennivalót.*
Dem-Wh during the female sits Dem-during the male brings 3rd sg-DAT food-ACC
'While the female is sitting, the male brings her food.'
(source: online edition of an encyclopedia)

b. *Novemberben,* ***amielőtt*** *hazamentem, teljesen meghalt a PC-m.*
November-in Dem-Wh-before I-home-went completely died the PC-my
'In November, before I went home, my PC crashed completely.'
(source: online newspaper)

c. *Majdnem elsírtam magamat,* ***amiközben*** *olvastam.*
nearly PRT-I-cried self-ACC Dem-Wh-during I-read
'I nearly started to cry while I was reading it.'
(source: blog entry)

d. ***Amiután*** *elindult, pár másodperc után leállt.*
Dem-Wh-after PRT-started few seconds after stopped
'(The program) stopped a few seconds after starting up.'
(source: online chat about computer problems)

As the above examples show, the a-form is possible with all of the ER class Ps, and occurs in a variety of registers (from an encyclopedia to chatrooms), and the reading we get is not the one described by Lipták, namely where the pronoun is taken to refer to the matrix clause event (cf. example (31c)). While some speakers do not accept these forms, this may be due to prescriptive factors or dialectal differences. In any event, speakers who do accept examples like those in (45) often report a meaning difference between the a-forms and the a-less forms, namely that the a-forms seem strange when used in a generic situation. Interestingly, the contrast is not so strong in the TR class (46) as in the ER class (47):

(46) *Azonnal leáll* ***(??a-)miután*** *megnyomod a gombot.*
immediately stops Dem-Wh-after you-press the button-ACC
'(The program) stops immediately after you press the button.'

(47) *Azonnal leáll* ***(%?a-)mikor*** *megnyomod a gombot.*
immediately stops Dem-Wh-at you-press the button-ACC
'The program stops immediately when you press the button.'[64]

[64] As Ildikó Tóth points out in her review of this thesis with respect to examples like (46) above, it seems that in some cases at least the ordering of the clauses influences the acceptability of the examples, as in:

(i) a. *Azonnal leáll* ***(??a-)miután*** *megnyomod a gombot.*
immediately stops Dem-Wh-after you-press the button-ACC
'(The program) stops immediately after you press the button.'
b. *?Amiután megnyomod a gombot, azonnal leáll.*

As I mention above, there is a certain tendency to associate the a-forms with a specific (as opposed to generic) reading, although I can only describe this informally as a tendency, as I have not had the chance to properly test how wide-spread and systematic it is. If this is the case, however, then it might be possible to explain the contrast in (i) by appealing to salience of the fronted element, namely that a topicalized temporal clause is more likely to refer to a specific, one-time event than a generic one – thereby facilitating the acceptability of the somewhat marginal a-form. However, I have not tested questions of ordering, so I cannot say anything definitive on the subject at this point.

Thus, the presence or absence of *a-* certainly does not place a P element into one or the other class.

2.3.2 Long-distance dependencies

The reader will recall that the so-called 'low readings' are only available for temporal relative clauses formed with TR class Ps (cf. (33a)):

(48) ***Add-ig*** *maradok,* ***a-medd-ig*** *mondod, hogy maradsz.*
Dem-until I-stay Dem-Wh-until you-say Comp you-stay
HR: 'I'll stay as long as you keep saying you will stay.'
LR: 'You say you'll stay until time t. I will stay until time t.'[65]

However, even with the P elements predicted to form TR structures, the construal of the low reading only seems to work if the times between the two clauses are in exact match – compare:

(49) ***Add-ig*** *maradok,* ***a-medd-ig*** *mondod, hogy megjössz.*
Dem-until I-stay Dem-Wh-until you-say Comp you-arrive
HR: 'I'll stay as long as you keep saying that you'll arrive.'
*LR: 'You tell me that you'll arrive by time t. I'll stay until time t.'

As noted earlier, only Ps that select a temporal expression (rather than an eventuality) as their complement, and thus yield temporal matching between the two clauses via standard relative clause (TR) formation allow the low reading. The times picked out by the two predicates in (49) do not and cannot match up because arrival is punctual, while staying is durative. A fundamental characteristic of the TR construction is that – like in a regular relative clause, where some nominal element is relativized – the temporal specifications (assertion times in terms of D&UE) of the two clauses are shared; any case when this interpretation is not possible (e.g. the use of *–ig* 'until' and *óta* 'since' with a punctual event in the adverbial clause, as well as Lipták's original 'a-less class') is derived via a strategy that does not involve relativization of a time expression. Event relativization is, as noted by Lipták, an alternative to nominalization – and this is mirrored by the fact that the use of *-ig* with a punctual event in the relative clause is actually freely paraphrasable as a nominalized structure, while such nominalized alternatives do not exist for examples where the clause embedded under *–ig* features a durative predicate:

(50) a. *Maradok* ***a-medd-ig*** *Péter meg-érkezik.*
I-stay Dem-Wh-until Peter PRT-arrives

[65] I have removed the imperative from the embedded clause in Lipták's original example (cf. (33a)) to avoid giving the false impression that the subjunctive has anything to do with the availability of the low reading.

b. *Maradok Péter (meg-)érkezésé-**ig**.*
I-stay Peter PRT-arrival-3rd sg-until
'I will stay until Peter arrives/Peter's arrival.'

(51) a. *Maradok **a-medd-ig** Péter marad.*
I-stay Dem-Wh-until Peter stays
'I will stay as long as Peter stays.'

b. **Maradok Péter maradás-á-**ig**.*
I-stay Peter staying-3rd sg-until

Based on examples like (49) (the unavailability of the low reading) and (50) (the possibility of nominalization), it looks like *-ig* actually forms event relatives when the embedded event is punctual and temporal relatives only when the embedded event is durative. While this may seem like an ad hoc move that will require lexical duplication of this suffix or some other auxiliary stipulations, I return to an account of the properties of *-ig* that does not necessitate two different lexical items. For now, my focus is on determining which P elements form which type of structure in Hungarian.

It should also be noted that, on Lipták's account, temporal relatives are derived in a way that the P element originates inside the embedded clause, and it is the *P+wh* complex that moves up to form the relative clause. This analysis works well for some but not for other instances of the same suffixes and postpositions. Take *–ig* as used in (50a). A TR derivation for this example would look like this:

(52) a-medd-ig Péter megérkezik
$[_{CP}$ Dem-Wh-until$_i$ $[_{IP}$ Peter arrives $e_i]]$

In the hypothetical structure (52) it is the relative pronoun *ameddig* 'until-which-time' that starts out as the temporal modifier in the embedded clause ("Peter will arrive *until time t*") – and this clearly does not yield the correct interpretation. Meanwhile, the event relative structure gets the right reading:

(53) until [CP wh_i … t_i [TP Peter arrives]]

We can conclude that the use of *–ig* in (49-50) – unlike the use of *-ig* in (48) – does not meet the criteria of the TR class. The times of the two connected clauses do not match up, and the resulting construal cannot give rise to the low reading of the temporal expression. Meanwhile, the problematic use of *–ig* is correctly interpreted as an event relative, in which case we do not expect to see the low-reading surface.

Exactly the same can be shown for the 'punctual' use of *óta* 'since':

(54) a. ***Azóta*** *vagyok ideges,* ***amióta*** *Péter meg-érkezett /Péter itt van.*
Dem-since I-am tense Dem-Wh-since Peter PRT-arrived /Peter here is
'I have been tense since Peter arrived/Peter has been here.'

b. ***Azóta*** *vagyok ideges,* ***amióta*** *mondtad, hogy Péter meg-érkezett.*
Dem-since I-am tense Dem-Wh-since you-said Comp Peter PRT-arrived
'I have been tense since you said Peter arrived.' (*LR)

c. ***Azóta*** *vagyok ideges,* ***amióta*** *mondtad, hogy Péter itt van.*
Dem-since I-am tense Dem-Wh-since you-said Comp Peter here is
'I've been tense since you said Peter's been here.' (√ LR)[66]

(55) a. *Ideges vagyok* ***amióta*** *Péter meg-érkezett.*
tense I-am Dem-Wh-since Peter PRT-arrived

b. *Ideges vagyok Péter (meg-)érkezése* ***óta****.*
tense I-am Peter PRT-arrival since
'I have been tense since Peter arrived/Peter's arrival.'

As (54) attests, *óta* 'since' also shows dual behavior: When the event denoted by the lower clause is durative, *óta* allows the low reading, but when the relativized event is punctual, the low reading becomes unavailable. And as (55) demonstrates, it is precisely the problematic point-in-time use that can be easily paraphrased as a nominalized form.[67] Once again, if we tried to derive the meaning of (55a) via the TR strategy, we would arrive at the wrong result, something like 'Peter arrived since time t' constituting the embedded clause, while interpreting the example as event relativization (with the postposition as well as the relative operator originating outside the adverbial clause) yields the right meaning.[68]

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[66] It has been pointed out to me by Ildikó Tóth that the examples above (and in what follows) may be distorted by the fact that they feature the expletive pronoun associated with the embedded clause in focus in the matrix clause. While it is true that this facilitates the readings I am after, it is not obligatory, and the effects I discuss obtain just as readily if there is no expletive pronominal present:

(i) *Képzeld,* ***(azóta)*** *borzasztó ideges vagyok,* ***amióta*** *mondod, hogy Péter otthon van*
imagine Dem-since horribly nervous I-am Dem-wh-since you-say Comp Peter home is
betegen. Biztos megéreztem, hogy nincs jól!
sick surely I-felt Comp isn't well
'Just imagine, I have been horribly nervous since (the time) you say Peter's been home sick. I must have sensed that he is not well.'

In the discussion, I tried to give examples that are as easy to parse as possible, given the general difficulty of the constructions and the subtlety of the judgments required.

[67] In the nominal domain, *-ig* and *óta* can take punctual or durative complements:

(i) a. *Két hét* ***óta*** */ Szerda* ***óta*** *nem láttam.*
two weeks since Wednesday since Neg I-saw
'I haven't seen (him) for two weeks / since Wednesday.'

b. *Két hét-****ig*** */ Szerdá-****ig*** *maradok.*
two weeks-for Wednesday-until I-stay
'I will stay for two weeks / until Wednesday.'

I leave the question of nominal complementation aside for now.

[68] As discussed in detail in Section 4 with reference to English, there is no necessary connection between the base positions of the operator and of the P element. So the punctual use of *–ig* and *óta* could, in principle, also be analyzed as the temporal expression moving from inside the adverbial clause to the left edge, and combining with the P there, thus

Therefore, if we want to maintain the structural correlation that only temporal relatives, but not event relatives, make the low reading possible, we simply have to modify the classification slightly, and say that *óta* and *-ig* are able to form temporal relative clauses (where they combine with a temporal operator inside a durative event) or event relatives (where they combine with a punctual event from the outside). I return to the question of how this ambiguity is to be analyzed in the next section, where I hope to show that placing *-ig* and *óta* in two different classes will not require lexical duplication. In either case, the former, but not the latter, use of these P elements patterns with the TR class. The use of these two Ps that features a punctual event in the adverbial clause, however, belongs in the ER class. The two classes (revised) are listed below:

(56) **Temporal relative class** (revised): *kor* "at"; *-korra* "by"; *óta* "since (embedded event durative)"; *-ig* "until/for (embedded event durative)"
Event relative class (revised): *előtt* 'before'; *után* 'after'; *közben* 'during'; *alatt* 'during'; *-ig* 'until (embedded event punctual)'; *óta* 'since (embedded event punctual)'

As explained above, I take the dividing line to be based primarily on selectional properties: the TR class selects for temporal expressions, while the ER class takes eventualities. This is reflected also in the fact that the construction illustrated under (28) – TFCs, where it looks like the complement to the P element is actually a proposition – is available precisely for the ER class of Ps. I return to a brief discussion of the TFC construction at the end of this chapter. For now, I go on to provide some additional syntactic evidence for the idea that the TR and ER classes differ with respect to the length of the operator chain but both feature operator movement. Then I turn to the question of how the structural ambiguity observed with *-ig* manifests itself in Hungarian, and the general cross-linguistic issues surrounding *unti*-constructions.

2.3.3 Intervention effects

It has been often noted that temporal adverbial clauses tend to resist MCP such as argument fronting in English. The relevant examples from Haegeman (2007) are repeated below (same as (12)):

(57) a. *While this paper I was revising last week, I thought of another analysis. (central)

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resolving the meaning mismatch noted above. This would make it possible to derive both uses of *–ig* and *óta* via standard relativization, the difference being the position where the P originates (inside the clause for the durative use, and outside for the punctual one). This derivation does actually exist – this is what happens in the TR class in English (which allow the long-distance dependency along the operator-variable chain). In Hungarian, however, if we posit the existence of this strategy, we lose the correlation between the availability of the low reading and operator movement from inside the clause, leaving the absence of this reading in (49) and (54b) without an explanation. Further, if both classes of P-elements are assumed to take temporal arguments, the difference between the two classes will have to be attributed to idiosyncratic lexical properties, rather than selection. Finally, we lose the correlation between event relatives in the temporal domain and other event relatives (like object clauses or conditionals) which, otherwise, display analogous syntactic properties. Thus, it seems that in Hungarian the relative operator and the postposition/suffix always start out in a local configuration. (Thanks to Anikó Lipták (p.c.) for calling my attention to this point.)

b. His face not many admired, while his character still fewer felt they could praise. (peripheral)

The generalization is that when the *while*-clause behaves like a 'true' temporal modifier (rather than an independent assertion, which Haegeman dubs a 'peripheral adverbial clause') it does not accept argument fronting. This leads Haegeman to posit operator movement in (57a), which, on her account, leads to intervention by the fronted argument. Meanwhile, *while*-clauses have also been shown (as in Larson (1990)) to disallow the low construal, as in example (58) (repeated from (11) above):

(58) I didn't see Mary in New York **while** she said she was there. (no LR)

This fact seems to run counter to the operator movement analysis. A possible solution to this apparent contradiction is that *while*-clauses are event relatives, featuring a local operator chain (just like referential clauses in general, such as factive complements, as well as conditionals) that does not make the low reading possible but prevents argument fronting since it does cross the relevant left-peripheral domain in English.

In English, where contrastive elements front above TP, we have no way of testing this prediction but Hungarian gives us a good testing ground. As pointed out in Chapter 1, Hungarian focus fronts to a position lower than its English counterpart, presumably to Spec,TP or some equivalent position. This is evidenced by the fact that, unlike in English, Hungarian focus does not create intervention effects in clauses that have been proposed to be event relatives, such as factive complements and conditionals:

(59) a. *John resents that THIS BOOK Mary chose.

b. *János sajnálja, hogy Mari EZT A KÖNYVET választotta.*
John regrets Comp Mary this book-Acc chose
'John regrets that it is this book that Mary chose.'

c. ?? If THIS BOOK you want to read, you should go to the library.

d. *Ha EZT A KÖNYVET akarod olvasni, vedd ki a könyvtárból.*
if this the book.acc want.2sg read.inf take.imp.2sg Prt the library.from
'If you want to read this book, take it out of the library.' (Lipták 2010)

This is explained by the proposal that focus only intervenes with operator movement if its position interrupts the operator chain. The English and Hungarian base cases are schematized in the simplified bracketed structures below, where I have represented focus as simply an operator element (although see Chapter 1, Section 4 for discussion of the feature make-up of contrastive elements and their interactions):

(60) a. **English**

*$[_{CP}$ Op_Q XP_Q $[_{FP}$ t_Q $[_{TP}$ V …]]]

b. **Hungarian**

$[_{CP}\ Op_Q \qquad [_{FP}\ t_Q\ [_{TP}\ XP_Q\ \ V\ \ldots\ ]]]$

Focus that does not lie along the path of the Op-movement is fine not only in Hungarian but also in English, where in situ focus does not create intervention in factive complements (61a) or *while*-clauses (61b):

(61) a. John resents that Mary chose THAT BOOK (rather than the other one).
b. John will stay here while Mary reads THAT BOOK (but will leave when she starts the other one).

This shows that whatever creates the contrast between Hungarian and English with respect to intervention by focus is not some inherent difference between focus in the two languages. (This is not to say that Hungarian and English foci necessarily receive the same interpretation; there may well be such differences. But the data in (59-61) show that the relevant pattern can easily be explained by reference to the syntactic position of the elements at play.) Due to this structural difference between English and Hungarian, it becomes possible to test the prediction that the two clause types – dubbed temporal relatives and event relatives – feature operator chains of different lengths, as in Hungarian TR derivations will require the relative operator to cross the TP domain (where Hungarian focus is located) while ER derivations will not. Therefore, we predict that intervention effects of Hungarian focus will surface in TR constructions, and this is borne out:

(62) a. **Eleredt* *az eső* *amikor* *EZ A FILM* *kezdődött.*
Prt-started the rain when THIS FILM started
Intended: The rain started to fall when THIS FILM started.[69]
b. *?Eleredt* *az eső* *miközben* *EZT A KÖNYVET* *olvasta fel* *Mari.*
Prt-started the rain while this book-Acc read Prt Mary
'The rain started while THIS BOOK Mary was reading.'

The minimal pair in (62) shows that a) Hungarian focus does in fact have the ability to intervene with operator movement (obviating the possible objection that it is somehow inactive in terms of intervention) and b) that the structural difference between temporal relatives and event relatives is supported by intervention effects, a contrast that cannot be seen in English given the different position of focus.

[69] As pointed out by Lipták (2010), temporal clauses can accept focus in Hungarian in some cases, like:
(i) *AKKOR* *eredt el* *az eső* *amikor* *EZ A FILM* *kezdődött.*
then started Prt the rain when this film started
'It's when this film started that the rain began to fall.
Haegeman & Ürögdi (2010b) discuss this example, and note that it involves focus on the temporal clause, as indicated by the focused clausal expletive *AKKOR* in the main clause. As such, this example does not show the relevant contrast because it is a case of 'featural enrichment' of the moved operator that obviates the intervention effect. For the details of how this works, see Chapter 1, Section 4.1. In the current discussion, I have chosen neutral examples to avoid interference by clausal focus and to bring out the relevant contrast.

Based on the discussion above, I conclude that Hungarian, just like English, employs two different strategies for forming temporal adverbial clauses – temporal relativization and event relativization. The two constructions split the class of temporal postpositions and suffixes into two subclasses, and display a host of contrasting properties that make it possible to tell them apart. I have also identified two P-elements (the suffix *-ig* and the postposition *óta*) that are apparently able to participate in either of these two strategies, albeit with restrictions on the type of eventuality that the embedded TP can denote. I now turn to a detailed analysis of one of these, the suffix *-ig*, to show that this dual behavior is not the result of lexical duplication. This discussion will be rooted in the cross-linguistic debate concerning *until*-constructions, where the status, interpretation and syntactic behavior of *until*-phrases have been debated for decades. I hope to add some new considerations to this debate while reconciling the cross-linguistic facts with the Hungarian data.

