

Chapter 3

Adverbial clauses: Some speculations on the division of labour between sentence and discourse

Liliane Haegeman
Ghent University

Eric T. Lander
Uppsala University

Manuela Schönenberger
University of Geneva

This chapter focuses on finite adverbial clauses which are typically introduced by so-called subordinating conjunctions including *when*, *while*, *before*, *after*, *as soon as*, *if*, *because*, *as*, *so that*, *in order to/that*. Adopting a broadly generative perspective, we focus on the nature of the syntactic or semantic relation of the adverbial clause to the clause it associates with (cf. Rutherford 1970 for early discussion), the “host clause”. The core issue is to what extent and how an adverbial clause functions as a constituent of the host clause. Our discussion clearly brings to the fore the interaction between empirical data and theory. It also illustrates how both the classification itself and the syntactic analysis of the observed empirical phenomena are determined by the specific criteria used, as well as by developments in the theoretical framework adopted. Haegeman (2003) distinguishes two types of adverbial clauses, for which she proposes the labels “central” and “peripheral”. After reviewing the empirical evidence on which she bases this classification, we show that peripheral adverbial clauses form a heterogeneous set into which more fine-grained semantic and syntactic distinctions must be introduced. Ultimately, we speculate on a classification that merges the insights of Haegeman’s binary classification with those of Frey’s ternary classification (Frey 2018, 2020a,b).

1 Adverbial clauses: Introduction

In the syntactic literature, the term adverbial clause denotes an embedded or subordinate clause, finite or non-finite, which functions as an adverbial modifier of a superordinate clause. Adverbial modifiers can also be non-clausal. So, for instance, a temporal adjunct can be realised as an adverb (1a), as a prepositional phrase (1b), as a nominal constituent (1c), and as a finite (1d) or non-finite (1e) adverbial clause.

- (1) a. I will be meeting Mary afterwards/later.
- b. I will be meeting Mary after/before lunch.
- c. I will be meeting Mary this evening/tonight.
- d. I will be meeting Mary when I have finished.
- e. I will be meeting Mary while staying in London.

This chapter focuses on finite adverbial clauses. In addition to temporal modification, as in (1d) and (1e), a range of other meanings can be encoded by adverbial clauses, as shown in (2).¹

- (2) a. Conditional clauses
 I will meet Mary *if I finish on time*.
- b. Concessive clauses
 I will meet Mary, *even if I don't have anything to tell her*.
- c. Causal clauses
 I will meet Mary *because I need to tell her something important*.
- d. Purpose clauses
 I will meet Mary *so that I can inform her about the decisions*.
- e. Result clauses
 I will meet Mary, *so that she will be aware of the decisions*.
- f. Manner clauses
 I did it *as I was told to do it*.

Typically, adverbial clauses are introduced by so-called subordinating conjunctions which include *when*, *while*, *before*, *after*, *as soon as*, *if*, *because*, *as*, *so that*, *in order to/that*. The class of subordinating conjunctions (referred to henceforth as “subordinators”) is not homogeneous. For instance, *since*, *before*, and *after* are also prepositions, and *if* can introduce an indirect polar question. Indeed, the

¹(2f) (Huddleston & Pullum 2002: 1146, in their (27ii))

definition of adverbial clauses itself is problematic; for an overview we refer the reader to Diessel (2013).

Many aspects of adverbial clauses could be discussed, but we will not attempt to present a comprehensive overview here. Adopting a broadly generative perspective, we will instead focus on one area that has received much attention, namely the nature of the syntactic or semantic relation of the adverbial clause to the clause it associates with (cf. Rutherford 1970 for early generative discussion), and which we will refer to as the “host clause”. This label is non-committal in terms of the syntactic analysis ultimately adopted, in contrast with, for instance, the label “root clause” which would seem to commit one to assuming a degree of syntactic integration between the adverbial clause and the associated clause.² The core issue, then, is to what extent and how an adverbial clause functions as a constituent of the host clause.

Our discussion clearly brings to the fore the interaction between empirical data and theory. It also illustrates how both the classification itself and the syntactic analysis of the observed empirical phenomena are determined by the specific criteria used, as well as by developments in the theoretical framework adopted. We will refrain from selecting one specific implementation, opting instead to discuss some possible approaches and their implications.

The longstanding research line on the relation of adverbial clauses to the clause they modify was set off, among other things, by the observation that in terms of the relation of the adverbial clause to the host clause, many subordinators seem polyfunctional and come with a range of different interpretations. English *while* is a case in point, as illustrated by the following attestation, in which subscripting is used to identify two distinct uses of *while*.

- (3) [While₂ this ongoing lawsuit probably won’t stop the use of lethal injection], it will certainly delay its use [while₁ the Supreme Court decides what to do].

In (3) (adapted from *Guardian*, G2, 12.12.2003, page 4, col. 4), the meaning of *while*₁ can be informally paraphrased as ‘during the time that’: the bracketed adverbial clause encodes a temporal modification of the state of affairs expressed in the host clause. The *while*₂-clause, on the other hand, is contrastive, or adversative, or concessive (the term to be used here), and *while*₂ can be replaced by *whereas* or *although*. In this use, *while*₂ introduces a proposition promoted as

²A very interesting aspect of adverbial clauses not addressed at all here is the nature of what is often called the subordinating conjunction. For references and recent discussion, see a.o. Blümel & Pitsch (2019).

the privileged context for the interpretation of the proposition expressed by the host clause. The polyfunctionality of *while*-clauses – and other such adverbial clauses – is not English-specific: the readings are replicated with French *tandis que*, Italian *mentre* (Badan & Haegeman 2022), and Dutch *terwijl*.

Similarly, the subordinator *since* allows two distinct readings: in (4a) (adapted from *Guardian* 21.12.2004, page 10, col. 2), the *since*₁-clause has a temporal reading; in (4b) (adapted from *Observer Review* 09.01.2005, page 11, col. 1), the *since*₂-clause develops the argumentation: it forefronts a background justification for the associated proposition (see a.o. Elhadad & McKeown 1990, Charnavel 2020). The difference between the two interpretations of *since* comes out clearly in the following contrast: temporal *since*₁ can be modified by *ever*, while rationale *since*₂ cannot. (The examples in (4) are from Haegeman 2012: 160, her (25).)

- (4) a. The Germans have been trying to get the Rubens back (ever) *since*₁ a consortium of businessmen offered it for sale last year.
- b. His second is also placed in a recognisable world, but (*ever) *since*₂ this world is perceived through the eyes of Sunless, the reader is entirely at the mercy of his delusions.

Similar contrasts arise with *as* (Huddleston & Pullum 2002: 1146), *because* (Lakoff 1970, Hooper & Thompson 1973), and *if* (Declerck & Reed 2001, Kearns 2006). See also Sweetser (1990), Miyagawa (2012). For some discussion in terms of formal syntax see Haegeman (2012) and the references cited there.

Haegeman (2003) drew a basic distinction between two types of adverbial clauses, for which she proposed the labels “central” and “peripheral”. Central adverbial clauses (such as temporal clauses, conditional clauses or causal clauses) directly modify the proposition encoded in the host clause, while peripheral adverbial clauses (such as concessive clauses or rationale clauses) serve to relate the proposition encoded in the host clause to the discourse by providing privileged background assumptions. As the terminology suggests, central adverbial clauses are considered more integrated than peripheral ones.

This chapter first summarises some of the empirical evidence on which Haegeman’s classification into central and peripheral adverbial clauses was based. We then show that peripheral adverbial clauses form a heterogeneous set into which more fine-grained semantic and syntactic distinctions must be introduced. The final part of the chapter reflects on Haegeman’s binary classification and on Frey’s ternary classification (Frey 2018, 2020a,b), and speculates on a classification which merges the two.

2 Central adverbial clauses vs. peripheral adverbial clauses

We start off with the (simplified) hypothesis that two types of adverbial clauses can be distinguished: “central” adverbial clauses and “peripheral” adverbial clauses. Temporal *while*₁-clauses and temporal *since*₁-clauses illustrate the former, and concessive *while*₂-clauses and rationale *since*₂-clauses illustrate the latter. The difference between the two types of adverbial clauses is revealed by a number of diagnostics, all of which confirm the intuition that central adverbial clauses are more integrated into the host clause than peripheral ones.

2.1 Prosody, punctuation, and structural representation

The contrast between the two types of adverbial clauses is reflected in their prosody: central adverbial clauses can be prosodically integrated into the host clause; peripheral adverbial clauses cannot. In writing, the lesser degree of integration of peripheral adverbial clauses is usually reflected by a comma and occasionally by a full stop, as shown in the attested examples in (5):³

- (5) a. And yet some popular things are so brilliant, like *The Simpsons* and *the Angel of the North*. While₂ other brilliant things hardly anyone buys – I’d put my friend’s first novel and sherry in this category.
- b. She found this extremely restful. Whereas₂ Patrick, with his enormous respect for women and his irreproachable concern for her, she found rather exhausting.

Coordination is also suggestive of a difference in integration. Though associated with the same host clause, the two kinds of *while*-clauses in (6) cannot themselves be coordinated.

- (6) a. *[While₂ this ongoing lawsuit probably won’t stop the use of lethal injection] and [while₁ the Supreme Court decides what to do], it will certainly delay its use.
- b. *This ongoing lawsuit will certainly delay the use of lethal injection [while₁ the Supreme Court decides what to do] and [while₂ it probably won’t stop its use].

³(5a) (*Observer* 06.12.2009, page 34, col. 2); (5b) (Anita Brookner. 1987. *A Misalliance*. London: Graft Books, page 94)

Haegeman (2012) attributes the unavailability of coordination to the degree of integration of the *while*-clauses, correlating this with their syntactic positions. Her hypothesis is that coordination is subject to a likeness condition (cf. the Law of the Coordination of Likes of Williams 1981; see also Williams 1978), where “likeness” is interpreted in structural terms as meaning that constituents merged in distinct structural positions cannot coordinate (Huddleston & Pullum 2006: 201, their (3)).

To represent the different degrees of structural integration of the two types of adverbial clauses, we adopt the (much simplified) representations in Figure 1. The central adverbial clause in Figure 1a is adjoined to either the vP layer or the TP layer of the host clause, depending on which constituent of the proposition in the host clause it modifies. On the other hand, the peripheral adverbial clause in Figure 1b is adjoined to the CP domain, i.e. the layer of the clause which may encode, among other things, illocutionary force.⁴ Though preposing of arguments and predicates is mainly attested in postposed adverbial clauses, (19b) illustrates fronting in a preposed clause. In the attestation in (7) (*Guardian* 24.03.2018, page 9, col. 5), negative inversion occurs in an initial *while*-clause:

- (7) While₂ at no point was the safety of the passengers compromised, this falls well short of the high standards EasyJet expects of its pilots.

The representations in Figure 1 touch the core of the general question of clausal embedding addressed in this volume, which has been extensively discussed in the literature. Various positions have been proposed, which we will not review here. We refer to Heycock (2006, 2017) for extensive discussion. To give just one example, Huddleston (1984: 379f.) distinguishes between “embedding” and “subordination”, where embedding implies a higher degree of clausal integration. While all embedded clauses are subordinate, not all subordinate clauses are embedded:⁵

⁴Note that “CP” is a simplification in that it may (but need not) be associated with illocutionary force for some clause types. As pointed out by an anonymous reviewer for this volume, for instance, factive complements, while endowed with a CP layer, do not encode illocutionary force. The relation between structural layers and illocutionary force can be better formalised in terms of an articulated CP, as initiated in work by Rizzi (1997). We will not discuss the difference between initial and final position of the adverbial clause. For central adverbial clauses, the assumption is that in addition to being right-adjoined (as in Figure 1a), they can also be left-adjoined to TP. They can also be fronted to the left periphery, where they will have a specific function in terms of information structure, such as contrastive focusing or presenting the content of the adverbial clause as given (see also Diessel 2001, 2008 for a cognitive-functional perspective on such effects).

⁵The following passage and examples are from Huddleston (1984: 379f.).

Where a subordinate clause is a constituent of the superordinate clause, we say that it is *embedded* [...] However, contrary to what is assumed in many modern grammars, there is good reason to doubt whether all cases of clause subordination should be handled in terms of embedding. Thus, in [(8a)] we shall want to say that *whereas Max thought it appalling* is subordinate [...], but the superordinate clause here is *Ed liked it: this – unlike [...] he knew* in [(8b)] – is a clause. The suggestion is that in [(8a)] the subordinate clause is an immediate constituent of the sentence, and in that case it is not embedded, just as *and Ed bought the wine* is not embedded in [(8c)].

- (8) a. Ed liked it, whereas Max thought it appalling.
 b. He knew he was dying.
 c. Liz prepared the food and Ed bought the wine.

Huddleston's *whereas*-clause in (8a) is an example of a peripheral adverbial clause – note that *whereas* can be replaced by *while*₂ – and in terms of our Figure 1b it would be adjoined to a full-fledged CP. On the other hand, the central adverbial clauses in Figure 1a are fully contained within the superordinate CP, and in this sense, they are “embedded”.

Ultimately, whether one considers adverbial clauses as “embedded” or not will be determined by theory-internal arguments. For instance, Diessel (2013: 342) states that “[s]ince (sentential) adjuncts do not fill an obligatory slot in the semantically associated clause, there is no cogent evidence that adverbial clauses are syntactically embedded”. Diessel adopts a narrower definition of “embedding” than that used here, which would actually only cover argumental adverbials as illustrated in Section 4.3.2 below.

