Temporal adverbial clauses with or without operator movement

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1 Introduction

In this chapter I discuss syntactic strategies for forming temporal adverbial clauses. The central observation is that temporal relative clauses differ as to whether the relative operator moves from inside the clause to the left edge (as in standard relative clause formation) or originates in a high position. Taking my core data from Hungarian, I look at standard temporal relative clauses, ‘IP-relatives’ (as proposed by Lipták 2005), and temporally interpreted embedded CPs (introduced by a complementizer). When a P takes a temporal expression as its complement, the formation of the adverbial clause involves a standard relative clause derivation. Meanwhile, when the P selects the entire embedded event or proposition, there is no operator movement from inside the adverbial clause. In the main part of the paper I focus on diagnostics and syntactic/semantic effects associated with this division within the P-class 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’. At the end, 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 paper to the said construction in English.

The three constructions mentioned above are illustrated in (1-3):

(1) Nem láttam (az-óta), (a)mő-óta dolgozik.
    Neg I-saw AZ-since (AZ-)MI-since he-works
    ‘I haven’t seen him since he’s been working.’

(2) Nem láttam (az-óta), (a)mő-óta elkezdett dolgoznii
    Neg I-saw AZ-since (AZ-)MI-since 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 (1) and no in (2-3)). They also differ structurally: while the embedded clause in (1-2) is formally a relative clause, in (3) it is clearly a full-fledged CP, as evidenced by the presence of a complementizer.

In the examples above, I have not glossed “az-” (or its allomorph “a-“) or “mi-” because it is hard to find a suitable gloss for these. “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. “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”).

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-. The availability of each construction in (1-3) is restricted by the P used. Lipták (2005) gives a thorough analysis of structures (1-2) and the variation therein, focusing on how different suffixes and postpositions behave in this construction, and how each type of P interacts with the syntactic properties of the temporal clause. 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 construction (3).

The paper is organized as follows. The first part of the discussion reflects and hopefully improves upon Lipták’s (2005) analysis of the relative clause constructions illustrated in (1-2). In Section 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 – standard relativization and IP-relativization –, which explains the diverging properties that the two classes of P elements show with respect to constructions (1-2). 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 Section 3, I outline some evidence to show that the suggested modification in the classification of temporal suffixes and postpositions actually follows from the semantics of these P elements. I primarily focus on the exceptional properties of –íg ‘until/while’ and óta ‘since’. Both of these Ps will turn out to have dual distribution, and thus their behavior with respect to Lipták’s diagnostics is expected. In particular, –íg is able to form both regular relative clauses (relativizing a temporal modifier of the embedded predicate) and IP-relatives (originating outside the adverbial clause) – a distinction that is evidenced by the availability of long-distance dependencies, the licensing of negative quantifiers, and a host of other syntactic and semantic effects. I argue that, despite the structural ambiguity and other (dialectal) complexities observed with –íg, the Hungarian data can be analyzed without positing two lexical entries for the suffix. At the end of Section 3, we arrive at a structural division with Ps taking times as their complement and forming standard relative clauses via operator movement on one side, and Ps selecting events and acting basically as connectives with no movement from inside the adverbial clause on the other.

In the next part of the paper, I turn to construction (3). In Section 4, I discuss an interesting outcome of the modified classification presented in Sections 2 and 3, namely that the group of P elements that can take an event (IP) as their complement is the same as the group that can select a proposition (CP) and thus participate in a construction like (3) above. I discuss the properties of CP-temporals, contrast these with causal embedded clauses, which often feature the same P elements, and show that there are steadfast syntactic diagnostics for telling the two types apart. Section 5 presents the extension of the account to long-distance dependencies in English temporal adjunct clauses, and the role of specificity in the type of operator movement relevant to the topic at hand (e.g. movement of the relative operator out of a weak island). I suggest that the two relativization strategies demonstrated for Hungarian are attested in English as well, and differences with respect to 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.

2 Lipták’s (2005) classification of temporal P-elements

In her paper on temporal adjunct clauses, 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’ (a.k.a. ‘since-type’) and the ‘a-less type’ (a.k.a. ‘before-type’), and 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. The two types are the following:

**a-type / since-class:**
- kor “at”; -korra “by”; óta “since”; -ig “until/for”

**a-less type / before-class:**
előtt “before”; után “after”; alatt “during”; közben “during”

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

**Property 1: Only since-type relative pronouns feature the “a-” element**

Lipták notes that while relative pronouns formed with ‘since-class’ Ps can optionally be introduced by a- without resulting in any meaning difference (4a), ‘before-class’ postpositions normally do not combine with a-, and if they do, the meaning changes, and the relative pronoun is interpreted specifically as referring to the event of the main clause (4b):

(4)  

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.’
Lipták concludes that (4c) is standard clausal relativization, where the relativized element is the main clause. When used as a temporal connective, relative pronouns formed with the ‘before-class’ cannot feature the $a$-.

**Property 2: Combination with nouns**

While the members of the ‘since-class’ can readily combine with nominal heads, the members of the ‘before-class’ cannot:

(5)  

(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.’

**Property 3: The availability of long-distance dependencies**

Long-distance dependencies (so-called ‘low readings’) in temporal constructions in English have been discussed in the literature, the classic example being the ambiguous (6) (Larson 1990):

(6)  

$I saw Mary in New York before she claimed she would be there.$

The relevant thing to note about (6) is that, in addition to the so-called ‘high reading’ (where *before* takes one of its temporal arguments from the middle clause) a ‘low reading’ is also available, where the time of the lowest clause event supplies one of the arguments for the preposition. On this reading, the sentence means: ‘Mary’s claim was that she would be in New York at time $t$. I saw her in New York before $t$.’ In Hungarian (as in English), not all Ps allow the long-distance dependency leading to the ‘low reading’ above – according to Lipták, only members of the ‘since-class’ are compatible with this reading. The contrast is illustrated below:

(7)  

(a) *Add-ig maradok, a-meddig mondod, hogy maradjak.  
    Dem-until I-stay Dem-Wh-until you-say Comp I-stay-Sub  
    High: ‘I will stay as long as you keep saying I should stay.’  
    Low: ‘You tell me I should stay until time $t$. I’ll stay until time $t$.’

(b) *Az-után indulok, mi-után mondod, hogy Péter elindult.  
    Dem-after I-leave Wh-after you-say Comp Peter left  
    High: ‘I’ll leave after the time of you telling me that Peter left.’  
    *Low: ‘I’ll leave after time $t$. You tell me that Peter left at time $t$.’
Based on the diagnostics above, Lipták convincingly shows that the ‘a-class’ (‘since-class’) and the ‘a-less class’ (‘before-class’) 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 a property specified in the lexicon. Nevertheless, the fact that the above four properties coincide with a particular P’s class membership leads her to posit two different syntactic structures for the two classes – shown below:

The members of the ‘since-class’ form run-of-the-mill relative clauses:

\[(8) \quad a\text{-mi-ót}a \quad ismeri \ Annát \]

\[\{_{CP \ Dem-\text{Wh-since}\{_{IP \ he\ knows \ Anna \ e,}]\}\]

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. Thus, (8) reads something like “The time since which he has known Anna...”

Meanwhile, the postpositions in the ‘before-class’ form ‘IP-relatives’:

\[(9) \quad mi\text{-közben} \quad Anna \ vásárolt \]

\[\{_{PP \ during\{_{DP \[_{CP \ [_{RelP \ Wh\{_{IP \ Anna \ shopped]]]}\}}\}}\}\]

where “mi” is a relative determiner 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). In a very intuitive sense, IP-relativization is understood as an alternative to nominalization, so the meaning of (9) is akin to “during Anna’s shopping.” I will not concern myself with the technicalities of the two constructions here - the crucial contrast between (8) and (9) that I will focus on in what follows is that (8) involves relativizing an expression from inside the adverbial clause via movement, which results in the sharing of this expression between the two clauses, while (9) treats the relativized IP as a closed unit, with no movement taking place out of it, and interpreted as an indivisible event. In the latter case, the P element functions as a temporal connective.

Since 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’, I will abandon these labels in order to avoid confusion. For the rest
of the chapter, I will refer to the first class of P elements as the ‘temporal relativization’ class and to the second as the ‘IP-relativization’ class.

In what follows, I adopt the basic spirit of Lipták’s analysis, namely that there are two (partially overlapping) classes of P elements in the Hungarian temporal domain, and these two classes employ at least two different strategies for forming temporal adverbial clauses. The intuitive appeal 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. In some cases, this clearly has to do with the semantics of these Ps: while some P elements take time expressions as their complement, others take events (or, as we will see later on, even larger chunks, propositions). Thus, Ps taking part in the IP-relativization strategy are essentially connectives taking two events as their arguments and relating these to each other (which means that there is no operator movement from inside the adverbial clause, and thus no necessary “shared” time between the two clauses – as there is indeed none with before or after, which involve no temporal overlap).

