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The movement analysis of temporal adverbial clauses[1]

LILIANE HAEGEMAN
University of Ghent
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In the literature it has been proposed that temporal adverbial clauses can be derived by *wh*-movement of an operator (e.g. *when*) to the left periphery (Geis 1970, 1975; Enç 1987: 655; Larson 1987, 1990; Dubinsky & Williams 1995; Declerck 1997; Demirdache & Uribe-Etxebarria 2004: 165–70). After reviewing the arguments that have been proposed in favour of such a movement analysis, the article provides additional empirical evidence in support of the analysis. The data concern so-called Main Clause Phenomena (MCP) or Root phenomena, that is, syntactic phenomena such as argument fronting, Locative Inversion, preposing around *be*, VP preposing and Negative Inversion, which in English are by and large restricted to main clauses. The unavailability of these MCP in temporal adverbial clauses follows directly from the movement account. The movement analysis will be extended to conditional clauses and factive clauses.

1 Introduction: aim and scope of the article

The central focus of this article is the internal syntax of adverbial clauses such as the *when* clause in (1).

(1) When I heard this song, I remembered my first love.

I will first focus on such temporal *when* clauses; at a second stage, I will widen the discussion to include other temporal adverbial clauses and conditional clauses.

In the literature it has at various points been proposed that the adverbial clause in (1) is a headless relative and is derived by *wh*-movement of an operator (*when*) to the left periphery (Geis 1970, 1975; Enç 1987: 655; Larson 1987, 1990; Dubinsky &

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Williams 1995; Declerck 1997; Demirdache & Uribe-Etxebarria 2004: 165–70) and some evidence has been put forward. I will first present the arguments proposed in favour of the movement analysis of adverbial *when* clauses. I will then show that additional empirical evidence is available confirming the movement analysis. The data discussed concern so-called Main Clause Phenomena (MCP) or Root phenomena, that is, syntactic phenomena which in English are by and large restricted to main clauses. The relevant MCP are excluded from *when* clauses. In particular it will be shown that while adjuncts may appear to the left of the canonical subject position in temporal clauses introduced by *when*, fronted arguments may not appear to the left of the subject. This argument/adjunct asymmetry follows directly from the movement account. In later parts of the article, I broaden the analysis to include temporal clauses introduced by *before, after, since* and *while*, conditional clauses and factive clauses.

The theoretical framework used is that of generative grammar, but throughout the article, the discussion will be kept at a fairly nontechnical level. There are a number of conceivable implementations of the analysis and the choice depends on theoretical concerns which, as far as I can tell, are not directly relevant for the empirical issue discussed here.

The article is organized as follows. Section 2 presents the analysis of the temporal clause in (1) in terms of a movement derivation as it has been discussed in the literature and reviews the main arguments proposed so far. Section 3 shows that the movement account allows us to make the correct predictions concerning the distribution of fronted constituents in English *when* clauses. To the best of my knowledge, the data discussed in this section, some of which are well known, have not been brought to bear on the movement account of *when* clauses. This section thus offers new empirical support for the movement analysis of the temporal clause in (1). The final part of the section extends the analysis to temporal clauses introduced by *before*, *after, until* and (temporal) *since*. Section 4 considers adverbial clauses which are compatible with MCP. Section 5 extends the movement derivation to conditional clauses. Section 6 shows how the incompatibility of MCP with English factive clauses can also be accounted for by a movement analysis. Section 7 is a summary of the article.

2 The syntax of temporal adverbial clauses

2.1 The proposal: operator movement in temporal clauses

It has been proposed by, among others, Geis (1975), Enç (1987: 655), Larson (1987, 1990), Dubinsky & Williams (1995), Declerck (1997), Demirdache & Uribe-Etxebarria (2004), that temporal adverbial clauses such as (1) are derived by the movement of a clause-internal operator to the left periphery, that is, the domain to the left of the canonical subject position. This is schematically represented in (2), in which the relevant operator is *when*.[2]

[2] I use the symbol 't' for 'trace' to indicate the extraction site; the trace is co-indexed with the extracted constituent. I assume that a trace is a copy of the moved constituent. An alternative representation is that in (ia):

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(2) [$_{CP}$ when$_i$ [$_{TP}$ I [$_{VP}$ heard this song] t$_i$]]

2.2 Arguments in favour of the movement account

Intuitively, the movement derivation of adverbial clauses is certainly appealing. The very fact that *when*, the 'conjunction' introducing temporal clauses, is isomorphic to an interrogative operator as well as to a relative pronoun (see below, (8a)) supports this idea. In other languages too, temporal clauses are introduced by a 'conjunction' which doubles up as an interrogative element (French: *quand*, Italian: *quando*, Spanish: *cuando*, Catalan: *quan*, Dutch: *wanneer*) or as a relative element (Norwegian: *når*; Stephens 2006). There is also diachronic support for the movement analysis of *when* clauses. Declerck (1997: 45) writes:

> *When* is originally a question word, which at the end of the Old English period came to be used as a relative. As a relative it could be used either with a temporal noun as antecedent or as a free (headless) relative. In the latter use it corresponded exactly to the present-day conjunction *when.*

Declerck (1997: 51–6) provides a detailed discussion of the development of *when* from an interrogative element to its use as a conjunction. I do not repeat his discussion here but refer the reader to Declerck's own work.

In other cases, the 'conjunction' introducing the temporal clause may correspond to a clause-internal temporal adverb. For instance, in Dutch the temporal adverb *toen* ('then') in (3a) can also be used to introduce an adverbial clause (3b).[3] If we generalize the movement analysis of temporal adverbial clauses, it could be postulated that the conjunction *toen* originates in a lower adverbial position and moves to the clause typing position (SpecCP).

(3) (a) Hij woonde toen in Londen.
he lived then in London
'At the time he lived in London.'
(b) Toen hij in Londen woonde, . . .
when he in London lived
'When he lived in London . . .'

Returning to English and to *when* clauses, let us assume that clauses are layered structures in which the Verb Phrase (VP) domain encodes thematic relations, the Tense Phrase (TP) encodes modal, temporal and aspectual information, and the

(i) (a) [$_{CP}$ when [$_{TP}$ I. . . . [$_{VP}$ heard this song] ~~when~~]]

Alternatively one might assume that *when* is a genuine complementizer: it spells out a C-head, and a null operator moves from the TP domain into the specifier of C, as shown in (ib):

(i) (b) [$_{CP}$ OP$_i$ [$_C$ when [$_{TP}$ I. . . . [$_{VP}$ heard this song$_]$ t$_i$]]]

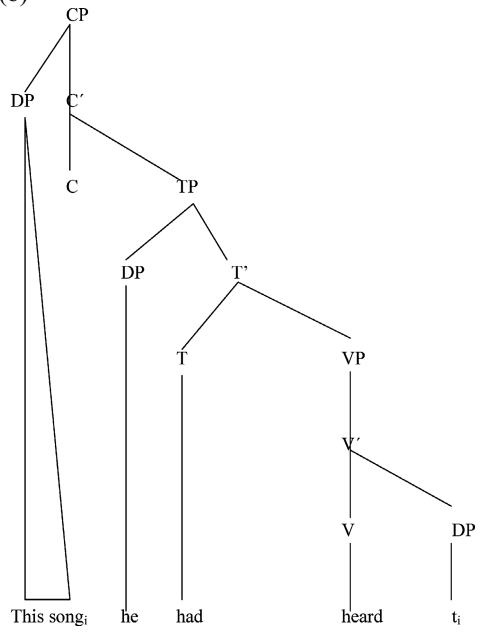
For the relevance of the null operator analysis see also section 3.3.1.