2.2 Structural relations and scope

2.2.1 Temporal subordination

Central adverbial clauses are temporally subordinated to the temporal expressions in the host clause; peripheral adverbial clauses are not temporally subordinated (Hornstein 1993, Haegeman 2019, 2020). With respect to English, the temporal subordination of central adverbial clauses is particularly clear in the encoding of futurity. Consider (3), repeated in (9) (*Guardian*, G2, 12.12.2003, page 4, col. 4). In the central *while*₁-clause, the present tense verb *decides* can be assigned a future time reading, which it inherits from the future time expression *will delay* in the host clause. No such temporal subordination is available in the concessive *while*₂-clause, in which futurity must be independently realised, here

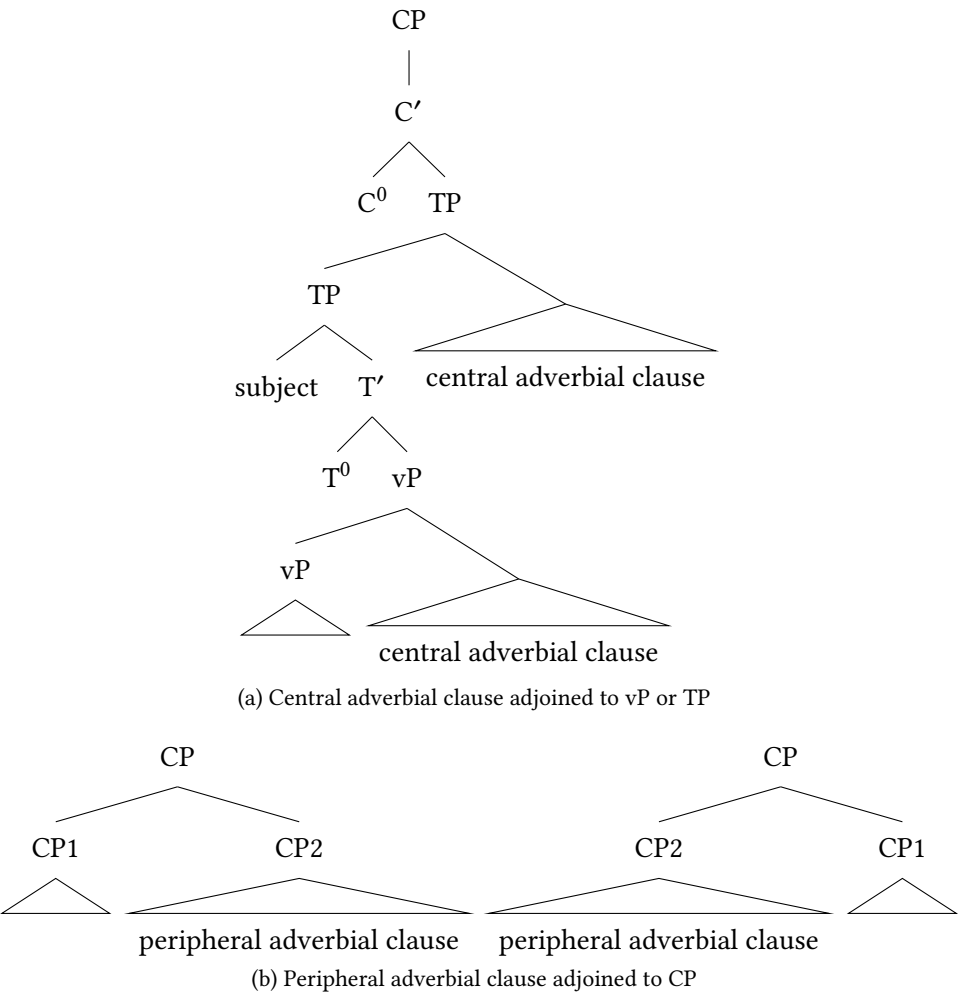


Figure 1: Different degrees of structural integration

by the future auxiliary *won't*. For temporal subordination in conditional clauses see a.o. Haegeman & Robinson (1979), Haegeman & Wekker (1984), Quirk et al. (1985), Schönenberger & Haegeman (2023).

- (9) [While₂ this ongoing lawsuit probably won't stop the use of lethal injection], it will certainly delay its use [while₁ the Supreme Court decides what to do].

Similarly, in British English, a temporal *since*₁-clause has been reported to require a perfective tense form in the host clause Quirk et al. 1985: 1015–1018, while no such restriction is operative with rationale *since*₂.⁶

- (10) a. I have been/*am/*was relaxing since the children went away on vacation.
b. He took his coat, since it was raining.

The different status of central adverbial clauses vs. peripheral adverbial clauses has been recognised in the literature. Hornstein (1993) suggests that in the absence of temporal subordination the relevant subordinators are similar to coordinators:

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].⁷

Though a similarity with the coordination relation is also suggested by the representation in Figure 1b, the relation between a peripheral adverbial clause and its host clause cannot be equated with coordination. Haegeman (2012: 168) signals the following differences: (i) the subject of the second conjunct can be deleted under identity with the first conjunct in (11a), but second conjunct subject ellipsis is not available with a peripheral *while*₂-clause, as in (11b); (ii) gapping is readily available in second conjuncts (12a), but not in a peripheral adverbial clause (12b).

- (11) a. John is doing a Ph.D. in Oxford but did his first degree in Cambridge.
b. *John is doing a Ph.D. in Oxford [while₂ did his first degree in Cambridge].
- (12) a. John reads the Guardian and Mary the Times.
b. ??John reads the Guardian [while₂ Mary the Times].

In terms of the hierarchical relations represented in Figure 1, the central adverbial clause can be viewed as a constituent of the TP of the host clause while the

⁶Examples adapted from Quirk et al. (1985: 1070, 15.20).

⁷See Hornstein (1993: 206, note 19).

peripheral clause is “outside” the host TP. Scope-bearing elements in the host clause may scope over central adverbial clauses but they do not scope over peripheral adverbial clauses, as illustrated in (13) with *while*-clauses. In (13a) the *while*₁-clause is in the scope of the quantifying adverb *frequently*: John’s listening to the radio coincides frequently with his wife’s babysitting. The concessive *while*₂-clause in (13b) is not in the scope of *frequently*: there is no claim that John’s listening to the radio frequently coincides with his wife’s playing vinyl records.

- (13) a. John frequently listens to the radio while₁ his wife is in charge of the baby.
b. John frequently listens to the radio, while₂ his wife (sometimes) plays old vinyl records.

This contrast has long been discussed in the literature (see Lakoff 1970: 169 on *because*-clauses).⁸

2.2.2 Focus

Focal operators in the host clause may scope over central adverbial clauses but not over peripheral adverbial clauses. For discussion of the pattern in English see a.o. Quirk et al. (1985: 1070–1071). The central adverbial clause in (14a) can be clefted, but the peripheral adverbial clause in (14b) cannot be clefted (Haegeman 2006a,b, 2012). Central adverbial clauses can be associated with focusing devices such as *only*, *just*, *simply*, or *mainly*, as in (14c); peripheral adverbial clauses cannot be focused by these elements, as in (14d). See also a.o. Quirk et al. (1972) and Elhadad & McKeown (1990: 99) on *since* and *because*.

- (14) a. It’s [while₁ Bill Clinton was governor of Arkansas] that he developed this programme.
b. * It’s [while₂ Bill Clinton was governor of Arkansas] that Hillary Clinton was senator of New York.
c. Only while₁ Bill Clinton was governor of Arkansas did he develop this programme.
d. * Only while₂ Bill Clinton was governor of Arkansas was Hillary Clinton senator of New York.

⁸Thanks to an anonymous reviewer for this volume for bringing this reference to our attention.

Similarly, a central adverbial clause can function as the answer to a question, but a peripheral adverbial clause cannot. Elhadad & McKeown (1990: 99) give the contrast in (15).

- (15) a. Why did Peter leave?
b. Because₁/*Since₂ he had to catch a train.⁹

2.2.3 Interaction with negation

Central adverbial clauses can be in the scope of the marker of sentential negation in the host clause, while peripheral adverbial clauses cannot. In (16a), the central *while*₁-clause is in the scope of sentential negation; the peripheral *while*₂-clause in (16b) is not.

- (16) a. Bill Clinton did not develop this programme while₁ he was governor of Arkansas.
b. Hillary Clinton will not become president of the United States, while₂ her husband was president from 1993 till 2001.

See also a.o. (Lakoff 1970: 169) and (Quirk et al. 1985: 1071).

2.2.4 VP anaphora and VP ellipsis

VP anaphora and VP ellipsis may affect central adverbial clauses (17a), (18a); they do not affect peripheral adverbial clauses (17b), (18b). For instance, in (17a) the second conjunct *so will Bill* can be read as meaning ‘Bill will also leave the room while his thesis is being discussed’, in which the possessive pronoun *his* is bound by *Bill*. In (17b), this particular reading is not available, with the second conjunct read as ‘Bill will also be invited, while John’s thesis will not be discussed.’

- (17) a. [While₁ his thesis is being discussed], John will leave the room and so will Bill.

⁹Specialised conjunctions may bring out the distinct readings. For instance, Dutch *vermits*, French *puisque*, and Italian *poiché* lack the causal reading and only have the rationale reading. Italian *perché*, on the other hand, only has the causal reading. The Italian analogue of (15b) would be as in (i):

- (i) Perché/*Poiché doveva prendere un treno.
because/*since had to take a train
‘Because he had to catch a train.’

Thanks to an anonymous reviewer for this volume for bringing this to our attention.

- b. [While₂ his thesis will not be discussed], John will be invited for the interview and so will Bill.
- (18)
- a. [While₁ his thesis was being discussed], John left the room but Bill didn't.
 - b. [While₂ his thesis will not be discussed], John will be invited for the interview but Bill won't be.

2.3 Conclusion: External syntax

In this chapter, and based on the data discussed so far, we endorse the hypothesis that the two types of adverbial clauses display a close syntax-semantics fit, and that a difference in external syntax between the two types contributes to the interpretive differences discussed above. Postulating a different level of attachment for central and peripheral adverbial clauses offers a natural way to capture a range of scope phenomena in structural terms. We return to the nature of the syntactic relations in Section 4 and Section 5.

For the sake of completeness, we must point out that there is no consensus in the literature that a syntactic characterisation of the relations between different adverbial clause types and their hosts is needed. For instance, Declerck & Reed (2001) deny the relevance of syntax to capture the various interpretive differences discussed in Section 2.2.1–Section 2.2.4:

[A] subordinate clause is a syntactically dependent clause. Such questions as the scope of negation, focusing, modality, etc. in the head clause are immaterial to this, as they pertain, not to syntactic, but to semantic integration.¹⁰

3 The internal syntax of adverbial clauses: Are central adverbial clauses “impoverished”?

Section 2 presented an overview of some diagnostics used to distinguish two basic types of adverbial clauses, referred to as “central” adverbial clauses and “peripheral” adverbial clauses by Haegeman (2003). Section 4 and Section 5 will reconsider this binary opposition to reveal that a more fine-grained typology may ultimately be called for. In the present section, however, we continue to adopt the binary distinction as a working hypothesis, and turn to the internal

¹⁰See Declerck & Reed (2001: 37).

composition of adverbial clauses. We will show that the two types of adverbial clauses differ with respect to clause-internal fronting operations and the availability of certain modal expressions. Informally, the difference could be captured as follows: peripheral adverbial clauses seem to have a richer internal structure than central adverbial clauses.

3.1 Evidence for the structural impoverishment of central adverbial clauses

3.1.1 Argument and predicate fronting

Examples (5a) and (5b) contain peripheral adverbial clauses in which an argument has been fronted to a left-peripheral position. An additional example of argument fronting, drawn from a descriptive grammar, is given in (19a) (Quirk et al. 1985: 1378); (19b) (*Guardian* 06.09.2012, page 36, col. 2) is an attestation of predicate fronting.

- (19) a. His face not many admired, while₂ his character still fewer felt they could praise.
 b. Instead the patriotic duty was dismissing ‘random acts of criminality’. While₂ criminal the rioting indubitably was, random it was not.

In contrast to peripheral adverbial clauses, central adverbial clauses are incompatible with argument or predicate fronting:

- (20) a. *We discovered something else while₁ this paper we were writing.
 b. *We discovered something else while₁ Bachelor students we were.

Fronting operations like those illustrated in the adverbial clauses in (5), (19) and (20) are referred to as Root Transformations (RTs) (Emonds 1970, 1976, 2004) or Main Clause Phenomena (MCP) (Hooper & Thompson 1973) and have been the subject of much discussion (Haegeman 2012, Heycock 2006, 2017). Other fronting operations with a similar distribution are negative inversion, locative inversion, and inversion around *be*. As the labels suggest, these phenomena are broadly restricted to main clause domains but they are also available in a subset of embedded domains. Hooper & Thompson (1973) identify assertion as the key licensing property for these phenomena:

As a *positive* environment we can say that [root] transformations operate only on S[entence]s that are *asserted*. [...] some transformations are sensitive to more than just syntactic configurations. *It does not seem possible to*

*define the domain of an RT in terms of syntactic structures in any general way. However [...] even if it were possible to define in syntactic terms the conditions under which RTs can apply, [...] the question of why [original italics] these transformations can apply in certain syntactic environments and not others would still be unanswered.*¹¹

In the citation above, Hooper & Thompson seem to say that the environment in which MCP are licensed cannot be defined in syntactic terms. Yet the extract below, taken from an earlier part of the same paper, does seem to imply that the environment in which MCP cannot be licensed can to some extent be defined in syntactic terms:

Though RTs may apply in some complements that are full sentences introduced by the complementizer *that*, *they may never apply in any complements that are reduced clauses*. By reduced clauses we mean *infinitives, gerunds, and subjunctive clauses*, i.e. those complement types which have *uninflected verbs*.¹²

In the citation above, MCP are said to be excluded from “reduced clauses”, which Hooper & Thompson correlate with non-finite clauses, but given the observation that MCP are not available in finite central adverbial clauses (20), a subset of finite clauses could then also be argued to be ‘reduced’. See also Maki et al. (1999). Along cartographic lines (Rizzi 1997, Cinque 1999, Cinque & Rizzi 2010), MCP could be argued to be unavailable in domains lacking one or more of the higher structural layers of the clause which are typically used in the encoding of information structure. Such an account was proposed in Haegeman (2006a,b) and also developed by a.o. Bianchi & Frascarelli (2010), Frascarelli & Hinterhölzl (2007), Miyagawa (2012).