3 Adverbial clauses with *-ig* and the 'until-puzzle'

Until-clauses present a number of puzzles cross-linguistically, and this section is devoted to (partially) untangling some of these. After a brief introduction to the issues raised by the construction in Hungarian, I present an overview of the complexities of *until*-clauses and attempts at analyzing these cross-linguistically. Then, I review an account that was proposed in MacDonald & Ürögdi (2009; forthcoming) for English, and argue that *until*-constructions in fact do not require any of the special machinery that has been proposed in order to explain away their behavior. After this detour into English, I return to Hungarian, where *until*-clauses present a much more complicated picture than they do in Germanic, and show how even these data can be accounted for without various stipulations regarding *until*. Finally, I tie all this into the general picture of temporal and event relativization.

The properties of temporal clauses featuring *-ig* 'until, as long as' vary greatly across regional dialects as well as individual speakers of Hungarian. In what follows, I limit discussion to the least restrictive dialect (spoken primarily in the capital city Budapest), which displays the three-way contrast illustrated in (63). Dialectal differences are potentially very enlightening because some speakers do not permit the entire range in (63) and there is also variation with respect to the more complex scope and extraction patterns discussed below[70]; a thorough discussion of this variation, however, falls outside the scope of this chapter. Thus, most of what I have to say below in reference to Hungarian *until*-constructions should be taken as applying to this least constrained dialect of the language. After the core discussion, I comment briefly on a more restrictive dialect of Hungarian (spoken, roughly, in the eastern parts of the country) that only allows (63c) out of the variants in (63). This more archaic dialect is discussed in Kiss (2010) and analyzed by Lipták (2005).

In the dialect that utilizes each of the structural variants shown under (63), I will assume that each of these structures is a productive syntactic construct, without any special lexical or idiomatic properties:

[70] In particular, Lipták (2005) explicitly says that examples like (63a), that is, until-clauses without negation, are ungrammatical. This is just one indication that Lipták analyzes a dialect distinct from mine.

(63) a. *Itthon* *maradok,* ***ameddig*** *Emma* *át-jön.*
home I-stay Dem-Wh-until Emma over-comes
b. *Itthon* *maradok,* ***ameddig*** *Emma* ***nem*** *jön* *át.*
home I-stay Dem-Wh-until Emma not comes over
c. *Itthon* *maradok,* ***ameddig*** *Emma* *át* ***nem*** *jön.*
home I-stay Dem-Wh-until Emma over not comes
'I'll stay home until Emma comes over.'

The three sentences in (63) appear to convey the same meaning (at least as far as the English translation goes) but have diverging pragmatics. (63a), as discussed in the previous section, is an event relative construction with *-ig* where the embedded clause features a punctual event, and, accordingly, the relative operator originates outside the adverbial clause. This is confirmed by the fact that this construction does not allow the low reading in multiple embedding (see (49), repeated below):

(64) ***Add-ig*** *maradok,* ***a-medd-ig*** *mondod, hogy* *megjössz.*
Dem-until I-stay Dem-Wh-until you-say Comp you-arrive
HR: 'I'll stay as long as you keep saying that you'll arrive.'
*LR: 'You tell me that you'll arrive by time t. I'll stay until time t.'

The simple event relative construction with *-ig* is quite straightforward both in terms of meaning and structure. Meanwhile, the examples in (63b) and (63c), both involving negation in the lower clause, convey different implicatures. According to speaker intuition (to be made more precise below) (63b) is simply a statement about two simultaneously occurring states/activities, with no further implications. In the concrete (63b) scenario, the sentence asserts that the duration of my staying home will coincide with Emma's not having come over (i.e., Emma's being somewhere other than home). At the same time, (63c) seems to implicate (or perhaps entail) that, once the event in the lower clause takes place, the situation will reverse – so: I will leave when Emma appears. This reading is sometimes referred to in the literature as the 'switch-reading' or 'actualization' (cf. Giannakidou 2002, among others), and it is an unresolved question whether this reading is an implicature associated with certain combinations of *until* and negation, or an uncancelable entailment (see Giannakidou (2002) for arguments for the latter position).[71] Several authors assume that the switch-reading is brought about by the presence of negation in the temporal clause, based on English examples like (65):

(65) John didn't get angry until Jack broke the vase.

[71] On some accounts, the 'switch-reading' is due to a cause-effect interpretation associated with the construal exemplified by (63c) - see, for example, Español-Echeverría & Vegnaduzzo (2000).

In (65), it appears that a necessary outcome of the situation is that John got angry, and this happened when (or even as a result of the fact that) Jack broke the vase. If this effect is somehow related to the presence of negation in (65), this could mean that we would expect a contrast (63a) against (63b-c). In Hungarian, however, (63b) – which also involves negation – normally lacks the switch-reading, meaning that another explanation must be sought for the strong preference for this reading in (63c).

The discussion is organized into the following sections. First, 3.1 presents a brief overview of the main issues in the 'until-debate' based on relevant recent literature. The aim of the section is to outline the general direction my analysis will take, as well as to provide sufficient context for the issues. 3.2 presents a novel analysis of English *until*-constructions and the related issues of the role of negation in these constructions, the 'switch-reading' and the relative positions of operator elements in these constructions. In 3.3, I return to the Hungarian data briefly illustrated in (63). In a nutshell, I argue that the Hungarian facts can be accounted for without positing two homophonous *-ig* suffixes (I thereby join the 'single-until' line of analyses) and without appealing to 'expletive negation'. I look at syntactic and semantic differences among the three constructions illustrated in (63). I show that the examples (63b) and (63c) are differentiated structurally by the position where the negation is interpreted (higher than its surface position for (63c)), which leads to a number of syntactic contrasts (e.g., the scope of negation with respect to other operators, the licensing of negative quantifiers) and semantic effects (e.g., the availability and interpretation of temporal modifiers within the clause). I argue that *until*-constructions have no special or unusual properties that necessitate such extraordinary machinery as 'expletive negation', 'stativizing negation', or 'actualization'. Rather, all the relevant properties fall out of simple assumptions about scope, focus and the position of negation.

3.1 Overview of the 'until-debate'

The exceptional semantic (and, to a lesser extent, syntactic) properties of *until* among temporal connectives/adpositions, especially its interaction with negation, have been discussed by a number of authors (see, among many others, Piñón (1991) on Hungarian; Giannakidou (2002) on Greek and for a good overview of the issues and the most influential proposals in the literature; Español-Echeverría & Vegnaduzzo's (2000) work on Spanish and Italian; and Eilam & Scheffler (2007) on Hebrew). There are a few fundamental questions that authors do not seem to have reached a consensus on – I briefly look at each of these in turn, and then go on to propose an account that hopefully improves upon all of these.

How many 'until'-like elements are there in the lexicon? Based on English data like (66), the existence of at least two types of 'until' – durative (66a) and punctual (66b) – has been posited:

(66) a. *John slept/didn't sleep until 5 pm / until Jane left.*
b. *John didn't arrive until5 pm / until Jane left.*

c. **John arrived until 5 pm / until Jane left.*

Sentences like (66b) raise a number of interrelated issues. While the use of *until* here has been called punctual (since the matrix verb is eventive, unlike in (66a)), the until-clause is apparently only licit if the eventive predicate in the matrix clause is negated (compare (66c)). This well-known observation has led to two diverging types of explanation.

One line of reasoning says that the negation in (66b) functions as a stativizer (cf. Mittwoch (1977) and her later work) – thus, there is only one, durative kind of *until*. I will refer to this as the 'single-until' account. More specifically, the *until*-phrase or -clause supplies the endpoint to the activity or state with which it combines. Since negation is taken to create a state out of eventives, [John didn't arrive] qualifies as a proper durative argument for *until* and thus (66b) ends up being grammatical. Negation and *until* are claimed to scope freely with respect to one another, yielding two possible readings for (67a) but only one for (67b):

(67) a. *John didn't sleep until 5.*
   i. Neg > until: It is not the case that John slept until 5 (he woke up earlier, or didn't sleep at all).
   ii. until > Neg: Until 5, John was awake (maybe fell asleep after).
   b. *John didn't arrive until 5pm.*
   i. *Neg > until: It is not the case that John arrived until 5.
   ii. until > Neg: Until 5, John was in the state of not having arrived.

On this type of account, the unavailability of the Neg>until reading in (67b) follows from the fact that *until* is unambiguously 'durative' on this view, so it can only combine with an eventive predicate after it has been stativized by negation. Therefore, (66c) is out because there is no way to felicitously combine *until* with *arrive*. According to its critics, this account makes it difficult to formalize the 'switch-reading' apparently associated with sentences like (66b), since there is no structural or lexical difference between (66a) and (66b). Note that making negation responsible for the switch-reading (without any further stipulations) will not help either, since the negated version of (66a) does not obligatorily enforce this reading. Rather, both (66a) and (66b) have the same reading (with (66a) having an additional one, shown in (67ai)) where the sentence only makes a statement about the period up to the point specified by the punctual argument of 'until' (in this case, 5 o'clock) and there is nothing more said about what happens after. As such, on this view the 'switch-reading' is only a pragmatic implicature and not a strict entailment of the construction in (66b) (or the one in (66a) for that matter).

At the same time, Giannakidou (2002), rejecting the 'single-*until*' account, argues that the weakness of a Mittwoch-style analysis is precisely that it has trouble explaining the different entailments that are associated with (66a) and (66b). On her view, (66a) entails nothing about what happened after 5, even on the wide scope reading of *until*. Meanwhile, (66b) entails a switch in the state of affairs that happens at the time

specified by the *until*-phrase (in this case: John was in the state of not having arrived until 5pm, and then switched to having arrived at 5pm) and so the English (66b) is only felicitous if John actually arrived at 5pm or soon thereafter. This point is illustrated, among other examples, by the following contrast (from Karttunen (1974; ex. (21) and (23), cited by Giannakidou):

(68) a. Nancy remained a spinster until she died.
b. #Nancy didn't get married until she died.

There is a strong feeling of pragmatic oddness associated with (68b) that we do not get with (68a), and this appears to be connected to the use of a stative in (a) and an eventive in (b) – the (b) example is strange because (as argued by Giannakidou) it has the entailment that Mary got married when or immediately after she died, an entailment that is not there in (68a).[72]

Instead, following Karttunen (1974), Giannakidou claims that at least two types of *until* must be posited: *durative-until* and *NPI-until*. The latter is licensed by negation in English sentences like (66b) and actually corresponds to a distinct lexical item in Greek. In addition to being a polarity item, NPI-until is eventive, so it can combine with a non-durative predicate like 'arrive' – so, on this view, the role of negation in (66b) is simply to license this particular kind of *until*, and it has no effect on event structure, with [didn't arrive] still denoting a punctual event. Further, on Giannakidou's analysis NPI-until has the special property of leading to the switch-reading, a lexically encoded entailment that is not associated with durative-until (the latter only combinable with durative predicates, and requiring no special polarity). Despite the obvious drawbacks of lexical duplication of *until*, this type of analysis (which I will refer to as the 'NPI-until' account) has the advantage that it can explain the fact that, whenever present, the switch-reading appears to be an obligatory entailment, and it does not necessitate assigning a stativizing function to negation, a problematic assumption as I discuss below. Meanwhile, though, it becomes truly unclear what the role of negation is in examples like (66b). It does not stativize on this account, and it also does not receive an interpretation that is customary for negation – it does not negate the event of arrival. In fact, just the opposite ends up being the interpretation, due to the entailment, as [John didn't arrive until 5] actually seems to mean something like [John arrived at 5]. Hence, this analysis operates with something that has become known as 'expletive negation' – negation that is present in the structure for formal syntactic reasons, and does not play any role in interpretation.

As is obvious from the brief overview above, the two basic lines of accounts – the 'single-until' analysis and the 'NPI-until' analysis – both have their own benefits and drawbacks, and both are forced to make theoretical assumptions and adopt machinery that are based on stipulation and not very well applicable in other areas of the grammar. The facts are not very clear empirically either, since tests for the semantic import

[72] There are counterarguments presented to this example in Mittwoch (2001), who claims that the effect in (68b) and the switch-reading in general is a cancelable implicature, as shown by examples like (i):
(i) Mary won't start work at her new job until Monday, if then.
According to Mittwoch, the fact that you can add "if then" at the end of the example shows that the switch-reading can be canceled without resulting in a pragmatic difficulty. I return to this issue below.

of the switch-reading seem to go both ways, and authors often ignore the effects of focusing, or prosody in general, when evaluating the examples. For example, it is worth noting that focusing the adverbial clause (achieved in English by prosodic means) brings out the 'switch' entailment in (66a) just as easily as in (66b) (contrast (69a) and (69b) with main stress indicated in bold) – and that 'not-until' fronting, a syntactic means of putting focus on the *until*-clause, makes the entailment obligatory (as in (69c)):[73]

(69) a. *I **won't** sleep until you get home. (I will wake up earlier and cook you dinner.)*
b. *I won't sleep until you **get home**. (I'll be too worried to sleep.)*
c. ***Not until** you get home will I sleep.*

This suggests that the entailment is probably not construction-specific but has close ties to focus structure, and thus the existence of the 'switch-reading' is not a reliable syntactic diagnostic for determining whether or not we need to posit one of two *until*'s.

Analyses that posit lexical ambiguity of *until*-type elements generally tie together two distinct properties of *until*: semantic restrictions on the type of predicate/eventuality the P is able to combine with, and syntactic restrictions on the polarity of the environment in which it occurs. It is worth noting that these two properties need not go hand in hand. It is entirely possible for *until* to always combine with the same two arguments (a state/activity and an endpoint) while retaining some sensitivity to polarity and other construction-specific factors. In particular, the fact that the relative scope of negation and *until* does not fully explain the pragmatic effects associated with negated *until*-constructions does not necessarily mean that the 'single-until' approach should be abandoned. This brings us to the second major issue, the role of negation.

Is there such a thing as 'expletive negation'? Given the entailment associated with (66b) above, the 'expletive' nature of the negation in these constructions has been argued for by various authors. The argument goes like this: The role of negation in (66b) is not to stativize the verb (arguments have been forwarded that in fact negated events are not stative; cf. Csirmaz (2006) among others) but only to license 'NPI-until'. Moreover, this instance of negation does not share with run-of-the-mill negation its most fundamental characteristic, since it does not affect the truth conditions in the usual way. (Concretely, in (66b) [John didn't arrive until 5] does not mean that John did not arrive – in fact, it entails or at least implicates just the opposite.) To avoid diverting the discussion into unrelated territory, I will not review the relevant arguments at this point. Suffice it to say that, in addition to semantic considerations, there are a number of syntactic effects as well that pertain to the 'expletive negation' debate, some of which I look at here.

[73] Cf. Mittwoch (2001)'s suggestion that 'not-until' is in fact on its way to becoming a focus particle in English. Also noteworthy is the fact that the element Giannakidou (2002) calls 'NPI-until' in Greek is actually a focus particle ('only'). See also Declerck's (1995) suggestion that 'not-until' means 'only-at', a proposal I discuss below.

Abels (2005) discusses Russian constructions that have been claimed to feature expletive negation. In Russian, there are two polarity-sensitive phenomena that require local licensing: 'genitive of negation' (illustrated under (70) and *ni*-phrases (negative quantifiers) as shown in (71) (examples from Abels):

(70) a. *Ivan ne čitaet ✓žurnal / ✓žurnala.*
Ivan NEG reads ✓journal-ACC ✓journal-GEN
'Ivan doesn't read the journal/a journal.'

b. *Ivan čitaet ✓žurnal / *žurnala.*
Ivan reads ✓journal-ACC *journal-GEN
'Ivan reads the journal/a journal.'

c. *Ivan ne skazal, čto on čitaet ✓žurnal / *žurnala.*
Ivan NEG said that he reads ✓journal-ACC *journal-GEN
'Ivan didn't say that he reads the journal/a journal.'

(71) a. *Ivan ničego ne znaet.*
Ivan NI-what NEG knows
'Ivan doesn't know anything.'

b. **Ivan ničego znaet.*
Ivan NI-what knows

c. **Fedja ne skazal, čto on ničego znaet ob ètom.*
Fedja NEG said that he NI-what knows about that

The examples in (70) and (71) show that, in the majority of cases, genitive of negation (GoN) and *ni*-words pattern identically in that they both require a clause-mate licensing negation in order to be felicitous. More precisely, the environments where GoN is licensed constitute a proper subset of the ones where *ni*-words are acceptable (as GoN is not grammatical in all argument positions, see Abels for discussion). Accordingly, we do not expect to find constructions where GoN is acceptable but *ni*-words are not licensed; however, as noted in Brown & Franks (1995), such environments exist, with so-called 'polar questions' being one of them:

(72) a. *✓Ne / *∅ kupil li Petr žurnala?*
NEG / ∅ bought Q Petr journal-GEN
'Did(n't) Petr buy a journal?'

b. **Ne / *∅ znaet li nikto iz vas, kak èto delaetsja?*
NEG / ∅ know Q NI-who of you how this is-done
intended: 'Do(n't) any of you know how to do this?'

In (72), where negation is clearly in the CP-domain as it occurs left of the particle *li*, GoN is licit (72a) but the *ni*-word 'nikto' is ungrammatical (72b). Abels discusses a number of other examples but this one will suffice for our discussion here. Brown & Franks (1995) (among other authors; see Abels (2005) for references) propose for such constructions that negation here lacks negative force, so it is a case of expletive negation. These authors claim that GoN can be licensed by this formal instance of negation but negative quantifiers cannot, as these polarity items require local licensing by semantic negation. In contrast, Abels argues that expletive negation is an unnecessary and semantically unlikely complication to the syntactic model. Instead, he proposes an account that posits only one type of negation (the usual kind) that originates in the same designated functional projection in the TP-domain (call it NegP) in every case. Based on elaborate argumentation that I will not review here, he posits that *ni*-words are licensed at LF in a local relationship to negation, while GoN is subject to what he calls 'on-line' licensing (basically, licensing at any particular point in the derivation). This means that "If negation starts out clause internally, then it will be able to license GoN [on the object]. If it then moves to a position outside of TP and is prevented from reconstructing, *ni*-phrases will be disallowed." (Abels 2005:48) This is what, Abels argues, happens in cases like (72), where there is independent evidence that this high instance of negation does not reconstruct, and takes scope in the CP-domain. Since the *ni*-word needs to be in a local relationship with negation at LF, negation that is interpreted outside TP will not be able to license it, hence the asymmetry between GoN and *ni*-word licensing in constructions like (72) is derived.

The resulting account derives the fact that negation that is too high at LF does not license NPIs that require clause-mate licensing, a phenomenon that had previously been attributed to the 'expletive' nature of negation in these contexts. Abels goes on to argue that the same explanation can be extended to *until*-constructions in Russian, where negation inside the *until*-clause has the same odd properties as CP-level negation in polar questions – despite the presence of negation that, at least on the surface, appears to be inside the TP-domain of the *until*-clause, *ni*-words are out in these constructions:

(73) *Ja podoždu poka {✓kto-nibud′ / *nikto} ne pridet.*
I will-wait until {✓who- NIBUD′ / NI-who NEG arrive
. 'I will wait until someone comes.'