Unfortunately, the intuitive basis for this classification only extends so far. There are two members of the IP-relativization 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 like (9), for example, could easily be derived through standard relativization since ‘during’ is symmetrical, so the times of the two events always overlap. Lipták herself mentions this (her example (39)). She also notes, however, that while közben and alatt are not necessarily classified as ‘IP-relativization’ postpositions based on their semantic properties, their syntactic behavior still likens them to ‘before’ and ‘after’, suggesting that the characteristics dividing the Ps into two classes are essentially syntactic in nature. Before I turn to these syntactic diagnostics, let me discuss this point in some detail, since it will lead up to the in-depth discussion of the two P-classes in a straightforward way.

There are two related diagnostics that seem to unambiguously place közben and alatt in the IP-relative class:

a. In Hungarian, question words cannot be formed with Ps from the IP-relative class: *mi-előtt ‘before-wh?’ *mi-után ‘after-wh?’ *mi-közben? ‘during-wh’ *mi-alatt? ‘during-wh?’
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:

(10) **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, should come as no surprise. Unlike the ‘temporal relativization’ suffixes and postpositions, these 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 (as evidenced by (10) above) and as relative pronouns (as Lipták shows in the IP-relative cases).

b. **No member of the IP-relative class can easily combine with a nominal head** (see (5))

Once again, if we take the basic defining property of the IP-relative class to be that they take two events as their arguments and specify the relationship between these two events, this fact falls out naturally. Actually, we might expect that nouns with a strongly eventive interpretation would accept PPs containing an IP relative as their modifier, and this is borne out:

(11) a. *A beszélgetés - mi-közben* Dezső a lányokat, Varga  
the conversation Wh-during Dezső the girls-ACC Varga  
János a lovakat néte szakértő szemmel –  
John the horses-ACC watched expert eyes-INSTR  
itlenformán alakult:  
this-way went  
‘The conversation, while Dezső was watching the girls, and János Varga the horses with expert eyes, went on this way:’

b. *? A beszélgetés mi-után* Anna megjött kellemetlen volt.  
the conversation Wh-after Anna arrived unpleasant was  
‘The conversation after Anna’s arrival was unpleasant.’
c. */?\textit{A nap} mi-után Anna megjött emlékezetes volt.  
\textit{The day after Anna arrived was memorable.}

d. Jól telt az 1 óra mi-alatt anya számot adott tudásáról.  
\textit{The hour while Mother gave proof of her knowledge went well.}

If the semantics of \textit{közben} ‘during’ and \textit{után} ‘after’ requires that they take two events as their arguments (one specified by the temporal IP) 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. Thus, without a context, a simple temporal noun like \textit{nap} ‘day’ does not work here. In (11d), however, we see that when the context forces the eventive interpretation of the nominal head (something that “went well” – esp. since the embedded clause provides the content – is certainly an event) the sentence is grammatical. 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 IP-relatives combining with nominal heads. Her explanation for this alleged ban is that IP-relatives only contain a relative clause but are externally PPs. This may be so, but it is unclear why a PP could not combine with a nominal head? The examples in (11) 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.

Based on the above, I will therefore take the P’s selectional properties, the presence or absence of operator movement internally to 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 the standard relativization strategy, which in turn results in shared temporal reference between the two clauses, while a P that takes an event as complement will use the IP-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.
3 A new classification of temporal P elements

In this section I aim to show that, albeit there is a lot of speaker variation with respect to constructions (1-2), 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. The main points of this section are the following:

i) While in fact the members of the IP-relativization class can also often be introduced by the $a$-, thus invalidating (at least for the dialect I deal with here) the distinction that is based on this morphological property, it turns out that there are two kinds of speakers in this regard: speakers who truly do not allow $a$- with these Ps, and speakers who allow $a$- with all Ps, and for whom the presence of $a$- results in a syntactic/semantic effect (albeit to varying degrees). For the dialect that allows $a$- with the ‘IP-relative class’, the properties of $a$- for the two classes are still somewhat different, suggesting a difference in the internal structure of the pronoun.

ii) The 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 temporal relativization class are: a) that the P should take a time expression from inside the embedded clause as its complement; and b) that this time should be shared between the two clauses as a consequence of operator movement to the left edge of the adverbial clause, we can proceed to redraw the line between the two groups. We find that this re-grouping actually makes for a scenario where the original prediction (namely, that only members of the temporal relativization group should allow the long-distance dependency) is borne out.

3.1 The availability of the ‘a-forms’

As mentioned in the introduction, there is a dialect of Hungarian where the ‘a-forms’ are only available for certain P elements, namely the temporal relativization 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:
As the above examples show, the a-form is actually possible with all of the IP-relative class Ps, and it occurs in a wide range of registers (from an encyclopedia to the language of chatrooms). While some speakers do not accept these forms, this may be due to prescriptive factors or dialectal differences. In either case, speakers who do accept examples like those in (12) 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 standard relativization class (14) as in the IP-relativization class (13):

(12) a. Ami alatt a nőstény ül, azalatt a hím Thr-dem the-female sits Thr-during the-male 
    hord neki ennivalót. Dem-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 Novemb-in Dem-Wh-before I-home-went completely 
    meghalt a PC-m. 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)

I return to a possible explanation for this contrast in the last section. For now, suffice it to say that the presence or absence of a- certainly does not
place a P element into one or the other class. Thus, I will pursue the line that the distinction lies in the P’s selectional properties, which in turn result in syntactic effects such as the availability of long-distance dependencies.

3.2 Long-distance dependencies

The reader will recall that the so-called ‘low readings’ are only available for members of the temporal relativization class and this fact is related to their status as run-of-the-mill relative clauses – see (7a)/(15):

(15) \textit{Add-ig maradok, a-medd-ig mondod, hogy maradsz.}
\begin{itemize}
  \item Dem-until I-stay \hspace{1cm} Dem-Wh-until you-say \hspace{1cm} Comp you-stay
  \item High: ‘I’ll stay as long as you keep saying you will stay.’
  \item Low: ‘You say you’ll stay until time t. I will stay until time t.’
\end{itemize}

However, the construal of the low reading only seems to work if the times between the two clauses are in exact match – thus, the following sentence does not have the relevant low reading:

(16) \textit{Add-ig maradok, a-medd-ig mondod, hogy megjössz.}
\begin{itemize}
  \item Dem-until I-stay \hspace{1cm} Dem-Wh-until you-say \hspace{1cm} Comp you-arrive
  \item High: ‘I’ll stay as long as you keep saying that you’ll arrive.’
  \item *Low: ‘I’ll stay until time t. You tell me that you’ll arrive by time t.’
\end{itemize}

As noted earlier, only Ps that select a time (rather than an event) as their complement and thus result in temporal matching between the two clauses via standard relative clause formation allow the low reading. The times picked out by the two events in (16) do not match up because arrival is a point in time, while staying is durative. A fundamental characteristic of the temporal relative class is that - like in a regular relative clause – the times of the two events are shared; any case when this interpretation is not possible (e.g. the use of \textit{–ig} ‘until’ and \textit{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 an operator-variable chain. IP-relativization is, as noted above, an alternative to nominalization – basically converting an event into a referring expression that can serve as the complement to a preposition – and this is mirrored in the fact that the use of \textit{–ig} with a punctual event in the relative clause is actually freely paraphrasable as a nominalized structure:
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 $P+mi$ complex that moves up to RelP. This analysis works well for some examples of these Ps (see (8) for example) but not for other instances of the same suffixes and postpositions. Take –ig as used in (17a):

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

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

In (18) 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. We can conclude that the use of –ig in (16-18) - unlike the use of -ig in (15) - does not conform with the requirements for belonging to the temporal relative class. The times of the two 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 along the lines of the IP-relative class, with which it patterns syntactically as well.

The same effects can be shown for the ‘punctual’ use of óta ‘since’:

(18) a-medd-ig Péter megérkezik
   [cp Dem-Wh-until, [ip Peter arrives e]]

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

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

c. *Azóta vagyok ideges, amióta mondtad,*
    Dem-since I-am tense Dem-Wh-since you-said
    hogy Péter itt van.

Comp Peter here is
‘I have been tense since you said Peter has been here.’ (low reading OK)

(20) 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 (19) attests, óta ‘since’ also shows dual behavior: when the event denoted by the temporal clause is durative, óta allows the low reading, but when the relativized event is punctual, the low reading becomes unavailable. And as (20) demonstrates, it is precisely the problematic point-in-time use that can be easily paraphrased as a nominalized form.\(^\text{11}\) Once again, if we tried to derive the meaning of (19b) via the temporal relativization strategy, we would arrive at the wrong result, something like ‘Peter arrived since time t’ constituting the embedded clause, while interpreting the example as an instance of IP-relativization (with the postposition as well as the relative operator originating outside the adverbial clause) yields the right meaning.\(^\text{12}\)

Therefore, if we want to maintain the structural correlation that only real relatives, but not IP-relatives, make the low reading possible, we simply have to modify the classification slightly, and say that –ig and óta are able to form standard relative clauses (where they combine with a temporal operator inside a durative event) or IP-relatives (where they combine with a punctual event from the outside). I return to the question of whether this ambiguity is lexical or structural in the next section. In either case, the former, but not the latter, use of these P elements patterns with the temporal relative class. The use of these two Ps that features a punctual event in the temporal adverbial clause, however, belongs in the IP-relative class, which now contains the following P elements:

(21) **IP-relative class** (revised): előtt ‘before’; után ‘after’; közben ‘during’; alatt ‘during’; -ig ‘until’; óta ‘since, time pt.’