3.1.2 The high modal restriction

Central adverbial clauses have been reported to resist speaker-related modal expressions (a.o. Ernst 2001, 2003, 2007, 2009, Verstraete 2002, Nilsen 2004, Zagana 2007). The class of modal expressions singled out roughly corresponds to Ernst’s speaker-oriented adverbs (Ernst 2009) and to Cinque’s (1999) ‘high’ modals. In Cinque’s cartographic terms, the four topmost expressions of modality (Cinque 1999, 2004) are speech-act markers (*frankly*), evaluative markers (*unfortunately*),

¹¹See Hooper & Thompson (1973: 495) (our italics except where indicated).

¹²See Hooper & Thompson (1973: 484f.) (our italics).

evidential markers (*allegedly*), and epistemic markers (*probably*, *must*); these modal markers are ‘high’ because they are structurally located above the temporal layers.¹³ As shown in (21), high modal expressions are not (easily) compatible with central adverbial clauses, while they are compatible with peripheral adverbial clauses. See also Declerck & Depraetere (1995), Verstraete (2002).

- (21) a. *Mary accepted the invitation without hesitation after₁ John probably had accepted it.¹⁴
 b. The ferry will be fairly cheap, while₂ the plane will probably/might be too expensive.

The restrictions on the availability of the high modals is illustrated in (22) for conditional clauses. Example (22a) (Ernst 2007: 1027, his (69b)) illustrates the incompatibility of an evaluative modal with a central *if*₁-clause, and (22b) (Nilsen 2004: 811, note 5) illustrates how an epistemic modal is compatible with a peripheral *if*₂-clause, i.e. a conditional assertion. The attested (22c) (*Guardian*, 25.02.2002, page 4, col. 3) displays the epistemic modal *may* in a peripheral *if*₂-clause.

- (22) a. *If₁ they luckily arrived on time, we will be saved.
 b. If₂ Le Pen will probably win, Jospin must be disappointed.
 c. But if₂ Sir Richard has been tainted by the affair, and if Mr Sixsmith’s role may not have been as entirely well-intentioned as he claims, the individual most damaged by the row remains Stephen Byers.

In the literature, there is a consensus that the encoding of epistemic modality is related to the speaker, as reflected, for instance, in the following quotation from Zagana (2007: 230) (see also Speas & Tenny 2003, Speas 2004, Tenny 2006).

[E]pistemic modals should appear only in finite clauses that make statements relative to the speaker’s world of known propositions at the moment of speaking.

¹³The label TP as used in Cinque’s (1999) model is not to be taken as identical to the label TP in the more parsimonious Minimalist representations. In the latter, at least some modal marking is TP-internal. We do not dwell on this issue, which is theory-internal and beyond the scope of this chapter. Suffice it to say that in an articulated view of clause structure, as espoused in cartography, the domain that is characterised as TP is dominated by the domain hosting speaker-related modal markers, which in turn is dominated by the articulated CP layer.

¹⁴Based on Verstraete (2002: 149) (his (20b)).

The speaker-relatedness of epistemic modality is reflected in its relation to the speech time. For instance, Verstraete notes that “epistemic modals can be morphologically associated with a past tense, ... *this morphological marking does not express the speaker’s past judgement*. Either it is used for tentativeness, [...] or it occurs in a context of indirect or free indirect speech” (Verstraete 2002: 152, our italics). The temporal anchoring of epistemic modals also applies to the other modal expressions located higher than TP in Cinque’s framework. All these modal markers are outside the scope of the event-time operator of the containing clause, provisionally associated with SpecTP, as in Demirdache & Uribe-Etxebarria (2004, 2012).

3.2 Are central adverbial clauses incompatible with the articulation of information structure?

The observed incompatibility with a range of speaker-related phenomena could lead one to conclude that central adverbial clauses, being non-assertive, cannot encode information structure at all, a conclusion that could be inferred, for instance, from the following quotation (van der Wal 2014: 61, citing Güldemann 1996: 178):

A particular property of ad[verbial]-subordination is that ad[verbial]-subordinate clauses are always non-asserted or presupposed [...] [T]he claim is that in adverbial clauses, more specifically in situative and relative adverbial clauses in Makhuwa, the proposition of those clauses does not contain new information. This confirms Güldemann’s (1996) findings on the ‘background’ status of asyndetic hypotactic clauses and relative clauses in other Bantu languages. He notes that this status as background “necessitates a compact, largely unstructured presentation of the state of affairs. In order to meet this requirement, the internal (information) structuring of the dependent clause – by focusing the predicate, a term or any other part of the sentence – would be obstructive.”

However, excluding all encoding of information structure from central adverbial clauses is problematic: central adverbial clauses do encode some types of information structure, which we illustrate with examples from English (Section 3.2.1) and from French (Section 3.2.2).

3.2.1 English

While focus fronting of arguments or predicates is illicit in central adverbial clauses, other focusing devices are available: *in situ* focus is illustrated in (23a),

and (23b) shows focal particles such as *only* or *even*. Clefting is also available in central adverbial clauses (see Lahousse & Borremans 2014).

- (23) a. He was always there ready with advice but when₁ I needed money he was nowhere to be found.
 b. When₁ they started to invite only/even Joan, we knew there was something wrong.
- (24) He was always there ready with advice but when₁ it was money that I needed he was nowhere to be found.

Postposing of nominals for focusing purposes is also available in central adverbial clauses, as shown in (25):¹⁵

- (25) a. I had another shock more recently when₁ I read in the papers that my weakness for the odd square of dark chocolate was not shortening my life but prolonging it. And yet another upset when₁ I read somewhere else [the good news about crosswords].
 b. I have two types of mosquito lotion... But I found that if₁ you put in your pockets [dryer sheets], ...it keeps them away.

3.2.2 French stylistic inversion

French temporal adverbial clauses are compatible with stylistic inversion, in which the subject nominal appears in a non-canonical postverbal position. The reordering has the effect of focusing the subject: in (26a) (Lahousse 2003b: 280, her (1a)) the subject *les enfants* 'the children' occupies a sentence-final position; the example contrasts with (26b), in which it occupies its canonical clause-initial position (Lahousse 2003a,b).

- (26) a. Je voulais partir quand₁ sont arrivés les
 I want.PAST.1SG leave when be.PRES.3PL arrive.PART.PL the
 enfants.
 children
 'I wanted to leave when the children arrived.'
- b. Je voulais partir quand₁ les enfants sont arrivés.
 I want.PAST.1SG leave when the children be.PRES.PL arrive.PART.PL
 'I wanted to leave when the children arrived.'

¹⁵(25a) (*Observer* 26.09.2010, page 4, col. 3); (25b) (Wallenberg 2009: 218, his (14)).

3.3 How to account for the impoverished structure of central adverbial clauses

Considering the examples in Section 3.1 and Section 3.2, one might be tempted to conclude, essentially inspired by Hooper & Thompson's (1973) proposal cited in Section 3.1.1, that the apparent deficiency in central adverbial clauses can be captured in structural terms. Concretely, one might propose that the topmost layers of the clause, dominating the layers encoding temporality (Cinque's 1999 TP) and used to encode information structure, are missing. Such a proposal is, for instance, developed in Haegeman (2003, 2006a,b), and Frey (2018, 2020a,b). As a result, the articulated CP layer(s) hosting fronted arguments or predicates, would be absent and central adverbial clauses would simply be TPs dominated by a CP shell (as in Frey 2020a: 18). However, this proposal conflicts with the following data drawn from French and Italian.

First, (27) shows that central adverbial clauses are compatible with a fronting pattern commonly found in Romance languages and usually referred to as clitic left dislocation. In this pattern, a nominal constituent preceding the canonical subject position is doubled by a clitic pronoun associated with the finite verb. This is shown in French (27a) and in Italian (27b).¹⁶

- (27) a. French
Quand_i cette chanson je l' ai entendue, j' ai pensé
when that song I it have.1SG heard.FEM I have.1SG think.PART
à mon premier amour.
to my first love
'When I heard that song, I thought of my first love.'
- b. Italian
Se la stessa proposta la fa anche l' altro candidato, ...
if the same proposal it make.3SG also the other candidate
'If the other candidate also makes the same proposal ...'

Data such as (27) constitute evidence that central adverbial clauses cannot be analysed as mere TPs immediately dominated by a CP shell, as in Frey (2020a), at least on the cartographic assumption that the nominal constituent to the left of the subject occupies a designated position in the left periphery (see Rizzi 1997 and the literature based on that).

Note also that the availability of the arguments in the left peripheral space, as in (27), cannot be ascribed to a split between Romance languages and English,

¹⁶(27a) (Haegeman 2012: 157, her (21c)); (27b) (Cardinaletti 2009: 12, her (22), our translation).

according to which the former would be more ‘liberal’ in terms of the availability of the left periphery in central adverbial clauses. As revealed by French (28), fronting operations in central adverbial clauses are also restricted. In a main clause, an infinitival constituent can be fronted without obligatorily having to be resumed by a clitic, as shown in (28a). In central adverbial clauses, on the other hand, fronting of an infinitival constituent with a resumptive clitic (28b) is acceptable, but fronting of an infinitival constituent without a resumptive clitic (28c) is not (see Authier & Haegeman 2015 for extensive discussion).

- (28) a. Fumer dans les bureaux, on pourra (le) faire en toute
to.smoke in the offices we will.be.able.to (it) do with all
impunité.
impunity
‘Smoking in the offices, we’ll be able to do (it) with impunity’
- b. Quand fumer dans les bureaux on pourra le faire en
when to.smoke in the offices one will.be.able.to it do with
toute impunité, ...
all impunity
‘When smoking in the offices we’ll be able to do (it) with impunity ...’
- c. *Quand fumer dans les bureaux on pourra faire on
when to.smoke in the offices one will.be.able.to do with
toute impunité, ...
all impunity

Garzonio (2008) and Authier & Haegeman (2015) show that the same interaction holds between PP preposing and the need for clitic doubling in Italian and in French. We refer the reader to the relevant papers.

3.3.1 (Selective) truncation

The Romance data introduced above might be invoked to propose an account in terms of structural truncation in the sense that one or more structural layers in the clausal domain are missing. Specifically, if the unavailability of speaker-related modal expressions is tied to the absence of the higher modal layer which dominates TP and which is itself dominated by the articulated CP layer, then the availability of the Romance clitic left dislocation patterns (cf. (29)) implies that the layer in the articulated CP which hosts clitic-left-dislocated constituents, Rizzi’s (1997) TopP, is present.

(29) French

Ce livre-là, il ne l'a probablement pas encore lu.
this book-there he *ne* it.have.3SG probably not yet read
'Probably he has not read this book yet.'

Concretely, this requires selective truncation of the lower layers hosting the modals while at the same time preserving some – though not all – of the structural layers that are associated with the CP domain. Haegeman (2003, 2006a,b) develops such an account, which is further developed in Bianchi & Frascarelli (2010), a.o. The drawback of such accounts, however, is that they merely seem to stipulate deficient structure based on the observed data.

3.3.2 Deriving structural deficiency

Haegeman (2010a,b, 2012, 2014) has argued that structural truncation effects can (and hence should) be captured in terms of locality restrictions and intervention effects on movement. We cannot go into her account here, but in essence, her proposal is that adverbial clauses which manifest apparent structural deficiency are derived by the movement of a TP-internal operator to the left periphery and that this movement would be blocked by specific constituents. Haegeman's movement derivation of adverbial clauses revives a long tradition including work by Geis (1970), Reuland (1979), Larson (1985, 1987, 1990), Johnson (1988), Declerck (1997), Lycan (2001), Bhatt (2003), Demirdache & Uribe-Etxebarria (2004, 2012), Arsenijević (2006, 2009b,a), Bhatt & Pancheva (2006, 2017), Stephens (2007), Lip-ták (2009), Tomaszewicz (2009, 2012), Zentz (2011), Williamson (2019).

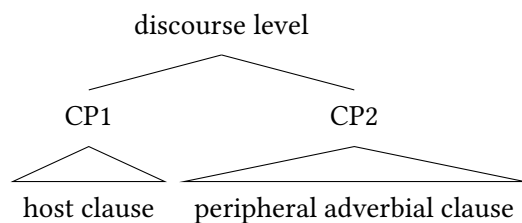
4 The external syntax of adverbial clauses: Proposals and questions

The consensus is that central adverbial clauses are integrated into the host domain. Depending on the degree of functional articulation assumed for the clause, fine-grained levels of attachment of the central adverbial clause in relation to the host clause can be envisaged according to which the adverbial clause is merged with the semantically matching layer in the host clause. For instance, one might envisage that central adverbial clauses which modify the manner of the action encoded in the predicate of the host clause are merged with the latter at a low VP-internal level, that temporal clauses which modify the temporal domain are merged at the TP level, while conditional clauses which modify the modality of

the host clause are associated with the higher modal level (for a detailed implementation in cartographic terms, see Endo (2007, 2012), Endo & Haegeman (2019). Ultimately, this kind of analysis ‘syntacticises’ the semantic classification of adverbial clauses illustrated in (1d), (1e), (2) in terms of the level of merge with the host clause.

For peripheral adverbial clauses, a number of syntactic analyses have been formulated, which touch upon the general question to what extent constituents encoding discourse relations can or should be integrated at the level of narrow syntax. According to Figure 1b, peripheral adverbial clauses are attached at a high level, but the attachment still takes place within the narrow “sentential” syntax. The underlying rationale for the high attachment is that peripheral adverbial clauses manifest root-like phenomena and thus are merged at a level matching the root clause (see Frey 2012, 2018, 2020a,b for the idea of ‘matching’, and also Endo & Haegeman 2019). An alternative proposal is that peripheral adverbial clauses are so-called orphan constituents (Haegeman 1991) which are combined with the host at a discourse level, schematised in (30).