Abels assimilates the ungrammaticality of the *ni*-word in (73) to (72b). The mechanism required for this to work is covert Neg-raising whereby, in a well-defined set of instances, negation can raise from its surface position and take a higher scope position at LF. Due to this LF Neg-raising, negation ends up in just the configuration that we witnessed in (72), namely, at LF it is too high to enter into a local licensing relationship with the *ni*-word in question. I return to the technicalities of covert Neg-raising in section 3.3. The point here is simply that there are syntactic alternatives to accounts that rely on positing expletive

negation, and that, to the extent that they are tenable and cover the data, accounts that do not employ the concept of expletive negation are to be preferred on grounds of theoretical simplicity.

In general, there is no clear consensus on what exactly is 'expletive' about seemingly spurious occurrences of negation. From a semantic perspective, negation that does not alter the truth conditions of the clause it appears in is usually claimed to be expletive. In this sense, if the truth-conditions of the sentence differ depending on the presence or absence of negation, then this instance of negation cannot be considered expletive. For example, if it can be shown that *until*-clauses featuring negation have different entailments from their unnegated counterparts, then such examples would not be instances of expletive negation for sure. Whatever the case may be, we can only evaluate whether or not negation makes its 'usual' contribution in a particular construction if we know what interpretive effect we expect negation to contribute and how to diagnose that effect. In turn, the interpretation we can reasonably expect from negation depends on its syntactic position – both in surface syntax and at LF. Thus, I focus on this question below.

3.2 Against 'stativizing negation', 'expletive negation' and 'NPI-until'

In MacDonald & Ürögdi (forthcoming)[74], we outline a novel account of phenomena mentioned in the introductory section above, and which have been discussed under the labels *stativizing negation, expletive negation* and the licensing of *NPI-until* or *eventive until.* We argue that these concepts are theoretically undesirable as well as descriptively inadequate because (a) negation does not affect event structure, (b) duratives normally outscope negation (and thus cannot be NPIs), and (c) the properties ascribed to negation and/or *until* are observed in a wider variety of contexts (hence not lexical properties of either). Our account builds on the idea that *until*- and *for*-duratives take their scope in the topic field (outside TP-level operators) and can receive a contrastive interpretation on analogy with regular topics, yielding the *switch-reading.* As such, our account is a 'single-until' account in the sense that we do not posit lexical duplication of *until*. The account is also related in spirit to Abels's treatment of expletive negation since we attempt to derive 'special' properties of negation such as its apparent stativizing effect and interactions with *until*-phrases ('licensing' and 'switch-reading') from independently relevant facts like LF-scope and focus structure.

The structure of the discussion below is the following. In section 3.2.1, I show that negation does not affect event structure, and in section 3.2.2, I argue that in examples that have been claimed to feature 'NPI-until', negation is in fact outscoped by the durative, and thus cannot be considered a licensor in the usual sense. In section 3.2.3, I show that the effects that are observed with *until*-clauses obtain with *for*-clauses equally, and that these effects are not related to the presence of negation in any relevant way since they also occur in the presence of *only*-focus, prosodically marked focus, and universal quantification. 3.2.4 discusses the implications of our account for the *until*-debate, and leads back to Hungarian *until*-clauses.

[74] Most of the discussion in section 3.2 comes from MacDonald & Ürögdi (forthcoming), with modifications only where the current discussion requires.

3.2.1 Negation does not stativize

Durative adverbials are generally taken to be incompatible with telic predicates, as shown in (74):

(74) John arrived #for an hour/#until 3PM.

Interestingly, as de Swart (1996), Krifka (1989), Mittwoch (1977), Verkuyl (1993), among others, observe, in the presence of negation, these duratives become compatible with telic predicates – and this property holds the same way for 'for' and 'until' adverbials:

(75) John didn't arrive for an hour/until 3PM.

Recall from the discussion of *until*-constructions that examples like (75) with *until* have been at the center of the debate on the interaction of negation and *until*, with one camp claiming that this is an instance of expletive negation whose role is to license 'NPI-until' and the other camp arguing that negation here stativizes the punctual predicate *arrive*, rendering it compatible with a durative like *until*. Notably, the first explanation has, to the best of my knowledge, not been proposed for *for*-phrases, so no account has been put forward arguing that *for*-phrases are NPIs despite the fact that the two kinds of duratives behave more or less identically in every relevant respect, as we will see in what follows.

In event structure literature, one approach to the role of negation in (75) is that it turns eventive predicates into stative predicates (see Swart 1996 and Verkuyl 1993). Support for *stativizing negation* builds on Dowty's (1979) observation that stative predicates are true down to instants; i.e., they have the subinterval property. For example, if John owned a house for 3 months, it is true for any instant of those 3 months that John owned a house. The same holds for the negated predicate in (75): for any instant of the period of 10 minutes/until 2PM it is true that John didn't arrive. As I discuss above for *until*-constructions, the so-called stativizing effect of negation has been utilized in order to explain the compatibility of *until*-phrases with punctual predicates without having to posit two different kinds of *until* (see Mittwoch 1977).

However, convincing arguments have also been presented – both in event structure literature and works dealing specifically with *until* – that negation does not "stativize" the predicate or affect event structure in any way (see a.o. Csirmaz (2009), Giannakidou (2002), Karttunen (1974)). Putting a new spin on arguments attempting to derive the relevant facts without positing stativizing negation, MacDonald & Ürögdi (2009a,b, forthcoming; henceforth M&Ü) argue that (75) features neither 'stativizing negation' nor 'expletive negation' acting as a licensor for the *until*-phrase. Before going into the details of the account, let me go through some simple arguments to show that, in a literal sense at least, negation does not stativize.

To start, observe a well-known contrast between eventive and stative predicates in the present simple in English in (76):

(76) a. #John drops the book.
b. John owns a car.
c. #John doesn't drop the book.

The eventive predicate in (76a) is only felicitous on a habitual interpretation, hence the infelicity of (76a) out of the blue. In contrast, statives do not require a habitual interpretation to be felicitous, as illustrated in (76b). As Csirmaz (2006, 2009) observes, when the eventive is negated, as in (76c), it is still only felicitous on a habitual interpretation, which is unexpected if negation creates a state out of eventives, since in this case we would expect a negated eventive to pattern with statives, which is not the case.

Consider another contrast between statives and eventives in the advancement of the action of the narration (Kamp & Reyle 1993):

(77) Joan glanced at her car.
i. *She took a picture.*
ii. *She was happy.*

The eventive in (77i) advances the action: it is understood that the picture is taken after glancing at the car. In contrast, the stative in (77ii) does not necessarily advance the action; that is, being happy can co-occur with glancing at the car. As Kamp & Reyle (1993) and Csirmaz (2006, 2009) observe, negated eventives pattern like their non-negated eventive counterparts in that they advance the narrative in the same way:

(78) Joan glanced at her car. *She didn't take a picture.*

If negation did turn eventive predicates into stative predicates, we would not expect this advancement of narration but it should be possible to understand the negated eventive as simultaneous with the first event.

Based on such examples (and others not cited here), M&Ü conclude that, at least in a literal sense, negation does not 'stativize', leaving the availability of durative adverbials with negated eventive predicates without an explanation. Or rather, the fact that negation does not actually create states out of eventives suggests that the generalization made about examples like [John didn't arrive until 5] is misguided, and needs to be re-examined. One option is to revert to the 'NPI-until' analysis and assume that negation in these examples is expletive, and is only present in order to license the until-phrase. Apart from the obvious problems (the fact that we need to posit not only two *until*'s but also two *for*'s, given that *for*-adverbials are also licit with negated eventives), this position is untenable also because of other reasons. Namely, arguments can be provided that negation actually scopes under the duratives in these cases.

3.2.2 The HighDur effect: duratives scoping over negation

Karttunen (1974) and Mittwoch (1977, 2001) observe that negation and durative adverbials scopally interact, so in many cases they take scope freely with respect to each other. Consider the sentence in (79):

(79) John didn't sleep for an hour/until 3PM.
  i. Dur > Neg: there was a period of an hour/up to 3PM of no sleeping by John
  ii. Neg > Dur: John slept less than an hour/until a time before 3PM (or possibly didn't sleep at all)

The predicate in (79) is atelic, and there are two interpretations depending on whether negation scopes over or under the durative. Now reconsider the datum from (75): the duratives are compatible with the predicate *arrive* in the presence of negation, but only one of these two scope relations is available:

(80) John didn't arrive for an hour/until 3PM
  i. Dur > Neg: there was a period of an hour/up to 3PM of no arrival by John
  ~~ii. Neg > Dur: John arrived for less than an hour/until a time before 3PM~~

Only when the durative scopes over negation is there an available interpretation; this is what M&Ü label the HighDur effect or HighDur reading, a label that I adopt here. For now, let us take it simply as a descriptive observation that in the configuration we are interested in – the combination of a negated eventive and a durative adverbial – the durative scopes higher than negation. Mittwoch (1977) takes this as evidence that negation stativizes, since it combines with the predicate first, and only this negated (i.e., in her terms 'stativized') predicate can combine with the durative. M&Ü argue, however, that – in addition to the fact that negated eventives do not pattern with statives – the original observation, namely that punctual predicates cannot felicitously combine with durative adverbials, is also misleading and should be reevaluated. They show that the fact that the durative cannot combine first in examples like (80) is arguably because the particular telic predicate *arrive* disallows an iterative interpretation. Consider the two telic predicates in (81):

(81) a. #John arrived for an hour / until 3 PM.
  b. John missed a note for an hour / until 3 PM.

(81a) cannot be interpreted iteratively because it is pragmatically odd to arrive repeatedly for a period of time without contextual support. On the other hand, repeatedly missing the same note requires little contextual help (as it is easy to imagine the relevant situation), thus an iterative interpretation is readily available for (81b), and the durative is compatible without any problems. As expected, with *miss a note* negation and the durative show the same scopal interaction observed with atelic predicates, as shown in (82):

(82) John didn't miss a note for an hour/until 3PM.

i. Dur > Neg: there was a period of an hour/up to 3PM of no note missed by John

ii. Neg > Dur: John missed a note for less than an hour/until a time before 3PM (or not at all)

Based on examples like (82), it appears that the 'free scopal order' of duratives with respect to negation is more general, and available regardless of the telicity of the predicate. That is, negation need not stativize for the HighDur reading to obtain. Rather, with certain predicates (namely, eventives that do not allow an iterative interpretation) one scope relation is not felicitous – but this is due to the pragmatics of 'arrival', and not to the syntactic requirements of the durative, which can happily combine with a telic predicate (as shown in (81b)). Therefore, based on the arguments in the previous section that negated eventives do not actually become stative, and on the fact that we do not need to posit a stativizing effect of negation in order to explain the compatibility of durative adverbials with eventive predicate, M&Ü conclude that we can safely eliminate 'stativizing negation' from the theory, and set out to explore the scope relations in (81a-b). Another outcome of the reasoning above is that we have no evidence for positing 'eventive' and 'durative' *until* as two separate lexical items since *until* can combine with eventives and duratives equally.

The first question is: when the durative outscopes negation, how does this happen and where exactly does the durative take scope? To start, *for* and *until* duratives clearly take scope outside *v*P. In this respect, they are H(igh)-duratives, and as we will see, they contrast in several respects with L(ow bare)-duratives (e.g. *an hour*). First, observe that L-duratives are compatible with atelic predicates:

(83) a. John slept an hour.

b. John swam 10 minutes.

Nevertheless, as Morzycki (2004) points out, unlike H-duratives, L-duratives can only be interpreted under negation, illustrated in (84), so the variable scope we saw in (79) does not obtain:

(84) John didn't sleep an hour.

~~i. *L-Dur* > Neg: there was a period of an hour of no sleeping by John~~

ii. Neg > *L-Dur*: John slept less than an hour (or not at all)

Observe that even with negation L-duratives are not compatible with a telic predicate that cannot be interpreted iteratively (Csirmaz 2006):

(85) a. *John didn't arrive an hour.

b. John didn't arrive for an hour

These facts suggest that H-duratives are structurally higher than L-duratives (see also Morzycki 2004). Why should H-duratives be high in the structure, outscoping predicate negation, and L-duratives obligatorily low? M&Ü posit that H-duratives are referential in nature, identifying a subinterval of the reference time, while L-duratives are predicative in nature, measuring the run time of event (Morzycki 2004, Csirmaz 2009). First, observe that H-duratives allow deictic modification, while L-duratives do not:

(86) John danced #(for) those thirty minutes.

Second, the subinterval of time identified by H-duratives must be a contiguous stretch of time, while this is not the case for L-duratives. Consider a context in which studying took place yesterday afternoon from 12 to 1 and from 4 to 5. In this context, (87a) with the H-durative is infelicitous, while (87b) with the L-durative is perfectly fine.

(87) a. #John studied for 2 hours yesterday afternoon.
b. John studied 2 hours yesterday afternoon.

Note, moreover, that the contiguous subinterval interpretation is the only one available in the presence of negation, illustrated in (88).

(88) The guests didn't arrive for two hours.

In the context of a party (whose duration provides the reference time), (88) cannot be uttered when there are two one-hour stretches of time, one at the beginning and one at the end of the party, during each of which no guests arrived. It can only be uttered when there is a contiguous two-hour stretch with no arrivals. Moreover, this contiguous stretch typically contrasts with a distinct stretch of the same reference time, shown by the continuations of (88) in (89).

(89) a. … so we closed the doors and turned off the lights.
b. … but then they started pouring in.

I return to the nature of the contrastive reading on the durative below. What is important now is that the interpretation we see here is typical of referring expressions in the topic field: they take their reference from a contextually or explicitly defined set of relevant objects, here, (stretches of) time.

M&Ü conclude that the HighDur effect is simply a scope configuration, requiring no auxiliary explanations. We now turn to a more precise syntactic and semantic characterization of this construction.

3.2.3 HighDUR effect not specific to negation and *for/until*

Recall the implications of M&Ü's analysis for *until*-constructions. The results shown above are incompatible with both the 'expletive negation/NPI-until' and the 'stativizing negation' types of analyses. Negation cannot be claimed to license these duratives since the HighDUR effect is a configuration in which the durative outscopes negation. It has also been shown that the ungrammaticality of (74) is not due to the predicate's telicity because telic predicates that lend themselves to an iterative interpretation do not require negation to be combinable with a durative (e.g. *miss a note*). I now present M&Ü's semantic proposal, which is compatible with the HighDUR configuration, and accounts for the contrasts in (81) as well as the 'switch-reading' observed with these constructions – without reference to stativizing or expletive negation. The main point of this section is to show that explanations building on special properties of negation or lexical features of *until* or duratives in general cannot be on the right track primarily because the particular interpretation associated with the interaction of negation and *until* actually obtains in a much wider set of contexts.

It has been noted that, in addition to negation, *only* focus can also 'license' duratives with eventive predicates (i.e., yield the HighDUR effect) (see Csirmaz 2006, 2009). Consider (90).

(90) a. Only JOHN arrived for an hour/until 3PM.
b. John only locked the DOOR for a week/until yesterday.

While (90a), for one, clearly does not favor an interative reading, 'only' may share some properties with negation (see, e.g., Heycock 2005), possibly suggesting an account of (90) in terms an element of negation in this operator (cf. Csirmaz 2006). Interestingly, however, unmarked (prosodically marked) focus (91a), universal quantifiers (91b), and *exactly* numerals (91c) also give rise to the relevant scope configuration:

(91) a. John locked the DOOR for two weeks / until last night.
b. Everyone failed the test for two weeks / until last week.
c. (Exactly) five students came to my office hours for a year / until last week.

Negation is clearly not useful in explaining these facts, as these environments are not usually assumed to involve negation on any level (syntactic or semantic), and appealing to the subinterval property of the event description is also not going to help.[75] In (91a), for example, it is not the case that at every instant of the two-week period/until last night, John locked the door. Rather, we need to look at *relevant situations* occurring during the two week period/until last night and then ask if 'John locked the door' is true at that situation. Dowty (1979: 82-83) observes the importance of such *relevant situations* in the interpretation of *for*: he claims they are "both vaguely specified and also contextually determined", as illustrated in (92).

[75] Some of the data in this section contradicts Csirmaz's (2006) observations. M&Ü comment on this by saying that the reason for this discrepancy may be that Csirmaz failed to take into account the effects of focusing in her examples.

(92) a. John has been working in San Diego for the last five years. He usually spends his weekends at the beach.

b. #John has been serving his prison sentence for the last five years. He usually spends his weekends at the beach.

Since the workweek (typically) excludes the weekends, one can work in San Diego and still spend weekends at the beach, in contrast to the normal state of affairs for prison sentences. So 'for the last five years' is evaluated differently in the two cases. In the case of the HighDUR effect configuration, M&Ü propose that these relevant situations are not actually vaguely specified but are provided by the information structure of the sentence. For example, consider cases of unmarked (i.e. prosodically marked) focus. The information structure of the sentences in (93) is such that the focused element provides salient alternative scenarios, while the presupposition gives us the relevant situations where the proposition is evaluated.

(93) a. John locked the DOOR for a month.

- presupposition: John locked something → relevant situation *s*
- assertion: John locked the door → event *e*

'For a month, each time John locked something, it was the door (and not, for example, the front gate or the window).'

b. John LOCKED THE DOOR for a month.

- presupposition: John did something (i.e. took safety measure) → relevant situation *s*
- assertion: John locked the door → event *e*

'For a month, each time John did something relevant (e.g. took a safety measure), he locked the door.'

c. JOHN locked the door for a month.

- presupposition: someone locked the door → relevant situation *s*
- assertion: John locked the door → event *e*

'For a month, each time someone locked the door, that someone was John (and not, for example, his assistant).'

At each relevant situation, different for each sentence in (93a-c) due to different presuppositions, there must be a door-locking event by John for the sentences to be true. A very basic semantic formalization of the HighDUR configuration based on these facts is provided in (94).

(94) for/until i ($\exists e \, \forall s \, [s \rightarrow e]$)

There is a relevant situation *s*, determined by the presupposition, which mediates between the contiguous subinterval of the reference time *i*, identified by the H-durative, and the event *e*, denoted by the predicate, such that whenever *s* takes place *e* takes place.

Now consider other operators. The classically problematic examples involve negated and non-negated eventives, where M&Ü claim that the difference in acceptability comes down to whether or not the semantic structure in (94) is feasible. Contrast the examples (95-97) below.

(95) a. John didn't arrive on time for a month / until yesterday.
'For a month / Until yesterday, every time John arrived, his arrival was not on time.'
b. John arrived on time for a month / until yesterday.
'For a month / Until yesterday, every time John arrived, his arrival was on time.'

(96) a. # John arrived for a month / until yesterday.
'For a month / Until yesterday, every time John did something relevant, it was arrive.'
b. John missed a note for a month / until yesterday.
'For a month / Until yesterday, every time John did something relevant, it was miss a note.'

(97) John didn't arrive for a month/until yesterday.
'For a month / until yesterday, at every relevant moment John did not arrive at that moment.'