In the next section I discuss in detail how the structural ambiguity observed with –ig manifests itself in Hungarian. Then I turn to the finite CP strategy, which turns out to be available precisely for the Ps listed under (21), the members of the IP-relative class.
3.3 Adverbial clauses with –ig and the ‘until-puzzle’

The syntactic and semantic properties of temporal clauses featuring –ig ‘while, until’ vary greatly across regional dialects as well as individual speakers of Hungarian. In what follows, I will start out by discussing the least restrictive dialect (spoken primarily by speakers born and raised in the capital city Budapest), which displays the three-way contrast illustrated below in (22). After looking closely at the three constructions and proposing an analysis to derive them, I turn to dialectal differences.

\[(22)\]

<table>
<thead>
<tr>
<th></th>
<th>itt maradok,</th>
<th>ameddig</th>
<th>emma át-jön.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>here I-stay</td>
<td>Dem-Wh-until Emma over-comes</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>here I-stay</td>
<td>Dem-Wh-until Emma not comes over</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>here I-stay</td>
<td>Dem-Wh-until Emma over not comes</td>
<td></td>
</tr>
</tbody>
</table>

‘I’ll stay here until Emma comes over.’

The three sentences in (22) are truth-conditionally equivalent but have diverging pragmatics. (22a), as discussed in the previous section, is an IP-relative construction with –ig originating outside the adverbial clause, and involves no relative operator movement from inside the clause. This is confirmed by the fact that this construction does not allow the low reading in multiple embedding (see (16)). In this use, –ig functions as a connective between the durative main clause event and the punctual event defined by the temporal clause. The examples in (22b) and (22c), both involving negation in the lower clause, also differ in terms of implicatures. (22b) is simply a statement about two simultaneously occurring states/activities, with no further implications. In the concrete (22b) scenario, the sentence asserts that my staying will coincide with Emma’s not having come over. At the same time, (22c) seems to implicate that, once the event in the lower clause takes place, the situation will reverse – so: I will leave when Emma appears.

The discussion is organized into the following sections. First, 3.3.1. 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 data. 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 admitting ‘expletive negation’ into the
model. In 3.3.2., I look at syntactic and semantic differences among the three constructions illustrated in (22), putting aside pragmatic effects for the time being. I show that the examples (22b) and (22c) are differentiated structurally by the position where the negation is interpreted (higher than its surface position for (22c)), which leads to a number of syntactic contrasts (the scope of negation with respect to other operators, the licensing of negative quantifiers) as well as semantic effects (the lack of a ‘stativizing’ effect of negation – which in turn results in a punctual reading on the temporal clause). In 3.3.3., I return (rather briefly) to two dialects that allow only a subset of (22). As mentioned above, the dialectal discussion will be limited to outlining tendencies and the beginnings of an analysis of the variation observed, focusing primarily on syntactic diagnostics.

3.3.1 Until and negation

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 and Vegnaduzzo’s (2000) work on Spanish and Italian; and Eilam and Scheffler (2007) on Hebrew). In the discussion of the Hungarian facts below, I focus primarily on syntactic diagnostics to detect differences in structure – while in this section I take a quick look at the central questions raised in the literature on until.

*How many ‘until’-like elements are there in the lexicon?* Based on English data like (23), the existence of at least two types of ‘until’ – punctual and durative – has been discussed:

(23) a. John slept / didn’t sleep until 5 pm / until Jane left.
   b. John didn’t arrive until 5 pm / until Jane left.
   c. *John arrived until 5 pm / until Jane left.

Sentences like (23b) raise a number of interrelated issues. While the use of until here has been called punctual\(^{15}\) (since the matrix verb is eventive), the until-clause is only licensed if the matrix predicate is negated (compare (23c)). This observation has led to two diverging types of explanation. One line of reasoning says that the negation in (23b) functions as a stativizer (cf. Mittwoch (1977) and her later work) – thus, there is only one, durative kind
of *until*. More specifically, the *until*-phrase or –clause supplies the endpoint to the activity or state with which it combines. Negation and *until* are claimed to scope freely with respect to one another, yielding two possible readings for (24a) but only one for (24b):

(24)  

a. John didn’t sleep until 5.  
   Neg > until: It is not the case that John slept until 5 (because he woke up earlier than that).  
   until > Neg: Until 5, John was awake (maybe fell asleep after).  

b. John didn’t arrive until 5pm.  
   *Neg > until: It is not the case that John arrived until (by) 5.  
   until > Neg: Until 5, John was in the state of not having arrived.

The unavailability of the Neg>until reading in (24b) follows from the fact that *until* is unambiguously durative on this account, so it can only combine with an eventive predicate after it has been stativized by negation. At the same time, Giannakidou (2002), rejecting the ‘single-*until*’ account, argues that a Mittwoch-style analysis has trouble explaining the different entailments that are associated with (24a) and (24b). On her view, (24a) entails nothing about what happened after 5, even on the wide scope reading of *until*. Meanwhile, (24b) entails a switch in the state of affairs that happened 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 (24b) is only felicitous if John actually arrived at 5pm or soon thereafter. Instead, following Karttunen (1974), Giannakidou claims that at least two types of *until* must be posited: stative-unti and NPI-unti (the latter licensed in English sentences like (24b) and also corresponding to a distinct lexical item in Greek). NPI-unti is eventive, and thus leads to the said entailment.\(^{16}\) It is a debated issue, however, whether the pragmatic import associated with sentences like (24b) is in fact a case of entailment (as in Giannakidou (2002)), a presupposition (e.g. Declerck (1995)), or a cancelable implicature (Mittwoch (2001)).\(^{17}\) The issue is far from settled, and – due to limitations of space – I will confine the discussion of this matter to the presentation of such facts and observations as relevant to the syntactic structure of these constructions. In particular, it is worth noting that focusing the adverbial clause (achieved in English by prosodic means) brings out the ‘switch’ entailment in (24a) just as easily as in (24b) (contrast (25a) and (25b) 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 (25c)).\(^{18}\)
This fact will become relevant for Hungarian, where the construction that most naturally lends itself to the ‘switch-reading’ ((22c)) typically involves focus – but (22a) and (22b) can also be given the ‘switch’ interpretation if we focus the adverbial clause, just like in English. This suggests that the entailment is probably not construction-specific, and thus the existence of the ‘switch-reading’ is not a reliable syntactic diagnostic.

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 to this) 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 illustrated for (24b) 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 (24b) is not to stativize the verb 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, (24b) 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 here. 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. In particular, Abels (2005) discusses the role of negation in Russian until-clauses. In Russian, negation in a number of constructions has been labeled expletive because, while it licenses genitive of negation, it fails to license negative quantifiers.
(unlike standard instances of negation). Arguing that ‘expletive negation’ is an unnecessary (and semantically unlikely) complication to the syntactic model, Abels proposes an account whereby negation originates in the same designated functional projection (call it NegP) in every case, and derives the relevant licensing facts by having the negation LF-move out of the adverbial clause to enter into a local relationship with until. Once outside the adverbial clause, negation cannot license negative quantifiers (which require a clausal licensor) but can agree with a genitive-of-negation direct object at some earlier point during the derivation (as genitive of negation allows ‘online’ licensing).

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. ‘Stativizing’ negation is not expletive in this sense, since it affects event structure – presumably by negating some part (e.g. the culmination). In either case, the interpretation we expect negation to induce depends crucially on its syntactic position – both in surface syntax and at LF. Thus, I focus on this question below.

3.3.2 Three until-constructions in Hungarian

How many until’s? As pointed out earlier, ‘single-until’ analyses rely crucially on two assumptions: (i) negation can influence aspect, in particular, a negated eventive predicate will be interpreted as stative; and (ii) various interpretational effects (semantic and/or pragmatic) result from scope relations between until, negation (and possibly other operators). In what follows, I will look back at the three-way contrast shown under (22) (repeated below) and outline how these examples can be viewed from the perspective of the above. Of the two tenets of the ‘single-until’ approach, I assume (i) without argumentation, and show that – when interpreted in its base position – negation does result in a stative interpretation. As for (ii), I will suggest that the LF position of negation is what counts for semantic interpretation, and that focus is the crucial factor influencing the pragmatics.

(26) a. Itt maradok, ameddig Emma át-jön.
     here I-stay Dem-Wh-until Emma over-comes
b. Itt maradok, ameddig Emma nem jön át.
     here I-stay Dem-Wh-until Emma Neg comes over

c. Itt maradok, ameddig Emma át nem jön.
     here I-stay Dem-Wh-until Emma over Neg comes
‘I’ll stay here until Emma comes over.’