[3] For a similar case in Norwegian see Stephens (2006), and for a similar use of *þonne* ('then') in Old English see Declerck (1997: 51).

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Complementizer Phrase (CP) contains discursive information such as illocutionary force and topic or focus related concepts (see Rizzi 1997 for a detailed discussion of the internal structure of CP). In (4a) the DP[4] *this song* is a topic: it is moved from its VP-internal object position to the left periphery of the clause. (4b) is a tree diagram. The movement in (4a) is an instance of so-called 'short' movement: the moved object DP does not leave the CP-domain in which it starts out.

(4) (a) This song, he had heard.
(b)



In (4c) the object *this song* leaves the complement CP, and moves to the CP domain of the matrix clause. This illustrates so-called 'long' movement:

(4) (c) $[_{CP}$ [This song]$_i$, $[_{TP}$ he $[_{VP}$ said $[_{CP}$ t_i $[_{TP}$ he had $[_{VP}$ heard t_i already]]]]]].

According to a movement approach, *when* in (1)/(2) undergoes short movement: it moves from the TP domain of the clause for which it establishes a temporal relation to the CP of that same clause.

The argument that is standardly advanced in favour of the movement account of temporal adverbial clauses (cf. Geis 1970, 1975; Larson 1987, 1990) concerns the observation that in addition to cases of short movement, illustrated in (1)/(2), one also finds instances in which the operator has undergone long movement. The example used in the literature to illustrate this point is (5). (5) is ambiguous: the time expressed by *when* might be either that of the higher clause within the adverbial clause, giving the so called 'high construal' in (i), with the corresponding derivation, or it may be that of the lower clause in the adverbial clause, giving what is referred to as the 'low construal' in

[4] In the current terminology the projection of a noun is referred to as a Determiner Phrase (DP), the underlying assumption being that the head of the projection is not the lexical noun but the determiner.

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(ii), with the corresponding derivation. (i) illustrates short movement of the operator, (ii) illustrates long movement, with an operator originating in the embedded clauses and targeting the higher clause of the adverbial adjunct.

(5) I saw Mary in New York when she claimed that she would leave.
(i) high construal: 'I saw her at the time that she made that claim.'
I saw Mary in New York [$_{CP}$ when$_i$ [$_{TP}$ she claimed [$_{CP}$ that [$_{TP}$ she would leave]] t_i]]
(ii) low construal: 'I saw her at the time of her presumed departure.'
I saw Mary in New York [$_{CP}$ when$_i$ [$_{TP}$ she claimed [$_{CP}$ t_i that [$_{TP}$ she would leave t_i]]]]
(Larson 1987: 169–70)

If the low-construal reading is derived by the movement of an operator from a lower clause to a higher clause, then we expect that it will not be available in those contexts in which movement from a lower clause to a higher clause is independently known to be excluded. This prediction is correct. Consider (6a), which retains only the high-construal reading (discussed in Larson 1990: 170; Demirdache & Uribe-Etxebarria 2004: 165–76).

(6) (a) I saw Mary in New York when she made the claim that she would leave.
(i) 'I saw her at the time that she made that claim.'
(ii) *'I saw her at the time of her presumed departure.'

Differently from (5), the temporal *when* clause in (6a) contains a complex noun phrase, headed by the noun *claim* which takes a *that*-clause as its complement. In order to attain the low-construal reading (ii) in (6a), the operator *when* would have had to be extracted from inside the clause embedded under the noun *claim*. (6b) represents the (unavailable) low-construal reading of (6a):

(6) (b) *I saw Mary in New York [$_{CP}$ when$_i$ [$_{TP}$ she made [$_{DP}$ the claim [$_{CP}$ t_i that [$_{TP}$ she would leave t_i]]]]]

Given the movement account, the difference in availability of the low-construal reading between (5) and (6) can be related to the difference in grammaticality between (7a) and (7b): in (7a) the relative operator (*which*) can be extracted from the clausal complement ('CP') of the verb *claim*, but a similar extraction is not possible from the clausal complement of the noun *claim* because the DP boundary blocks extraction.

(7) (a) This is the text [$_{CP}$ which$_i$ [$_{TP}$ she claimed [$_{CP}$ t_i that [$_{TP}$ she wrote t_i]]]]
(b) *This is the text [$_{CP}$ which$_i$ [$_{TP}$ she made
[$_{DP}$ the claim [$_{CP}$ t_i that [$_{TP}$ she wrote t_i]]]]]

For similar arguments see also Rudanko (1981), Stump (1985) and Declerck (1997), among many others.

2.3 An implementation of the movement account: temporal adverbial clauses as free relatives

Given that there is no overt antecedent for the moved operator *when*, the movement analysis of adverbial clauses implies that they are represented as headless or free

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relatives (Bresnan & Grimshaw 1978: 345–67; Demirdache & Uribe-Etxebarria 2004; Declerck 1997; Citko 2000; Liptàk 2005; Stephens 2006; Tomaszewicz to appear; Ürögdi 2008). As also signalled by Declerck, *when* clauses may actually also function as relative clauses with antecedents, as shown in (8a):[5]

(8) (a) The day when I heard this song . . . .

A further argument advanced in support of the relative analysis of temporal clauses is the alternation between *when* in (1) and *whenever* in (8b), an alternation also found in free relatives (9) (see the discussion in Declerck 1997).[6]

(8) (b) Whenever I hear this song, I remember my first love.

(9) (a) I will eat what you cook.
(b) I will eat whatever you cook.

The precise formal implementation of the movement analysis of adverbial clauses ultimately depends on the analysis of relative clauses in general and that of free relatives in particular. This is not the place to go into these issues in detail (see Bresnan & Grimshaw 1978 for an early discussion, and Van Riemsdijk 2006 for a recent survey

[5] Dutch *toen* ('then') may also function as a relativizer with a head noun:
(i) Ik heb hem vaak gezien in de tijd toen hij hier woonde.
I have him often seen in the time 'then' he here lived
'I often saw him during the time that he lived here.'