(30) Orphan analysis: combination with host clause at the discourse level



The underlying hypothesis for the orphan approach is that “semantic relations between [peripheral adverbial clauses] and their host sentences are not established at the sentence level at all, but rather at a discourse level” (Haegeman et al. 2009: 348). Similar lines of argumentation were pursued by a.o. Asher (2000) for parentheticals; by d’Avis (2004) for German conditionals; by Cinque (1982, 2008, 2020), Safir (1986), Fabb (1990) for non-restrictive relatives; and by Cinque (1982), Shaer & Frey (2004), Shaer (2009), Raposo (1996) for hanging topic dislocation.¹⁷ In a slightly different mode, Espinal (1991) takes such ‘disjuncts’ to be attached to their host clauses in a different dimension of syntactic representation. In this section we discuss some problems for a generalised orphan analysis of peripheral adverbial clauses.

¹⁷Raposo’s (1996) claim is reported in Raposo & Uriagereka (2005: 689).

4.1 Embedding and constituency

Recall that in Section 2.2.1 the absence of temporal subordination was invoked as an argument for distinguishing the level of embedding of central adverbial clauses from that of peripheral ones. Haegeman et al. (2009) point out the sequence of tense pattern in (31) (*Guardian*, 03.10.2003, page 6, col. 1, our italics), their (6), in which the past tense of *had known* in the peripheral adverbial clause is temporally subordinated to the past tense of *claimed* in the superordinate clause.

- (31) As the home secretary, David Blunkett, announced record police numbers, the daughters of Marian Bates *claimed* that while₂ in the past they *had* known their local bobby well, nowadays they *did* not set eyes on a police officer from one week to the next.

Assuming a syntactic analysis of sequence of tense relations (Hornstein 1993), data such as (31) constitute an argument against the orphan approach, but this is not the conclusion drawn by Haegeman et al. (2009: 352). These authors point out that temporal subordination of the type illustrated in (31) also occurs in non-embedded environments, and at least in these environments it should be viewed as being driven by discourse conditions. Example (31) is reformulated in (32) (Haegeman et al. 2009: 352, their (7)) without the embedding configuration.

- (32) The daughters of Marian Bates no longer knew their local police officers. While₂ in the past they had known their local bobby well, nowadays they did not set eyes on a police officer from one week to the next.

However convincing this observation may be, (31) remains problematic: the peripheral adverbial *while*₂-clause is embedded together with its host clause and, at least at first sight, this would suggest that the two form a syntactic constituent. The formalisation of the embedding configuration in an orphan approach is not addressed by Haegeman et al. (2009).

Consider the examples in (33): in each, the bracketed combination of the host clause and a peripheral *while*₂-clause is embedded under a verb of communication – which is also true of (31) – and the *while*₂-clause itself contains a speaker-related modal. In these examples, the sentient mind to whom the modal stance encoded by the modal in the peripheral adverbial clause is being attributed is the subject of the matrix clause, i.e. the speaker introduced by the verb of communication.

- (33) a. Setting down the new guidelines for privacy cases, Lord Wolf said that [*while*₂ judges must respect an individual's right to a private life, due weight should also be given to the importance of freedom of expression].¹⁸
- b. Some said that [*while*₂ they may not feel British, neither did they feel Pakistani].¹⁹

The effects of temporal and modal subordination, illustrated in (31) and (33) respectively, suggest that, while there may well be no c-command relation between constituents in the host clause and those in the peripheral adverbial clause, scopal dependencies obtain between constituents in the higher containing matrix clause and constituents in the embedded peripheral adverbial clause. The proponents of the orphan analysis do not discuss how this relation is established. An approach along the lines of Figure 1b, in which the peripheral adverbial clause is attached at the CP level, would *prima facie* stand a better chance of capturing the embeddability of the combination of the peripheral adverbial clause and its host, given that in this representation the two form a constituent.

Importantly, in the high attachment approach, the embedding patterns in (31) and (33) can only be derived if one adopts an articulated left periphery along the lines of Rizzi (1997) and Haegeman (2012), in which various heads are available above TP. Because the complementiser *that* in (31) and (33) linearly precedes the *while*₂-clause, the peripheral *while*₂-clause cannot be adjoined to a unique CP. In (33b) the complementiser *that* could occupy Force and the inverted auxiliary *did* could occupy the head of the projection whose specifier hosts the negative adverb *neither*, a projection often taken to be a left-peripheral FocP (see Haegeman 1995, 2000, Collins & Postal 2014). This proposal would entail that the peripheral adverbial clause is attached at least as high up as FocP. For completeness' sake, observe also that if, like Frey (2016: 416–417), one were to propose that the peripheral adverbial clause is actually in the specifier of ForceP, the topmost level in the Rizzian articulated CP, then it is unclear how it can ever surface to the right of the complementiser.

4.2 Verb Second (V2)

As shown a.o. by Reis (1997), and recently by Frey (2016, 2018, 2020a,b), a generalised orphan analysis for peripheral adverbial clauses is also challenged by the fact that both central adverbial clauses and peripheral adverbial clauses can be the first constituent of a V2 clause, as shown for Dutch central *sedert* 'since'-clauses in (34a), (34b) and for peripheral *vermits* 'since'-clauses in (34c), (34d).

Neither clause can standardly function as the extra-sentential constituent in a V3 pattern – also referred to as V2 transgression (Catasso 2015) – in which they would combine with a subject-initial V2 clause, as in (34b) and (34d) (but for dialectal variation see Haegeman & Greco 2018, Greco & Haegeman 2020).

- (34) a. Sedert ik met pensioen ben werk ik thuis.
since I with pension am work I home
'Since I retired I have been working from home.'
- b. *Sedert ik met pensioen ben, ik werk thuis.²⁰
since I with pension am I work home
- c. Vermits ik met pensioen ben, werk ik thuis.
since I with pension am work I home
- d. *Vermits ik met pensioen ben, ik werk thuis.
since I with pension am I work home

In a traditional analysis of V2 according to which the initial constituent occupies Spec-CP, both the central and the peripheral adverbial clause in (34a) and (34c), respectively, must be merged in the narrow syntax. In addition, the non-availability of a V3 order, as in (34b) and (34d), shows that these adverbial clauses cannot function as an extra-sentential, i.e. non-integrated, constituent along the lines of Broekhuis & Corver (2016).

4.3 Evaluating the diagnostics

The diagnostic tests discussed in Section 2, which Haegeman (1984a,b, 1991, 2003) used as evidence for a classification of adverbial clauses into central and peripheral adverbial clauses, do not provide conclusive evidence for the analyses proposed by Haegeman in terms of either high CP-attachment or for an orphan analysis. In fact, the diagnostics for differentiating central adverbial clauses (e.g. temporal *while*₁-clauses) from peripheral adverbial clauses (e.g. concessive *while*₂-clauses) also single out a subset of adverbial modifiers standardly taken to be part of the clausal domain, such as the speaker-related epistemic modal adverb *probably*. As shown in (35), *probably* patterns with concessive *while*₂-clauses for all of the following criteria:

²⁰Note that (34b) is a simplification. In West Flemish, such patterns are OK:

- (i) West Flemish
Sedert ik met pensioen ben, ik werk thuis.
since I with pension am I work home

Again, see Haegeman & Greco (2018), Greco & Haegeman (2020).

- It is outside the scope of the temporal operator: in (35a) the judgement of probability is located at the ‘present’ speech time and it is not in the scope of the past tense encoded in *took* (cf. the discussion in 3.1.2).
 - It is outside the scope of negation: in (35b) negation bears on the event ‘he took early retirement’ and not on the probability of the event.
 - It cannot be focused (35c) or clefted (35d).
 - It cannot be *wh*-questioned (35e).
 - It is not affected by VP anaphora. In (35f) the epistemic modality encoded in *probably* is not retrieved in the VP anaphora in the second conjunct (Andrew Radford, p.c.), i.e. the second conjunct reads ‘and his wife has gone home too’ and not ‘and his wife has probably gone home too’.
- (35) a. He probably took early retirement.
 b. He probably did not take early retirement.
 c. He has (*even) probably taken early retirement.
 d. *It is probably that he has taken early retirement, not definitely.
 (with cleft reading)
 e. A: With what likelihood did he leave?
 B: *Probably.
 f. He has probably gone home, and his wife has too.

Importantly, the unacceptability of the patterns in (35) is not due to the categorial status of the *-ly* adverb. Similar patterns would, for instance, be acceptable with the temporal adverb *recently* (cf. Li et al. 2012: 232).

Even if speaker-related modal adverbs such as *probably* are plausibly interpreted higher than their surface position, they are standardly taken to be part of the narrow syntax (cf. Cinque 1999, Ernst 2001, 2003, 2007, 2009). One concrete piece of evidence from English in support of the syntactic integration of these modal expressions is that they can follow the subject (in its canonical position), as in (35a), (35b), and the finite auxiliary, as in (35c) and (35f).

The contrast between speaker-related modal adverbs and temporal adverbs can be related to the level of merger: speaker-related modal adverbs (e.g. epistemic *probably*) differ from lower temporal adverbs (e.g. *recently*) in that the latter are and the former are not within the scope of T(ense)A(spect)M(odal) operators or affective operators. This difference carries over to the syntactic analysis of

the contrast between central and peripheral adverbial clauses. Thus, besides the problems posed by the empirical data discussed in Section 4.1 and Section 4.2, there is a more general problem in the argumentation in that neither the CP-adjunction analysis nor the orphan analysis are actually motivated.

Our findings on the diagnostics that set apart peripheral adverbial clauses from central adverbial clauses reinforce Frey's hypothesis, based essentially on German data, that peripheral adverbial clauses pattern syntactically with speaker-related high modals (Frey 2018, 2020a,b). The observed parallelism suggests that peripheral adverbial clauses are syntactically integrated in the same way that speaker-related modals are. Below we discuss English and Dutch data in support of this hypothesis.

4.3.1 Interactions with V2

Although both central and peripheral adverbial clauses can function as the first constituent in a V2 clause, as discussed in Section 4.2, they do not pattern in the same way with regard to V2 transgressions (Catasso 2015). Dutch central adverbial clauses, such as temporal *sedert*-clauses can give rise to a V3 pattern in which they combine with a full-fledged V2 root clause, as in (36a), and are picked up by a matching resumptive element left-adjacent to the finite verb, here the PP *sedert dan* 'since then'. As shown in (36b), this resumption pattern is not available for peripheral *vermits*-clauses.

To account for the acceptability of (36a) we adopt a hypothesis in Haegeman & Ürögdi (2010) that central adverbial clauses have referential properties, and we propose that referentiality allows them to be targeted as topics in a resumption pattern. If – by hypothesis – peripheral adverbial clauses lack referential properties, their unsuitability as topics follows.

- (36) a. *Sedert ik met pensioen ben, sedert dan werk ik thuis.*
 since I with pension am since then work I home
 'Since I retired I have been working from home.'
- b. **Vermits ik met pensioen ben, daarom werk ik thuis.*
 since I with pension am therefore work I home

The contrast above is replicated with 'high' and 'low' adverbs. Relatively low temporal adverbs such as *vroeger* 'formerly' or *later* 'later' can function as the first constituent in a V2 pattern and may also optionally be doubled by a resumptive element, as in (37), giving rise to a V3 pattern. The choice of the resumptive is determined by the nature of the initial adjunct: *toen* combines with the past adverb *vroeger* and *dan* combines with the future adverb *later*.

- (37) a. Vroeger (toen) werkte ik thuis.
 formerly (then) worked I home
 ‘Formerly I worked from home.’
 b. Later (dan) zal ik thuis werken.
 later (then) will I home work
 ‘Later I will work from home.’

In contrast, higher speaker-related epistemic adverbials such as *waarschijnlijk* ‘probably’ can function as the first constituent in a V2 pattern, as in (38), but they are incompatible with the resumption pattern, as noted by Broekhuis & Corver (2016: 1707).

- (38) Waarschijnlijk (*dan) is hij weeral ziek.
 probably (*then) is he again sick
 ‘He is probably ill again.’

4.3.2 Adverbial adjuncts and argumenthood

Another reflex of referentiality is observed in the English data in (39) and (40). Central adverbial clauses may function as arguments. A temporal clause (bracketed in (39a)) or a conditional clause (bracketed in (39b)) can become the complement of a preposition. Similarly, the bracketed *because*-clause in (39c) functions as the subject of the clause. As a subject it can also be dislocated and resumed by a demonstrative *that*. Peripheral adverbial clauses cannot take up such argumental functions, as shown in (40b).

- (39) a. Before you go on vacation, leave yourself something exciting, but not too daunting, for [after you get back].²¹
 b. [...] exactly what it says it is perfect for [if you need some cash in your blizzard wallet].²²
 c. [Because tennis doesn’t have an overt drug problem] (that) doesn’t necessarily mean there isn’t a problem.²³
 (40) a. While₁ you are invigilating is not a good time to check proofs.
 b. *While₂ you will be invigilating is incompatible with what I expected.

²¹<https://www.smartpassiveincome.com/post-vacation-blues/>

²²Based on

<https://www.amazon.com/gp/customer-reviews/R1W5EO8HSSX2CW?ASIN=B012JMS4W2>.

²³Based on (*Observer*, 03.06.2001, page 7, col. 7).

This asymmetry between the two types of adverbial clauses is replicated with non-clausal adverbial modifiers: temporal *-ly* adverbs can function as arguments (41a); on the other hand, the speaker-related epistemic modal adverbs *probably* and *obviously* do not function as an argument in the clause or as a complement in a PP (41b).

- (41) a. They did not book until recently.
 b. *I will not book until probably/obviously.²⁴

Once again, central adverbial clauses pattern with lower adverbs in the functional hierarchy, while peripheral adverbial clauses pattern with higher speaker-related modal adverbs.

4.4 Summary

Table 1 summarises the similarities and differences between the two types of adverbial clauses. Central adverbial clauses align with lower (temporal) adverbs; peripheral adverbial clauses such as concessive *while*₂-clauses or rationale *since*₂-clauses align with higher (modal) adverbs. Given that higher modal adverbs are syntactically integrated, it follows that the peripheral adverbial clauses that we have discussed so far must also be syntactically integrated.