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 event is durative rather than punctual, for example:

(27) Itt maradok, ameddig Emma munkában van.
    here I-stay Dem-Wh-until Emma work-in is
    ‘I will stay here as long as Emma is at work.’

In such cases, -ig forms a regular relative clause, whereby the time periods covered by the embedded and the matrix events are in full overlap. The ‘IP-relative’ use of –ig (as in (26a)), 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. At first glance, it seems that these two uses exemplify ‘punctual’ and ‘durative’ until but this is not necessarily the case. In fact, -ig – at least as far as (26a) and (27) attest – always takes a durative event and a point in time as its two arguments. The only difference is that the temporal relative use of –ig relativizes the time point, so it remains implicit. On this interpretation, a sentence like (28) involves relativization of the endpoint of both events, resulting in a reading where the two periods (reference time to endpoint) overlap:

(28) Várlok, ameddig Péter sétáltatja a kutyát.
    I-wait Dem-Wh-until Peter walks the dog-ACC
    ‘Peter will walk the dog until time t, and I will wait until t.’

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 apparently take either a temporal expression (a time point) or a punctual event as its point-in-time argument.21 Clearly, sentences like (28) could also be analyzed as involving a different lexical item that is homophonous with the one used in (26a) and whose meaning mirrors that of English ‘as long as’ – so far we can only say that this pair of sentences can be analyzed without lexical ambiguity. The importance of positing a single lexical item with uniform selectional properties will become clear below, when I turn to the discussion of the derivation of (26c).
The role of negation. We now turn to the negated example (26b) to see whether the ‘single-until’ approach can work here as well. The stativizing effect of negation (which is attested in English in cases like (23b)) can be tested in Hungarian in a number of ways. Firstly, while punctual predicates are normally compatible with adverbials like egyszer csak ‘all of a sudden’, duratives do not tolerate such modifiers. If, as claimed above, (26a) involves a punctual event in the adverbial clause and (26b) a durative one, then (29a) should be fine with this adverbial, while (29b) should be just as bad as the trivially unacceptable (29c). This is so:

(29) a. A szobában beszélgettünk, ameddig egyszer csak
the room-in we-talked Dem-Wh-untill all-of-a-sudden
kialudt a villany.
PRT(out)-slept the light
‘We talked in the room until, all of a sudden, the lights went out.’

b. A szobában beszélgettünk, ameddig (*egyszer csak)
the room-in we-talked Dem-Wh-untill all-of-a-sudden
nem aludt ki a villany.
Neg slept PRT(out) the light
‘We talked in the room as long as the lights didn’t go out.’

c. A szobában beszélgettünk, ameddig (*egyszer csak)
the room-in we-talked Dem-Wh-untill all-of-a-sudden
főtt a vacsora a konyhában.
cooked the dinner the kitchen-in
‘We talked in the room while dinner was cooking in the kitchen.’

Given the apparent stativizing effect of predicate negation in (29b), we expect this negated construction to parallel relative clauses formed with inherently durative predicates in the relevant ways. In particular, the suffix -ig in (30a) is claimed to participate in standard relative clause formation, and should give rise to the low reading just as easily as in (30b) - observe:

(30) a. (Addig) maradok a gyerekekkel, ameddig
Dem-until I-stay the children-with Dem-Wh-untill
mondtad, hogy Emma nem jön haza.
you-said Comp Emma Neg comes home
Low reading: ‘You told me that Emma will not come home until time t. I will stay with the children until time t.’

b. (Addig) maradok a gyerekekkel, ameddig
Dem-until I-stay the children-with Dem-Wh-untill
From the brief discussion above, we can safely conclude that run-of-the-mill predicate negation acts as a stativizer in Hungarian. It is an interesting question – one that would lead us too far off course – how exactly negation achieves this effect, or, more specifically, what needs to be negated in order to create a state out of a punctual event. Observe the following examples:

(31) a. *A sorban álltunk, ameddig nem kaptuk* the line-in we-stood Dem-Wh-until Neg we-received
    meg az ebédet.
    PRT the lunch-ACC
    ‘We stood in line until we received our lunch.’

b. *Péter ideges volt, ameddig nem láttá* Peter nervous was Dem-Wh-until Neg saw
    meg a házat.
    PRT the house-ACC
    ‘Peter was nervous until he spotted the house.’

Both examples can only be understood as accomplishments – so, they must involve a preparatory period before the culmination, and it is the culmination that seems to be negated. (This is why adverbial modifiers like ‘all of a sudden’ are not compatible with this construction.) (31a) is more natural with this reading because standing in line is understood as waiting for lunch to be served. Meanwhile, (31b) must be read as Peter searching for the house that he ends up seeing. It therefore seems that it is the culmination of these events that is removed by the stativizing negation, and the remaining part (the process or preparatory phase of an accomplishment) is the duration that is interpreted. For this reason, true achievements are strange in this construction – or force an accomplishment reading that comes out pragmatically odd in (32):

(32) #*Ameddig nem halt meg a beteg, az orvosok küzdöttek az életéért.*
    Dem-Wh-until Neg died PRT the patient the doctors fought the his-life-for
    ‘The doctors fought for the patient’s life until he died.’
We now turn to the question of how the third available construction (26c) bears on the issues, namely, the selectional properties of –ig and the role of negation. We will see that the diagnostics shown in (29-32) above yield very different results for the (26c)-type construction. I will claim, however, that this contrast does not warrant the introduction of a special type of negation, or – for this dialect – of a special Neg position.

Two types of negation? The properties of the Prt-Neg-V order are illustrated below – note the contrasts to the Neg-Prt-V variety:

(33)  A szobában beszélgettünk, **ameddig** egyszer csak
the room-in we-talked Dem-Wh-until all-of-a-sudden
ki nem aludt a villany.
PRT(out) NEG slept the light
‘We talked in the room until, all of a sudden, the lights went out.’ (cf. 29b)

(34)  *Addig itt maradok a gyerekekkel, **ameddig**
Dem-unti here I-stay the children-with Dem-Wh-until
mondtad, hogy Emma haza **nem** jön.
you-said Comp Emma home Neg comes
*Low reading: ‘You told me that Emma will not come over until time t. I will stay here with the children until time t.’ (c.f. (30a))
(The high reading is excluded due to the tense of the middle clause.)

(35)  **Amended** meg **nem** halt a beteg, az orvosok
Dem-Wh-until PRT Neg died the patient the doctors
küzdöttek az életéért.
fought the his-life-for
‘The doctors fought for the patient’s life until he died.’ (cf. 32)

As (33) shows, the Prt-Neg-V construction allows the insertion of ‘all of a sudden’, suggesting that the relative clause is interpreted as describing a punctual event. This is confirmed by (35), where we see that the natural reading of this sentence (where the patient dies ‘without preparation’, suddenly, despite the doctors’ efforts) emerges. Thus, this construction patterns for all intents and purposes with the connective use of –ig (as in (26a)), which was analyzed as involving an IP-relative without operator movement from inside the adverbial clause. (Recall that, due to the
selectional properties of the suffix –"ig, this use is only possible when the
adverbial clause is able to specify the endpoint to the duration of the main
clause.) In accordance with the predictions of the earlier sections of this
chapter, the low reading becomes unavailable in (34), suggesting that the
Prt-Neg-V order surfaces in IP-relative configurations.

The natural question to raise is whether we are dealing here with
negation that is somehow ‘special’. Rather than posit the existence of an
unusual type of negation that, for some reason, does not achieve the
stativizing effect observed in the Neg-Prt-V order above, I will argue that
negation in the Prt-Neg-V order is generated in the same position as run-of-
the-mill predicate negation but is not interpreted inside the adverbial clause.
Following Abels (2005) with some modifications, I will suggest that
negation in this construction moves outside the clause at LF and takes
scope just outside –"ig. On this scenario, the P element originates outside
the clause, so we have no operator movement from inside the adverbial clause,
and the lack of the low reading is predicted in (34). Interpreted in this high
position, negation cannot achieve the stativizing effect observed in the Neg-
Prt-V order. For ease of exposition (and somewhat pre-theoretically) I will
from now on refer to the IP-relative construction involving negation that is
interpreted outside the adverbial clause (to be demonstrated below) as the
‘Neg-raising construction’ and the temporal relative variety (where we
observe the stativizing effect of negation, which is interpreted in its base
position) as the ‘Neg-as-statitizer construction’. The rough representations
of the surface structure of the two constructions are given in (36):

(36)  a. (=26b)  [NegP nem jön [TP át … ]]  (Neg-as-statitizer)
b. (=26c)  [FocP át [NegP nem jön … ]]  (Neg-raising)

Before going on to present evidence for the LF raising of negation from its
base position illustrated in (36b) 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>TP>PredP>VP),
the only way to get the Prt-Neg-V order without positing a special position
for negation is to assume that the particle is in focus in a construction like
(26c). This is in fact what is suggested by Piñón (1991). Although some
adjustments of this simplified picture will be required to account for
dialectal differences, and it will also turn out that focusing the particle is
not absolutely necessary (albeit preferred) in the Neg-raising construction,
the schematic representation given in (36) will suffice for the purposes of
the main portion of this discussion.
In addition to its attractiveness for proponents of the ‘single-until’ approach (i.e. making it possible to analyze –ig as having a single selectional grid), the Neg-raising analysis of (26c) 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. Since the Hungarian data are similar in this respect to the Russian facts discussed by Abels (2005), I will not dwell on them too much here. 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 ‘Neg-as-stativizer’ construction, and disallowed in the ‘Neg-raising’ construction22:

(37) a. *Ameddig nem veszünk fel senkit,  
      Dem-Wh-until Neg we-hire PRT nobody-ACC  
      többet kell dolgoznod.  
      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 (37), 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. If we want to maintain that negation is always generated in the same position (cf. (36)), 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.