[6] The anonymous reviewer asks what distinguishes *when* and *whenever*: in (ia/b) they seem to alternate, but they cannot always alternate, as shown in (ic/d):

(i) (a) When I am depressed I eat chocolate.
(b) Whenever I am depressed I eat chocolate.
(c) The days when I am depressed I eat chocolate.
(d) *The days whenever I am depressed I eat chocolate.

Put differently: why can *when* introduce both an antecedentless ('free') relative and one with an antecedent, while *whenever* can only introduce an antecedentless relative? The answer to this question depends on the particular analysis adopted for free relatives.

In terms of Demirdache & Uribe-Etxebarria's (2004) analysis (i) is indeed a puzzle. In their account, *when* occupies the same position in the 'free relative' in (ia) as in the 'ordinary' relative (ic), namely a specifier position in the C domain (see the discussion in the text). If, by analogy, *whenever* in (id) occupies the same specifier of the C domain inside the relative, the incompatibility with a nominal antecedent would have to be semantic: one might propose that the quantificational element *ever* is incompatible with the determiner contained in the antecedent.

If, contrary to Demirdache & Uribe-Etxebarria (2004), one assumes that the *wh*-element introducing the antecedentless relative actually moves from a specifier position in the C-domain of the relative into the domain of the nominal antecedent, say to D, then in antecedentless/free relatives there will be no position available for a nominal antecedent with its own determiner. For (id) one could propose that *ever* occupies the D-position of the antecedent domain (cf. *every*) and *when* moves to it. Thus (id) would be ruled out syntactically because *whenever* would itself be in the position occupied by the antecedent. The latter proposal entails that, though superficially identical, the free relative *when* clause in (ia) and the headed relative *when* clause in (ic) have a different structure, with *when* occupying the specifier of the CP in (ia) and moving to the antecedent domain in (ic).

For full discussion of the two types of analyses of free relatives I refer to Van Riemsdijk (2006) and the references cited.

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of the generative debate on free relatives). The analysis also depends on the theory of Tense representation that one adopts. For the present article I adopt the proposal on the derivation of temporal adverbial clauses as elaborated by Demirdache & Uribe-Etxebarria (2004), which is couched in their theory of Tense representation.

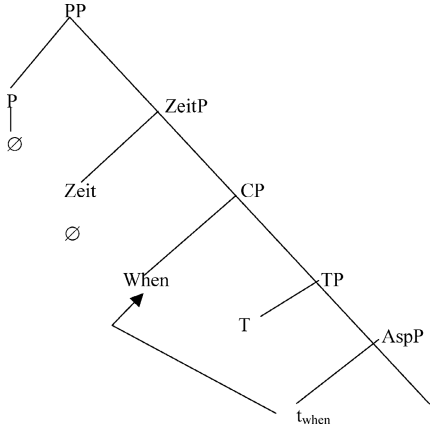
Demirdache & Uribe-Etxebarria (2004) adopt a Reichenbachian (1947) approach to tense interpretation and propose that temporal relations in the clause are expressed through the projections T(ense)P and Asp(ect)P, where TP selects AspP. Simplifying somewhat, T takes as its external argument the Utterance time, and as its internal argument the Reference time, the latter encoded in the specifier of AspP. Asp takes as its external argument the Reference time, and as its internal argument the Event time, which is encoded in VP.

The authors further propose that temporal adjuncts are prepositional phrases, possibly with null P (e.g. *last week*), in which P takes as its complement a 'temporal argument', a DP with temporal interpretation, the so-called ZeitP. Thus in *before Christmas*, the temporal P is *before*, and the ZeitP complement is the DP *Christmas* (see Demirdache & Uribe-Etxebarria 2004: 265). Adverbial clauses are also temporal PPs in which P selects a ZeitP. Temporal clauses introduced by *until/after/before*, for instance, are headed by an overt preposition. I briefly return to these below. Temporal *when* clauses are 'concealed' PPs (Demirdache & Uribe-Etxebarria 2004: 169): the temporal P is null, as is the head of its complement, the ZeitP. Thus (10a) has the same underlying structure as (10b) (2004: 177, n.12):

(10) (a) [$_{PP}$ at [$_{ZeitP}$ the time [$_{CP}$ when Zooey arrived]]]
(b) [$_{PP}$ Ø [$_{ZeitP}$ Ø [$_{CP}$ when Zooey arrived]]]

The *when* clauses in (10a) and (10b) are both analysed as relative clauses, derived by operator movement. (10c) is Demirdache & Uribe-Etxebarria's representation for (10b). I will assume here that the landing site of *when* is the same as that of relative pronouns (but see note 6).

(10) (c)



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It is proposed that the moved temporal operator originates in SpecAspP. As discussed by Demirdache & Uribe-Etxebarria, this will capture the observation made by Hornstein (1990: 63) that a time adjunct in a temporal clause cannot modify the Reference time. Thus, while the adverbial modifier *at 3 p.m.* may modify either the Reference time or the Event time in (11a), it can only modify the Event time in (11b):

(11) (a) John had left at 3 p.m.
(Demirdache & Uribe-Etxebarria 2004: 172, their (46b))
(b) Nobody had been surprised when John had left at 3 p.m.

In (11b) *when* is associated with the Reference time, encoded in SpecAsp; *at 3 p.m.* is associated with the Event time, encoded in the VP. I refer to Demirdache & Uribe-Etxebarria's own discussion (2004: 172) for more details.

The analysis allows one to account for the contrast between the 'high' and 'low' construal readings of temporal clauses illustrated in (5): in (5i), with the 'high' construal, the temporal operator originates in SpecAspP of the higher clause and thus modifies *claimed*, in (5ii) the adverbial operator originates in SpecAspP of the lower clause, i.e. the complement of *claimed*, and modifies the time of *leave*.

The derivation of *when* clauses as (free) relatives finds crosslinguistic support. To mention but two examples here: Lipták (2005) shows that Hungarian temporal adjunct clauses lend themselves to an account in terms of relativization. In particular, as illustrated in (12a), a subset of temporal clauses contain the relative marker *a.* As shown in (12b), *a* is 'a morpheme that adorns relative *wh*-phrases in Hungarian' (Lipták 2005: 139).

(12) (a) (A)mikor Peter nincs otthon
REL-what-at Peter is.not home
'When Peter is not at home'
(b) A nap [amikor Anna megjött]
The day REL-what-at Anna arrived
'The day when Anna arrived' (Lipták 2005: 142)

The same conclusions are drawn by Zribi-Hertz & Diagne (2003: 23) with respect to the derivation of temporal clauses in Wolof:

> L'ensemble de données présenté ci-dessus conduit à conclure que les syntagmes étiquetés plus haut 'circonstancielles de temps' ne sont autres que ce qu'on a pu appeler ailleurs des 'relatives indépendantes adverbiales', c'est-à-dire des DP incluant un circonstant relativisé dépourvu de contenu lexical.
>
> (The data presented here lead to the conclusion that the constituents labelled 'temporal adverbial clauses' are none other than what are also labelled 'independent adverbial relatives', that is to say, DPs with a nonlexicalized relativized adverbial adjunct. (Tr. LH))

The next section provides empirical support for the assumption that *when* clauses are derived by operator movement.