Table 1: Two types of adverbial clauses and ‘lower’ and ‘higher’ adverbs

	CAC, e.g., <i>while</i> ₁	l-ADV (temporal) e.g. <i>recently</i>	PAC; e.g. concessive <i>while</i> ₂	h-ADV modal; e.g. <i>probably</i>
Embedded in <i>that</i> -clause	+	+	+	+
In scope of TAM	+	+	-	-
In scope of affective operators	+	+	-	-
VPE/VP anaphora	+	+	-	-
First constituent in V2	+	+	+	+
Resumptive V3	+	+	-	-
Possible argumental status	+	+	-	-

C/PAC: central/peripheral adverbial clause; l/h-ADV: lower/higher adverbs

²⁴(41b) should be read as ‘I will not book until it is probable’ or ‘I will not book until it is obvious’.

4.5 Combining high attachment and extra-sentential constituency

So far, we have been distinguishing between central adverbial clauses and peripheral adverbial clauses. Closer inspection reveals that peripheral adverbial clauses are not homogeneous, necessitating a refinement of the classification of adverbial clauses.

4.5.1 Re-examining peripheral adverbial clauses

4.5.1.1 Two interpretations

Haegeman (1991) analysed both bracketed strings in (42a) (from Nilsen 2004: 811, note 5) and (42b) as peripheral adverbial clauses.

- (42) a. [If₂ Le Pen will probably win], Jospin must be disappointed.
 b. [If you don't mind my saying so], your claims are not very original.

According to the diagnostics laid out in Section 2, the adverbial clauses in (42a) and (42b) both qualify as peripheral rather than central. However, it is also obvious that they function rather differently. The *if*₂-clause in (42a) is a conditional assertion, echoing a proposition in the background against which the host proposition is to be processed, whereas the *if*-clause in (42b) expresses what might be called a condition on the speech act: by means of this clause the speaker apologises for the content conveyed in the host clause (see also Sweetser 1990: 76–112 on adverbial clauses as pragmatic markers of politeness, and Declerck & Reed 2001 on conditionals in general).

The bracketed adverbial clauses in (43) are like the adverbial clause in (42b), in that they express a modification of the speech event. The *before*-clause in (43a) functions as a temporal modifier – making it interpretively like a central adverbial clause – of the speech act; the bracketed *since*-clause in (43b) (*Observer* 06.11.2005, page 18, col. 1), on the other hand, has the rationale reading of peripheral adverbial clauses (see (4b)).

- (43) a. [Before we start], five cabinet ministers will now be voting with the opposition tomorrow.
 b. I possibly have rose-tinged memories because I'd just attained my first girlfriend and earned and spent my first own money (on a small bottle of Brut for Men by Fabergé, [since you ask], and, yes, it still astonishes me how the acquisition of the second did not more violently militate against the acquisition of the first.)

Speech-event-modifying adverbial clauses are not within the scope of operators in the host clause, which is why they were classified as peripheral by Haegeman (1991). For instance, the *before*-clause in (43a) refers to the immediate future while the host clause introduces an event that is expected to happen ‘after’ the speech event. Thus, while the speech-event-modifying temporal adverbial clause in (43a) is arguably ‘central’ in terms of interpretation, it does not pattern with central adverbial clauses but rather with peripheral adverbial clauses.

However, in contrast to the other peripheral adverbial clauses, speech-event-modifying adverbial clauses with a ‘central’ interpretation remain incompatible with MCP, just like regular central adverbial clauses:

- (44) a. *Before the meeting we start, five cabinet ministers resigned last night.
b. *If this you don’t mind my saying, your proposals are not very original.

These data suggest that the internal syntax of adverbial clauses is to some extent independent of their degree of integration: even though the temporal interpretation of the *before*-clause in (43a), for instance, is independent of the time frame of the matrix clause and thus in those terms the adverbial clause could be said to qualify as ‘peripheral’, its internal syntax remains that of a central adverbial clause. Thus, grouping these speech-event-modifying adverbial clauses with peripheral adverbial clauses like concessive *while*₂-clauses or conditional assertions, as in Haegeman (1991), is problematic. For additional arguments based on conditionals, see also Takami (1988), Ros (2005), Schönenberger & Haegeman (2023).

4.5.1.2 Embedding

Speech-event-modifying adverbial clauses cannot be embedded. In (45a), the (temporal) *while*-clause modifies either the time of the event encoded in the main clause (our *while*₁) or it is recycled as a temporal modifier of the speech event (for which we will use the index ‘?’, i.e. *while*_?). In the former reading, present tense *are* in the *while*-clause is temporally subordinated to that in the matrix clause, i.e. it has a future interpretation. In other words, both the ‘talking about Theresa May’ event and the ‘voting with the opposition’ event happen at some time in the future. In the second reading, present tense *are* refers to speech time, so the ‘talking about Theresa May’ event is taking place now. This ambiguity disappears in an embedded context. The embedded *while*-clause in (45b) must be interpreted as modifying the time of the event encoded in the (bracketed) clause it modifies (*while*₁); a ‘recycled’ interpretation as a temporal modifier of the speech event (*while*_?) is unavailable.

- (45) a. While₁? we are talking about Theresa May, five cabinet ministers will be voting with the opposition.
 b. The Secretary of State will announce [that [while₁? they are talking about Theresa May], five cabinet ministers will be voting with the opposition].

4.5.1.3 V2 patterns

Speech-event-modifying adverbial clauses like Dutch *terwijl* ‘while’-clauses cannot be the first constituent of a V2 clause, as shown in (46). The speech-event-modifying adverbial clause is an extra-sentential constituent that combines with a full-fledged V2 root clause, leading to a licit V3 order.

- (46) Terwijl? we het over Bart De Wever hebben, ik hoor/*hoor ik dat
 while we it about Bart De Wever have I hear/hear I that
 Antwerpen berucht is voor de invoer van drugs
 Antwerp famous is for the import of drugs
 ‘While we are talking about Bart De Wever, I hear that Antwerp is famous for importing drugs.’

As an aside, we note that, just like adverbial clauses, some non-clausal adjuncts may be used as speech-event modifiers. By using the speech-event modifier *tussen haakjes* ‘in parenthesis’ in (47) the speaker signals that the statement he/she is about to make is a digression. *Tussen haakjes* combines with a full-fledged V2 clause and it cannot occur as the initial constituent in a V2 clause. In contrast to the speech-event modifier *tussen haakjes*, epistemic *waarschijnlijk* in (48) can occupy the initial position of a V2 clause and cannot combine with a full-fledged V2 clause.

- (47) Tussen haakjes, hij komt/*komt hij morgen ook niet.
 between parentheses he comes/comes he tomorrow also not
 ‘By the way, he is also not going to come tomorrow.’
 (48) Waarschijnlijk, *hij komt/komt hij morgen ook niet.
 probably he comes/comes he tomorrow also not
 ‘Probably he is also not going to come tomorrow.’

4.5.2 A ternary classification

What is common to all of Haegeman’s peripheral adverbial clauses is that they do not contribute to the propositional content of the host clause. One subset

of Haegeman's peripheral adverbial clauses introduces a discourse-accessible proposition which provides the relevant background for the propositional content of the host, while the other subset introduces the relevant background for the speech event, i.e. the communicative act itself. In other words, these two types of adverbial clauses modify quite distinct components of the utterance: the former contribute to the processing or contextualisation of the proposition, while the latter relate to the speech event at the performance level. These two levels of interpretation should be kept apart, as reflected in the literature. Krifka (2017, 2023), for instance, argues that "there must be a distinct semantic layer in-between the layer of the core proposition and the layer of the speech act" (as formulated by Frey 2020a: 16).

One option to account for the data is to follow Haegeman et al. (2009) and propose that both the high attachment analysis in the narrow syntax and the orphan analysis are available in the grammar. In her original analysis, Haegeman (1991) did not fully elaborate on how a discourse-based connection between the orphan constituent and the host clause would be established; neither did Haegeman et al. (2009) offer any concrete formalisation proposals. In the meantime, various proposals have been formulated for establishing the connection between an extra-sentential constituent – an 'orphan' – and the host clause. Extra-sentential constituents include not only peripheral adverbial clauses, but also a subset of non-restrictive relatives and appositives, left-dislocated hanging topics, etc. Several such proposals postulate a merge operation outside the narrow syntax, at the level of discourse grammar, such as Koster's (1978) satellites, his 2000 ColonP; Cinque's (2008) HP (also adopted in Giorgi 2014, Frascarelli 2017); de Vries's (2009) and Griffiths & de Vries's (2013) ParP; Broekhuis & Corver's (2016) sentence-external constituents; or Haegeman & Greco's (2018) and Greco & Haegeman's (2020) FrameP.

If one now explores both high attachment in the narrow syntax and extra-sentential merge at the level of discourse, then some of what were called 'peripheral adverbial clauses' are attached in the narrow syntax, while speech-event-modifying adverbial clauses – formerly included in the category of peripheral clauses – are outside narrow syntax. Only modifiers merged in the narrow syntax form a constituent with the host clause. Speech-event-modifying adverbial clauses, which, by hypothesis, are merged at the level of discourse syntax, will not form a constituent with the host clause. Moreover, the correlation between richness of internal structure (i.e. MCP, speaker-related meanings) and degree of integration would seem to be relevant only for adverbial clauses merged in the narrow syntax and would not extend to those merged in discourse syntax, an idea to which we return in Section 5.2.1.

Based on German data which provide the same type of evidence as that discussed here, Frey (2016, 2018, 2020a,b) develops a ternary classification of adverbial clauses, reproduced in (49).

- (49) The ternary typology of adverbial clauses:
- i. Central adverbial clauses **CACs** modify the matrix **event**: lower syntactic attachment
 - ii. Peripheral adverbial clauses **PACs** modify the matrix **proposition**: higher syntactic attachment
 - iii. Non-integrated adverbial clauses **NonICs** modify the **speech event**: outside narrow syntax

Haegeman's original category of peripheral adverbial clauses is split over **PAC** (ii) and **NonIC** (iii). Henceforth, we adopt the label "CAC" for central adverbial clauses, and we reserve the label "PAC" for those peripheral adverbial clauses that modify the main proposition. Departing slightly from Frey's labelling we use the abbreviation **NiC** (rather than his **NonIC**) for those adverbial clauses that modify the speech event. In the next section, we reflect in more general terms on the ternary typology and propose a further revision.

5 Reassessing the classifications

The present section is more speculative and focuses mainly on two issues. First, to what extent is it desirable to posit a clean binary division between CACs and PACs, as in (49)? Second, if speech-event-modifying adverbials (NiCs), by hypothesis, are not syntactically integrated, then how do they become associated with their host clause?

5.1 PACs

5.1.1 An embedding asymmetry

Recall from Section 3 that CACs systematically differ from PACs with regard to their internal syntax in that PACs have a richer left periphery than CACs (a.o. Haegeman 2003, 2006a,b, 2012 for arguments and a survey of the literature; see also Frey 2018, 2020a,b). While Section 3.1.2 showed that speaker-related epistemic modal adverbs like *probably* cannot occur in CACs (21a), (50) shows that temporal adverbs like *recently* are compatible with CACs (cf. Li et al. 2012: 232).

(50) When₁ he recently retired, he suddenly discovered new possibilities

In the same way that temporal adverbs such as *recently* are compatible with the internal syntax of CACs, temporal adverbial clauses (e.g. *while*₁-clauses) should also be compatible with CACs, which is to say that they should be embeddable in CACs. Likewise, whatever excludes the availability of speaker-related modals in CACs (structural reduction, or the intervention account discussed in Section 3.3) should also exclude PACs from embedding in CACs. Both of these predictions are correct.

As discussed in Section 4.1, both CACs and PACs are embeddable, as also shown for German by Frey (2018, 2020a,b). However, there is an asymmetry in the embeddability of CACs and PACs. In (51a) the temporal *while*₁-CAC is embedded in the bracketed (central) event conditional. As expected, the *while*₁-CAC is temporally subordinated, i.e. its present tense *is* inherits the futurity reading from the main clause ('will be very disappointed'). In (51b), the *while*-clause must also be interpreted as temporally subordinated, i.e. it will only receive a temporal CAC reading, leading to the bizarre assumption that 'at some future point in time his sister will no longer have a Cambridge degree'. A concessive PAC reading of the *while*-clause, roughly paraphrased in (51c), is not available.

- (51) a. His mum will be very disappointed [if₁ he quits university while₁ he is still an undergraduate].
b. His mum will be so disappointed [if₁ he quits university while_{1/*2} his sister has a Cambridge degree].
c. His mum will be so disappointed [if₁ he quits university despite his sister's Cambridge education].

This embeddability asymmetry is also illustrated in (52), in which *since*-clauses are embedded in central adverbial clauses. Such *since*-clauses are obligatorily interpreted as temporal clauses and cannot receive a rationale reading. A rationale reading of the *since*-clause in (52b) would only become available if the clause becomes parenthetical, set off by special prosody (comma intonation). In contrast, the *because*-clause in (52b) receives a causal reading, and no special prosody is required since causal *because*-clauses are CACs (see Schönenberger & Haegeman 2023).

- (52) a. [If he hadn't talked to her [since_{1/*2} she came back from China]], he could not have known her phone number.
b. [If we have to change our holiday plans [because_{1/*}since₂ there is a deal]], we will have to act promptly.

Observe that the embedding asymmetry replicates the asymmetry in the distribution of adverbials discussed in Section 3.1.2.

5.1.2 Cartographic approaches and insertion hierarchies

The parallelisms between PACs and speaker-related epistemic modal adverbs such as *probably* introduced in Section 4, and further elaborated in Section 5.1.1, corroborate Frey's hypothesis that PACs, just like these adverbs, must be merged in the narrow syntax and are associated with a modal domain (Frey 2018, 2020a,b).

To concretise his analysis, Frey adopts Krifka's (2017, 2023) functional hierarchy in (53a). The main properties of the relevant projections are listed in (53b) (Frey 2020a: 17, his (46i)), (53c) (Frey 2020a: 17, his (46ii)), and (53d) (Frey 2020a: 17, his (46iv)). Note that in the hierarchy, subjective epistemic modifiers and evidential modifiers are adjoined to JP. We will return to ActP in Section 5.2.