Stronger 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:

(38) a. Itt maradok, ameddig Emma biztosan
      here I-stay Dem-Wh-until Emma certainly
      nem alszik el.  
      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 here I-stay Dem-Wh-until Emma certainly nem alszik.*

PRT Neg sleeps

Neg>Adv: ‘I will stay as long as it is not true that Emma has certainly fallen asleep.’

c. Emma biztosan nem alszik el.

Emma certainly Neg sleeps PRT

Adv>Neg: ‘Emma will certainly not fall asleep.’

As (38c) indicates, the relative scopes of the adverb and negation normally reflect the surface order (cf. Egedi (this volume, Chapter 5) for extensive discussion of sentence adverbs and their scope properties). This is mirrored in the Neg-V-Prt construction in (38a), which is a case of regular predicate negation being interpreted in its surface position. (38b), 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.

Interaction with focus. I now turn to some rather intricate data to show that the instance of negation that is left-adjacent to the verb on the surface and LF-raises to a position outside the adverbial clause in what I have labeled the ‘Neg-raising’ construction also takes scope over focus in the relative clause – and, conversely, that when the wide scope of negation over focus is observed, that reading is only compatible with the IP-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 demonstrated in (39), with the focused element preceding negation:

\[
\text{[FocP XP [NegP nem V … ]]}
\]

In order to build up the argumentation, however, I must take a step back and say a few words about an issue that I have glossed over so far. Until now, I have only presented Neg-raising examples that feature the Prt-Neg-V word order, which is arguably derived by focusing the particle. (As noted above: without positing a special position for negation in these examples, this is in fact the only way to get this order – although see below on dialectal and historical issues related to this order, and also on other
constructions featuring this word order without Neg-raising). It is true that, by and large, the Prt-Neg-V order is the most prevalent configuration in the Neg-raising construction, which has led Piñón (1991), for example, to argue that this construction features obligatory focusing of the particle. The most convincing argument for this assumption is that – in the dialect at hand that has the difference between Neg-raising and Neg-as-statvizer constructions – another focused element is impossible before the particle, making (40) ungrammatical:

(40) *Itt maradok, ameddig JÁNOS fel here I-stay Dem-Wh-until John PRT

Intended: ‘I will stay here until it is John who steps out on stage.’

Note, however, that this observation only shows that negation must be in its regular position so that only one focused element can appear to its left. It does not prove that this focused element must be the particle, or that there must be focus in this construction at all. So there are two factors that need to be teased out here. First, since – as far as the discussion to this point shows – there is no necessary connection between focus and Neg-raising, it seems like Neg-raising should be derivable with focus on an element other than the particle, or possibly even without focus. Second, if it is indeed the case that Neg-raising is independent of focus, it should be clarified why Neg-raising examples involving focus (and, in particular, focus on the particle) are preferred by many speakers. The first issue will be highlighted in the discussion that follows immediately. Since word order differences between the Neg-raising and the Neg-as-statvizer constructions disappear under focus, we will need to appeal to diagnostics such as the ones used above (scope of negation, licensing of n-words) to tell the two constructions apart. It will be shown that examples involving focus on any element are compatible with the Neg-raising reading, invalidating the conclusion of Piñón (1991) that focus on the particle is obligatory. The examples will thus support the Neg-raising analysis by demonstrating that negation takes scope over focus in these cases. The question of why Neg-raising examples with focus are preferred will be briefly addressed in section 3.3.3.

To start, witness the ambiguity in (41) below:

(41) 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>Foc 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 (41) is derived via the same covert Neg-raising that I have posited for (26c) above. There are a number of distinct predictions if the reasoning above is on the right track, that is, if the Neg>Foc reading of (41) involves a (26c)-type construction (while the Foc>Neg reading is a (26b)-type temporal relative). First, to the extent that a negative quantifier is licensed in the ambiguous (41), it should only be compatible with the non-Neg-raising (Focus>Neg) reading (see (42)). (Recall that negative quantifiers are not licensed in the Neg-raising configuration.) Second, to the extent that the low reading can be constructed with (41), it should also enforce the Focus>Neg interpretation (see (43)). (Once again, low readings are out with the IP-relative construction, of which the Neg-raising examples are a subtype.) Third, if we insert egyszer csak ‘all of a sudden’ into the example, we should end up with the Neg>Foc reading, since this adverb is only compatible with a punctual reading on the event in the relative clause (which, in turn, requires Neg-raising) (see (44)):

(42) Itt maradok, ameddig JÁNOS nem nyer meg
here I-stay Dem-Wh-until John Neg wins PRT
semmit.
nothing-ACC

Focus>Neg: ‘I will stay as long as it is JOHN who wins nothing.’
*Neg>Foc: ‘I will stay as long as it is not true for anything that John has won it.’

(43) Itt maradok, ameddig montdad, hogy
here I-stay Dem-Wh-until you-said Comp
All three predictions above are borne out, suggesting that the Neg→Focus scope order in (41) is in fact a result of the Neg-raising posited in the IP-relative examples (like (26c)). Given the claims of this paper, the lack of the low reading in (43) furnishes evidence that –ig in this case originates outside the adverbial clause, and there is no relative operator movement involved in the construction. This gives us a clue as to the motivation for the raising of negation. If we accept that negation in its usual position has a stativizing effect (an assumption that seems unavoidable in light of the Neg-as-stativizer examples), a scenario where we have negation in the adverbial clause and –ig starting out from the left edge leads to a mismatch since one of the arguments of –ig must be punctual. I suggest that raising the negation to take –ig in its scope resolves this mismatch. This means that the motivation for Neg-raising is specific to until-constructions but does not have the consequence that –ig must be treated as an NPI. In accounting for the dialect that displays the three-way contrast in (26), this is a welcome result because we can make do with one –ig suffix (with one set of selectional requirements). In light of (26a) – the non-negated IP-relative example – it is clear that in this dialect –ig does not require the presence of negation. Due to its selectional requirements, however, it does not tolerate a durative event in the adverbial clause it selects in the IP-relative configuration. When we have the configuration in (45), therefore, raising negation to a position outside the adverbial clause saves the sentence:

(45)  \[ pp–ig \ldots [RelP mi \ldots [NegP nem \ldots]] \]
Hungarian – the one that displays the three-way contrast illustrated under (22)=(26) – 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 adverbial clause) in configurations where the P element originates outside the adverbial clause as a connective (the IP-relative scenario) because negation would otherwise create a stative event in the adverbial clause, which is incompatible with the P’s requirements. 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, and the lack of stativizing effect displayed by the raised negation).

Thus, the account outlined for the examples in (26) supports the ‘single-until’ line of approaches. In addition, it shows that the two (or rather, three) distinct occurrences of \(-ig\) can be analyzed in terms of structural ambiguity (that is, this P can form both temporal relatives and IP-relatives), where the rest of its properties (particularly, its interaction with negation) are explained by and in turn influence the semantics of each construction.

Before returning to the core topic of this chapter, I will briefly discuss the properties of two dialects that are more restrictive than the one described in this section, and show that – despite the fact that these dialects have very different properties from the ones outlined above – the single-until approach and the Neg-raising analysis can be maintained.