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3 Empirical support for the movement analysis

3.1 Argument fronting in adverbial clauses

The movement account of adverbial clauses finds empirical support from, and thus also sheds new light on, the long-standing observation (see Emonds 1970, 1976, 2004; Hooper & Thompson 1973) that argument fronting is not possible in English temporal clauses. To the best of my knowledge, this type of evidence has not been advanced in the literature in support of the movement analysis. Consider the data in (13):

(13) (a) She started to write this column last year.
(b) This column she started to write last year.
(c) When she started to write this column last year, I thought she would be fine.
(d) *When this column she started to write last year, I thought she would be fine.

In order to achieve particular discourse effects (topicalization/focalization), the direct object of *write* in (13a) can be fronted to the left of the subject in (13b). Argument fronting like that illustrated in (13b) is classified as a Main Clause Phenomenon (MCP) or a root transformation (Emonds 1970, 1976, 2004; Hooper & Thompson 1973), because this type of fronting is restricted to main clauses and a subset of embedded clauses (see Heycock 2006 for a recent survey of the relevant subset). Argument fronting is not licit in the temporal *when* clause in (13d). Various proposals have been made to account for the distribution of MCP. Many of them rely on a distinctive property of the root clause which licenses the MCP. In the absence of this property, MCPs are excluded. The relevant property may be pragmatic/semantic (Hooper & Thompson 1973; Green 1976, 1996; Sawada & Larson 2004) or structural (Haegeman 2003a; Emonds 2004; De Cat 2004, 2007). In this section I will show that the ungrammaticality of (13d) follows straightforwardly from the movement account of *when* clauses.

Observe first of all that it would not be correct to say that *when* clauses do not allow any kind of fronting, and that they lack the positions in the CP domain which are required for fronting.[7] *When* clauses display an adjunct/argument asymmetry with respect to the material that precedes the canonical subject position: while argument fronting is excluded (13d), circumstantial adjuncts can precede the subject (13e):

(13) (e) When last year she started to write this column, I thought she would be fine.

Such asymmetries are typically found in extraction contexts. In (14a) subject extraction across the adjunct *last year* is grammatical; in (14b) subject extraction across the argument *this new column* is ungrammatical; in (15a) the indirect object *to whom*

[7] The fact that clitic left dislocation is possible in French (i), also shows that adverbial clauses must potentially have a left periphery.

(i) Quand cette chanson je l'ai entendue, . . .
When that song I it-have-1SG heard-FEMSG

See Haegeman (2007). Not all French speakers accept (i). Thanks to Michal Starke and Amélie Rocquet for judgements.

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crosses an adjunct; in (15b) an intervening direct object gives rise to a severe degradation in grammaticality. (16) shows that the adjunct/argument asymmetry is relevant for long relativization.

(14) (a) This is the author who last year started to write a new column.
(b) *This is the author who this new column started to write last year.
(15) (a) These are the patients to whom, in the present circumstances, we should give the cooked vegetables.
(b) *??These are the patients to whom, the cooked vegetables, we should give in the present circumstances.
(16) (a) These are the patients to whom Mary suggested that, in the present circumstances, we should give the cooked vegetables.
(b) *??These are the patients to whom Mary suggested that, the cooked vegetables, we should give in the present circumstances.

These data show that while fronted arguments act as interveners for (long) relativization, initial adjuncts do not intervene in relativization. For reasons of space I cannot go into a general discussion of intervention here; see Haegeman (to appear).

On an account according to which adverbial *when* clauses are free relatives, the ungrammaticality of (13d) above is accounted for in the same way as that of the (b) examples of (14–16). For instance, in the same way that the relative operator *who* cannot cross the argument *this new column* in (14b), the temporal relative operator *when* cannot cross the argument *this column* in (13d). (13f) represents the structure:

(13) (f) *[$_{CP}$ when$_j$ her column$_i$ [$_{TP}$ she [$_{VP}$ began to write t_i] t_j]]

Conversely, in the same way that the relative operator *who* can cross the adjunct *last year* in (14a), the temporal relative operator *when* can cross the adjunct *last year* in (13e).[8]

3.2 *Preposing in* when *clauses*

Not only argument fronting is incompatible with the left periphery of adverbial clauses. Other fronting operations are also ungrammatical: (17) illustrates Locative Inversion (Culicover & Levine 2001 and references cited there), (18) illustrates preposing around *be* (Hooper & Thompson 1973: 467; Emonds 1976), (19) illustrates VP preposing (Hooper & Thompson 1973: 466; Emonds 2004: 78), (20) illustrates Negative Inversion (Hooper & Thompson 1973: 467; Emonds 1976; Culicover 1991; Haegeman 2000; Sobin 2003, and references cited there). All of these are ungrammatical in adverbial clauses.

(17) (a) We were all much happier when the Browns lived upstairs.
(b) *We were all much happier when upstairs lived the Browns.
(Hooper & Thompson 1973: 496 (their (253))

[8] The question obviously arises why circumstantial adjuncts do not give rise to intervention effects. This issue is beyond the scope of the present article. One possible account is that circumstantial adjuncts are base-generated in the left peripheral position. For some discussion see Haegeman (2003b, to appear) and the references cited there. For the semantic implications of the base generation analysis see also Cinque (1990: 92–4); Bianchi, Squartini & Bertinetto (1995); Bianchi (2000).

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(18) (a) When the company directors were present at the meeting, nothing of substance was ever said.
(b) *When present at the meeting were the company directors, nothing of substance was ever said.
(19) (a) When you've passed these exams, you'll get the degree.
(b) *When passed these exams you have, you'll get the degree.
(20) (a) When I did not agree with a single proposal, I left the meeting.
(b) *??When not a single proposal did I agree with, I left the meeting.[9]

If one takes *when* clauses to be temporal free relatives, the ungrammaticality of the (b) examples in (17–20) can again be ascribed to an intervention effect: the temporal operator *when* illicitly crosses another fronted constituent. Locative Inversion in (17) preposes a locative constituent to the left periphery of the clause, i.e. to the left of the canonical subject position (cf. Den Dikken & Naess 1993; Rizzi & Shlonsky 2006). As seen in (17c) below, fronting of the relevant locative constituent gives rise to an intervention effect for interrogative *when*. A similar intervention effect is found in (18b): preposing around *be* can be analysed along the same lines as Locative Inversion, with the fronting of a predicate to the left periphery (Carre 2006). As shown in (18c), interrogative *when* cannot cross the fronted predicate. VP preposing fronts a contextually salient VP to the left periphery of the clause. Again the ungrammaticality of (19b) and of (19c) below is the result of an intervention effect. Finally, Negative Inversion too implicates movement to the left periphery of the clause and hence we predict that this should be incompatible with additional movement. Thus (20b) and (20c) are also the result of an intervention effect.[10]

(17) (c) *I was wondering when upstairs lived the Browns.
(18) (c) *I am trying to remember when present at the meeting were the company directors.
(19) (c) *I was wondering when passed these exams he had.
(20) (c) *I am trying to remember when not a single proposal did they agree with.