In (95a) and (95b) both, 'on time' is the focus of the sentence and the relevant situations are 'arrivals by John', as indicated in their paraphrases. This interpretation is available independently of negation, since negation here scopes over 'on time', and there is no negation in the (b) example; this also shows that there is nothing in the telicity of 'arrive' per se that precludes it from combining with a durative (i.e., 'arriving on time' is just as telic as 'arriving'). Now, the infelicity of examples like (96a) appears to be the pragmatic difficulty in determining the relevant situations for evaluating the truth of the predicate. M&Ü suggest that since there is no clear presupposition, the relevant situations default to every instant (DEI) of the stretch of time identified by the durative. Thus, there is only the pragmatically odd interpretation that John arrived at every instant for a month/until yesterday. Observe that this DEI interpretation holds independently of negation since it is available for non-negated predicates as well, illustrated in (98).

(98) a. John sneezed for ten minutes straight.
b. John slept for an hour.

No DEI interpretation arises for (96b), however, since the relevant situations are readily available: John's attempt at playing the particular piece containing the note his misses. M&Ü also claim that the same DEI is playing a role in the presence of negation in sentences like (97) as well, such that no arrival by John holds at

every instant for a month/until yesterday. There is nothing pragmatically odd about this interpretation, and the sentence is fine. Additionally, this DEI interpretation is precisely what gives us the sense of expectation noted in the literature (Karttunen 1974). So, for example, in (99) below, there is an understanding that John could have arrived at any moment of the subinterval denoted by the HighDUR. M&Ü propose that this is because of the DEI interpretation.

(99) John didn't arrive for an hour/until midnight.

When it comes to universals[76], there is a gradation of acceptability based on how easy it is to deduce the relevant situations *s*:

(100) a. ?? Everyone arrived for two weeks / until last week.
b. Everyone arrived late for two weeks / until last week.
c. ?? Everyone took the test for two weeks / until last week.
d. Everyone who came to apply for a job here took the test for two weeks / until last week.
e. Everyone failed the test for two weeks / until last week.

In the unmarked examples (b,d,e), the relevant situations are either given by the presupposition generated by focus (b: arrivals), or through the restriction on the quantifier (d: applying for a job), or via the lexical meaning of the verb (failing the text requires taking the test). In the latter case, it is possible to argue that there is a silent restriction on the quantifier that is easy to reconstruct from the verb's meaning. In (a,c), however, we need an adequately salient context to come up with the relevant situations. In (100a), the context might supply a restriction on the quantifier (e.g., 'everyone who went on a daily dangerous mission threatening their arrival'), while in (100c), we either need alternatives to 'test' (which is difficult) or a restriction on the quantifier (which is provided explicitly in (100d) and implicitly in (100e). This explains the contrasts noted in (100) straightforwardly.

Turning to more complex cases, sentences with *exactly+numeral* (marked ungrammatical by Csirmaz 2006) also require evaluation at (a) relevant situation(s):

(101) (Exactly) one student came to class for a year / until last week.

This case is analogous to the focus examples: what has to hold is that at every relevant situation *s* (whenever someone came to office hours -- regardless of whether it was once or on multiple occasions), it must be exactly one (i.e. the same) student who showed up.

[76] Thanks to Chris Piñón (p.c.) for discussions of these examples.

Based on the discussion above, the M&Ü proposal can be summarized as follows. HighDURs denote a subinterval *i* of the reference time during which there is a set of relevant situations *s* determined primarily by the presupposition (introduced by focus or quantification, and mediated in part by context and pragmatics) at which the assertion is said to hold exhaustively. When there is no clear presupposition, relevant situation *s* defaults to all instants of the subinterval i. On this view, the unacceptable examples like [#John arrived until 5] constitute the marked case, since they represent environments where the construal of an interpretation is exceptionally difficult. There is no principled reason, however, to expect telic predicates to be incompatible with duratives, or for negation (or stativity) to be required. Thus, the contrast between (74) and (75) is misleading and misinterpreted in much of the literature.

3.2.4 Implications for the *until*-debate

Finally, returning to the *until*-debate, let us see what the implications are for this discussion. To recap, there are two competing analyses trying to account for the contrast in (102):

(102) a. John didn't arrive / * arrived until 3 PM.
b. John didn't sleep / slept until 3 PM.

On one hand, it has been suggested that *until* is compatible with telic predicates only in the presence of negation because there is separate lexical item *until* which is eventive and an NPI (the other *until* being durative) (e.g. Condoravdi 2008, Giannakidou 2002, Karttunen 1974). While it is unclear why eventivity and NPIhood should go together, this line of analyses does eliminate the need for stativizing negation. On the other hand, 'single-until' accounts (e.g. Mittwoch 1977, 2001) argue that there is only one *until* which can only combine with durative events – hence, negation is required to stativize eventives in order to make them compatible with an *until*-phrase.

As shown by M&Ü, both accounts incur problems in the face of the discussion above. There is no motivation for 'NPI-*until*' since the HighDUR effect holds without negation, as noted above for unmarked focus (91a), universal quantifiers (91b), and *exactly* numerals (91c). *Until* is also licensed in neutral contexts with an iteratively interpreted eventive (81b), thus, in contexts where no operator element is present in the structure (especially not one that can be claimed to implicate negation somehow). Moreover, I have shown above that duratives outscope negation in the relevant environments, so it is unclear how NPI-until would be licensed anyway in this configuration. Lastly, *until* patterns exactly like *for* in the relevant respects, and *for* has not been claimed to be an NPI in the literature. With respect to scope relations, M&Ü's account finds itself closer to the 'single-until' line of accounts since the two share the insight that negation is within the scope of the durative in examples like the grammatical (102a). However, there is ample evidence (here and in papers cited above) that negation does not actually stativize. Furthermore, the other environments (focus,

universals, iteratively interpreted telics) present a problem here as well because these environments cannot be claimed to involve stativity in any form.

Therefore, the implication of M&Ü's account for the *until*-debate is that there is only one *until*, which is not an NPI and has no special properties in comparison with *for*. It is simply a high-scoping durative, receiving its interpretation in the referential (topic) field of the sentence, hence outside negation. A question that remains to be answered (and which, in fact, is left open by single-until accounts in general) is how the so-called switch-reading illustrated in (103) comes about:

(103) John didn't arrive until 2PM/Sunday.
> *John arrived at 2pm/on Sunday*

The proponents of NPI-*until* have attributed this effect to the lexical item itself, which would then have three special and apparently unrelated properties: eventivity, NPIhood, and the switch-reading. The 'expletive' nature of negation (solely an NPI-licensor) is supposed to be supported by the switch-reading (so, on this view, (103) actually *means* the implicature below, i.e. in [John didn't arrive] negation is inert and does not affect the truth conditions). Discarding the NPI-*until* analysis clearly leaves open the question of how to account for the switch-reading. M&Ü propose that the reading is actually a straightforward result of the high durative being interpreted as a contrastive topic. Note the parallel interpretations of the two constructions:

(104) Classic contrastive topic construction (cf. Büring 2003)
A: What did you buy in the city?
B: On 59th street I bought SHOES.
Alternative: in other locations *Alt.: other things*
> In some other location I bought something other than shoes.

(105) John didn't arrive until 9.
Until 9 NO John arrive
Alt.: at or shortly after 9 *Alt.: YES*
> At or just after 9, John did arrive.

In the topic field, H-duratives can get a contrastive reading[77], such that the alternative introduced by the H-durative is the portion of the reference time not covered by the H-durative: the introduction of alternatives

[77] While seems clear that HighDurs in fact pattern with topics semantically, in terms of syntax, M&Ü offer no arguments to show that these duratives scope not only outside *v*P (as shown above) but also outside TP. In particular, it is an interesting question where HighDurs are positioned with respect to D&UE's reference time and assertion time. While I do not have much to say about this here, a potentially enlightening route of investigation would be to see if and how such high duratives create intervention effects. It appears that they are highly marked in factive complements, for example, when they are fronted but acceptable in situ:

derives the entailment that the event "actualizes" (in (105) that John arrives). In the case of *until,* the remainder of the reference time ends at or shortly after the time point in the *until*-phrase, hence the strong intuition that the 'switch' between John being away and John arriving has to take place at or shortly after 9. This view is supported, once again, by the fact that the switch-reading obtains in all relevant environments – with *for* as well as *until,* and with operators other than negation in a similar fashion:

(106) Only John arrived / Everyone failed the test **until last week**.

(107) A: What happened at the party?
B: For two hours / Until about midnight, only John arrived.
> There were other relevant time periods when others arrived.

Given the parallels with contrastive topic constructions, as well as the observation that duratives in the relevant construction scope higher than negation, M&Ü conclude that the switch-reading is a derivative of the focus structure of the construction at hand[78], and does not justify the introduction of a separate lexical item (a separate *until*) or a special (expletive) kind of negation. M&Ü's account is not the first one to tie the

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(i) ??I resent that, until 5 John didn't arrive.
(ii) I resent that John didn't arrive until 5.
The non-fronted example in (ii) is perfect even with the switch-reading, which – according to M&Ü – requires a contrastive reading on the durative. While this might indicate that the relevant LF scope-position is lower than TP (where the event relative operator is supposed to start out), this may not be a conclusion we can draw from these facts because, as shown in (iii-iv), in situ focus also does not create intervention in English:
(iii) ??I resent that MARY John likes.
(iv) I resent that John likes MARY (and not JILL).
While (iii) is only acceptable with a strong contrastive reading on the complement clause (which, as argued in Chapter 1, results in featural enrichment of the operator), (iv) is fine with a neutral interpretation of the complement. As such, in situ elements (whether raised at LF or assuming scope via a different mechanism) are not interveners in English.

At this point, therefore, I do not have conclusive evidence to prove or disprove the idea that HighDurs take their scope and receive their interpretation in the topic field – so, I will assume that M&Ü's account is essentially right.

[78] A related issue, raised by Anikó Lipták in her review, is why *until*-phrases cannot be focused in sentences featuring negated eventives. Observe the following example from Hungarian:

(i) János HÁROMIG aludt / *nem érkezett meg.

As (i) shows, the focusing of the *until*-phrase is fine with a durative predicate but not so good with a negated eventive. While I do not have a definitive answer to this question, the issue seems related to the fact that the switch-reading appears to be obligatory (or at least highly preferred) with negated eventives while it is optional with duratives:

(ii) a. I won't take a break until 5.
b. I'll (definitely) be working until 5 (and will probably continue after that as well).

If this generalization is correct, this would mean (on the account I propose here) that the *until*-phrase in (a) is obligatorily high up (in contrastive topic position), and thus it is higher than the focus position and cannot be focused. Why this correlation should hold, though, and whether it is absolute (or simply a preference) is unclear. One way to think about it is that the correlation actually holds in the opposite direction: *until*-phrases must take scope over TP but if there is negation in the sentence, the *until*-phrase must be an operator (i.e., contrastive) in order to escape the island created by negation. Hence, *until*-phrases that are raised over negation are always contrastive, while *until*-phrases that are raised out of non-negated VPs can be simply adjoined to TP or extracted in a similar fashion.

switch-reading to focus structure: e.g., Giannakidou (2002) notes that this special reading appears connected to focusing since in Greek, for example, so-called NPI-*until* is actually a focus particle; Declerck (1995) claims that 'not-until' is actually a different lexicalization of 'only-at'; and Mittwoch (2001) suggests that 'not-until' in English is on its way to becoming a focus particle. A shared drawback of these earlier accounts, however, is that they all relate these focus properties to the lexical items of negation and *until* in some way, which simply misses the broader generalization that the contrastive topicalization of any durative will yield this reading, independently of the presence or absence of negation inside the clause, or the type of predicate present. Therefore, we can safely conclude that none of the auxiliary concepts that have been introduced to account for the 'special' properties of *until*-constructions (such as 'NPI-until', 'switch-reading', 'expletive negation' or 'stativizing negation') are required or desirable since some of the observations that these concepts are supposed to explain are wrongly formulated, while others can be explained without them. I now return to the discussion of Hungarian *until*-constructions, which I will attempt to treat in this spirit.

3.3 Three *until*-constructions in Hungarian[79]

In this section, I discuss how the conclusions of the previous section regarding *until*-constructions in English carry over to the analysis of the Hungarian data. In particular, I will start out from the assumptions that **a)** there is only one *until* in the lexicon, which takes one durative and one punctual argument (with the latter signifying the endpoint of the former), and **b)** there is no such thing as 'stativizing' negation (negation does not affect event structure) but rather, negation and duratives can take scope over each other, and when a telic predicate is in the scope of a durative, it must be interpreted iteratively. In what follows, I show that these simple assumptions, coupled with the structural distinction between temporal relativization (TR) and event relativization (ER) adverbial clauses, will be sufficient to explain the Hungarian patterns, which are more complex than the English ones due to the added complication of negation sometimes being present in the *until*-clause. Once again, though, I will argue that negation in *until*-clauses is not expletive (cf. Abels 2005) and is not a special kind of negation in any sense.

How many until's? As pointed out earlier, 'single-until' analyses typically rely on two key assumptions: (i) negation can influence aspect, in particular, a negated punctual predicate will be interpreted as durative; and (ii) various interpretational effects (semantic and/or pragmatic) result from scope relations between *until*, negation, and possibly other operators like focus. While I attempt to do away with assumption (i) above, the interpretation assigned to telic predicates in these constructions will still be a useful indicator of the scope relations in the sentence. As for (ii), I will suggest (following Abels (2005)) that the LF position of negation is what counts for semantic interpretation, and that focus is the crucial factor influencing the pragmatics. Let us now see how we can detect scope relations in the three variants repeated under (108).

[79] This section draws heavily on Ürögdi (2009) but the analysis is updated based on some recent research I have done on operator movements and scope relations in embedding constructions.

(108) a. *Itthon* *maradok,* ***ameddig*** *Emma* *haza-jön.*
home I-stay Dem-Wh-until Emma home-comes
b. *Itthon* *maradok,* ***ameddig*** *Emma* ***nem*** *jön* *haza.*
home I-stay Dem-Wh-until Emma Neg comes home
c. *Itthon* *maradok,* ***ameddig*** *Emma* *haza* ***nem*** *jön.*
home I-stay Dem-Wh-until Emma home Neg comes
'I'll stay home until Emma comes home.'

From the discussion in the previous sections, the reader may recall that I have argued for two different *distributions* of the suffix *-ig*. One instance of this suffix (patterning with the temporal relative class) occurs when the embedded clause features a durative (rather than punctual) predicate, for example:

(109) *Itthon* *maradok,* ***ameddig*** *Emma* *munkában* *van.*
home I-stay Dem-Wh-until Emma work-in is
'I will stay home as long as Emma is at work.'
(= 'Emma is at work until time t, and I'll stay until time t.')

In such cases, *-ig* forms a temporal relative clause, where the time periods covered by the embedded and the matrix events are in full overlap. The event relative use of *-ig* (as in (108a)), meanwhile, takes a time point (when the embedded punctual event takes place) and relates it to the duration of the matrix event, setting it as the endpoint of the latter. Schematic representations for these are as follows:

(110) a. **Temporal relative construction with *until* (cf. (109))**
[I will stay home [until t]$_i$ [Emma is at work [until t]$_i$]
b. **Event relative construction with *until* (cf. (108a))**
[I will stay home until t_i [t_i [Emma comes home]]]

At first glance, it seems that these two uses exemplify 'durative' and 'punctual' *until* since in (110a) the embedded clause must involve a durative or a stative in order to be felicitous (as the relativized element is the endpoint of the embedded eventuality), while in (110b) the *until*-clause must contain a punctual event (as the time specification of this event will constitute the endpoint of the time period described by the matrix clause). This, however, is not the right generalization. In fact, *-ig* – at least as far as the structures in (110) attest – always takes a durative event and a point in time as its two arguments. As suggested by (110a), a sentence like (109) involves relativization and thereby sharing of the endpoint of both events, resulting in a reading where the two periods overlap. Meanwhile, (110b) shows that the event relative use of the same

suffix (as in 108a) results in a structure where a durative/stative matrix clause and a punctual embedded clause can felicitously be connected.

This means that, so far, we have no evidence for positing two different kinds of *-ig* (durative and punctual) in Hungarian, despite the fact that the distribution of the suffix is clearly of two kinds so *-ig* can take either a temporal expression or an event as its punctual argument. Of course, (110a) is not the only possible structure that can be assigned to sentences like (109), which could also be analyzed as an event relative involving a different lexical item that is homophonous with the one used in (108a) and whose meaning mirrors that of English 'as long as'. Thus, so far we can only say that this pair of sentences *can* be analyzed without positing two argument structures for *-ig* (i.e., without lexical ambiguity). Still, if we were to abandon the structural difference between (108a) and (109), we would lose the explanation for why only the latter but not the former allows the 'low reading' to surface:

(111) a. **Temporal relative construction – Low reading is available**

Itthon maradok, ***ameddig*** *mondod, hogy Emma munkában van.*
home I-stay Dem-Wh-until you-say Comp Emma work-in is
HR: 'I will stay home as long as you are uttering the statement that Emma is at work.'
LR: 'I will stay home throughout the time for which you say Emma will be at work.'

b. **Event relative construction – Low reading is not possible**

Itthon maradok, ameddig mondod, hogy Emma haza-jön.
home I-stay Dem-Wh-until you-say Comp Emma home-comes
HR: 'I'll stay home until the time when you utter the statement that Emma is coming home.'
LR: *'I will stay home until the time for which you say it will be the time of Emma's arrival.'

Given the structures in (110), it becomes straightforward to account for the absence of the low construal in (111b): since this structure does not involve long operator movement, we do not expect the low reading to be available. If we were to hypothetically entertain an account of (111a) that posits an event relative derivation featuring a lexical item similar to the English 'as long as', this would leave the availability of the low construal in this example without an explanation. The importance of positing a single lexical item with uniform selectional properties will become even clearer below, when I discuss the derivation of (108c). So I now turn to the issue of negation in *until*-clauses in Hungarian.

The role of negation. First, we now turn to the negated example (108b) to see whether the 'single-until' approach can work here as well. In what follows, I will refer to this variant as the 'predicate negation' type, as this example features negation in its normal position, left-adjacent to the tensed verb, which is in turn followed by the verbal particle – in contrast to the Prt-Neg-V order in (108c). (I return to the issue of the word order difference between the two variants below.) As background to the discussion, it should be noted

that, just like in English, punctual predicates are normally compatible with adverbials like *egyszer csak* 'suddenly', while duratives do not easily tolerate such modifiers. Simple examples are given below:

(112) a. *János* *egyszer csak* *hasra-esett.*
John all-of-a-sudden on-stomach-fell
'All of a sudden, John fell on his face.

b. #*János* *egyszer csak* *magas* *volt.*
John all-of-a-sudden tall was
#'All of a sudden, John was tall.'

Actually, to be more precise, the only way a durative can be interpreted when combined with such a temporal modifier is if it can be taken to denote one instance in a series of occurrences (henceforth SoO), as in:

(113) *Minden magas gyerek átment egy másik iskolába.*
'Every tall kid transferred to another school.'
Aznap *a tornaórán* *János* *egyszer csak* *magas* *volt.*
that-day the P.E. class-on John all-of-a-sudden tall was
'That day in P.E. class, John was tall all of a sudden.'