3.3.3. Dialectal differences

As mentioned above, the properties of temporal adverbial clauses featuring \(-ig\) ‘until, while’ vary greatly across regional dialects as well as individual speakers. While the dialect analyzed in the previous section is more or less uniform among younger speakers born and raised in Budapest, this can by no means be called a standard. Further, there are many speakers who only accept a subset of the constructions in (26) and have different judgments about some of the data presented above. In this section, I sketch two relatively clear-cut tendencies that display systematic differences in comparison with the ‘liberal’ dialect. The full-scale testing and analysis of such microvariation, however, falls outside the scope of this paper.
One strong tendency is that there are a large number of speakers (even among natives of Budapest) who do not accept a non-negated eventive verb inside an \(–ig\)-clause, so sentences like (26a) are ungrammatical for them. It is interesting to note that the majority of speakers who judge both (26b) and (26c) (but not (26a)) as grammatical pattern with speakers accepting all three constructions in all other respects. In particular, they consider Neg-raising examples to involve a punctual event in the adverbial clause (as evidenced by the grammaticality of an adverbial like ‘all of a sudden’, cf. (33)), accept the low reading in Neg-as-stativizer (but not in Neg-raising) examples (cf. (30a), (34)), and disallow the licensing of negative quantifiers in Neg-raising constructions (cf. (37)). This means that, apart from requiring negation in the IP-relative construction, this dialect displays the same diagnostics for Neg-raising and for a single kind of \(–ig\) suffix as does the non-restrictive dialect accepting all three versions. The question then becomes what the crucial difference is between (26a) and (26b) such that these two constructions are judged so differently by some speakers. While I do not have anything conclusive to say about this question, I would like to suggest that the central factor at play here is focus (recall that (26c) involves focus on the particle), which in turn appears to be responsible for the ‘switch-reading’. It is highly possible that, just like in English, raising negation to take \(–ig\) in its scope reinforces the focus reading on the \(–ig\)-clause (cf. the English (25c)), which seems to be preferred by this group.

More interestingly, however, there is an even more restrictive dialect (spoken primarily in Eastern Hungary and Transylvania – although, as I said, there are no clear-cut dialectal divides in this respect) that only fully accepts (26c) of the triplet discussed in the previous section:

(46) \textit{Itt maradok, ameddig Emma át nem jön.} \\
\textit{here I-stay Dem-Wh-until Emma over Neg comes} \\
‘I’ll stay here until Emma comes over.’

At first glance, this fact can be explained away easily by positing that the distribution of \(-ig\) is simply even more constrained in this dialect, such that it can only participate in an IP-relative construction and also requires combination with negation (so: only the Neg-raising construction is derivable). This is corroborated by the fact that diagnostics for the IP-relative construction work in this dialect as well (the low reading is not supported in examples like (34)). We find evidence for Neg-raising as well (negation scopes over sentence adverbs as in (38b), and it also does not
have a stativizing effect in the relevant examples (the construction tolerates adverbials like ‘all of a sudden’, cf. (33)).

Complications begin when we look at examples involving focus. Firstly, in stark contrast to what was observed in the previous section (cf. (40)), this dialect tolerates a focused element before the Prt-Neg-V order, suggesting that the particle cannot possibly be in focus in the construction:

(47) \[ Addig maradok, ameddig JÁNOS fel nem lép. \]

‘I will stay until it is John who steps out on stage.’

This word order cannot be derived by positing that the particle is in focus (hence the contrast), so we must examine the possibility that this dialect features a Neg position that is lower than run-of-the-mill predicate negation. At the same time, it is crucial to note that even in this construction Neg-raising must take place since the example in (47) only has the Neg>Foc scope reading. This, taken together with the lack of stativizing effect and the wide scope of this negation over sentence adverbs, strengthens the conclusion of the preceding section that Neg-raising is not tied to any particular position, but is rather driven by a semantic mismatch.

A tentative structure for the relevant part of (47) is given below:

(48) \[ \text{TP fel} \left[ \text{NegP nem lép [PredP ...]} \right] \]

Although I do not have much to say here about this construction, there are a couple of comments to be made. Firstly, the Prt-Neg-V order, which is quite exceptional in present day Hungarian, was the prevalent order in Old Hungarian (about 10th-16th centuries). At present, this word order only survives in a small number of contexts – here are two examples:

(49) a. \[ \text{Fontos, hogy János meg ne tudja.} \]
    ‘It is important that John should not find out.’

b. \[ \text{Fel nem foghatom, hogy...} \]
    ‘I cannot understand…’ (emphatic; approx. ‘It’s beyond me.”)

What is interesting to note about these contexts is that, in a neutral case, they do not license focus:
But in an embedded context, when the subordinate clause itself is in focus, focusing an element in the embedded clause becomes fully natural, and higher negation also becomes available – just as it does in the −ig-clauses of the restrictive dialect that normally only allows (26c) (compare (52)):

(51) a. AZ a fontos, hogy JÁNOS meg ne tudja.
Dem the important Comp.John PRT Neg know-Subj
b. AZ a fontos, hogy JÁNOS ne tudja meg.
Dem the important Comp.John Neg know-Subj PRT
‘What is important is that JOHN should not find out.’

(52) Csak addig unakoztam, ameddig JÁNOS
only Dem-until I-was-bored Dem-Wh-until John
nem lépett a színpadra.
Neg stepped the stage-onto
‘I was only bored until it was JOHN who stepped out on stage.’

Based on the above, I will tentatively suggest that, at least in a subset of subordinate contexts, the availability of the high Foc and Neg positions in this restrictive dialect hinges upon the information structural status of the clause in which they appear. (A number of recent papers have argued that background clauses have a less articulated left periphery than contextually new clauses that constitute the information focus of the complex sentence, e.g. Haegeman (2006), Larson and Sawada (2004)) Clearly, this restriction is no longer active in present day Hungarian, and only survives in a few contexts where it seems that the full-fledged left periphery only projects when the clause plays an informationally prominent role. Otherwise, only the lower Neg position is available, which is also subject to Neg-raising.

Although the discussion above is admittedly brief and rather on the speculative side, there are two conclusions that can be drawn. First, given the most restrictive dialect’s properties, it becomes clear that Neg-raising and focus are independent of one another – Neg-raising takes place even in a construction that presumably does not involve a Focus projection (i.e. (46), where the particle is arguably in Spec,TP and negation is even lower). Second, these dialects, while displaying properties distinct from the ‘liberal’ dialect, still conform to the predictions of the ‘single-until’
approach: whenever negation is interpreted low (thus yielding a stative event in the adverbial clause) we have evidence for a temporal relative derivation, while punctual events in the adverbial clause (resulting from Neg-raising, and evidenced by adverbial modification) are only compatible with an IP-relative analysis (as shown by the lack of ‘low readings’).

Based on the above discussion of the complex properties of –ig-clauses in Hungarian, I conclude that the idea that –ig has two distinct distributional possibilities is on the right track, as it leads the way to an explanation for the three-way contrast exemplified in (26), as well as a number of related syntactic observations. The analysis of temporal adverbial clauses involving –ig that I have proposed posits a single lexical item –ig that takes a durative event (from the matrix clause) and a time point (in the form of either a punctual event denoted by the adverbial clause, or the endpoint of a durative event inside the temporal clause that is then relativized and shared as endpoint with the matrix clause event) as its arguments. We have seen that when the punctual argument of -ig comes from inside the adverbial clause (thus, the matrix and embedded events share an endpoint) we are dealing with a regular relative clause, while the suffix can also originate outside the adverbial clause, in which case an IP-relative will be formed, and the relativized IP must denote a punctual event (in order to serve as the punctual argument of –ig). Since negation creates a state out of an eventive predicate, Neg-raising (which is evidenced by a number of syntactic and semantic diagnostics) is required in IP-relatives where the adverbial clause contains negation. The single-until analysis, coupled with the mechanisms for forming temporal relative clauses as well as IP-relatives with –ig and aided by the operation of Neg-raising to resolve event structural mismatches, accounts for the three-way contrast in (26). In the next section I look at yet another type of temporal adverbial clause, finite CPs that are formed with the same class of P elements as IP-relatives.

4 Finite CPs as temporal modifiers

As mentioned in the introduction and illustrated under (3), 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 demonstrative pronominal az+P representing it in various positions in the main clause. The modified classification of the two types of
P elements – temporal relatives and IP-relatives – gives us the class of Ps that can participate in this construction readily: the class selecting a propositional complement (syntactically a CP) turns out to be the same as the class taking an event (an IP). Examples with each of the relevant Ps (all postpositions and the single suffix –ig) are given below:

(53) 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 his boots, he was praying.’

f. **Aközben hogy fórumozok, az államvizsga tételeimet dolgozom ki.**
    Dem-during Comp I-chat the final exam questions-ACC PRT I-prepare
    ‘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 IP-relative class, let us first ascertain that the temporal relative uses of –ig and óta are not possible here:

(54) 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 PRT-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…’

While (54e-f) 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. IP-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 time-point suffixes (–kor ‘at’ and –korra ‘by’) are ungrammatical in this construction:

(55) *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 IP-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 IP-relatives from run-of-the-mill temporal relatives. Namely, the P in question must be allowed to take a complement larger than a time expression – an event or proposition.