- (53) a. ActP > CmP[CommitmentP] > JP > TP
 b. "The TP represents a proposition."
 c. "The judgement phrase (JP) encodes the private assessment of a proposition by a judge."
 d. "ActP encodes a speech act performed by a speaker", i.e. the projection ActP encodes the speaker and the occurrence of a specific speech act.²⁵

In Frey's classification, the subjective epistemic modal *probably* is characterised as follows:

- "A subjective modal operating on a proposition φ expresses the degree of the judge's confidence in the truth of φ ."²⁶
- "Subjective modals, being not-at-issue, are external to the proposition which is communicated by the clause in which they occur."²⁷

Frey's analysis of subjective modals – our "speaker-related adverbs" – makes the following correct predictions:

²⁵Cf. also Pittner (2011) and Freywald (2018) for an analysis of non-integrated concessives.

²⁶(Frey 2020b: 13, his (32i))

²⁷(Frey 2020b: 10)

- The incompatibility of speaker-related adverbs with CACs follows from the hypothesis that CACs are deficient (whether in terms of structural truncation or as a by-product of locality restrictions).²⁸
- A speaker-related adverb which is the initial constituent in a V2 configuration, as in (48) above, has moved to a left-peripheral position. The trigger for this movement and the assumed landing site in terms of an articulated clause structure both depend on the theoretical analysis adopted for V2, which we will not go into here.²⁹

Given the parallelism between subjective modals and PACs, the latter too must be JP-adjoined. If we adopt Cinque's (1999) cartography, reproduced in (54) (Cinque 2004: 133, his (3)), Krifka's (2017) JP would be reinterpreted as a 'telescoped' variant of two modal projections: MoodP_{evidential} and ModP_{epistemic}.

- (54) MoodP_{speech act} > MoodP_{evaluative} > MoodP_{evidential} > ModP_{epistemic} > TP (Past) > TP (Future) > MoodP_{irrealis} > ModP_{alethic} > AspP_{habitual} > AspP_{repetitive} > AspP_{frequentative} > ModP_{volitional} > AspP_{celerative} > TP (Anterior) > AspP_{terminative} > AspP_{continuative} > AspP_{retrospective} > AspP_{proximative} > AspP_{durative} > AspP_{generic/progressive} > AspP_{prospective} > ModP_{obligation} > ModP_{permission/ability} > AspP_{completive} > VoiceP > AspP_{celerative} > AspP_{repetitive} > AspP_{frequentative}

If Krifka's functional hierarchy is replaced by a more articulated Cinque-style hierarchy, the classification of PACs and CACs can be rethought in more fine-grained terms. The implications of adopting such an articulated structure for the external syntax of adverbial clauses are discussed in Endo (2012), Endo & Haegeman (2019). On the assumption that adverbial clauses are systematically merged with the domain they modify, CACs would in fact be spread across a range of distinct projections. For instance, temporal clauses would adjoin to TP(Past) or TP(Future) (see Demirdache & Uribe-Etxebarria 2004, 2012), conditional clauses would adjoin to MoodP_{irrealis} (see Haegeman 2010a,b, 2012), aspectual adverbial clauses would adjoin to one of the AspPs, and manner adverbial clauses would adjoin to a still lower projection. Likewise, then, PACs would be associated with two layers of speaker-related adverbials, namely MoodP_{evidential}³⁰ and ModP_{epistemic}. In other words, this leads to a more fine-grained analysis of both CACs and PACs.

²⁸ As shown by e.g. Haegeman (2003, 2010a,b, 2012) (see Section 3).

²⁹ See Haegeman & Greco (2018), Greco & Haegeman (2020) for some discussion and proposals.

³⁰ Charnavel (2020) proposes explicitly that French *puisque* 'since' relates to evidentiality,

Adopting Cinque’s cartographic implementation has important ramifications in that the binary opposition between CACs and PACs itself dissolves into a fine-grained hierarchy of adverbial clauses. Depending on their exact semantic contribution, PACs would be associated with one of the higher modal projections, while CACs would be associated with lower projections.

5.2 Non-integrated adverbial

Following Frey’s argumentation (Frey 2016, 2018, 2020a,b), the data on embedding and on V2 discussed in Section 4.5.1 led us to the preliminary conclusion that peripheral adverbial clauses come in two shades: one type provides contextual material for the propositional content of the host clause and is syntactically integrated (corresponding to Frey’s PAC), and the other type modifies the speech event and is non-integrated, i.e. it is an extra-sentential constituent in the sense of Broekhuis & Corver (2016). By the diagnostics adopted in this chapter, PACs are syntactically integrated while at the same time remaining outside the scope of TP operators.

In Frey’s own analysis, non-integrated dependent adverbial clauses, his NonICs, on which we focus in this section, adjoin to the topmost layer, his ActP. Just like ActP, NonICs cannot be embedded.³¹ Observe that the specifier of ActP hosts the initial constituent (XP in (55)) in an independently occurring V2 configuration. Thus, the presence of a non-integrated clause adjoined to ActP will yield a linear V3 order (i.e. a V2 transgression).

- (55) [_{ActP} **NonIC** [_{ActP} XP [_{CmP} [_{JP} [_{CP2} peripheral adverbial clause] [_{TP} subject...]]

5.2.1 NonICs: External and internal syntax

In what follows we examine the properties of NonICs described in Frey’s recent publications and compare them with adverbial clauses recycled as speech-event modifiers. Again, we will use the label “NiC” rather than “NonIC” because, though we believe that the diagnostics used are faithful to the spirit of Frey’s proposal, the clause types we identify as non-integrated do not have all the properties of his NonICs (Frey 2018, 2020a,b).

Frey’s NonICs have the following distributional and interpretive properties:

³¹It is not clear what Frey considers to be the defining characteristic of non-integration: it would appear that he does consider the adjunction of the NonIC as an operation in the narrow syntax, which is contrary to what we will propose in Section 5.2.2.

- (i) While both CACs and PACs can occupy the prefield of a German V2 clause – a position of full integration – the prefield position is not available for NonICs (Frey 2018: 13, Frey 2020a: 11, Frey 2020b: 5). This property carries over to our speech-event-modifying adverbial clauses.
- (ii) While both CACs and PACs can embed together with the host clause, NonICs cannot be embedded (Frey 2018: 14, Frey 2020a: 11f., Frey 2020b: 6). Our speech-event-modifying adverbial clauses also fail to embed with the host clause.
- (iii) Regarding interpretation, according to Frey a NonIC encodes an independent speech act (Frey 2018: 16, Frey 2020a: 13f, Frey 2020b: 9f.).

Property (iii) has implications for the internal and external syntax of NonICs. As for internal syntax, according to Frey a NonIC is projected to the level of ActP (Frey 2018: 27, Frey 2020a: 21, Frey 2020b: 18, his (50iii)); a NonIC constitutes a speech act subsidiary or ancillary to the speech act encoded in the host ActP (Frey 2020a: 26). Concerning the external syntax of NonICs, Frey writes: “Presumably, in syntax this ancillary function of NonICs is mirrored by their being adjoined to their hosts” (Frey 2020a: 26). Put differently, Frey assumes a matching condition: because of its ancillary function, i.e. because it constitutes a speech act which is subsidiary to another speech act, a NonIC has to be hosted by a speech act, which is to say a constituent projected to the level of ActP. A NonIC will be licensed by adjunction to the root ActP (Frey 2020a: 26, his (71); Frey 2020b: 30, his (79)). Given that a NonIC is an ActP hosted by the matrix ActP, properties (i) and (ii) above follow: a NonIC cannot be the first constituent in a V2 configuration, which is the position identified as Spec-ActP, and a NonIC cannot be embedded.

Furthermore, Frey isolates (iv)-(vi) as additional properties of his NonICs, contrasting them with PACs:

- (iv) PACs can be coordinated, while NonICs cannot (Frey 2018: 17, Frey 2020a: 25f., Frey 2020b: 30).
- (v) Strong Root Phenomena (RP) such as tags, interjections and hanging topics (Frey 2018: 10) are licensed by adjunction to ActP (Frey 2018: 52, Frey 2020b: 14f., his (39)). NonICs, which are projected up to ActP, may therefore host strong RP; since PACs only project up to JP, however, they cannot contain Strong RP (Frey 2018, 2020a,b).
- (vi) Among Weak RP, Frey (2018) cites epistemic or evaluative sentence adverbials like German *wahrscheinlich* ‘probably’ and *glücklicherweise* ‘luckily’.

Weak RP are distributed slightly more freely than Strong RP and are also compatible with PACs (Frey 2018: 27, Frey 2020a: 8).

While the properties in (i)–(vi) characterise non-integrated dependent clauses of various types in German, as shown in Frey’s work (Frey 2018, 2020a,b), to which the reader is referred, they do not extend uniformly to the non-integrated adverbial clauses identified in Section 4.5.1 (though other types of clauses in English may well qualify). While adverbial clauses with properties (i) and (ii) can be classified as non-integrated, properties (iv)–(vi) are not characteristic of English non-integrated speech-event-modifying adverbial clauses.

As for property (iv), in contrast to Frey’s German NonICs, English non-integrated adverbial clauses can be coordinated (thanks to Andrew Radford, p.c., for acceptability judgments). The temporal *before*-clause in (56a) and the temporal *while*-clause in (56b) modify the speech event; as shown in (56c), these two adverbial clauses can coordinate.

- (56)
- a. Before we start, next week’s class will be cancelled because Monday is a public holiday.
 - b. While you are all setting up your laptops, next week’s class will be cancelled because Monday is a public holiday.
 - c. Before we start, and while you are all setting up your laptops, next week’s class will be cancelled because Monday is a public holiday.

Similar evidence is provided by the examples in (57), in which the *while*-clause has a concessive reading. This clause does not provide a background proposition for the propositional content of the host clause; rather it acts as a modifier of the speech event as a whole. As shown in (57c), such recycled *while*-clauses can coordinate:

- (57)
- a. While I may be prejudiced in this area, students seem nowadays to spend more time on Facebook than on reading.
 - b. While I actually do not have systematic evidence to support this, students nowadays seem to spend more time on Facebook than on reading.
 - c. While I may be prejudiced in this area and while I actually do not have systematic evidence to support this, students nowadays seem to spend more time on Facebook than on reading.

Turning now to properties (v) and (vi), English argument fronting is a root phenomenon and has a restricted distribution (Haegeman 2010a,b, 2012: 182): it is disallowed in CACs but allowed in PACs. Like regular CACs, temporal and conditional clauses which are recycled to modify the speech event continue to disallow argument fronting, as shown in (44), repeated here as (58).

- (58) a. *Before the meeting we start, five cabinet ministers resigned last night.
b. *If this you don't mind my saying, your proposals are not very original.

Similarly, speaker-related adverbials (see (21a) and (22a)) are incompatible with integrated CACs which modify an event encoded in the host clause. They remain incompatible with temporal and conditional clauses recycled as speech-event modifiers even though these are syntactically non-integrated. This is shown in (59) for a temporal *before*-clause which modifies the speech-event time, and in (60) for a conditional *if*-clause.

- (59) a. Before we start, next week's meeting has been cancelled.
b. *Before we probably start, next week's meeting has been cancelled.
(60) a. If I may change the subject, we need to go over the budget figures once more.
b. *If I may probably/unfortunately change the subject, we need to go over the budget figures once more.

The data above lead to the conclusion that a CAC recycled as a speech-event-modifying adverbial clause basically retains the internal syntax of the original CAC. But if speech-event-modifying adverbial clauses are non-integrated, as shown by their giving rise to a V2 transgression (in Dutch) and by their non-embeddability (Frey's properties (i) and (ii)), then they ought to be classified with Frey's NonICs. Being non-integrated, one would then expect them to project to ActP and therefore they should allow root phenomena like argument fronting and the presence of speaker-related adverbs. This prediction is not borne out by the data.³²

³²Frey does not discuss the kinds of CACs or PACs recycled as speech-event modifiers which we focus on here, except possibly in a short note, reproduced here, in which, however, he does not discuss the internal syntax of these clauses: "Different adverbial clauses which usually occur as CACs or PACs may appear as NonICs in front of or following a V2-clause. This is also prosodically marked" (2018: 16, his (13) given below).

- (i) a. /Weil es schon sehr spät ist\, /wir gehen jetzt nach Hause\
because it already very late is we go now to home
b. /Wir gehen jetzt nach Hause\, /da es schon sehr spät ist\.

We conclude that, in contrast to Frey's NonICs, CACs recycled as non-integrated speech-event modifiers are not ActPs, i.e. they do not encode speech acts.

In contrast with CACs, English PACs were shown to have a richer structure and to be compatible with fronting operations (19) and with speaker-related modal expressions (21), (22). Again, PACs recycled as speech-event modifiers retain their compatibility with fronting operations, as shown in (61a), and with speaker-related modal expressions, as illustrated in (61b) and (61c).

- (61) a. While prejudiced I may be, the appalling situation is not one that Biden has created.
 b. While I probably would not have systematic evidence to support this, students nowadays seem to spend more time on Facebook than on reading.
 c. Since Jane probably has already told you anyway: Yes, I am going to apply for the new job.

To be clear, the examples in (61) are not, strictly speaking, counterexamples to Frey's system. However, when taken together with the data on CACs presented above, they reveal an inconsistency: when functioning as speech-event modifiers, adverbial clauses should, in Frey's system, pattern together as a uniform class, i.e. NonICs. However, CACs and PACs do not become syntactically indistinguishable just because they appear as non-integrated speech-event modifiers; rather, the distinction between CACs and PACs "survives" non-integration.

5.2.2 An external discourse syntax for non-integrated adverbial clauses

Haegeman & Greco (2018), Greco & Haegeman (2020) elaborate an analysis for adjunct-initial V3 patterns in West Flemish (see e.g. our footnote 20 above). In their analysis the initial adjunct is extra-sentential and combines with a full-fledged V2 clause at the discourse level, i.e. beyond the narrow syntax, giving rise to a discourse unit which they label "FrameP", resembling earlier proposals in the literature. Importantly, being outside narrow syntax, their FrameP, schematised in Figure 2, should not be confused with a further extension of Rizzi's left periphery (unlike, for instance, proposals by Benincà & Poletto 2004, Wolfe 2020, or Holmberg 2020). Rather, their FrameP, which is merged at the discourse level, is reminiscent of Haegeman's "orphan" approach (Haegeman 1984a,b, 1991).