Imagine a situation where kids are lined up according to height at the start of each physical education class. John, who is not very tall, is generally not considered tall at these line-ups, so he ends up standing somewhere down the line. On this day, however, with all the taller kids gone, he is all of a sudden evaluated as tall. This is, of course, a special interpretation that is not always available or preferred but it requires contextual help. I will not go into how this reading can be analyzed in terms of event structure, as this would lead this discussion too far off topic. The point is simply that, under special circumstances, durative (even stative) events can be modified by a punctual time adverbial, and this happens when some requirement dictates that only a punctual interpretation is acceptable. This means that punctual temporal modifiers like *egyszer csak* 'all of a sudden' do not lexically specify the type of predicate they can combine with. (See the analogous treatment of the combinability of duratives with telic predicates in M&Ü and above in the previous section.) Rather, the temporal specification of the eventuality in the scope of such a modifier must be a time point (rather than a time period), and to the extent that this is possible, the sentence is interpretable. Therefore, we can use this special SoO reading as a diagnostic to detect whether an eventuality (regardless of the type of predicate) is interpreted as describing a time point or a time period. First, observe that there is no difficulty in inserting 'all of a sudden' into the simple example where the embedded event is punctual:

(114) *A szobában* *beszélgettünk,* ***ameddig*** ***egyszer csak*** *kialudt* *a villany.*
the room-in we-talked Dem-Wh-until suddenly Prt-slept the light
'We talked in the room until, suddenly, the lights went out.'

This is less than surprising since in this case the embedded clause clearly features a punctual event. In this example, we are dealing with an event relative, where the two arguments of *until* are simply provided by the two eventuality descriptions in the two clauses, without any further complications, as discussed in the previous section with reference to the analogous example (108a). Now, let us look at a construction like (109) above – the one claimed to be a TR structure – in terms of modification:

(115) *A szobában* *beszélgettünk,* ***ameddig*** (***#egyszer csak***) *főtt* *a vacsora.*
the room-in we-talked Dem-Wh-until all-of-a-sudden cooked the dinner
'We talked in the room while dinner was cooking.'

As shown above for a simple example, the combination of 'all of a sudden' with a durative or stative is only possible with a special context and interpretation, where the atelic event can be taken to be one in a series of similar occurrences (the SoO reading). Accordingly, (115) can actually be made sense of in a context where, for example, we are talking in the room and keep popping into the kitchen to check whether the dinner is cooking in there. Through a series of such checking events, we always find that the dinner is not cooking, so we keep talking. Finally, it happens that we check the kitchen once more and find that the dinner is cooking, so we stop talking. On this special interpretation, (115) is actually acceptable.

Now recall that we predict that:

(a) when the embedded eventuality is non-punctual, we are dealing with a TR structure, and we have operator movement from inside the adverbial clause > hence, the low reading is available, and

(b) when the embedded eventuality is punctual, we are looking at an ER structure, with no long operator movement > hence, the low reading is not available.

Above we saw that, in the case when the embedded eventuality is durative or stative, the low reading is normally available. This means that this reading should become unavailable when the punctual interpretation is enforced on the embedded clause, and this appears to hold. Compare (116) below:

(116) **a. Temporal relative construction (embedded clause non-punctual) – Low construal OK**
A szobában *beszélgettünk,* *ameddig* *mondtad, hogy* *főtt* *a vacsora.*
the room-in we-talked Dem-Wh-until you-said Comp cooked the dinner
LR: 'We talked in the room until time t. You said that dinner was cooking until time t.'
HR: 'We talked in the room while you kept saying that the dinner was cooking.'

b. Event relative construction (embedded clause punctual) – Low construal out

A szobában *beszélgettünk,* *ameddig* *mondtad, hogy* *egyszer csak* *főtt* *a vacsora.*
the room-in we-talked Dem-Wh-until you-said Comp all-of-a-sudden cooked the dinner
LR: *'We talked in the room until time t. You said that dinner was suddenly cooking at time t.'
HR: 'We talked in the room while you kept saying that the dinner was cooking all of a sudden.'

What this shows is that in the (a) example the embedded event is not interpreted as punctual – and hence the structure is a TR structure and the low reading is available. Meanwhile, when we force the punctual interpretation on the embedded clause, the only available derivation is the ER derivation, and the low reading disappears. This enforces the structural difference between the two derivations for adverbial clauses, since the contrast above requires reference to the type of temporal modification that is available in a certain context. Whenever punctual modification is present, the event relative use of *until* becomes the only possible option, and this is supported by the absence of the low reading in this construction.

Now let us see what happens in the 'predicate negation' variant (108b), illustrated once again below:

(117) **Examples of the 'predicate negation' type of until-construction**

a. *Itthon* *maradok,* ***ameddig*** *Emma* ***nem*** *jön* *haza.*
home I-stay Dem-Wh-until Emma Neg comes home
'I will stay home until Emma comes home.'

b. *A szobában* *beszélgettünk,* ***ameddig*** ***nem*** *aludt* *ki* *a villany.*
the room-in we-talked Dem-Wh-until Neg slept Prt the light
'We talked in the room until the light went out.'

c. ***Ameddig*** ***nem*** *zárul le* *a választás,* *tovább* *él* *a kampánycsend.*
Dem-Wh-until Neg closes Prt the election further lives the campaign silence
'Until the elections are closed, the campaign silence [ban on campaigning] remains in effect.'

d. ***Ameddig*** ***nem*** *szólok be* *nektek,* *ti* *se* *tegyétek!*
Dem-Wh-until Neg I-tell Prt you-Dat you-pl neither do-2nd sg-Imp
'Until I insult you, you should not do it [insult me] either.'

Examples (a) and (b) above are constructed while (c) and (d) are attested examples. As mentioned in the introduction to this section, native speaker intuition about these examples is that they feature two simultaneously ongoing situations – e.g. in (a) above, the time period of staying home coincides with the time period of Emma not coming home, or in (b) the time of talking in the room matches the time during which the light is not out (i.e., while it is on). In this sense, these examples are analogous to the non-negated (109) featuring a durative in the embedded clause. As such, the prediction is that the structure of these examples is temporal relativization, as illustrated in the simplified structure in (118):

(118) a. **Temporal relative construction with *until* (cf. (109))**
[I will stay home [until t]$_i$ [Emma is at work [until t]$_i$]

b. **Temporal relative structure with an *until*-clause featuring predicate negation (cf. (108b))**
[I will stay home [until t]$_i$ [Emma does not come home [until t]$_i$]

There are two things that I want to briefly note about the structure in (118b). Firstly, the embedded clause closely resembles English examples like [Emma didn't come home until 5.] in that it features negation of an eventive predicate, and we have the *until*-phrase raising over negation to the left periphery of the embedded clause (in this case, in a form of *wh*-movement). Second, in contrast to the English examples, this construction in Hungarian does not result in the 'switch reading' (unlike the construction in (108c), featuring the unorthodox Prt-Neg-V word order, which I return to below). (117d), for example, carries no implication that the speaker has the intention of ever insulting the listeners. Rather, the natural interpretation is one where (s)he is civil to the listeners and is asking them to reciprocate with similar behavior. This means that the switch reading is not a direct result of negation being present in the relevant clause, and not even a simple derivative of *until* outscoping negation. Rather, what is required is a contrastive reading on the *until*-phrase, which does not obtain in examples like (118b) since the *until*-phrase raises because it is relativized, not because of contrastive topicalization that M&Ü posit in English. In fact, we do not expect contrastive topicalization to be allowed inside *until*-clauses in the default case. I return to the availability of the switch reading in Hungarian below, after the discussion of the predicate negation variant at hand.

If this is correct, we expect the low construal to be available for this type of construction, and it is:

(119) **Temporal relatives with *until* – Low construal is available (with or without negation)**

a. *Itthon* *maradok,* ***ameddig*** *mondtad,* *hogy* *Emma* *munkában* *van.*
home I-stay Dem-Wh-until you-said Comp Emma work-in is
LR: 'You told me that Emma will be at work until time t. I will stay home until time t.'

b. *Itthon* *maradok,* ***ameddig*** *mondtad,* *hogy* *Emma* ***nem*** *jön* *haza.*
home I-stay Dem-Wh-until you-said Comp Emma Neg comes home
LR: 'You told me that Emma will not come home until time t. I will stay home until time t.'

In the examples above, the high reading has been excluded by the choice of verb tense in the middle clause in order to keep the examples simple. What we see, then, is that the negated eventive in the (b) example behaves the same as the stative in (a) in that it clearly makes the temporal relative construction possible, given that we take the availability of the low construal as indicative of long operator movement.

It would seem, then, that we have found evidence for the stativizing effect of negation, since negation appears to create a suitable non-punctual argument for *until* in the embedded clause (with its punctual

argument being the endpoint that is relativized in the construction). Recall, however, that the discussion of English *until*-constructions has shown that this effect is only apparent. Rather, when we have a negated eventive combining with durative modification (or, more precisely, in a configuration that enforces a durative interpretation, as in the durative complement of *until*) the interpretation defaults to every instant of the reference time, and we understand the example to mean 'Until time *t*, in every instant it was true that X didn't happen.' Meanwhile, M&Ü also show that durative modification does not in fact require the presence of negation with an eventive predicate, as on an iterative interpretation most telic predicates are fine with a durative temporal modifier. Duratives simply define the temporal dimension of the eventuality that is composed by the different elements (verb, arguments, operators) in the clause, and to the extent that the two can be made pragmatically compatible, the sentence will receive an interpretation. If this is true, then the same temporal relative structure should be available with a non-negated eventive predicate as well, as long as it is iteratively interpreted (120a) and this structure should also make the low reading possible (120b):

(120) **Temporal relativization with *until* and an interatively interpreted eventive predicate**

a. *Izgultam a meccsen, ameddig Emma (folyton) hibázott.*
I-worried the match-onDem-Wh-until Emma constantly made-mistakes
'I was worried at the match while Emma kept making mistakes.'

b. *A nézők izgultak, ameddig mondtad, hogy Emma (folyton) hibázott.*
the spectators worried Dem-Wh-until you-said Comp Emma constantly made-mistakes
HR: 'The spectators were worried while you kept saying that Emma kept making mistakes.'
LR: 'The spectators were worried until time t. You said that Emma kept making mistakes until time t.'

To the extent that complex examples like (120b) can be judged reliably, it seems to be the case that – if the iterative interpretation can be accessed – the low reading does become available even with a telic predicate, showing that the structure is a TR structure. This, once again, means that the choice between ER and TR does not directly correlate with the type of predicate featured in the *until*-clause. Rather, the two structures are freely available, and are interpreted whenever the reading dictated by the combination of *until,* negation or other operators and the predicate type is comprehensible.

Now, similarly to the other TR structures, the ones involving negation also do not easily admit modification by a punctual adverb. This is because the embedded clause is supposed to provide the durative argument of *until* (with the punctual endpoint argument being relativized). However, punctual modification is marginally possible on the more marked, series of occurrences (SoO) reading discussed above:

(121) *A szobában beszélgettünk,* ***ameddig*** (***#egyszer csak***) ***nem*** *aludt ki a villany.*
the room-in we-talked Dem-Wh-until all-of-a-sudden Neg slept Prt the light
'We talked in the room as long as (#all of a sudden) the lights didn't go out.'

Once again, the usual interpretation here is that the period of the lights not going out (i.e., being on) coincides with the period of talking in the room, and on this reading the punctual modifier is not possible for obvious reasons. When we do get the punctual reading (in a series-of-events context), the modification is acceptable, for example in a situation where, during our conversation in the room, one of us keeps switching the light on and off. When this person turns the light switch off, the lights go out. At one point, however, the switch breaks and the lights stay on. At this point, we stop talking (due to surprise, for example). As unlikely as this scenario is, it is possible to construct this context, and on this reading the punctual modification is possible. This, however, means that on this reading the embedded event is interpreted as punctual, and thus the structure must be an ER structure – and we should lose the low reading:

(122) *A szobában* *beszélgettünk,* *ameddig* *mondtad,* *hogy* *egyszer csak*
the room-in we-talked Dem-Wh-until you-said Comp all-of-a-sudden
nem *aludt* *ki* *a villany.*
Neg slept Prt the light
HR: 'We talked in the room while you kept saying that the lights all of a sudden did not go out.'
LR: *'We talked in the room until time t. You said that at time t the lights suddenly did not go out.'

As predicted, when we enforce a punctual reading on the most deeply embedded clause, the low construal becomes quite bad, evidence that this requires a derivation by event relativization.

The discussion above shows that there is a clear correlation between (a) the punctual vs. non-punctual interpretation of the complex eventuality (meaning: the denotation of the predicate combined with various modifiers and operators) inside the *until*-clause, and (b) the availability of the low reading, which I take to be indicative of the structural distinction between event relativization vs. temporal relativization. If this is so, then it is in fact possible to account for the non-negated ER (as in (108a)) and the 'predicate negation' TR (as in (108b)) variants in the Hungarian pattern without positing two kinds of *until*. We can make do with one *until* with a single selectional grid (taking one punctual endpoint and one non-punctual complement, where 'non-punctual' is taken to refer not to the type of predicate, as discussed above, but to the temporal specification of the event or series of events depicted in the given clause). So far, the picture presented can be summarized as shown in the following table:

(123)

Example number	Argument structure of *until*		Syntactic structure	Availability of low reading
	Time period	**Endpoint**		
Itthon maradok, ameddig Emma munkában van.				
(109)	matrix clause	endpoint of the embedded event through relativization	TR	yes
Itthon maradok, ameddig Emma hazajön.				
(108a)	matrix clause	event time of the punctual embedded event	ER	no
Itthon maradok, ameddig Emma nem jön haza.				
(108b)	matrix clause	endpoint of the embedded event through relativization	TR	yes

From the discussion above, we can safely conclude that the Hungarian data so far have not necessitated any special machinery – one *until* has been sufficient, and negation also has not played any role that is particular to this construction. We now turn to the question of how the third available construction (108c) bears on the issues, namely, the selectional properties of *-ig* and the role of negation. We will see that the diagnostics shown above yield very different results for the (108c)-type construction. I will claim, however, that this contrast does not warrant the introduction of a special type of negation, or of a special Neg position.

Two types of negation? The last remaining variant in the set of Hungarian *until*-constructions is the one that features the Prt-Neg-V order (cf. (108c), repeated below for convenience:

(124) *Itthon maradok, **ameddig** Emma haza **nem** jön.*
home I-stay Dem-Wh-until Emma home Neg comes
'I'll stay home until Emma comes home.'

This construction is interesting in a number of respects. The most striking characteristic of these examples is (as also discussed in Piñón (1991)) that this word order is not the default ordering in Hungarian – run-of-the-mill predicate negation results in the order Neg-V-Prt, as also evidenced in the 'predicate negation' type discussed in the previous section. I return to this unorthodox word order below. For now, let us look at how this construction fares on the diagnostics discussed above. The examples below both point in the same direction, namely that the negated eventive predicate here actually is interpreted as denoting a punctual event. On one hand, the insertion of the punctual modifier 'all of a sudden' does not result in the marked 'series of occurrences' reading but receives the usual interpretation, as shown by the English translation in

(125). Also, the low reading is unavailable in this construction, which – according to the line of analysis pursued here – means that the example is derived via event relativization. Since ER structures are only compatible with *until* when the embedded clause denotes a punctual event (as this is required to provide the endpoint argument selected by *until*) (126) below also indicates a punctual reading of the embedded clause event. (Contrast these examples with (121) and (119) above, which feature the normal ordering of Neg.)

(125) *A szobában* *beszélgettünk,* ***ameddig*** ***egyszer csak*** *ki* ***nem*** *aludt* *a villany.*
the room-in we-talked Dem-Wh-until suddenly Prt Neg slept the light
'We talked in the room until, suddenly, the lights went out.'

(126) **Itthon* *maradok,* ***ameddig*** *mondtad,* *hogy* *Emma* *haza* ***nem*** *jön.*
home I-stay Dem-Wh-until you-said Comp Emma home Neg comes
*LR: 'You told me that Emma will not come over until time t. I will stay home until time t.'
(The high reading is excluded via the tense of the middle clause.)

Thus, this construction patterns for all intents and purposes with the use of *-ig* in the non-negated (108a), which was analyzed as involving an event relative with the relative operator and the suffix originating high up in the clause. In accordance with the predictions of the earlier sections of this chapter, the low reading becomes unavailable in (126), suggesting that the Prt-Neg-V order surfaces in event relative configurations.

Given that in the construction at hand it appears that negation does not play its usual role (i.e., the negated eventive can be interpreted as punctual without any special context being required, that is, without having to resort to the unorthodox SoO reading), the natural question is whether we are dealing with a kind of 'special' negation here. Although I have argued above (especially based on English) that negation does not actually create states out of punctual events, and as such, the fact that a negated eventive can be interpreted as eventive is not, in and of itself, completely unexpected, the contrast between this variant and the 'predicate negation' type still requires an explanation. If we look at the interpretation of (125) vs. the corresponding example (122) also featuring negation, we find that in the construction (122) – where the negation and the particle are ordered in their usual way, and so presumably we are dealing with regular predicate negation – the punctual interpretation is the marked SoO reading, and the most natural reading is the one where during the time period in question the event denoted by the embedded predicate does not take place at any of the potentially relevant time points (points covering the time period at hand). Meanwhile, no such reading results in (125), and the interpretation is very similar to one where no negation is present. I will argue, however, that the difference between the two constructions is a simple question of scope, and that negation in the Prt-Neg-V order is generated in the same position as normal predicate negation but interpreted higher. Since it is not in the scope of *until*, negation does not contribute its usual semantics of negating the event denoted by the embedded predicate but rather participates in focus structure, yielding the switch reading associated with this construction in Hungarian. Below, I discuss the details of this proposal. Following Abels (2005) with some modifications, I will suggest that negation in this construction moves to an operator position high up in the

left periphery. On this scenario, the P element originates outside the clause, so we have no long operator movement from inside TP, and the lack of the low reading is predicted in (126). For ease of exposition (and somewhat pre-theoretically) I will from now on refer to the event relative construction involving negation that is interpreted outside the TP domain (to be demonstrated below) as the 'Neg-raising construction' and the temporal relative variety (where we observe the normal effects of negation interpreted in its base position) as the 'predicate negation construction'. The rough representations of the *surface structures* of the two constructions are given in (127):

(127) a. (=108b) $[_{NegP}$ Neg V $[_{PredP}$ Prt …]]

b. (=108c) $[_{FocP}$ Prt $[_{NegP}$ Neg V …]]

Before going on to present evidence for the LF raising of negation from its base position shown in (127b) above, a note on the word order will be instructive. Given the fixed hierarchy of the functional projections dominating the VP in Hungarian (relevantly: FocP>NegP>PredP>VP[80]), the only way to get the Prt-Neg-V order without positing a special position for negation or for the particle is to assume that the particle is in focus in the Neg-raising construction. This is in fact what is suggested by Piñón (1991). Although the focusing of the particle and hence the Prt-Neg-V order are (contrary to Piñón's claims) not obligatory (albeit preferred) in the Neg-raising construction, the schematic representation given in (127b) will suffice for the purposes of the main portion of this discussion. The question of why focusing some element (typically the particle) tends to go together with Neg-raising is an interesting one that I return to at the end of this section, where I discuss the relationship between focus and Neg-raising in some detail.