Argument fronting, Locative Inversion, preposing around *be*, VP preposing and Negative Inversion all block leftward movement of an operator. If *when* clauses are

[9] As pointed out by the anonymous reviewer for *English Language and Linguistics*, (20b) is not as bad as (19b). This needs further study. One point that differentiates the two patterns is that while negative inversion implicates a focalized negative constituent (Haegeman 2000), VP preposing implicates the fronting of a VP that is contextually given (cf. Ward 1988). In this respect VP preposing is more like topicalization and could be argued to be 'D-linked'. It has been shown independently that the intervention effects of topicalized constituents are stronger than those of focused constituents in the left periphery. So typically, fronted topics in embedded domains create islands for extraction while negative inversion in an embedded clause leads to a weak island:

(i) (a) *??These are the patients to whom Mary suggested that the cooked vegetables we should give in the present circumstances.
(b) ?These are the patients to whom Mary said that on no account should we give the cooked vegetables.

The examples raise questions about the status of *when* in terms of intervention. I will return to this issue in later work. See also Haegeman (to appear) for an outline of the theory of intervention to be assumed.

Anticipating the discussion: with respect to text examples (40) it will again be observed that negative inversion leads to a lesser degradation. See also notes 11 and 22 below.

[10] There is a substantive literature on the semantic and pragmatic effects of the various operations illustrated here. See Ward (1988) and much later work. I do not go into this here and restrict myself to the discussion of the syntax of the relevant constructions.

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derived by leftward movement of the temporal operator *when*, then such clauses are expected to be incompatible with the fronting operations listed here.

3.3 Extending the proposal: temporal clauses

3.3.1 A generalization of the account

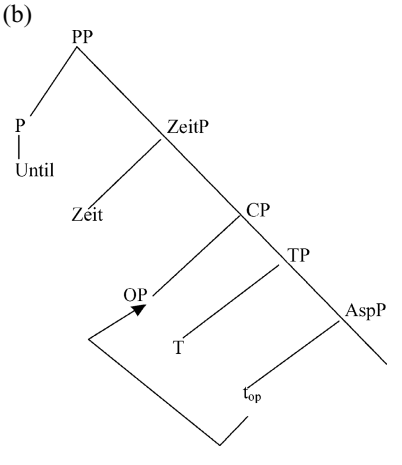
One of the initial arguments in favour of a movement derivation which one finds cited in the literature was the observation that adverbial clauses allow low construal of the temporal operator, as illustrated in (5ii), which is taken to reflect long movement. In English, ambiguity due to the high/low construal is also found with temporal adverbial clauses introduced by *until, before*, *after* and (temporal) *since* (Geis 1970; Larson 1987, 1990). This is shown in (21):

(21) (a) I can't leave until John says I can leave. (Based on Larson 1990: 170 (2b))
(b) I saw Mary in New York before/after John said that she left.
(Larson 1987: 261 (45a))
(c) I haven't been there since I told you I was there. (Larson 1990: 170 (2d))

Recall from section 2.3 that according to Demirdache & Uribe-Etxebarria (2004), temporal adjuncts such as *after Christmas* are PPs in which a temporal P (*after*) selects *Christmas*, a temporal DP, their ZeitP, as its complement. *When* clauses are relative clauses in which the temporal operator *when* is moved from SpecAspP to SpecCP, and which modify a ZeitP (which may be overt as in (10a) or null as in (10b)), which is itself the complement of a (possibly null) temporal P. I refer to section 2.3 for more details. Temporal adverbial clauses introduced by a preposition (*until, after, before, since*) are PPs in which the (overt) temporal P selects a null ZeitP. ZeitP is again modified by a relative clause, here derived by the leftward movement of a null temporal operator. A sentence such as (22a) would have the representation in (22b), though see also Dubinsky & Williams (1995) for an alternative which remains compatible with a movement analysis.

(22) (a) Until Zooey arrived, . . .

(b)



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Once again the analysis leads to the prediction that additional fronting operations will give rise to intervention effects. (22c–e) show that in *until* clauses, adjunct fronting is possible while argument fronting and VP preposing are ungrammatical:

(22) (c) I used to work on an old desktop until one day that was stolen and . . .
(d) *I won't take time off until this handout I have finished.
(e) *You won't be allowed in until passed these exams you have.

3.3.2 Two problems

The operator movement account excludes argument fronting in temporal clauses because the fronted argument would block the movement of the operator from within TP to the clause typing position (CP). Thus temporal adverbial clauses are predicted to be incompatible with argument fronting and with MCP. Note that temporal clauses introduced by *before*, *after* and *since* differ from *when* clauses and from *until* clauses in that fronting is more severely restricted: not only argument fronting (23), but also adjunct fronting (24), is excluded:

(23) (a) *Before this baker's shop I discovered last year, I used to bake my own bread.
(b) *Since this baker's shop she discovered, she has never bought her bread anywhere else.
(24) (a) *Before last year I discovered this baker's shop, I used to bake my own bread.
(b) *Since last year she discovered this baker's shop, she has never bought her bread anywhere else.

These data suggest that such adverbial clauses have a reduced left periphery. It is not clear which property of the clauses is at the basis of this further restriction. One option is that the restriction is due to the fact that *before*, *after* and *since* are themselves prepositions. But since *until* is also a preposition and *until* clauses do allow adjunct fronting (22a), it cannot be the prepositional nature of *before, after* and *since* that is at issue. At this point I do not have an account for this and I hope to return to it in future work. See McCloskey (2006) for discussion.

While clauses pose another problem (already noted by Geis 1975). Recall that one of the prime reasons for adopting the movement account in adverbial clauses was the fact that low construal is available (cf. the discussion of (5,6) in section 2.2). In this respect, it has to be noted that low construal is unavailable with temporal *while* (Geis 1970, 1975; Stump 1985; Larson 1990: 174, his (11a)):

(25) I didn't see Mary in New York while she said she was there.