As described in Greco & Haegeman (2020), the discourse unit FrameP consists of two speech acts: (i) the illocutionary speech act of assertion, questioning, etc.

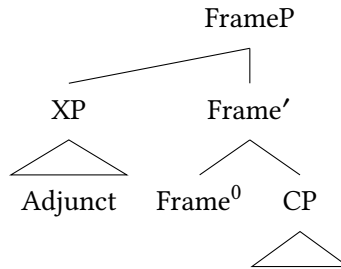


Figure 2: Extra-sentential FrameP merged with V2 clause

encoded by the host V2 clause (i.e. CP in Figure 2), and (ii) a secondary speech act of framing, encoded by FrameP. The specifier of FrameP introduces an entity (or a set of entities) in the discourse with respect to which the proposition expressed by the host V2 clause is interpreted as relevant (see Jacobs 1984, Endriss 2009, Ebert et al. 2014). For instance, in (62) the speech-event modifier – located in Spec-FrameP – introduces a condition under which the statement made in the host clause will be of relevance to the addressee.

(62) If someone needs me, I am working from home today.

Finally, the speech act associated with FrameP is “subsidiary” or “ancillary” in Frey’s terms (see above), because it remains parasitic on the speech act associated with the V2 clause. Crucially, in this approach, the frame-setting operation itself, encoded by FrameP, is the ancillary speech act – the non-integrated adverbial clause need not itself encode a speech act.

5.3 Towards a revised classification

In a series of papers, Haegeman (1984a,b, 1991, 2003, 2006a,b) proposed a binary classification of adverbial clauses, differentiating between central adverbial clauses and peripheral adverbial clauses. Two proposals were developed for the analysis: one analysis was based on the degree of integration/height of adjunction of the adverbial clause (i.e. TP-internal for central adverbial clauses vs. TP-external for peripheral adverbial clauses); the second analysis assumed a more fundamental split between integrated adverbial clauses, characterising central adverbial clauses, and non-integrated “orphan” adverbial clauses, characterising peripheral adverbial clauses (cf. Safir 1986, Fabb 1990). See Table 2.

Endorsing and exploring Frey’s arguments for non-integration for a subset of Haegeman’s original “peripheral adverbial clauses”, one way to proceed is to

Table 2: The binary classification (top half) and analyses (bottom half) (Haegeman 1984a,b, 1991)

	CACs	PACs
Examples	e.g. temporal <i>while</i> ₁ -clause (now: CAC)	e.g. concessive <i>while</i> ₂ -clause (now: PAC) Including what is now referred to as e.g. speech-event-modifying temporal <i>while</i> -clause, speech-event-modifying concessive <i>while</i> -clause (now: NiC)
Degree of integration or Integration vs. orphan analysis	TP-internal Integrated	TP-external Non-integrated

merge Haegeman's binary classification with Frey's ternary classification along the lines of Table 3. The basic opposition is now between integrated and non-integrated adverbial clauses, i.e. merger in the syntax vs. merger in the discourse. Integrated clauses comprise both CACs and PACs (in Frey's restricted sense).

However, depending on the richness of the clausal articulation assumed, a continuum of levels of merger can be proposed (see Laenzlinger 1996, Cinque 1999) for the integrated adverbial clauses (i.e. CACs and PACs). Assuming a matching condition according to which an adverbial modifier – clausal or non-clausal – adjoins at the level which it modifies, this potentially will lead to a more fine-grained sequencing of integrated adverbial clauses (and adverbials in general) in the narrow syntax. Non-integrated clauses (NiCs) merge as orphans at the discourse level (in Spec-FrameP). Based on the literature, NiCs include an array of subtypes.

6 Concluding remarks and further issues

Based on various diagnostic tests relating to scope, such as sentential negation, focus, TAM subordination, Haegeman (1984a,b, 1991) identified two types of adverbial clauses: central adverbial clauses and peripheral adverbial clauses. The former were analysed as adjoined to the host clause in the syntax; for the latter, two analyses were proposed: high adjunction (in the syntax) or merger out-

Table 3: A revised binary classification and analysis

Integrated	Non-integrated
Integrated clauses (CACs and PACs), differentiated by the height of attachment; merged in narrow syntax.	Non-integrated clauses (NiCs), merged in discourse syntax in Spec-FrameP (cf. Haegeman & Greco 2018, Greco & Haegeman 2020). The following is a non-exhaustive list of such sentence-external constituents: • Propositional adverbial clauses: CACs and PACs “recycled” as speech-event modifiers • Frey’s NonICs • Speech-event-modifying non-clausal adverbials • Left-dislocated hanging topics • A subset of non-restrictive relative clauses (Cinque 2008, 2020) • Adverbial clauses modifying the root proposition (with stringent locality conditions) discussed in a.o. Haegeman & Greco (2018), Greco & Haegeman (2020). The reader is referred to the cited papers for examples and discussion.

side syntax (in the discourse). An examination of peripheral adverbial clauses revealed that a subtype of these – speech-event-modifying adverbial clauses – display specific properties, such as not being embeddable.

Based mainly on German data, Frey (2016, 2018, 2020a,b) argued for a new ternary classification of adverbial clauses, distinguishing central adverbial clauses, peripheral adverbial clauses, and non-integrated clauses. Following Frey (2020a,b), central adverbial clauses and a subset of peripheral adverbial clauses are now taken to be merged in the syntax, with different degrees of embedding. Applying Frey’s diagnostics for non-integration reveals that speech-event-modifying adverbial clauses should be classified as non-integrated.

Speech-event-modifying adverbial clauses are merged at the discourse level, outside narrow syntax. However, they do not share all the properties of Frey's non-integrated clauses.

This new classification of adverbial clauses (cf. Table 3) leads to many further research questions, of which some specifically relating to non-integration can be mentioned here:

- Which adverbial modifiers and clauses, if any, typically or only function as non-integrated clauses (see Meinunger 2004)? Are there formal constraints?
- In case of co-occurring non-integrated constituents, would these be accommodated by a recursive FrameP?
- Should the observed subtypes of non-integrated clauses be differentiated in terms of their discourse syntax?
- What (if any) are the ordering restrictions among non-integrated constituents, and how are these regulated? Are these subject to discourse-building principles like those in the narrow syntax, or are ordering restrictions governed by a “natural order” in the sense of Wiese et al. (2020)?
- Which property or properties enable an adverbial modifier to function as an extra-sentential constituent?
- How does FrameP as developed in Greco & Haegeman's work (and analogous projections in the literature) fit in with proposals in the literature for the representation of speech act coordination as in Ross (1967), Speas & Tenny (2003), Speas (2004), Tenny (2006), Hill (2007a,b, 2011), Miyagawa (2012), Haegeman & Hill (2013), Wiltschko (2017a,b) (and further references cited there)?

Acknowledgments

Manuela Schönenberger's research was funded by SNSF grant 188933.

References

Arsenijević, Boban. 2006. The correlative construction as a type of conditional clause. Paper presented at the *GLIF Seminar* (19 May 2006). Barcelona.

- Arsenijević, Boban. 2009a. {Relative {conditional {correlative clauses}}}. In Anikó Lipták (ed.), *Correlatives cross-linguistically*, 131–157. Amsterdam: John Benjamins.
- Arsenijević, Boban. 2009b. Clausal complementation as relativization. *Lingua* 119. 39–50.
- Asher, Nicholas. 2000. Truth conditional discourse semantics for parentheticals. *Journal of Semantics* 17. 31–50.
- Authier, Jean Marc & Liliane Haegeman. 2015. French adverbial clauses, rescue by ellipsis and the truncation versus intervention debate. *Probus* 27. 33–71.
- Badan, Linda & Liliane Haegeman. 2022. The syntax of peripheral adverbial clauses. *Journal of Linguistics* 58. 697–738.
- Benincà, Paola & Cecilia Poletto. 2004. Topic, focus and V2: Defining the CP sublayers. In Luigi Rizzi (ed.), *The structure of CP and IP*, 52–75. Oxford: Oxford University Press.
- Bhatt, Rajesh. 2003. Locality in correlatives. *Natural Language and Linguistic Theory* 21. 485–541.
- Bhatt, Rajesh & Roumyana Pancheva. 2006. Conditionals. In Martin Everaert & Henk van Riemsdijk (eds.), *The Blackwell companion to syntax*, vol. 1, 638–687. Oxford: Blackwell.
- Bhatt, Rajesh & Roumyana Pancheva. 2017. Conditionals. In Martin Everaert & Henk van Riemsdijk (eds.), *The Wiley Blackwell companion to syntax*, 2nd, 1–48. Oxford: John Wiley. DOI: 10.1002/9781118358733.wbsyncom118.
- Bianchi, Valentina & Mara Frascarelli. 2010. Is topic a root phenomenon? *Iberia* 2. 43–88.
- Blümel, Andreas & Hagen Pitsch. 2019. Adverbial clauses: Internally rich, externally null. *Glossa* 4(1). 19. DOI: 10.5334/gjgl.600.
- Broekhuis, Hans & Norbert Corver. 2016. Main-clause external elements. In *Syntax of Dutch. Verbs and verb phrases*, vol. 3, 1679–1733. Amsterdam: Amsterdam University Press.
- Cardinaletti, Anna. 2009. On a (wh-)moved topic in Italian, compared to Germanic. In Artemis Alexiadou, Jorge Hankamer, Thomas McFadden, Justin Nüger & Florian Schäfer (eds.), *Advances in comparative Germanic syntax*, 3–40. Amsterdam: John Benjamins.
- Catasso, Nicholas. 2015. On postinitial *aber* and other syntactic transgressions: Some considerations on the nature of V2 in German. *Journal of Germanic Linguistics* 27. 317–365.
- Charnavel, Isabelle. 2020. French causal *puisque*-clauses in the light of (not-)at-issueness. In Irene Vogel (ed.), *Romance languages and linguistic theory* 16, 49–64. Amsterdam: John Benjamins.

- Cinque, Guglielmo. 1982. On the theory of relative clauses and markedness. *The Linguistic Review* 1. 247–294.
- Cinque, Guglielmo. 1999. *Adverbs and functional heads*. Oxford: Oxford University Press.
- Cinque, Guglielmo. 2004. Restructuring and functional structure. In Adriana Belletti (ed.), *Structures and beyond*, 132–191. Oxford: Oxford University Press.
- Cinque, Guglielmo. 2008. Two types of non-restrictive relatives. In Olivier Bonami & Patricia Cabredo Hofherr (eds.), *Empirical issues in syntax and semantics*, vol. 7, 99–137. Paris: CNRS.
- Cinque, Guglielmo. 2020. The different merge positions of different types of relative clauses. In Ken Ramshøj Christensen, Henrik Jørgensen & Johanna L. Wood (eds.), *The sign of the V*, 131–147. Aarhus: Aarhus University.
- Cinque, Guglielmo & Luigi Rizzi. 2010. The cartography of syntactic structures. In Bernd Heine & Heiko Narrog (eds.), *The Oxford handbook of linguistic analysis*, 51–65. Oxford: Oxford University Press.
- Collins, Chris & Paul Postal. 2014. *Classical NEG raising: An essay on the syntax of negation*. Cambridge: MIT Press.
- d’Avis, Franz-Josef. 2004. In front of the prefield - inside or outside the clause? In Horst Lohnstein & Susanne Trissler (eds.), *The syntax and semantics of the left periphery*, 139–177. Berlin: De Gruyter Mouton.
- de Vries, Mark. 2009. The left and right periphery in Dutch. *The Linguistic Review* 26. 291–327.
- Declerck, Renaat. 1997. *‘when’-clauses and temporal structure*. London: Routledge.
- Declerck, Renaat & Ilse Depraetere. 1995. The double system of tense forms referring to future time in English. *Journal of Semantics* 12. 269–310.
- Declerck, Renaat & Susan Reed. 2001. *Conditionals: A comprehensive empirical analysis*. Berlin: Mouton de Gruyter.
- Demirdache, Hamida & Myriam Uribe-Etxebarria. 2004. The syntax of time adverbs. In Jacqueline Guéron & Jacqueline Lecarme (eds.), *The syntax of time*, 143–180. Cambridge: MIT Press.
- Demirdache, Hamida & Myriam Uribe-Etxebarria. 2012. *Relativizing time arguments*. Paper presented at GIST 5 (22–23 March 2012). Ghent: Ghent University. <http://www.gist.ugent.be/node/83>.
- Diessel, Holger. 2001. The ordering distribution of main and adverbial clauses: A typological study. *Language* 77. 433–455.
- Diessel, Holger. 2008. Iconicity of sequence: A corpus-based analysis of the positioning of temporal adverbial clauses in English. *Cognitive Linguistics* 19. 465–490.