There are two main advantages to the Neg-raising approach, namely that it makes it possible to analyze the suffix *-ig* as having a single selectional grid (since we can derive a difference between the behavior of TR structures involving regular predicate negation and ER structures featuring Neg-raising), and it also does not require reference to expletive or semantically empty negation (which is a theoretically undesirable concept to begin with). In addition to these points, the Neg-raising analysis of (108c) also receives support from a number of syntactic observations. I discuss these below, before turning my attention to the issue of motivation for Neg-raising, and the particularities of the Prt-Neg-V word order.

The first observation concerns the licensing of negative quantifiers. Recall the Russian data from section 3.1. Arguing against the 'expletive negation' analysis of Brown & Franks (1995, 1997), Abels (2005) discusses examples from Russian where negation inside *until*-clauses fails to license negative quantifiers that normally require clause-mate Neg ((128b) repeated from (73) above for convenience):

[80] Whether or not FocP and NegP are distinct from TP (which, in a neutral sentence containing no focus or negation, will house the tensed verb in its head and attract the content of Spec,PredP to its specifier) or not is irrelevant here, and a much debated issue of Hungarian syntax. When there is both focus and negation in a sentence, the verb appears immediately after these, resulting in a Foc-Neg-V(-Prt) order, and it is only this order that is important for the purposes of this discussion.

(128) a. *Ja podoždu poka ty ne prideš'.*
I will-wait until you Neg arrive
I'll wait for you until you arrive.

b. *Ja podoždu poka {✓kto-nibud' / *nikto} ne pridet.*
I will-wait until {✓who- NIBUD′ / NI-who Neg arrive
I will wait until someone comes.[81]

The Russian data show that negation in the *until*-clause (which is claimed to be obligatory) does not license the negative indefinite '*nikto*', and the negative pronominal *'kto-nibud*' is used instead, which is normally licensed by superordinate negation. While Brown & Franks take this example to show that the negation that occurs in *until*-clauses is expletive (they discuss a number of other contrasts between this negation and run-of-the-mill predicate negation which fall outside the scope of this discussion), Abels argues that expletive negation does not exist, and that what we witness here is LF-raising of negation into the matrix clause, which explains why this negation patterns with matrix negation in terms of NPI-licensing. Before outlining the technicalities of Abels' analysis, a note on the data is in order here. Similar data can be duplicated in Serbian:

(129) **Serbian**

a. *Moraš da radiš dok* ***ne*** *zaposlimo* ***nekog/*nikog***.
you-must Comp you-work until Neg we-hire someone/no one
'You have to work until we hire someone.'

b. ***Ne*** *zapošljavamo* ***nikog.***
Neg we-hire no one
'We are not hiring anyone.'

As seen in (129b), clausemate negation normally licenses the negative quantifier 'nikog'. However, the same is not available in *until*-clauses, on parallel with the Russian data. However, it is not entirely correct to say that negation here patterns with superordinate negation because NPI's that are usually licensed long-distance in embedding constructions are also not available in *until*-clauses, as shown below:

(130) **Serbian**

a. ***Ne*** *mislim da će* ***iko*** *stići/da stigne.*
Neg I-think Comp will anyone come-Inf/Comp he-comes
'I don't think that anyone will come.'

[81] The examples are from Abels (2005), who cites Brown & Franks 1995 for them.

b. *Osta-ću* *dok* ***neko/*iko/??niko*** ***ne*** *stigne.*
I-stay-Fut until someone/anyone/no one Neg comes
'I will stay here until anyone comes.'

It appears to be the case that negation in *until*-clauses, at least in Serbian (and in Hungarian, as shown below), does not license either type of n-word – 'niko' requiring clausemate negation and 'iko' requiring long-distance licensing are equally bad. This suggests that negation in these constructions occupies an intermediate LF position in the embedded CP-domain, too high to be a clausemate licensor but too low for long-distance licensing. This is interesting because there have been claims about Serbo-Croatian (e.g. Progovac 1994) that the two kinds of NPIs in this language are in complementary distribution such that negation in any possible position will license one or the other. It seems that at least in this one construction this does not hold, with the possible explanation that negation here actually raises outside *until* but not as high as the matrix clause – remaining in the CP-layer of the temporal adverbial clause. While this may seem ad hoc at first, there is some evidence that negation in the CP domain shares some of the properties of negation in *until*-clauses argued to feature covert Neg-raising. For example, negation that is clearly in the CP domain also does not license either NPI type.

(131) **Serbian**
Nije li Jovan/*iko/*niko stigao danas?
Neg-Aux Q Jovan/NPI1/NPI2 arrived today
'Didn't John arrive today?' ('Wasn't John supposed to arrive today?') [82]

In emphatic negated questions, Serbo-Croatian features a negative auxiliary in the CP layer that, unlike the same auxiliary when it appears lower in the clause, cannot license either NPI-type. Arguably, this is because it is in the relevant intermediate position. Similar examples can also be constructed in English.

(132) Didn't John earn a fortune/*a penny? (cf. He didn't earn a penny.)

The right account, therefore – in accordance with Abels (2005) but with some modification to accommodate the NPI-licensing data – seems to be that negation in Slavic *until*-clauses raises just outside *until*, possibly left-adjoining to it, analogously to English negative preposing examples with *until* such as:

(133) a. Not until John/*anyone comes home will I start dinner.
b. I won't start dinner until anyone comes home.

[82] Thanks to Nataša Miličević for the example. Also see Miličević (2007) for discussion of this construction.

As (133a) shows, 'not-until' is a possible surface ordering in English (while in Slavic it seems to only obtain in LF) but negation in this position also does not license NPIs. Therefore, I will assume that LF Neg-raising fronts the negative element to the left of the complementizer (or preposition, as the case may be) heading the adverbial clause. I return to the relationship between the combination of 'not-until' and focus structure below. For now, assume that LF Neg-raising combines these two elements in some way in the embedded CP domain.

Returning to Hungarian, we find data that are similar to the Slavic facts discussed. Unlike in Russian, however, in Hungarian there are two different *until*-constructions that involve negation. Without going into the details of n-word licensing, it is sufficient to note here that negative quantifiers are only licensed in the 'predicate negation' construction, and disallowed in the 'Neg-raising' construction[83]:

(134) a. ***Ameddig*** ***nem*** *veszünk fel* *senkit,* *többet* *kell* *dolgoznod.*
Dem-Wh-until Neg we-hire PRT nobody-ACC more-ACC must you-work-INF
'Until we hire someone, you have to work more.'

b. ****Ameddig*** *fel* ***nem*** *veszünk* *senkit* ...
Dem-Wh-until PRT Neg we-hire nobody-ACC…

As shown by the contrast in (134), run-of-the-mill predicate negation has no trouble licensing the negative quantifier *senkit* 'nobody-Acc' in object position inside an *-ig*-clause, while the same configuration is ungrammatical in the Prt-Neg-V order. In this, the negation in the (a) example behaves exactly like regular predicate negation in a monoclausal structure. If we want to maintain that negation is always generated in the same position (cf. (127)) and cannot be generated in other places (see Abels (2005) for the same point), it seems like an obvious step to relate this fact to the posited Neg-raising in this construction, and claim that (just like in Russian) this instance of negation is unable to license negative quantifiers because these require a clausemate licensor but negation is too high at LF for this. In accordance with the Slavic examples, the same pattern obtains for Hungarian, and NPIs that are usually licensed by superordinate negation are also not acceptable in this construction. Observe the following (cf. (130) for Serbian above):

(135) **Hungarian**

a. ***Nem*** *hiszem,* *hogy* ***valaki is*** *el-jön.*
Neg I-believe Comp anyone Prt-comes
'I don't think anyone will come.'

[83] In fact, the situation is somewhat complicated by the fact that negative quantifiers in Hungarian can appear in a number of different positions (inside VP, in a higher position to which they QR, and potentially in focus; see Olsvay (2006) and Surányi (2006) for discussion) and they receive different interpretations in these positions. Preliminary findings indicate that the position (and hence interpretation) of the n-word also plays a role in the acceptability of the data discussed here. I leave this question open for future research.

b. *Itt maradok, ameddig **valaki is** el **nem** jön.
here I-stay Dem-Wh-until anyone Prt Neg comes
Intended: 'I will stay here until someone/anyone comes.'

As (a) shows, 'valaki is' is the type of NPI in Hungarian that is licensed long-distance, just like 'iko' in Serbo-Croatian, and, as (b) attests, it is also not grammatical in *until*-constructions. Therefore, I will carry on under the assumption that negation raises to the same left-peripheral position in Hungarian and Slavic.

Now, the data and generalizations above are certainly compatible with a Neg-raising analysis but, as Brown & Franks (1995, 1997) argue for Russian, an alternative (although perhaps not very attractive) account is also possible, namely that negation in *until*-clauses simply lacks 'negative force'. That is, it is not real negation, and therefore cannot be expected to license NPIs. This line of analysis would face the obvious objections that positing such an empty instance of negation adds unnecessary and implausible complications to the grammar (negation, being a basic logical operator, is unlikely to have a semantically vacuous counterpart), and that positing such unconstrained lexical duplication, especially of functional items, is not a desirable course of action in general. There is, in addition, evidence that negation in the Neg-raising constructions is actually active, can take scope over other operators, and interacts with focus structure. Let us turn to these data.

Some evidence for the LF raising of negation in the Prt-Neg-V order comes from scope facts. To start, observe the scope relations between the sentence adverb *biztosan* 'surely, certainly' and negation:

(136) a. *Itt maradok, **ameddig** Emma **biztosan** **nem** alszik el.*
here I-stay Dem-Wh-until Emma certainly Neg sleeps PRT
Adv>Neg: 'I will stay during the time period for which it is certain that Emma will not fall asleep.'

b. *Itt maradok, **ameddig** Emma **biztosan** el **nem** alszik.*
here I-stay Dem-Wh-until Emma certainly PRT Neg sleeps
Neg>Adv: 'I will stay as long as it is not certain that Emma has fallen asleep.'

c. *Emma **biztosan** **nem** alszik el.*
Emma certainly Neg sleeps PRT
Adv>Neg: 'Emma will certainly not fall asleep.'

As (136c) indicates, the relative scopes of the adverb and negation normally reflect the surface order (cf. Egedi (2009) for extensive discussion of sentence adverbs and their scope properties). This extends to the predicate negation construction in (136a), which is a case of regular predicate negation being interpreted in its surface position. (136b), at the same time, presents a non-linear scope order that is not attested in non-raising contexts. The Neg-raising analysis accounts for this fact straightforwardly, while positing semantically empty negation in this example would not be helpful. This use of 'biztosan' is actually

predicative, as the adverb is a predicate that takes the entire proposition as its complement. (136c) means something like "It is certain that [Emma will not fall asleep]." The English translations of (a) and (b) show that this is in fact the interpretation that we get in the examples with *until*-clauses as well, which causes no problem in (a) because this is a temporal relative construction, where both clauses denote durative/stative propositions. Therefore, there is no difficulty with construing the two arguments of *until* as two time periods: the matrix clause scenario, and the period of certainty. This also works in the (b) example, showing that negation in this case is able to modify the sentence adverb 'biztosan', which is clearly outside the surface position of negation, and which is therefore not an option in the usual predicate negation structure (where negation takes surface scope). This means that the reading we get in the (b) example should be distinct from the one we get without negation, so compare (136b) to (137) below:

(137) ?? *Itt* *maradok,* ***ameddig*** *Emma* ***biztosan*** *el-alszik.*
here I-stay Dem-Wh-until Emma certainly PRT-sleeps
Intended: 'I will stay as long as it is certain that Emma has fallen asleep.'

This example is marginal, and in my view this is because it is difficult to imagine the reversal of the situation at the time point relativized in the construction. While a transition from uncertainty to certainty is plausible (that is, waiting until we have certainty that Emma is fast asleep), the converse is hard to imagine (waiting while her sleeping is certain, and leaving or doing something else once it is no longer certain). This means that negation in (136b) is certainly not semantically empty but real negation that scopes higher than usual. The implicit assumption made in this argumentation is that the Neg-raising construction is neatly tied together with the switch reading, an assumption I will make explicit later on.

Similar scope data can be obtained by looking at interactions between focus and negation in *until*-constructions. What we find is that the instance of negation that LF-fronts to a position outside the temporal/aspectual domain in the 'Neg-raising' construction also takes scope over focus in the temporal clause – and, conversely, that when the wide scope of negation over focus is observed, that reading is only compatible with the event relative diagnostics. The data are complicated by the fact that focus neutralizes the word order difference between the 'Neg-raising' and the 'Neg-as-stativizer' constructions, given that we always have the surface order given in (138), with the focused element preceding negation:

(138) $[_{\text{FocP}}$ XP $[_{\text{NegP}}$ Neg V …]]

What this shows, actually, is that – contrary to what is claimed by Piñón (1991) – it cannot be the case that in the Neg-raising construction the particle is obligatorily focused. This assumption is problematic anyway because in these constructions we do not see post-focal deaccenting on the VP, which is incompatible with a constituent focus account, at least without auxiliary stipulations. Rather, the right generalization is that Neg-

raising constructions obligatorily involve focus, and this role is fulfilled by the particle in the default, most common case, but the focusing of another element is equally acceptable, so – as we will see below – we can find examples with some XP in focus and negation inside the *until*-clause that match the diagnostics for event relativization, which in turn means that they feature Neg-raising. One way to account for this is to say that what is focused in these constructions is in fact the entire complex VP, and, as is standard in Hungarian, VP-focus is realized by the overt fronting of some element inside the VP but not accompanied by post-focal compression. Without going into the technicalities, similar instances of VP-focus are discussed, among others, by Kenesei (1998) based on examples like this (his (19)):

(139) *Péter a* ***Hamletet*** *olvasta fel Marinak, míg János* ***az autót*** *szedte apró darabokra.*
Peter the Hamlet-Acc read Prt Mary-Dat while John the car-Acc took small-pieces-Sub
'Peter was reading out Hamlet to Mary, while John was taking the car apart into small pieces.'

Kenesei notes that such constructions, with only one argument fronted into the syntactic focus position but each VP-internal argument carrying stress (instead of being subject to post-focal deaccenting) is interpreted as (contrastive or non-contrastive) VP-focus, meaning that such sentences can be uttered as replies to VP-questions like [What did Peter do?] or can be contrastively read, as suggested by the example in (139). This means that, structurally, the analysis positing the focus-fronting of the particle (or, in less common examples, of another VP-internal element) in Neg-raising constructions is essentially correct, and the observation that the intonation of these examples is not the one that is typical for focus constructions would be explained by the fact that they involve VP-focus rather than constituent focus. While this idea clearly needs to be worked out in more detail, below I will provide some evidence that Neg-raising constructions actually involve focus on the event that is being relativized. For now, let us return to the scope facts.

Evidence to support the Neg-raising analysis can be found in examples demonstrating that negation takes scope over focus in these cases. To start, witness the ambiguity in (140):

(140) *Itt maradok,* ***ameddig*** *JÁNOS nem lép fel.*
here I-stay Dem-wh-until John Neg steps PRT
Focus > Neg: 'I will stay as long as the following holds: It is John (and not someone else) who is not performing on stage.'
Neg > Focus: 'I will stay as long as the following does not happen: It is John (and not someone else) who steps out on stage.'

The Foc>Neg reading is interpreted in a scenario where there is always a single person who is not on stage (but sitting in the back) and the *until*-clause refers to the time period while this person is not John. The Neg>Foc reading, on the other hand, is the more likely scenario where there is always one person on stage, and the adverbial clause picks out the point in time when this one person is John. While the surface scope

order is not surprising (Hungarian is well-known for displaying scope relations overtly in most cases), the Neg>Focus scope order is arguably derived via Neg-raising. This example illustrates that, for Neg-raising, it need not be the particle that is in focus – it can be another element – if in fact the inverse scope in (140) is derived via the same covert Neg-raising that I have suggested derives the scope of negation over sentence adverbs like 'certainly', and fronts the negation into a position from which it cannot license negative quantifiers. There are a number of distinct predictions if the reasoning above is on the right track, that is, if the Neg>Focus reading of (140) involves a Neg-raising construction (while the Foc>Neg reading is a (108b)-type 'predicate negation' temporal relative). First, to the extent that a negative quantifier is licensed in the ambiguous (140), it should only be compatible with the non-Neg-raising (Focus>Neg) reading (see (141)). (Recall that negative quantifiers are not licensed in the Neg-raising configuration.) Second, to the extent that the low reading can be constructed with (140), it should also enforce the Focus>Neg interpretation (see (142)). (Once again, recall that low readings are out with event relative constructions, of which the Neg-raising examples are a subtype.) Third, if we insert *egyszer csak* 'suddenly' into the example, we should end up with the Neg>Foc scope order on the single-event, unmarked reading, and the Foc>Neg scope order should only be compatible on the marked, series-of-occurrences reading, since this adverb enforces a punctual reading on the event in the relative clause (see (143).

(141) *Itt maradok,* ***ameddig*** *JÁNOS nem nyer meg semmit.*
here I-stay Dem-Wh-until John Neg wins PRT nothing-ACC
Focus>Neg: 'I will stay as long as it is JOHN who wins nothing.'
*Neg>Focus: 'I will stay as long as it is not true for anything that John has won it.'

(142) *Itt maradok,* ***ameddig*** *mondtad, hogy JÁNOS nem lép fel.*
here I-stay Dem-Wh-until you-said Comp John Neg steps PRT
Focus>Neg: 'You told me that up until time t it will be John who is not performing on stage (but sitting in the back). I will stay until time t.'
*Neg>Focus: 'You told me that until time t it will not be the case that it is John who is performing on stage. I will stay until time t.'

(143) *Unatkoztam,* ***ameddig*** *egyszer csak JÁNOS nem lépett a színpadra.*
I-was-bored Dem-Wh-until suddenly John Neg stepped the stage-onto
(i) 'I was bored until it happened that, suddenly, it was John who stepped out on the stage.'
(ii) 'There was a series of events when the actors stepped out onto the stage and one of the actors was always absent from the group. I was bored until the moment when that person was John.'

All three predictions above are borne out, suggesting that the Neg>Foc scope order in (140) is in fact a result of the Neg-raising posited in the ER examples involving negation. Given the claims presented here, the absence of the low reading in (142) furnishes evidence that *-ig* in this case originates outside the adverbial

clause, and the construction is an event relative. Once again, the scope facts demonstrated above make the expletive negation analysis implausible, and the Neg-raising analysis a viable solution.