At the same time, like *when* clauses, *while* clauses are incompatible with argument fronting (26a), while remaining compatible with adjunct preposing (26b):

(26) (a) *While this paper I was revising last night, I thought of another analysis.
(b) While last night I was revising my paper, I thought of another analysis.

The argument/adjunct asymmetry in (26) suggests that there is an intervention effect, and hence that *while* clauses are derived by operator movement to the left periphery. Such an analysis would account for the fact that temporal *while* clauses are generally

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incompatible with other MCP. (27a) shows that temporal *while* clauses are incompatible with Locative Inversion, (27b) shows that they resist preposing around *be*, and (27c) shows they are incompatible with VP-preposing.[11]

(27) (a) *While upstairs were three plain clothes policemen, the thieves emptied the house.
(b) *While present at the party were some under-age children, they showed X-rated films.
(c) *While watching them a plain clothes policeman was, they emptied the house.

The argument/adjunct asymmetry observed for temporal *while* clauses supports the movement account. The absence of low construal can therefore not be taken as evidence against such an account, and will have to find an independent explanation. At this point I have nothing further to offer by way of an explanation for the absence of low construal with *while* but I will return to this in future work (see also section 5). For discussions of the availability of high/low-construal readings in temporal adverbial clauses, see also Stephens (2006) on Norwegian *når* (high/low construal) vs *da* (no low construal) and Lipták (2005) on Hungarian (see below) and on Serbian, among others.

4 Peripheral adverbial clauses

So far I have only discussed temporal adverbial clauses which modify the event expressed in the main clause. In Haegeman (2003a) I argue extensively that such clauses are truly embedded and integrated to the main clause and I label such integrated adverbial clauses 'central' adverbial clauses. However, not all clauses labelled as 'adverbial clauses' are structurally integrated. Often what appears to be the same conjunction may introduce a fully integrated temporal clause but it may also introduce a clause that is less closely integrated to the associated clause. In Haegeman (2003a) I label adverbial clauses that are not syntactically integrated 'peripheral' adverbial clauses.[12]

Concessive/contrastive *while* clauses are a case in point. Unlike temporal *while* clauses, which are temporally subordinated to the main clause, concessive/contrastive *while* clauses are temporally independent from the main clause. In the attested example

[11] An anonymous reviewer points out that there is a difference between (27a) and (27b) on the one hand and (27c) on the other, in that the latter is far more degraded than the former two. I do not have a precise account to offer for this contrast. It shows clearly that VP fronting is like argument topicalization in creating a strong intervention effect (see note 9), and that the intervention effect due to Locative Inversion is weaker. A full account of this contrast will depend on a better understanding of Locative Inversion.

[12] See Haegeman (2003a, 1991/2009), Komagata (2003) and references cited for a survey and for discussion.

A fully fledged discussion of the syntactic status of peripheral adverbial clauses is beyond the scope of this article. With respect to their syntactic relation to the associated clause various options are available. Haegeman (1991/2009) argues for an 'orphanage' approach according to which such adverbial clauses are not syntactically integrated. See also Haegeman, Shaer & Frey (to appear). An alternative option would be to assume with Gaertner (2001: 105–8) that such peripheral adverbial clauses have a paratactic relation to the associated clauses which is mediated by a specialized functional projection πP. In line with Gaertner's (2001: 107) proposal for German *weil* ('because'), which introduces adverbial clauses with root properties, one might then assume that the 'conjunction' which introduces the peripheral adverbial clauses is merged in π.

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(28a) the first *while* clause is contrastive/concessive and temporally independent, but the second one is temporal, and temporally subordinated, witness the use of the present tense *decides* with future reference in the latter. Concessive clauses introduced by *(al)though* and *whereas*, as well as *since* clauses expressing reason – with *since* roughly corresponding to 'given that' – also belong to the class of peripheral adverbial clauses.[13]

(28) (a) While$_{conc}$ the lawsuit [challenging the legitimacy of lethal injection; LH] probably won't stop the use of lethal injection altogether, it will certainly delay its use while$_{temp}$ the supreme court decides what to do. (*The Guardian* G2, 12.12.2003, p. 4, col. 4)

Peripheral adverbial clauses serve to bring to the fore a contextually salient proposition which constitutes the privileged discourse background for the processing of the proposition expressed in the associated clause. The juxtaposition of the associated clause and the peripheral clause gives rise to contextual effects in the sense of Sperber & Wilson (1986). For instance, in (28a) the peripheral *while* clause provides complementary information to the assertion that the ongoing lawsuit will delay the use of lethal injection.

The peripheral *while* clause is not interpreted as a temporal modifier of the associated clause. As shown by the use of *will* in both the peripheral clause and the associated clause in (28a), there is no temporal dependency between the event expressed in the peripheral *while* clause and that in the main clause. The temporal independence of the peripheral *while* clause and the associated clause is also clear in (28b), in which both the *while* clause and the associated clause have their own temporal adjunct, *on Sunday* and *yesterday* respectively:

(28) (b) While on Sunday Dr Abdullah said the alliance had not discussed with Washington the possibility of US ground forces being deployed on alliance-held territory, yesterday he said that both sides were discussing possible US air cover for a mojahedin ground offensive, probably on Kabul. (*The Guardian*, 9.10.2001, p. 3, col. 3)

Since they are not temporal modifiers, but are used to represent contextually salient propositions, one option is to postulate that peripheral adverbial clauses such as, for instance, *while* clauses are not introduced by a temporal operator and hence that they are not derived by movement of such an operator. Either peripheral adverbial clauses lack an operator in their left periphery or, alternatively, if there is an operator, this is not a temporal operator; it has been inserted directly in the CP domain, and hence, crucially, it has not moved from TP to CP.

If there is no operator movement in peripheral adverbial clauses, then there should be no intervention effect with respect to other fronting operations, and we predict that they

[13] In this respect Hornstein (1990) writes: 'There is a **secondary conjunctive interpretation** that all these connectives (*as, while, when*) shade into. They get an interpretation similar to *and* in these contexts. *And* is not a temporal connective, and these conjunctive interpretations do not tell against the theory [of temporal subordination and complex tense structures]' (Hornstein (1990: 206: note 19).