I take these CP-constructions to be simple factive clauses, which are contextually old propositions with truth value but no assertive force. Such CP’s are not asserted but only mentioned as referential entities (in this case, as time specifications). In fact, these ‘CP-temporals’ share a number of properties with factive object clauses. Most crucially, CP-temporals are distinguished from IP-relatives 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 CP-temporals, claimed to be factive propositions with a presupposed truth value, but should be compatible with IP-relatives, which are events and thus do not have a truth value. This is so:

(56) 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 (56a)

While (56a) can be interpreted as the English translation (where my leaving will prevent me from missing the bus) (56b) does not have this reading, only the absurd reading where my plan is to leave and thereafter miss the bus. This property is clearly related to the fact that CP-temporals are contextually old, while IP-relatives (like temporal relative clauses in general) introduce new information. As CP-temporals are normally presupposed, they show a certain similarity to non-temporal embedding (see also Larson and Sawada (2004) for discussion of the contrast between presupposed causal embedded clauses and contextually new temporal adjunct clauses). In fact, these embedded CPs can 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 relative clause constructions:

(57) Miután nem tudom a nevét, Benőnek hívom.
    Wh-after Neg I-know the name-his-ACC Benő-DAT I-call-him
    ‘Since I don’t know his name, I always call him Benő.’

In the IP-relative realm where the two uses can look identical (like (57), which could also be a temporal construction, albeit with an unlikely meaning), however, there are a number of important differences between the temporal and non-temporal uses of these P elements that suggest that we are dealing with two different constructions. In a causal use, temporal postpositions cannot form a relative pronoun starting with a- and cannot be coreferential with an az+P element in the main clause:

(58) Így hívom (*azután) (*a)miután nem tudom a nevét.
    so I-call-him Dem-after Dem-Wh-after Neg I-know his-name
    ‘I call him this way since I don’t know his name.’
Interestingly, full CP’s combined with a relative pronoun are also marginally possible with the same set of postpositions, and this highly marked construction is subject to the same constraint:

(59) ?Nem láttam (*az-óta), (*a)mi-óta hogy elkezdett dolgozni.
Neg I-saw Dem-since Wh-since Comp began work-INF
‘I haven’t seen him since he began to work.’

In this respect, the marginal temporal construction in (59) bears strong resemblance to causal constructions. Further, as it turns out, the combination ‘mi+P hogy’ – only marginally acceptable in the temporal domain – is quite common with causal Ps:

(60) Későn érkeztem m-ért-hogy / mi-vel-hogy dugó volt.
late I-arrived Wh-for-Comp / Wh-with-Comp traffic jam was
‘I arrived late because / since I ended up in a traffic jam.’

Due to this similarity between (59) and causal constructions, as well as the marginality of this type of construction in the temporal realm, I suggest that (59) is in fact a non-temporal construction and thus falls outside our scope of investigation here. At the same time, CP-temporals do not share the relevant properties with non-temporal constructions, so I will assume that these are truly temporal in meaning. They are factive propositional CP’s that specify a time at which the statement denoted by the CP is (or becomes) true. The suffix or postposition relating this time to the time of the main clause takes this proposition as its complement.

5 Extensions and conclusions

In this final section I discuss two related aspects of the typology of temporal embedding I have presented above. First, I look at long-distance dependencies in English temporal constructions that were first discussed in detail in Larson (1990). I examine how the conditions on the availability of the low reading in Hungarian fare against the English data. Then I turn to a sub-issue of such dependencies, specificity, and consider the possibility that Hungarian a- (as it surfaces at the beginning of relative pronouns) is an indicator of specificity.
5.1 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: Larson notes that the prepositions that make the long-distance dependency possible (namely before, after, until, since) are the ones that can take both an NP and 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 scenario. 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. 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 as 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. Second, the conditions for the availability of the low reading seem very different (at least as formulated above), and it is not immediately obvious how to reconcile the two explanations. Recall that, building on Lipták’s (2005) analysis, I have assumed that it is the temporal relative/IP-relative distinction that makes the difference in Hungarian. Without going into the details of her account, the basic idea is this: In a regular temporal relative clause, the relative pronoun+P complex forms a constituent early on in the derivation, and is subsequently extractable via regular wh-movement. The identical string in the IP-relative case, however, is a complex head that takes the IP as its complement. The relative determiner mi raises up to adjoin to the P via head movement. As such, the relative pronoun is not available for long-distance extraction. The only alternative would be to move the entire RelP, an option that Lipták excludes appealing to the ECP. The prediction, then, is that whenever we see the availability of the low reading, we are dealing with a temporal relative.

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 relative clauses, while the ones that
do not allow the low reading (like while) participate in IP-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/IP-relative distinction, we can say that the construal of the low reading requires that the relative pronoun pick out a time. 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 (61) to have the interpretation as in the English gloss, it had to be assumed that the P originates outside the IP – thus classifying it as an IP-relative:

(61) 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 gloss in (61) 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 IP-relatives) are regardless differentiated by the presence or absence of operator movement to the position dominated by the preposition.

On this account, while is analyzed as forming an IP-relative, a construction that (in English) would be differentiated from run-of-the-mill 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 I take to be a precondition on the availability of the long-distance construal. Meanwhile, in an IP-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 Tense node.

This approach receives support from a recent proposal by Haegeman (2007), who also argues for operator movement in temporal adjunct clauses. She claims that, among other diagnostics, the ungrammaticality of a speaker-oriented adverb in the relative clause is indicative of an operator-variable construal. (For the details of the analysis, the reader is referred to the paper.) Although she cites Larson (1990) as one of the early proponents of the idea that temporal clauses in English are relative clauses, Haegeman does not make the distinction between before-type and while-type clauses. Nevertheless, such a contrast does seem to exist in this respect:

\[(62)\]
\[\begin{align*}
  \text{a. } & \text{I didn’t dare go in before John (had) (*) probably left the room.} \\
  \text{b. } & \text{I didn’t dare go in while John was (probably) in the room.}
\end{align*}\]

If Haegeman is correct in saying that the unavailability of the adverb in (62a) is related to operator movement from inside that clause, then the fact that the same modification is impossible in (62b) supports the analysis of this example as an IP-relative not involving operator movement.

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, causal Ps like although or because systematically disallow the low reading. Since the IP-relative group of P elements also patterns in many ways with causal Ps in Hungarian, this is perhaps not so surprising. In fact, it strengthens the correlation noted above: namely, that Ps that can form IP-relatives are also able to take (often presupposed) propositional complements. Second, the ambiguous since (which was shown above to exhibit dual behavior with respect to the temporal-/IP-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:

\[(63)\]
\[\begin{align*}
  \text{a. } & \text{John hasn’t entered since he believes Peter’s been in the room.} \\
  \text{ (low reading OK)}
\end{align*}\]
b. *John hasn’t gone inside since he believes Peter entered the room.*
   (low reading *)

As expected, *since* behaves like a temporal-relative P when occurring with a durative event, and like an IP-relative P when its complement is punctual. This mirrors the behavior of *őta ‘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 what I have been referring to as IP-relatives by the fact that the latter does not involve 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 causal prepositions in certain respects. The same P elements can have non-temporal meanings (like *since* or *while*), their complement clauses are often presupposed, and they do not allow the low reading.

5.2 Specificity conditions on long-distance operator movement

Before concluding this discussion, it is worth noting that – in English – having a nominal-selecting P is not the sole condition on the availability of the low reading. An argument for claiming that the movement in these constructions is regular wh-movement is that it is subject to the same restrictions. Larson (1990) notes that this extraction respects complex NP islands. A perhaps lesser-known fact is that it is also influenced by an intervening weak (factive) island:

(64)  *I saw Mary in New York before Tom knew/discovered she would be there.*  (low reading *)

Intended: Tom knew/discovered Mary would be in New York at a certain time. I saw her before that.
Example (64) lacks the low reading, which is likely due to the intervening semifactive *knew*/factive *discovered*. This suggests that whatever the moving element is here (in Larson’s view an NP-type operator that is the silent counterpart of *when*) it is clearly non-specific, or otherwise it should be able to escape a weak island. This can be verified by using a specific expression like *the time*, which presumably is only compatible with a specific (silent) time expression. Forcing a specific interpretation, the example becomes grammatical on the relevant reading:

(65)  
I saw Mary in New York before the time Tom knew she would be there. (low reading OK)

If the reasoning above is correct, (65) improves because the movement of a specific time expression is allowed out of the weak island that bans the extraction in (64).

While both (64) and (65) in English feature the movement of a silent element, making the explanation above rather abstract, in Hungarian the relative pronoun participating in the movement is overt. Recall that the relative pronoun is made up of the following three morphemes:

(66)  
(a)- mi- kor  
Dem Wh P  
“when” (relative pronoun)

As is immediately obvious, the three parts correspond to the elements we are looking for. The wh-element (also a question word) constitutes the variable portion of the pronoun (corresponding to the English *when*) while the *a*-portion should contribute specificity. In fact, historically the relative pronoun consisted of a demonstrative/definite determiner and a question word:

(67)  
Hogy akkor meg nem holtam, az mikor egy kígyó  
Comp Dem-at PRT Neg I-died Dem Wh-at a snake  
ez sebet rajtam ejtette vala!  
this wound-ACC on-me inflicted Aux-Past  
‘Why didn’t I die when a snake wounded me?’