Neg-raising and focus. Before summing up, I would like to briefly reflect on the relationship between Neg-raising in *until*-constructions and focus. I have suggested above that the 'switch reading' is not a lexical property of (one kind of) *until*, or directly related to the presence of negation in a sentence. Rather, it is the result of a contrastive reading on the *until*-phrase or -clause, which brings out the said entailment. In what follows, I will attempt to make this idea more explicit, as well as provide some evidence for it.

In terms of syntactic evidence, we have seen that there is indication from Hungarian that Neg-raising *until*-clauses feature focusing (in particular, VP-focus or similar wide focus) inside the *until*-clause. This does not necessarily mean, however, that the clause itself is read contrastively, since VP-focus is available in matrix clauses, which are clearly not contrastive themselves. I want to suggest, however, that these *until*-clauses acquire a contrastive reading precisely via the posited Neg-raising. The idea that the interaction of negation and *until* results in a focus reading is not entirely novel. Mittwoch (1977) suggests that this is what happens in [Not until…] fronting in English, which are obligatorily contrastive (i.e., they necessarily have the switch reading). This, in her view, is supported by the fact that – as discussed by Giannakidou (2002) – the *until* that results in the switch reading in Modern Greek is actually a focus particle. The most explicit proposal along these lines comes from Declerck (1995), who claims that (even in English) the combination of *not+until* lexicalizes the same meaning as *only+at*, as illustrated in (144):

(144) John didn't arrive until 3.
Presupposition: John arrived at 3.
Assertion: P holds only at 3.
Meaning: John only arrived at 3 (and not earlier).

This proposal by Declerck diverges from the usual debate about the switch reading, which normally treats the switch reading as either a pragmatic implicature or as a strict semantic entailment. In Declerck's proposal the actualization is part of the presupposition since it is derived from the focus structure of the sentence, which in turn is lexically encoded in the item derived from *not+until*. While I agree that the switch reading is related to focus structure, I would argue that it is not down to the lexical items involved but to the syntactic structure. There are two reasons to believe this. One, the switch reading can, in certain contexts, be canceled out, as shown by Mittwoch (2001). For example, observe the following attested example from English:

(145) She's in jail and probably *won't* get out *until Monday, if then*. (from the internet)

According to Mittwoch, the addition of "if then" cancels out the – in her view – implicature that the person will get out of jail on Monday. Obviously, if this implicature was part of the presupposition, this cancelation

would lead to presupposition failure, and the sentence would be uninterpretable. Perhaps more importantly, however, it is simply not the case that the combination of *not* and *until* is required for the switch reading to surface. As discussed for English earlier on, the effect is not limited to negation but also arises with *only*-focus, unmarked focus, and universals, and is not particular to *until* either since a contrastively interpreted *for*-phrase can also yield the same interpretation. Nevertheless, setting aside the issue of lexicalization, it seems correct to say that the interaction of negation and *until* does influence focus structure.

Pursuing a semantic account of the interaction of negation and *until* in what he analyzes as covert Neg-raising constructions, Abels (2005) suggests that the presence of negation in the *until*-clause in Russian is actually inherently required for the derivation of the switch-reading. The implementation goes roughly as follows. *Poka* – the Russian *until* – takes three arguments: two propositions and a truth-functional operator which is negation by stipulation. Basically, this third argument (negation) ensures that the values of the two propositions connected by *poka* have opposite values at all times, which is basically another way of formulating the switch reading. So while the matrix clause has a positive value, the embedded clause is false, and when the matrix proposition becomes false, the embedded one switches to true. In this sense, on Abels' account the presence of negation is inherently tied to the switch reading, so we can see why it is crucial to have negation inside these *until*-clauses. Meanwhile, Neg-raising is motivated by the fact that negation is taken to be an argument of *poka,* so they presumably need to be in a local relationship at some point in the derivation. Since, according to Abels, the base position of negation is highly restricted, so that it can only be introduced into the structure in its standard position, the way to meet this requirement is via Neg-raising.

While once again relying heavily on the presence of negation to derive the switch reading, the basic spirit of Abels' account applies to the current discussion quite well. What we observe is that, in addition to the two temporal arguments of *until*, there is a third element, an element of contrast, that is necessary for the switch reading to obtain – although it appears that the contrast can result from various elements and configurations. Still, to keep to the current discussion, the Neg-raising construction is one of the ways to get this contrast.

If it is true that it is Neg-raising that yields the contrastive reading in the construction at hand, the question becomes whether contrastiveness is encoded inherently on the clause, that is, whether 'featural enrichment' of the event operator takes place of the sort that I discussed with explicitly focused event relatives in Chapter 1. Recall the relevant examples:

(146) a. *János AZT nem tudja, hogy <u>Péter</u> tegnap kit látogatott meg.*
John Dem-Acc Neg knows Comp Peter yesterday who-Acc visited Prt
'What John doesn't know is whom PETER visited yesterday.'

b. John resents that this book Mary read from cover to cover, while the other (his favorite) she didn't even open.

As discussed in Chapter 1, contrastive elements can only occur in the left periphery of RCPs when the clause itself (i.e., the event that is relativized in the clause) is read contrastively. This was implemented via positing

featural enrichment of the event operator that derives these clauses such that in addition to the [wh] feature it also has a D-linking (or delta) feature that allows it to overcome intervention by a contrastive element between its base and target positions. Interestingly, however, contrastive topics (or contrastive elements in the CP domain) are not allowed inside *until*-clauses in Hungarian or in English, regardless of whether we are dealing with a Neg-raising structure, evidence that the contrast here is not encoded on the relative operator:

(147) a. **Esett az eső, ameddig PÉTER haza nem ment ernyőért.*
fell the rain Dem-Wh-until Peter home Neg went umbrella-for
'It rained until PETER went home for an umbrella.'
b. *It rained until Peter we sent for an umbrella.

If my analysis is on the right track, there are two operator chains crossing the position where the high contrastive element [PETER] is located, and therefore either of these could potentially cause intervention leading to ungrammaticality. One possibility is that Neg-raising across this contrastive topic is not possible. This is unlikely because negation in its base position is lower than the canonical focus position that, in the example at hand, houses the focused particle [haza]. As posited in Chapter 1, focus has only an operator feature while contrastive topics also carry a D-linking feature in the default case. However, it is unclear why a D-linking (δ) feature should create intervention for Neg-raising. Therefore, if the focused particle does not cause a problem for Neg-raising, then neither should a contrastive topic. The other possible movement that could be disrupted by the fronted contrastive topic is the movement of the event operator. As we have seen in the analysis of object clauses in Chapter 1, non-focused RCPs normally do not allow contrastive topics to surface on their left periphery since these contrastive elements (being [+wh] and [+δ]) block the movement of the event operator (which has only an operator [+wh] feature). If this is the reason behind the ungrammaticality of (147a), however, then it seems that the 'contrastivity' of Neg-raising *until*-clauses is not derived via the featural enrichment of the event operator but is related to the Neg-raising operation. As we might expect, such high contrastive elements do, in fact, become available once there is explicit focusing of the clause, which is evidenced by the presence of the clausal expletive in the matrix clause:

(148) a. *(Csak) <u>Addig</u> esett az eső, ameddig PÉTER haza nem ment ernyőért.*
only Dem-until fell the rain Dem-Wh-until Peter home Neg went umbrella-for
'It only rained until PETER went home for an umbrella.'
b. It only rained until Peter we sent home for an umbrella.

As such, these *until*-clauses pattern completely with RCPs and conditionals when it comes to the availability of high contrastive elements in their left periphery. This means that the contrastive reading of *until*-phrases –

which, according to the discussion above, is responsible for the switch reading – is distinct from the explicit syntactic focusing of the entire clause illustrated in (148) above (which, as I argued in Chapter 1, is derived via featural enrichment of the event operator). This explains why the switch-reading does not render an *until*-phrase an intervener, so, for example, (149) below shows that there is no featural interaction between the *until*-phase (interpreted as contrastive) and the event operator used to derive the RCP:

(149) I remember that John didn't arrive until 5.

The sentence above can easily be read as having the usual entailment that 'John arrived at or shortly after 5', even though I have claimed above that in order to derive this reading, the *until*-phrase must be taken to take high scope and be interpreted contrastively. It seems that this is semantic scope, though, and does not result in LF movement of the *until*-phrase, otherwise it would be an intervener to the movement of the event operator, and thus would be incompatible inside an RCP. A related issue is that, in English, in situ focus is also not an intervener, and is perfectly fine in RCPs:

(150) I resent that you chose JOHN (and not MARY).

This sentence can be read with 'John' taking wide scope, where I would posit that the entire RCP is read contrastively. But it can also be read with narrow scope focus on 'John', where it is the identity of your choice that I resent. Recall that the same reading is not possible with fronted focus (from Chapter 1):

(151) ??What John regrets is that THE PENSION FUND Mary chose.

This shows that what we are dealing with in the fronting examples is syntactic intervention, and also suggests that in situ contrastive elements do not actually front at LF in English. The implications of this observation are far-reaching and potentially interesting but I do not have sufficient evidence or research to say anything conclusive about it at this point. The relevant point that pertains to the discussion at hand is simply that a contrastive reading does not necessarily involve syntactic movement, and that the contrastivity of *until*-phrases apparently does not interact with D-linking of the event operator used to derive them.

Before going further, let me sum up the findings of this section. Despite its complexities, the least restrictive dialect of Hungarian – the one that displays the three-way contrast illustrated under (108) – can be accounted for without reference to lexical ambiguity of the *-ig* suffix, or having to evoke a special type or position of negation. Rather, it has been argued that there is only one lexical item *-ig* involved in all three constructions. This suffix takes two arguments (one durative and one punctual), fixing the latter as the endpoint of the former. This strict view of the suffix's selectional properties necessitates a covert operation (raising negation from its usual position in NegP to a position outside the temporal domain of the embedded clause) in

configurations where the P element originates outside the adverbial clause as a connective (the event relative derivation). This raising of negation at LF was evidenced by a number of diagnostics (scope relations between negation and sentence adverbs or focus, the inability of this negation to license negative quantifiers inside the adverbial clause, etc.). Thus, the account I have outlined for the examples in (108) – the non-negated ER construction, the 'predicate negation' TR variant, and the 'Neg-raising' ER structure – supports the 'single-until' line of approaches. In addition, it shows that the three distinct occurrences of *-ig* can be analyzed in terms of structural ambiguity (that is, this P element can form both temporal relatives and event relatives), whereas the rest of its properties (particularly, its interaction with negation) are explained by and in turn influence the semantics of each construction.

3.4 A note on dialectal variation

As mentioned in the introduction to the Hungarian data, not all Hungarian dialects allow all three of the constructions discussed above. While there are a number of complex patterns, one striking tendency is that there are a number of speakers (as far as I can tell, primarily in Eastern Hungary and Transylvania; henceforth the 'Eastern Hungarian' dialect) who reject both the non-negated and the predicate negation variant, and allow only what I have referred to above as the Neg-raising construction, repeated below:

(152) *Itthon* *maradok,* ***ameddig*** *Emma* *át* ***nem*** *jön.*
home I-stay Dem-Wh-until Emma over not comes
'I'll stay home until Emma comes over.'

While this is perhaps less than surprising since in Slavic it has also been reported that some speakers consider negation in *until*-clauses obligatory, what is interesting is that Hungarian speakers who only accept this one variant of *until*-constructions also do not agree with a number of the judgments listed above. One point of similarity is that even for these speakers, the embedded clause appears to describe a punctual event, as shown by the fact that they accept the following judgments (from (125-126)):

(153) *A szobában* *beszélgettünk,* ***ameddig*** ***egyszer csak*** *ki* ***nem*** *aludt* *a villany.*
the room-in we-talked Dem-Wh-until suddenly Prt Neg slept the light
'We talked in the room until, suddenly, the lights went out.'

(154) **Itthon* *maradok,* ***ameddig*** *mondtad,* *hogy* *Emma* *haza* ***nem*** *jön.*
home I-stay Dem-Wh-until you-said Comp Emma home Neg comes
*LR: 'You told me that Emma will not come over until time t. I will stay home until time t.'
(The high reading is excluded via the tense of the middle clause.)

(153) shows that punctual modification is permissible with an unmarked interpretation in these *until*-clauses, and the unavailability of the low construal in (154) furnishes evidence (as noted also in Lipták (2005), who analyzes this restricted dialect) that we are dealing with an event relative construction. So far, therefore, the two dialects behave identically with respect to this construction. When we look further, however, we find that there are likely to be differences between the structures assigned to (152) by speakers of the two dialects, meaning that it is not simply the case that Eastern Hungarian speakers are less liberal when it comes to the variants they accept but there is some deeper reason why they only allow one out of the three options.

Firstly, let us recall that I have argued above that the 'less restrictive' dialect utilizes completely productive, run-of-the-mill syntax in *until*-constructions where negation is generated in its usual position; the particle in the Prt-Neg-V order was analyzed as being in focus, while negation was claimed to be interpreted in a higher position (via LF Neg-raising). One reason for assuming that the particle is in focus in (152) was that (as pointed out by Piñón (1991)) speakers of the non-restrictive dialect do not allow focus before the particle (repeated from (147a)):

(155) *%Esett az eső, ameddig PÉTER haza nem ment ernyőért.*
fell the rain Dem-Wh-until Peter home Neg went umbrella-for
'It rained until PETER went home for an umbrella.'
Non-restrictive dialect: *
Eastern Hungarian dialect: OK

This fact is explained, obviously, if the focus position is filled by the particle. Meanwhile, speakers of the Eastern Hungarian dialect have no problem with this example, as also shown by the following datum (provided to be my Katalin É. Kiss (p.c.)):

(156) *Addig maradunk, ameddig JÁNOS fel nem lép.*
Dem-until we-stay Dem-Wh-until John Prt Neg steps
'We will stay until JOHN steps out on stage.'
Non-restrictive dialect: *
Eastern Hungarian dialect: OK

This shows that the structure assigned to this construction for the dialect discussed in the previous section (repeated below) cannot be the right one for the Eastern Hungarian dialect – even though, as (153) and (154) show – this dialect also appears to treat this *until*-construction as an event relative.

(157) **Structure of the Prt-Neg-V order in the non-restrictive dialect:**
(138) $[_{FocP}$ Prt $[_{NegP}$ Neg V …]]

Interestingly, there is another difference between the two dialects in terms of data judgments, namely, that Eastern Hungarian speakers have no problem with negative quantifiers in this construction (from (134b)):

(158) %***Ameddig*** *fel* ***nem*** *veszünk* *senkit* ...
Dem-Wh-until PRT Neg we-hire nobody-ACC…
Non-restrictive dialect: *
Eastern Hungarian dialect: OK

This, in turn, shows that – if we accept the analysis of the dialect dealt with in section 3.3 – the Eastern Hungarian dialect not only does not feature the particle in focus in *until*-constructions but it also does not have LF Neg-raising. Therefore, while it seems on the surface that the difference between the two dialects is one of quantity (so that the 'more restrictive' dialect does not allow all of the structures permissible in the 'less restrictive' one) the difference is in fact a deep structural one, and the structures assigned to the same example (152) must diverge for the two groups of speakers. The question that I want to address briefly, then, is what structure we can assign to (152) in the Eastern Hungarian dialect and what are the consequences.

Kiss (2010) argues that certain Modern Hungarian constructions (including *until*-clauses) preserve one of the possible word orders available for negated sentences in Old Hungarian. In particular, the following examples are given for the default and for the Prt-Neg-V order (her (6); the glosses are mine):

(159) a. **Nem** mondom **meg**.
Neg I-tell Prt
'I will not tell.' (standard ordering for predicate negation in Modern Hungarian)

b. *Amíg*[84] ***meg*** ***nem*** *mondod,...*
Dem-Wh-until Prt Neg you-tell
'Until you tell, …'

c. *Ha* *azonnal* ***meg*** ***nem*** *mondod,...*
if at-once Prt Neg you-tell
'Unless you tell at once, …'

d. ***Meg*** ***ne*** *mondd!*
Prt Neg you-tell-Imp
'Don't even think about telling!'

e. ***Meg*** ***nem*** *mondom!*
Prt Neg I-tell
'I will not tell (emphatic)!'

[84] 'Amíg' is a phonological variant of 'ameddig', which I have used in my examples because of its morphological transparency. The two forms are interchangeable for most speakers.

Kiss analyzes these structures as artefacts of the Old Hungarian word order, which is not productive in Modern Hungarian but only preserved in a few, at times marginal constructions. While all of these structures are more or less accepted in all dialects of Modern Hungarian, it is interesting to note that (b) (as discussed above) and (c) alternate with the default predicate negation order (at least in the Budapest dialect), while (d) has an alternative that overtly features negation in a high position:

(160) ***Ne**-hogy* ***meg**-mondd.*
Neg-Comp Prt-you-tell-Imp
'Don't even think about telling!' (cf. (159d))

The structural alternations between these constructions and other possible word orders show that, in some dialects, the Prt-Neg-V order has been re-analyzed as a productive word order (with the particle in focus) and it alternates with other logical options. One of the correlates of the Prt-Neg-V ordering in the Budapest dialect is LF Neg-raising, which is supported by the fact that in that dialect negative quantifiers are ungrammatical in examples (b-d) above. (To my ear, (159e) sounds distinctly archaic, so I find it hard to judge whether NPI-licensing would work in this sentence.) I take examples like (160) to be an overt Neg-raising variant of the covert Neg-raising posited for the Prt-Neg-V order in *until*-constructions, and, by extension, possibly in the examples (b-e) above. Meanwhile, in accordance with Kiss's claim, we can say that in the dialect that only accepts the Prt-Neg-V order in these constructions, this non-default ordering is an idiom of sorts, and as such has not been re-analyzed as a focus construction. (Recall that in Modern Hungarian, the only way the particle can end up left-adjacent to negation is if it is focused – so the absence of re-analysis in this case would mean that the speakers treat this order as a 'syntactic idiom'.) As such, these structures preserve the Old Hungarian ordering where negation does not project but it adjoins to the predicate, so the verb and negation form a constituent in T, and the particle is in its usual, neutral position. Given that this construction does not involve focus for these speakers, it becomes clear why constituent focus in (155-156) is grammatical for them. For Kiss, the structure yielding this word order is the following:

(161) $[_{TP}$ Prt $[_{T'}$ $[_{T}$ Neg V] VP]

While arguing for or against the structure above falls outside the scope of this discussion, it becomes clear that – accepting Kiss's argument that for Eastern Hungarian speakers, the Prt-Neg-V ordering is a historic remnant that is not productively analyzed – this proposal works for the focus data. Meanwhile, the licensing of negative quantifiers (acceptable for Eastern Hungarian speakers in all of the structures in (159b-e) but out for speakers of the dialect utilizing the Neg-raising construction) is plausibly related to the fact that, as Kiss shows, in the relevant version of Old Hungarian, in which the Prt-Neg-V order was at least as common as the currently default Neg-V-Prt ordering, negative quantifiers still had negative force and did not require licensing by negation. It is possible that speakers that retained some portions of this old grammar allow

negative quantifiers to surface without c-commanding negation in these archaic structures, although it is unclear how such an analysis should be properly constrained in order to predict that even these speakers do not permit negative quantifiers to surface in sentences completely lacking negation. It is also possible that negation in T is a possible licensor for these speakers. (We do not have a minimal pair to test if NPI-licensing from this position is possible for the speakers of the Budapest dialect since these speakers do not have the adjunction structure given in (161).) One clear outcome of (161) is that (covert or overt) Neg-raising is predicted to be impossible because negation attaches to the tensed verb by head-adjunction, so it can presumably not move out of this constituent. It is also a question why it should be these particular constructions (the ones listed under (159)) that kept the Old Hungarian structure. And finally, it is less than obvious how these speakers differentiate 'normal' predicate negation (the Neg-V-Prt order) from this archaic order in their grammar so that structures involving this adjoined negation are interpreted as denoting punctual events, as evidenced by the fact that they allow modification by punctual adverbs without yielding the marked SoO reading, and can supply the endpoint argument in an *until*-construction as shown by the fact that they facilitate the low construal. I do not have anything enlightening to say about these questions at this point, so I leave them open for future research and return to the core topic of this chapter.