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will be compatible with Main Clause Phenomena. This is confirmed by the examples in (29).[14] In (29a), from Quirk et al. (1985), an argument is fronted in a concessive *while* clause; in the attested (29b) the object of *contain* is fronted in a concessive *though* clause. The attested (29c) illustrates the application of Locative Inversion in a concessive *while* clause:

(29) (a) His face not many admired, while his character still fewer felt they could praise. (Quirk et al. 1985: 1378)[15]
(b) We don't look to his paintings for common place truths, though truths they contain none the less. (*The Guardian*, G2, 18.2.2003, p. 8, col. 1)
(c) At one end of the tranquil valley stood the towering form of Tirch Mir, the highest mountain in the Hindu Kush, while at the other swept a row of icy peaks. (Travel, *The Guardian*, 13.1. 2007, p. 2, col. 2)

(30) is an attested nontemporal *since* clause, which displays argument fronting:

(30) It is amazing how this view could have spread about someone who changed the image of causes like Aids and landmines, and in doing so showed a possible new role for the royals. It is particularly ironic since so much of what Diana did for her fellow humans she did with no concern for publicity whatsoever. (*The Guardian*, G2, 31.8.2004, p. 9, col. 2)

Observe that an alternative account is conceivable which will allow for Main Clause Phenomena in peripheral adverbial clauses, while maintaining that the latter are derived by operator movement. In temporal adverbial clauses, main clause phenomena such as argument fronting are excluded because the fronted constituent will intervene on the movement path of the temporal operator, which originates within the TP domain of the adverbial clause (SpecAspP according to Demirdache & Uribe-Etxebarria 2004), and moves to the clause typing projection (CP). The intervening fronted arguments occupy a position higher than the starting point of the moved temporal operator and lower than its landing site.

Peripheral *while* clauses could be paraphrased as 'while it is true that', 'while we can admit that'. It has been argued that such peripheral *while* clauses are associated with speaker anchoring and with illocutionary force (for more discussion see Haegeman 2003a, 2006a, 2006b, 2007, and also Komagata 2003). If the encoding of speech acts is associated with a specific projection, then peripheral *while* clauses might be argued to contain a temporal operator, but this operator will be associated with the speech act. There is a lot of discussion on the syntactic representation of speech acts, but there is a convergence that speech act is encoded by a functional projection high in the left periphery (see Ernst 2002: 70ff; Speas & Tenny 2003; Meinunger 2004; Hill 2007; Abraham 2008). One might then propose that in peripheral adverbial clauses a temporal operator associated with a high Speech Act phrase in the left periphery moves to a yet higher clause-typing position in the left periphery. If the relevant operator movement

[14] See also Komagata (2003: 302) for additional examples.
[15] The anonymous reviewer points out that (29a) is stylistically marked. I have nothing to say about this at this point.

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takes place in a syntactic domain which does not overlap with the domain in which topicalization and focalization apply, there will not be any intervention effects.

5 Conditional clauses as free relatives (Bhatt & Pancheva 2002, 2006)

5.1 Argument/adjunct asymmetries and a movement analysis

We have seen that temporal *when* clauses display an asymmetry between arguments and adjuncts with respect to fronting to the left of the canonical subject position: (13d) and (13e) are repeated for convenience in (31):

(31) (a) *When this column she started to write last year, I thought she would be fine.
(b) When last year she started to write this column, I thought she would be fine.

A similar asymmetry is found in conditional *if* clauses: (32a) is attested:

(32) (a) If on Monday the share price is still at the current level then clearly their defence doesn't hold much water. (*The Observer*, 11.7.2004, business, p. 22, col. 5)
(b) *If these exams you don't pass, you won't get the degree.

Other fronting operations too are illicit in conditional clauses: (33a) illustrates Locative Inversion, (33b) illustrates preposing around *be*, (33c) illustrates VP preposing and (33d) illustrates Negative Inversion.

(33) (a) *If upstairs live his parents things will be much simpler.
(b) *If present at the party are under-age children, they won't be able to show the X-rated films.
(c) *If passed these exams you had, you would have had the degree.
(d) *If not a single book did you read, you'll never pass the exam.

The adjunct/argument asymmetry in (32) and the fact that MCP are ungrammatical (33) suggest that conditional clauses too are derived by operator movement. If a movement analysis is intuitively appealing for temporal adverbial clauses, it may at first sight appear less plausible for conditional clauses. Yet, Bhatt & Pancheva (2002, 2006) argue for the derivation of conditional clauses by movement of an operator to SpecCP. They say: 'Our proposal that [conditional clauses] are interpreted as free relatives amounts to the claim that they are definite descriptions of possible worlds' (Bhatt & Pancheva 2002: 15; 2006: 655). For a similar proposal see also Arsenijević (2006). A conditional clause such as (34a) would be derived by the leftward movement of a World operator (34b):

(34) (a) If John arrives late
(b) [$_{CP}$ OP_w C° [John arrives late in t_w]]
(Bhatt & Pancheva 2002: 15 (60); 2006: 655 (46))

As was the case with temporal clauses, the intervention effects discussed above offer empirical support for Bhatt & Pancheva's analysis.

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5.2 *Absence of low construal*

Bhatt and Pancheva observe that, unlike temporal clauses, conditional clauses do not allow the low construal found with temporal adverbial clauses (Geis 1985; Bhatt & Pancheva 2002, 2006): while *when* in (35a) allows for high or low construal, the latter reading is unavailable for the conditionals in (35b) or (35c):

(35) (a) I will leave when you say you will. high/low
(b) I will leave if you say you will. high/*low
(c) Had he said he would leave, I would have left. high/*low
(Bhatt & Pancheva 2002: 13, (a,b) based on their (50a,c), (51e); 2006: 655–6 based on their (47a,c), (48b))

To account for the absence of low construal in the conditional clause, Bhatt & Pancheva (2002, 2006) propose that conditionals involve the creation of a World variable ('w'), which needs to be locally bound. I refer to their work for more discussion.[16]

The absence of low construal in conditional clauses is illustrated in an interesting way in West Flemish (WF). WF *oa* allows for both a temporal ('when') and a conditional ('if') reading. In the former reading (36a,b) low construal is available, while low construal is unavailable if *oa* has the conditional interpretation (36c):

(36) (a) Je was doa nie oan -ze zeiden dat-je doa ging zyn.
he be-PAST-3SG there not when-PL-they say-PAST-3PL that-he there would be
'He wasn't there when they said he would be.' high/low
(b) Ge moet kommen oan-k jen zeggen da-j moe kommen.
you must come when-I you say that-you must come
'You must come when I tell you to.' high/low
(c) K'goan kommen oa -j zegt dan-k moeten kommen.
I will come when -you say that-I must come
'I will come if you tell me to.' high/*low

These data suggest that it is not the conjunction (*oa*) as such which is at stake but the nature of the moved operator. See also Bhatt & Pancheva (2002, 2006) for a similar observation in relation to German.

5.3 *Support for the movement account*

The ban on MCP in conditional clauses discussed in section 5.1 can be interpreted as empirical evidence in favour of the movement analysis of conditional clauses. Some support for the movement derivation of conditional clauses may be drawn from their syntactic similarity to *yes/no* questions. Conditional clauses and *yes/no* questions are

[16] Bhatt and Pancheva observe that low construal is available with conditionals formed by relativization:

(i) I will leave in any circumstance in which you say you'll leave. high/low
(Bhatt & Pancheva 2002: 13, (a–c) their (50), (d,e) their (51); 2006: 655–6 their (47))
In Bhatt & Pancheva's approach, such 'conditionals' involve the movement of a different operator (Rajesh Bhatt, p.c).