The morphology attests that the relative pronoun is in fact made up of a non-specific variable and a specific determiner. In present day Hungarian, there is still indication that the specificity distinction between the ‘a-less
forms’ and the ‘a-forms’ is somewhat productive. Without attempting to
provide a complete analysis of this effect, let me simply point out a few
indicators that the specificity effect associated with a- is still around.
a. Relative pronouns introducing generic events are strange for many
speakers (cf. (13)-(14)).
b. Causal relative pronouns are not introduced by a- (cf. (58)) It is
interesting to note that the only causal relative pronoun (as far as I know)
that can feature the a- is amiért ‘for which reason’, which can also be read
specifically. Compare:

(68) a. Haragszom rád (azért), amiért/mert csalsz.
    I-am-angry you-on Dem-for Dem-Wh-for/Wh-for you-cheat
b. Haragszom rád (*azzal) (*a)mivel csalsz.
    I-am-angry you-on Dem-with Dem-Wh-with you-cheat
‘I am angry with you because you cheat.’

What is noteworthy about the examples in (68) is that the availability of the
a- (lending specificity to the relative pronoun) also correlates with the
possibility of doubling the relative clause by the Dem+P element in the
matrix clause. This fact goes hand in hand with the information structural
relationship of the two clauses: while the relative clause can be contextually
new in (68a), it is normally presupposed in (68b).
c. For some speakers, the long-distance dependency discussed above is
easier to get if the relative pronoun features a-:

(69) Judgments for the low reading (available with a- for everyone) by
some speakers:
    Akkorra készültünk el a kocsival, ??(a) mikorra mondtad,
Dem-by we-prepared the car-INSTR Dem-Wh-by you-said
hogy jönnek érte.
Comp they-come for-it
‘We were finished with the car by the time when you said they
would come for it.’

Although the facts presented here are far from conclusive with respect to
the productivity of the a- element as a specificity marker, I believe that
research into the internal structure of the relative pronoun and the Dem+P
pronominal double, as well as their relationship, would be worthwhile.

5.3 Summary
Taking Lipták (2005) as my starting point, I have argued above for the existence of two different strategies for forming temporal relative clauses in Hungarian – run-of-the-mill relatives, where a temporal expression from inside the adverbial clause is relativized via operator movement, and IP-relatives, which involve no movement from inside the adverbial clause and thus result in a connective reading on the P element. I have demonstrated that this distinction corresponds to robust syntactic effects, esp. in the realm of long-distance dependencies. Looking at the properties of the suffix –ig 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 as a connective between two events), the Hungarian facts support the ‘single-until’ line of analyses. 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 event 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. IP-relative division can be exploited there as well to account for the availability of long-distance dependencies. Several issues that I have touched upon in this paper (among others: the role of specificity in operator movement, the precise analysis of the lower occurrence of negation in Hungarian until- and subjunctive constructions, or the connection between IP-relatives and causal constructions) are left open for further research.

6 Notes

* I would like to thank Katalin É. Kiss, Daniel Finer and Anikó Lipták for extensive discussions on the topic of this paper. Thanks are also due to Klaus Abels for his comments and suggestions.
1 Cf. Larson (1990) for an early discussion of this issue – I return to Larson’s analysis and offer an update to cover his data as well as some additional observations. For more recent accounts of temporal adverbial clauses as relative clauses, see Lipták (2005) and Haegeman (2007), both of which I discuss below.
2 See Hulsey and Sauerland (2006) and references cited therein for arguments that run-of-the-mill English relative clauses also come in two varieties: ‘raising relatives’ that involve the movement of the head from its base position inside the relative clause to the left edge, and ‘matching relatives’ where the head of the clause originates externally. The authors argue that matching relatives also involve operator movement internally to the relative clause, and this internal head is later
elided upon identity with the external head, which is base-generated outside the relative clause. In this paper, I focus on whether or not there is movement out of the temporal clause, and for reasons of space will not discuss the possibility that a Sauerland-style ‘matching relative’ analysis would work for the cases where there is not. (If such an analysis of the contrast observed here were correct, this would liken the contrast to that between wh-movement vs. wh-expletive structures.)

3 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.

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

5 In Section 3.1 I show that this generalization only holds for one dialect of Hungarian, while another dialect allows the a- even in cases like (4b).

6 Lipták discusses a fourth property that distinguishes temporal constructions, namely the availability of multiple relativization (see Lipták (2000) for discussion). In what follows, I do not talk about this diagnostic, limiting my attention to the other three characteristics, because multiple relativization structures are highly marginal for some speakers (including myself) and I do not want to further muddle the already complex dialectal picture I present. This choice has no bearing on the conclusions of this paper since Lipták convincingly shows that multiple relativization only occurs with “true relatives”, a claim I am happy to accept as is.

7 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 is impossible when the postposition itself originates outside the clause. (In Section 5, I suggest that this is in fact what happens in English in some cases.) 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). It is also possible that the IP selected by these postpositions is an island to such extraction. Alternatively, one can envision a structure similar to (9) where ‘mi-’ is not a relative determiner (and thus does not originate in an operator position at all) but a clausal expletive similar to that attested in wh-expletive constructions. In any case, the semantics one needs to account for is that the P element in these cases functions as a connective, taking the embedded and the main clause events as its arguments.

8 See Lipták (2005), p. 148. for detailed exposition of this point.

9 Examples (11a) and (11d) are from the internet, Google search. Examples (11b-c) were constructed.

10 I have removed the imperative from the embedded clause in Lipták’s original example (cf. (7a)) to avoid giving the false impression that the subjunctive has anything to do with the availability of the low reading.

11 It should be noted that, in the nominal domain, -ig and óta can stand with nominals referring to time periods or points in time:

(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.'

In the clausal domain, ôta behaves uniformly across speakers, while két hét ôta ('for two weeks', i.e. the period use of ôta with nominals) is marginal for some. This may be due to a blocking effect by another P (the suffix –(ja/-)je), which – unambiguously – conveys the same meaning, yielding the form két hete 'for the past two weeks'). Meanwhile, the use of –ig is quite uniform in the nominal domain, and varies greatly when it takes a clausal complement (discussion of this diversity follows). I leave the question of nominal complementation aside for now.

12 As mentioned in footnote 5, and discussed in detail in Section 5 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 ôta 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 resolving the meaning mismatch noted above. This would make it possible to derive both uses of –ig and ôta 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 temporal relative 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 lack of this reading in (16) and (19b) without an explanation. 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.)

13 Due to limitations of space, and also to avoid getting completely lost in details, I will focus on clear judgments and tendencies among speakers. Only the most robust correlations found are discussed here; the rest is left for future research.

14 I will make some comments on the emergence of the so-called ‘switch-reading’ in 3.3.3. It is an unresolved question in the literature whether this reading is an implicature associated with certain combinations of ‘until’ and negation, or an uncancellable entailment (see Giannakidou (2002) for arguments for the latter position with respect to English). On some accounts, the ‘switch-reading’ is due to a cause-effect interpretation associated with the construal exemplified by (22c) - see, for example, Español-Echeverría and Vegnaduzzo (2000). Several authors assume that the switch-reading is brought about by the presence of negation in the temporal clause, which would contrast (22a) against (22b-c). In Hungarian, however, (22b) – which also involves negation – normally lacks the switch-reading.

15 For recent discussion, see Condoravdi (in press).
For brevity’s sake, in what follows I will refer to the families of analyses outlined above as the ‘single-until’ and the ‘lexical ambiguity’ analyses.

All three sides of this debate cite some convincing examples to prove their point. Giannakidou (2002) brings this sentence (taken from Karttunen (1974)) as evidence that the switch entailment in sentences like (23b) cannot be canceled:

(i) #Nancy did not get married until she died.

This sentence is claimed to be pragmatically odd because it entails the following: ‘Nancy got married when or soon after she died.’

Meanwhile, the presupposition account is strengthened by the fact that the inference associated with such sentences can be canceled in the same way that presuppositions normally can (example taken from Mittwoch (2001)):

(ii) If Mary started working at all, then she didn’t do so until May 1st.

Mittwoch claims, however, that we are dealing with simple implicatures here, and that this implicature can often be canceled without any special mechanism:

(iii) Knowing Mary, she won’t start working until the last moment, if then.

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’).

For a recent account claiming that until-constructions are a subtype of exeptives, and ‘expletive negation’ is a boolean complementation operator, just like regular instances of negation, see Español-Echeverría and Vegnaduzzo (2000).

Bear in mind that all the data judgments in this section hold for the dialect that displays the three-way contrast illustrated in (22). As mentioned earlier, there is a great amount of dialectal variation in this respect, to which I return in 3.3.3.

Note that positing an argument structure for –ig involving a time point and a durative event precludes the IP-relative use when the embedded event is durative. Note 2: The same argument carries over to English, which a number of authors have pointed out – in favor of the ‘one-until’ family of analyses.

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.

Katalin Gugán, p.c.

Crucially, Larson assumes that the category of the temporal variable is NP. See Larson (1985).

Source: Bálint Balassi (Hungarian poet, 16th century).