4 Extensions

In this final section I discuss two aspects of the typology of temporal embedding I have presented above. First, I look at long-distance dependencies in English temporal constructions that were discussed in detail in Larson (1990), and examine how conditions on the availability of the low reading in Hungarian fare against the English data. Second, I discuss temporally interpreted finite CPs in Hungarian to complete the paradigm and show how the different chunks of relativization interact to produce the diagnostics discussed above.

4.1 Long-distance dependencies in English temporal constructions

Larson (1990) (citing Geis (1970) as the source of the observation) discusses the availability of the so-called 'low reading' in temporal relatives in English. To sum up the relevant facts (discussed above also): Larson notes that the prepositions that make the long-distance dependency possible (namely *before*, *after*, *until*, *since*) are the ones that can take either an NP or a CP as their complement. Prepositions that can accept only a CP (like *while*) or only an NP (like *during*) are not possible in this construal. In his analysis of these facts, Larson appeals to case assignment. The idea is that a P like *before* retains its case assignment ability even when taking a CP complement. Thus, an operator-chain whose lowest element is a temporal variable inside the adjunct clause and whose head is in Spec,CP immediately under *before* can be assigned case by the preposition. This is what saves the derivation. Since the trace at the bottom of the chain (being an adjunct) fails to receive case, it would cause the derivation to crash if the head of the chain was not assigned case by

the preposition.[85] Meanwhile, a P like *while* – which can never take a nominal complement – does not have the ability to assign case, so the relevantly similar derivation with this P crashes.

It is interesting to note that the state-of-affairs presented by Larson differs from Hungarian in two important respects. First, the set of P elements that allow the low reading is not by far the same in the two languages. More importantly, the conditions for the availability of the low reading given by Larson are very different from those I have formulated above, and it is not immediately obvious how to reconcile the two explanations. Recall that I have assumed that it is the temporal relative/event relative distinction that makes the difference in Hungarian: temporal relatives involve run-of-the-mill relative clause formation via operator movement, and as such they make the long-distance dependency possible, while event relativization features a very local, short operator chain that is not compatible with long-distance extraction.

Attempting to extend this analysis to English, we have to say that the prepositions in English that allow the long-distance dependency (*before*, *after*, *since*, *until*) form run-of-the-mill temporal relative clauses, while the ones that do not allow the low reading (like *while*) participate in event relatives (or some other construction where the relevant movement is excluded). Larson's analysis is compatible with this idea, given that his derivation for the ambiguous sentences involves the movement of an NP-category operator to the Spec,CP immediately dominated by the preposition. Retaining the selectional motivation for the temporal relative/event relative distinction, we can say that the construal of the low reading requires that the relative pronoun pick out a time rather than an event or full proposition. Since Larson takes temporal variables (including *when*) to be of the category NP, it follows that only prepositions that are possible with an NP complement will allow the long-distance dependency.

Recall, however, that the strongest argument for banning *before* and *after* from the temporal relative group was that analyzing them on a par with *at* yielded the wrong interpretation. For example, for (162) to have the interpretation as in the English gloss, it had to be assumed that the P originates outside TP – thus classifying it as an event relative:

(162) *János megnézte a meccset* ***mi-előtt*** *Panni megjött.*
John PRT-watched the match-ACC Wh-before Annie PRT-came
'John watched the match before Annie got home.'

If we want to maintain that the English translation in (162) is a regular relative clause (as attested by the fact that *before* in English allows the long-distance construal) we still have to ensure that the preposition originates outside the adjunct clause to yield the correct temporal relations. Thus, I propose that in English temporal prepositions always start out outside the adverbial clause, but the two constructions (temporal relatives and event relatives) are regardless differentiated by the presence or absence of long Op-movement.

[85] Crucially, Larson assumes that the category of the temporal variable is NP. See Larson (1985).

On this account, *while* is analyzed as forming an event relative, a construction that (in English) would be differentiated from temporal relatives *not by the position where the P element originates* (in English it always starts out on top of the adjunct clause) but only *by what the category of the complement of the preposition is*. Although Larson explicitly states that "the distinction does not correspond to whether these objects are times, propositions, etc." I believe that the criteria used above can still be maintained. So, in a temporal relative clause, the P takes a time (a nominal expression) as its complement; this temporal variable is moved from its base position inside the adverbial clause to the left edge, which is a precondition on the availability of the long-distance construal. Meanwhile, in an event relative, the complement of the preposition is a fully-formed event. This is not so far from what Larson says about these Ps (he mentions *while* as well as causal prepositions): "Presumably, prepositions like *while*, *although* and *because* must combine semantically with their complements in a way that does not involve variable binding." He goes on to suggest that *while* receives one of its temporal arguments from the embedded T node. This is only a small step from my proposal, namely that temporal and causal adverbial clauses (as well as conditionals and RCP's in general) involve event relativization, where operator movement is local (takes place from the TP-domain to the CP-layer) and does not make the long-distance construal possible. At the same time, English shows that there is no need to expect the operator to originate as a constituent with the P-element on either structure. In Hungarian, it happens to be the case that the P-element starts out locally to its complement (the temporal expression) in TR constructions and the two front together, while in ER-structures the P-element originates outside the clause. In English, it appears that the prepositions and other connectives participating in these constructions are always generated outside the clause in both TR and ER derivations.

Of course, the English facts would not be so interesting if *while* was the only P that did not allow the low reading – we could simply say that *while* is banned from this construal due to some idiosyncratic lexical property. This is not the case, however. First, as Larson points out, non-temporal Ps like *although* or *because* systematically disallow the low reading. Second, the ambiguous *since* (which was shown above to exhibit dual behavior with respect to the temporal relative/event relative split in Hungarian) also patterns with *while* on one of its readings. In its temporal use, *since* allows the low reading when taking a durative event as complement, but not when the adverbial clause denotes a point in time:

(163) a. *John hasn't entered **since** he believes Peter's been in the room.* (low reading OK)
b. *John hasn't gone inside **since** he believes Peter entered the room.* (low reading *)

As expected, *since* behaves like a TR-class P when occurring with a durative complement, and like an ER-class P when its complement is punctual. This mirrors the behavior of *óta* 'since' in Hungarian, and shows that the behavior of *while* in English is not a lexical accident.

Based on the above, I conclude that the availability of the long-distance construal can be analyzed in a similar fashion in English and Hungarian. While the relative clause status of temporal adverbial clauses is quite well-founded in both languages, there does appear to be a major difference. While the P originates

inside the adverbial clause in Hungarian temporal relatives and the PP participates in *wh*-movement together, in English the preposition starts out as a connective, taking the relativized temporal expression (an empty operator that is moved out of the temporal clause) as one of its arguments. Still, temporal relatives in both languages are differentiated from event relatives by the fact that the latter do not involve long operator movement from inside the temporal clause. Rather, the P in these cases takes the entire embedded event as its complement. The Ps in this class – both in English and in Hungarian – also share the property that they pattern with non-temporal prepositions in certain respects. The same P elements can have non-temporal meanings (like *since* or *while*), and they do not allow the low reading in multiple embedding constructions.

4.2 Finite CPs as temporal modifiers

As mentioned in the introduction, there is yet another strategy in Hungarian for constructing temporal modifiers. This strategy involves a full-fledged CP (as evidenced by the presence of the complementizer *hogy*) that is most natural on the right edge of the sentence, with the clausal expletive *az+P* indicating the role (topic, focus or neutral) of the clause in the appropriate position in the main clause. The modified classification of the two types of P elements – temporal relatives and event relatives – gives us the class of Ps that can participate in this construction readily: the class selecting a propositional complement is precisely the ER class. Examples with each relevant P (all postpositions and the single suffix *–ig*) are given below:

(164) a. ***Addig*** *kavargattam a levest,* ***hogy*** *felforrt.*
Dem-until I-stirred the soup-Acc Comp prt-boiled
'I stirred the soup until it started to boil.'

b. ***Azóta,*** ***hogy*** *elmentél, szomorú vagyok.*
Dem-since Comp you-left sad am
'I have been sad since you left.'

c. ***Azelőtt*** ***hogy*** *a Lufthansához állt, másodpilóta volt.*
Dem-before Comp the Lufthansa-to stood co-pilot was
'Before he went to work for Lufthansa, he was a co-pilot.'

d. *Sok barátod lett* ***azután,*** ***hogy*** *híres lettél?*
many friends became Dem-after Comp famous you-became
'Did you start having a lot of friends after you became famous?'

e. ***Azalatt,*** ***hogy*** *a csizmáját lehúzta, imádkozott.*
Dem-during Comp the boot-Poss-Acc pulled-off he-prayed
'While he was pulling off hits boots, he was praying.'

f. ***Aközben*** ***hogy*** *fórumozok, az államvizsga tételeimet dolgozom ki.*
Dem-during Comp I-chat the final exam questions-Acc I-prepare prt
'While I am chatting (on the internet), I'm working on my final exam questions.'

To show that the construction is in fact limited to members of the ER class, let us first ascertain that the temporal relative (time-period) uses of *-ig* and *óta* are not possible here:

(165) a. ***Azóta,*** ***hogy*** *megérkeztél…*
Dem-since Comp you-arrived…
'Since you arrived…'

b. ??***Azóta,*** ***hogy*** *itt* *vagy…*
Dem-since Comp here you-are…
'Since you've been here…'

c. ***Azóta,*** ***amióta*** *megérkeztél / itt vagy…*
Dem-since Dem-Wh-since you-arrived / here you-are…
'Since you arrived… / you've been here…'

d. ***Addig,*** ***hogy*** *felforrt* *a víz…*
Dem-until Comp prt-boiled the water…
'Until the water started to boil…'

e. ****Addig,*** ***hogy*** *forr* *a víz…*
Dem-until Comp boils the water…
'As long as the water is boiling…'

f. ***Addig,*** ***ameddig*** *felforrt / forr* *a víz…*
Dem-until Dem-Wh-until prt-boiled/boils the water…
'Until the water started to boil… / As long as the water is boiling…'

As the above examples show and as discussed in earlier sections, *-ig* and *óta* (on their different readings) are possible with either punctual or durative complement clauses (see (165c) and (165f)). At the same time, the CP-construction only accepts the latter – that is, complementation of *-ig* and *óta* by a clause featuring a punctual event, which was analyzed above as belonging to the event relative class. This shows that it is actually the selectional properties of the P elements that play a role here, so it is not a lexical property of a P whether it can or cannot take a finite CP complement.

While (164e-f) do attest that durative events are possible in the embedded CPs of this construction, examples with *közben* and *alatt* 'during' are admittedly not all that common. Given this, and the fact that only the 'punctual' uses of *-ig* and *óta* are possible, we might suspect that the restriction in fact has nothing to do with the temporal relative vs. event relative distinction. It would seem that CP-temporals are simply restricted to time points. This, however, does not turn out to be correct, since the remaining 'punctual' suffixes (*-kor* 'at' and *-korra* 'by') are ungrammatical in this construction:

(166) **Befejezem a vacsorát* ***akkor / akkorra*** ***hogy*** *megjössz.*
I-finish the dinner-Acc Dem-at / Dem-by Comp you-arrive
'I will finish the dinner when / by the time you arrive.'

Since all of the event relative Ps are (more or less freely) allowed in the CP-relative construction, I conclude that the restriction governing this construction is the same semantic classification that separates the ERs from temporal relatives. Namely, the P in question must be allowed to take a complement larger than a time expression – an event or proposition. Naturally, it would be desirable to derive this property from an analogous structure, and one way this could be implemented is to take these CP-constructions to be simple RCPs, which are, as discussed in Chapter 1, 'sentence radicals' (propositions with truth value but no assertive force). Such CP's are not asserted but only mentioned as referential entities – as full descriptions of states-of-affairs, just like when they are used as a direct object or another complement of V. In fact, these 'finite CP-temporals' share a number of properties with factive object clauses. First of all, CP-temporals are distinguished from the ER temporal clauses by the fact that they do not allow counterfactual readings. It is well-known that certain temporal adjunct clauses – mostly *before*-clauses – can be interpreted as counterfactual, meaning that they refer to situations that were not realized (usually as a result of what happens in the main clause). This type of reading is incompatible with finite CP-temporals (167b) but are compatible with ER temporals (167a), which, being adjuncts, presumably do not have a truth value:

(167) a. *Elindulok,* ***mielőtt*** *lekésem a buszt.*
I-leave Wh-before prt-I-miss the bus-Acc
'I'm leaving before I miss the bus.'
b. **Elindulok* ***azelőtt,*** ***hogy*** *lekésem a buszt.*
I-leave Dem-before Comp prt-I-miss the bus-Acc
Intended: same as (167a)

While (167a) can be interpreted as the English translation (where my leaving will prevent me from missing the bus) (167b) does not have this reading, only the absurd reading where my plan is to leave and thereafter miss the bus. This is related to the fact that CP-temporals are normally presupposed, and they show a certain similarity to non-temporal embedding (see above, and also Sawada & Larson (2004) for discussion of the contrast between presupposed causal embedded clauses and contextually new temporal adjunct clauses). In fact, these embedded CPs have meanings that are closer to a causal reading, and, just like in English, some of the same P's can also function as causal connectives even in event relative constructions:

(168) ***Miután*** *nem tudom a nevét, Benőnek hívom.*
Wh-after not I-know the name-his-Acc Benő-Dat I-call-him
'Since I don't know his name, I always call him Benő.'

While the discussion of causal adverbial clauses and a full typology of the available constructions clearly falls outside the scope of this chapter, it is interesting to note that the semantic (selectional) motivation for the temporal relative vs. event relative split receives further support from abundant examples showing a parallel behavior between causal and other non-temporal embedding constructions and temporally interpreted event relative constructions. Namely, the class of P-elements that form event relatives in the temporal domain often also act as connectives for causal or other, more loosely interpreted constructions.

5 Summary and conclusions

In this chapter I have argued for the existence of two different strategies for forming temporal adverbial clauses – temporal relatives, where a temporal expression from inside the adverbial clause is relativized via long operator movement, and event relatives, where the event operator (just like in RCPs) moves more locally, from the TP-domain to the CP-layer. I have demonstrated that this distinction corresponds to robust syntactic effects, especially in the realm of long-distance dependencies. Looking at the properties of the suffix *-ig* 'until' in detail has shown that, despite the dual distribution of this P (originating either inside the adverbial clause and taking a time expression as its complement, or starting out higher and connecting the matrix and embedded events), the seemingly complex pattern of Hungarian facts supports the 'single-*until*' line of analyses, and does not warrant the introduction of special machinery like 'stativizing' or 'expletive' negation. The three-way contrast among uses of this suffix (involving no negation, predicate negation, and Neg-raising out of the adverbial clause) was shown to follow from the interaction of *-ig*, negation and focus structure. Based on the observations made about Hungarian, I have extended this analysis to English temporal adjunct clauses, proposing that the same temporal relative vs. event relative division can be exploited there as well to account for the availability of long-distance dependencies. Finally, I have suggested a parallel between event relatives in the temporal domain and other constructions disallowing the low construal and thus argued to feature local operator movement (i.e., event relativization), namely conditionals, causal adverbial clauses and factive complements (or RCPs). Some aspects of the issues that I have touched upon in this paper (among others: the role of referentiality in relative operator movement, the technical details of Neg-raising in adjunct clauses and its interaction with embedded focus, or the connection between event relatives and non-temporal constructions) are left open for further research.

Operator Movements in Embedded Clauses – Summary and conclusions

In this thesis I have attempted to provide a partial typology of embedded clauses with a view to their internal syntactic structure. The three basic clause types I have looked were: 1) those featuring *long operator movement* such as classic relative clauses and temporal relatives; 2) those involving *short operator movement* such as a subclass of temporals referred to as event relatives, as well as a medley of other clause types like conditionals and referential object clauses (of which factive embedded clauses are a subtype); and 3) those showing no evidence of operator movement such as main clauses and object clauses displaying main clause properties. The agenda I have pursued is that the internal structure and external syntax of clauses only reflect core semantic properties like the semantic object a certain temporal preposition requires as complement (i.e., a temporal element/variable or a fully-formed eventuality) or the referential properties of the clause itself. Other factors such as pragmatics (i.e., givenness versus novely of information, assertion versus mention, and so on) or lexico-semantics (i.e., the factivity of the selecting verb) only indirectly play a part in as much as they may exclude certain configuations due to incompatibility.

The advantage of the analysis I have proposed is that it brings together and clarifies a number of observations that have been floating around in the literature but have not been linked up. For example, the 'nominal property' of clauses I have analyzed as involving short operator movement turns out to be none other than referentiality, drawing a straightforward parallel between referential DPs and CPs, and making the well-known concept of CP/DP parallelism more systematic and complete. As such, it becomes clear that we should not expect to characterize or define clauses showing the relevant 'nominal' property in terms that are applicable in the clausal domain only (such as 'assertion' or 'factivity'), an enterprise that has been shown manifold to be hopeless anyway, both in prior literature and in this thesis. The notorious difficulty of finding adequate pragmatic characterizations for such 'nominal' clauses turns out to reflect a deeper flaw with the approach: the relevant clauses are differentiated by their syntactic structure and the core semantic property of referentiality, rather than contextual or discourse factors. This is supported by their parallelism both with temporal and other adjunct clauses similarly derived by short operator movement, as well as with referential DPs, whose properties and context-independence are rather well-established in the literature (but, once again, not normally brought into the discussion of the structure of embedded clauses).

There are naturally challenges to be overcome, and details to be ironed out. A strictly syntactic account has the benefit of making clear predictions about the syntactic behavior of particular constructions. For example, the classification of both 'factive' complement clauses and some temporal clauses (e.g. *while*-clauses) as event relatives predicts certain (attested) parallels in their syntax that sets them apart both from clauses derived without operator movement and from ones involving a long operator chain. Such an account does, however, strip away important semantic and pragmatic questions, such as the incompatibility of particular syntactic structures with pragmatic/discourse situations and semantic environments. Although I have touched upon these issues in the chapters, the details remain to be clarified and formalized.

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