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parallel in some respects. Embedded *yes/no* questions are introduced by the conjunction *if*, the same conjunction that is used for conditionals. As shown by (35c) above, subject–auxiliary inversion (SAI) may be used to derive a conditional clause, and SAI is also used to derive a (main) *yes/no* question, as in (37a) below.

The Germanic Verb Second (V2) languages offer some support for postulating a null interrogative operator in direct *yes/no* questions. The Dutch analogue of (37a), (37b), shows that in V2 languages, which have the finite verb in second position in root clauses, direct *yes/no* questions constitute an apparent exception to the V2 constraint in that here the fronted verb is the first constituent. This 'exception' can be eliminated if one adopts the view that *yes/no* questions contain an initial abstract interrogative operator in their left periphery (37c), which functions as the first constituent. Hence the finite verb is in second position. If we also assume that the relevant operator originates in a lower position, then *yes/no* questions are derived by movement.[17] The conditional clause in (37d), which is formally identical to the *yes/no* question in (37b), could then also be said to be derived by movement:

(37) (a) Had he said he would leave?

(b) Had hij gezegd dat hij zou vertrekken?
Had he said that he would leave

(c) [$_{CP}$ OP [$_{Vfin}$ had] [$_{TP}$ Subject . . . t_{op}]]

(d) Had hij me gezegd dat hij zou vertrekken, ik zou teruggebeld hebben.
Had he me told that he would leave, I would back-phoned have
'Had he told me he was going to leave, I would have called him back.'

If direct *yes/no* questions are derived by the movement of an interrogative operator to the left periphery, we may assume that the same interrogative operator is present in indirect *yes/no* questions and the movement analysis can hence be extended to the derivation of indirect *yes/no* questions. Accordingly, the embedded interrogative in (38a) would be derived by moving an operator to the left periphery (38b). Once again, the same derivation could be appealed to for the conditional analogue of this, with leftward movement of a World operator.

(38) (a) I wonder if he said he would leave
(b) [$_{CP}$ OP_w if [he said he would leave in t_w]][18]

Like conditionals, *yes/no* questions do not allow for low construal of the operator.[19] In (38a), for instance, the question bears on the polarity of the matrix clause ('he said') and not on the embedded clause ('he would leave').

With an operator movement account for *yes/no* questions and for conditional *if*-clauses, the ungrammaticality of argument fronting in indirect *yes/no* questions will

[17] For postulating an operator in the CP domain of *yes/no* questions, see Barbiers (2007: 102–3), for arguments from Dutch, and Den Dikken (2006: 729). But see Roberts & Roussou (2002: 41) for a different viewpoint.

[18] For the movement analysis, see among others Larson (1985), Den Dikken (2006: 729), with evidence from the distribution of *either* in indirect questions introduced by *whether* and *if*.

[19] In a different context, this point was also made in Ingham (2008).

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also follow. Once again a fronted argument (*such books* in (39a), *this book* in (39b)) will block the movement of the *yes/no* operator to the left periphery.

(39) (a) *Bill asked if such books John only reads at home. (Schachter 1992: 108 (16a))
(b) ??/*John knows whether this book Mary read. (Maki et al. 1999: 9, note 8, their (i))[20]

On the basis of the data discussed above we can adopt Arsenijević's (2006) proposal that conditional clauses are the relative variant of *yes/no* questions (see also Haegeman in preparation):

> I analyze conditionals as *yes−no* relative clauses: a[s] restrictive relative clauses in which the truth value of a proposition is restricted. The proposition represented by the conditional clause restricts the set of worlds compatible with the proposition represented by the head clause. Syntactically, the locus of modification is a functional projection called WorldP, the projection that specifies the truth value of clauses by containing the feature world with a value, [actual] or [possible]. **(**Arsenijević 2006)

6 Factive clauses

As discussed by Emonds (1970, 1976, 2004), Hooper & Thompson (1973), Maki et al. (1999) and Heycock (2006), among others, nonassertive complement clauses (see Hooper & Thompson 1973; Haegeman 2006b), and in particular complements of factive predicates, resist MCP, at least for many speakers.[21] In (40a) the complement clause of *regret* resists argument fronting; in (40b) VP preposing is illicit in the clause associated with *bother*; in (40c) the complement of *forget* is incompatible with preposing around *be*, and in (40d) the complement clause of *surprise* resists negative inversion. For more data see Hooper & Thompson (1973: 479ff.).[22]

(40) (a) *John regrets that this book Mary read.[23] (Maki et al. 1999: 3, their (2c))
(b) *Sally plans for Gary to marry her, and it bothers me that marry her he will. (Hooper & Thompson 1973: 479)
(c) *I forgot that playing in the concert was Arthur Rubinstein.
(d) *He was surprised that never in my life had I seen a hippopotamus.

The question arises whether the incompatibility of such clauses with argument fronting can also be related to an intervention effect. Two elements in the literature point to a tentatively positive answer to this question. On the one hand, various authors have postulated that factive clauses contain a propositional operator in their left periphery

[20] Maki et al. (1999: 9, note 8), point out that (39b) is 'marginal in American English and almost grammatical in British English'. The (British) speakers I consulted considered it ungrammatical.
[21] See Maki et al. (1999) and Haegeman (2006b) for discussion of speaker variation.
[22] As pointed out by the anonymous reviewer, negative inversion leads to a lesser degradation. We have seen similar effects above. As suggested in notes 9 and 11, I propose that negative inversion is focalization (see Haegeman 2000) and the other fronting operations in (40) can be assimilated to topicalization, which is known to lead to a stronger degradation in English.
[23] On factive verbs and semifactives see Hooper & Thompson (1973: 480ff.) and also the discussion in Maki et al. (1999: 9, esp. note 8).

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(see Melvold 1991; Bianchi 2000: 95). Secondly, comparative evidence may suggest that the relevant operator is moved from a lower position (see Collins 1994; Aboh 2005). I refer the reader to the relevant discussions.

7 Summary

This article explored the movement analysis of adverbial clauses which has repeatedly been put forward in the literature, according to which temporal adverbial clauses are derived by the movement of a temporal operator from within the TP domain to a clause-typing position (SpecCP). It is shown that this accounts for the absence of a number of fronting phenomena in adverbial clauses in English. Structures which display argument fronting are predicted to be ungrammatical due to the fact that the fronted argument would occupy a position in the left periphery which would block an IP-internal operator moving to the same position. The article shows that the movement account can be extended to conditional clauses and to other domains which resist fronting operations in English.

Author's address
University of Ghent
Department of English
Rozier 44
B-9000 Ghent
Belgium
liliane.haegeman@UGent.be

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