- Diessel, Holger. 2013. Adverbial subordination. In Silvia Luraghi & Claudia Parodi (eds.), *Bloomsbury companion to syntax*, 341–354. London: Continuum.
- Ebert, Christian, Cornelia Ebert & Stefan Hinterwimmer. 2014. A unified analysis of conditionals as topics. *Linguistics and Philosophy* 37. 353–408.
- Elhadad, Michael & Kathleen R. McKeown. 1990. Generating connectives. In *Proceedings of COLING 90*, 97–101.
- Emonds, Joseph. 1970. *Root and structure-preserving transformations*. Cambridge: MIT. (Doctoral dissertation).
- Emonds, Joseph. 1976. *A transformational approach to English syntax*. New York: Academic Press.
- Emonds, Joseph. 2004. Unspecified categories as the key to root constructions. In David Adger, Cécile De Cat & George Tsoulas (eds.), *Peripheries*, 75–121. Dordrecht: Kluwer.
- Endo, Yoshio. 2007. *Locality and information structure: A cartographic approach to Japanese*. Amsterdam: John Benjamins.
- Endo, Yoshio. 2012. The syntax discourse interface in adverbial clauses. In Lobke Aelbrecht, Liliane Haegeman & Rachel Nye (eds.), *Main clause phenomena: New horizons*, 365–384. Amsterdam: John Benjamins.
- Endo, Yoshio & Liliane Haegeman. 2019. Adverbial clauses and adverbial concord. *Glossa* 4(1). 48. DOI: 10.5334/gjgl.589.
- Endriss, Cornelia. 2009. *Quantificational topics: A scopal treatment of exceptional wide scope phenomena*. Dordrecht: Springer.
- Ernst, Thomas. 2001. *The syntax of adjuncts*. Cambridge: Cambridge University Press.
- Ernst, Thomas. 2003. Adjuncts and word order asymmetries. In Anna-Maria Di Sciullo (ed.), *Asymmetry in grammar: Syntax and semantics*, vol. 1, 178–207. Amsterdam: John Benjamins.
- Ernst, Thomas. 2007. On the role of semantics in a theory of adverb syntax. *Lingua* 117. 1008–1033.
- Ernst, Thomas. 2009. Speaker-oriented adverbs. *Natural Language and Linguistic Theory* 27. 497–544.
- Espinal, Teresa. 1991. The representation of disjunct constituents. *Language* 67. 726–762.
- Fabb, Nigel. 1990. The difference between English restrictive and non-restrictive relative clauses. *Journal of Linguistics* 26. 57–79.
- Frascarelli, Mara. 2017. Dislocations and framings. In Andreas Dufter & Elisabeth Stark (eds.), *Manual of Romance morphosyntax and syntax*, 472–501. Berlin: De Gruyter.

- Frascarelli, Mara & Roland Hinterhölzl. 2007. Types of topics in German and Italian. In Kerstin Schwabe & Susanne Winkler (eds.), *On information structure, meaning and form: Generalizations across languages*, 87–116. Amsterdam: John Benjamins.
- Frey, Werner. 2012. Peripheral adverbial clauses, their licensing and the prefield in German. In Elisabeth Breindl, Gisella Ferraresi & Anna Volodina (eds.), *Satzverknüpfung – zur Interaktion von Form, Bedeutung und Diskursfunktion*, 41–77. Berlin: de Gruyter.
- Frey, Werner. 2016. On some correlations between formal and interpretative properties of causal clauses. In Ingo Reich & Augustin Speyer (eds.), *Co- and subordination in German and other languages*, 153–179. Hamburg: Helmut Buske.
- Frey, Werner. 2018. *On the syntax-discourse interface with different kinds of not-at-issue expressions*. Paper presented at CGSW 33 (September 27–28 2018). Göttingen: Georg-August-Universität.
- Frey, Werner. 2020a. German concessives as TPs, JPs and ActPs. *Glossa* 5(1). 110. DOI: 10.5334/gjgl.763.
- Frey, Werner. 2020b. On the categorical status of different dependent clauses. Ms., Berlin: Leibniz-ZAS. Berlin. <https://www.researchgate.net/publication/349924846>.
- Freywald, Ulrike. 2018. *Parataktische Konjunktionen*. Tübingen: Stauffenburg.
- Garzonio, Jacopo. 2008. Dislocazioni a sinistra e clitics di ripresa obbligatori. *Annali Online di Ferrara* 2. 1–19.
- Geis, Michael. 1970. *Adverbial subordinate clauses*. Cambridge: MIT. (Doctoral dissertation).
- Giorgi, Alessandra. 2014. Prosodic signals as syntactic formatives in the left periphery. In Anna Cardinaletti, Guglielmo Cinque & Yoshido Endo (eds.), *On peripheries. Exploring clause initial and clause final positions*, 161–188. Tokyo: Hituzi Syobe.
- Greco, Ciro & Liliane Haegeman. 2020. Frame setters and microvariation of subject-initial verb second. In Rebecca Woods & Sam Wolfe (eds.), *Rethinking verb second*, 61–89. Oxford: Oxford University Press.
- Griffiths, James & Mark de Vries. 2013. The syntactic integration of appositives: Evidence from fragments and ellipsis. *Linguistic Inquiry* 44. 332–344.
- Güldemann, Tom. 1996. *Verbalmorphologie und Nebenprädikationen im Bantu: Eine Studie zur funktional motivierten Genese eines konjugationalen Subsystems*. Bochum: Universitätsverlag Dr. N. Brockmeyer.
- Haegeman, Liliane. 1984a. Parasitic gaps and adverbial clauses. *Journal of Linguistics* 20. 229–232.

- Haegeman, Liliane. 1984b. Pragmatic conditionals in English. *Folia Linguistica* 18. 485–502.
- Haegeman, Liliane. 1991. Parenthetical adverbials: The radical orphanage approach. In Shuki Chiba, Akira Ogawa, Yasuaki Fujiwara, Norio Yamada, Osamu Koma & Takao Yagi (eds.), *Aspects of modern English linguistics*, 232–254. [Republication: Liliane Haegeman. 2009. Parenthetical adverbials: The radical orphanage approach. In Benjamin Shaer, Philippa Cook, Werner Frey & Claudia Maienborn (eds.), *Dislocated elements in discourse*, 331–347. London: Routledge]. Tokyo: Kaitakushi.
- Haegeman, Liliane. 1995. *The syntax of negation*. Cambridge: Cambridge University Press.
- Haegeman, Liliane. 2000. Negative preposing, negative inversion, and the split CP. In Laurence R. Horn & Yasuhiko Kato (eds.), *Negation and polarity: Syntactic and semantic perspectives*, 21–61. Oxford: Oxford University Press.
- Haegeman, Liliane. 2003. Conditional clauses: External and internal syntax. *Mind and Language* 18. 317–339.
- Haegeman, Liliane. 2006a. Argument fronting in English, Romance CLLD and the left periphery. In Raffaella Zanuttini, Hector Campos, Elena Herburger & Paul Portner (eds.), *Cross-linguistic research in syntax and semantics: Negation, tense and clausal architecture*, 27–52. Washington: Georgetown University Press.
- Haegeman, Liliane. 2006b. Conditionals, factives and the left periphery. *Lingua* 116. 1651–1669.
- Haegeman, Liliane. 2009. Parenthetical adverbials: The radical orphanage approach. In Benjamin Shaer, Philippa Cook, Werner Frey & Claudia Maienborn (eds.), *Dislocated elements in discourse*, 331–347. London: Routledge.
- Haegeman, Liliane. 2010a. The internal syntax of adverbial clauses. *Lingua* 120. 628–648.
- Haegeman, Liliane. 2010b. The movement derivation of conditional clauses. *Linguistic Inquiry* 41. 595–621.
- Haegeman, Liliane. 2012. *Adverbial clauses, main clause phenomena and the composition of the left periphery*. Oxford: Oxford University Press.
- Haegeman, Liliane. 2014. Locality and the distribution of main clause phenomena. In Enoch Oladé Aboh, Maria Teresa Guasti & Ian Roberts (eds.), *Locality*, 186–222. Oxford: Oxford University Press.
- Haegeman, Liliane. 2019. The temporal interpretation of West Flemish non-inverted V3. In Ken Ramshøj Christensen, Henrik Jørgensen & Johanna L. Wood (eds.), *The sign of the V*, 625–643. Aarhus: Aarhus University.

- Haegeman, Liliane. 2020. Central adverbial clauses and the derivation of subject-initial V2. In Anke Holler, Katja Suckow & Israel de la Fuente (eds.), *Information structuring in discourse*, 163–200. Leiden: Brill.
- Haegeman, Liliane & Ciro Greco. 2018. West Flemish V3 and the interaction of syntax and discourse. *Journal of Comparative Germanic Linguistics* 21. 1–56.
- Haegeman, Liliane & Virginia Hill. 2013. The syntacticization of discourse. In Raffaella Folli, Christina Sevdali & Robert Truswell (eds.), *Syntax and its limits*, 370–390. Oxford: Oxford University Press.
- Haegeman, Liliane & Brian Robinson. 1979. A note on some aspects of the use of *will* in affirmative declarative sentences. *Journal of Linguistics* 15. 109–110.
- Haegeman, Liliane, Benjamin Shaer & Werner Frey. 2009. Postscript: Problems and solutions for orphan analyses. In Benjamin Shaer, Philippa Cook, Werner Frey & Claudia Maienborn (eds.), *Dislocated elements in discourse*, 348–365. London: Routledge.
- Haegeman, Liliane & Barbara Ürögdi. 2010. Referential CPs and DPs: An operator movement account. *Theoretical Linguistics* 36. 111–152.
- Haegeman, Liliane & Herman Wekker. 1984. The syntax and interpretation of futurate conditionals in English. *Journal of Linguistics* 20. 45–55.
- Heycock, Caroline. 2006. Embedded root phenomena. In Martin Everaert & Henk van Riemsdijk (eds.), *The Blackwell companion to syntax*, vol. 2, 174–209. Oxford: Blackwell.
- Heycock, Caroline. 2017. Embedded root phenomena. In Martin Everaert & Henk van Riemsdijk (eds.), *The Wiley Blackwell companion to syntax*, 2nd edn. Oxford: John Wiley. DOI: 10.1002/9781118358733.wbsyncom068.
- Hill, Virginia. 2007a. Romanian adverbs and the pragmatic field. *The Linguistic Review* 24. 61–86.
- Hill, Virginia. 2007b. Vocatives and the pragmatics-syntax interface. *Lingua* 117. 2077–2105.
- Hill, Virginia. 2011. Modal grammaticalization and the pragmatic field: A case study. *Diachronica* 28. 25–53.
- Holmberg, Anders. 2020. On the bottleneck hypothesis of verb second in Swedish. In Rebecca Woods & Sam Wolfe (eds.), *Rethinking verb second*, 40–60. Oxford: Oxford University Press.
- Hooper, Joan & Sandra A. Thompson. 1973. On the applicability of root transformations. *Linguistic Inquiry* 4. 465–497.
- Hornstein, Norbert. 1993. *As time goes by: Tense and universal grammar*. Cambridge: MIT Press.
- Huddleston, Rodney. 1984. *Introduction to the grammar of English*. Cambridge: Cambridge University Press.

- Huddleston, Rodney & Geoffrey Pullum. 2002. *The Cambridge grammar of the English language*. Cambridge: Cambridge University Press.
- Huddleston, Rodney & Geoffrey Pullum. 2006. Coordination and subordination. In Bas Aarts & April McMahon (eds.), *A handbook of English linguistics*, 198–219. Oxford: Blackwell.
- Jacobs, Joachim. 1984. Funktionale Satzperspektive und Illokutionssemantik. *Linguistische Berichte* 91. 25–58.
- Johnson, Kyle. 1988. Clausal gerunds, the ECP and government. *Linguistic Inquiry* 19. 583–609.
- Kearns, John T. 2006. Conditional assertion, denial, and supposition as illocutionary acts. *Linguistics and Philosophy* 29. 455–485.
- Koster, Jan. 1978. Why subject sentences don't exist. In Samuel J. Keyser (ed.), *Recent transformational studies in European languages*, 53–64. Cambridge: MIT Press.
- Koster, Jan. 2000. Extraposition as parallel construal. Ms., University of Groningen.
- Krifka, Manfred. 2017. *Assertions and judgements, epistemics and evidentials*. Paper presented at the Workshop on Speech acts: Meanings, uses, syntactic and prosodic realizations, 29–31 May 2017. Berlin.
- Krifka, Manfred. 2023. Layers of assertive clauses: Propositions, judgements, commitments, acts. In Jutta Hartmann & Angelika Wöllstein (eds.), *Propositional arguments in cross-linguistic research*, 115–181. Tübingen: Narr Francke Attempto.
- Laenzlinger, Christopher. 1996. Adverb syntax and phrase structure. In Anna-Maria Di Sciullo (ed.), *Configurations: Essays on structure and interpretation*, 99–128. Somerville: Cascadilla Press.
- Lahousse, Karen. 2003a. La distribution de l'inversion nominale en français dans les principales non interrogatives et les subordonnées circonstancielles. *Linguisticae Investigationes* 26. 123–158.
- Lahousse, Karen. 2003b. *The distribution of postverbal nominal subjects in French: A syntactic, semantic and pragmatic analysis*. University of Leuven. (Doctoral dissertation).
- Lahousse, Karen & Marijke Borremans. 2014. The distribution of functional pragmatic types of clefts in adverbial clauses. *Linguistics* 52. 793–836.
- Lakoff, George. 1970. *Irregularity in syntax*. New York: Holt, Rinehart, & Winston.
- Larson, Richard. 1985. On the syntax of disjunction scope. *Natural Language and Linguistic Theory* 3. 217–264.
- Larson, Richard. 1987. Missing prepositions and the analysis of English free relative clauses. *Linguistic Inquiry* 18. 239–266.

- Larson, Richard. 1990. Extraction and multiple selection in PP. *The Linguistic Review* 7. 169–182.
- Li, Yafeu, Rebecca Shields & Vivian Lin. 2012. Adverb classes and the nature of minimality. *Natural Language and Linguistic Theory* 30. 217–260.
- Lipták, Anikó. 2009. The landscape of correlatives: An empirical and analytical survey. In Anikó Lipták (ed.), *Correlatives cross-linguistically*, 1–46. Amsterdam: John Benjamins.
- Lycan, William G. 2001. The syntax of conditional sentences. In *Real conditionals*. Oxford: Clarendon Press. 1–15.
- Maki, Hideki, Lizanne Kaiser & Masao Ochi. 1999. Embedded topicalisation in English and Japanese. *Lingua* 109. 1–14.
- Meinunger, André. 2004. On certain adverbials in the German ‘Vorfeld’ and ‘Vorvorfeld’. *Sprache und Pragmatik* 52. 64–78.
- Miyagawa, Shigeru. 2012. Agreements that occur mainly in the main clause. In Lobke Aelbrecht, Liliane Haegeman & Rachel Nye (eds.), *Main clause phenomena: New horizons*, 79–112. Amsterdam: John Benjamins.
- Nilsen, Øystein. 2004. Domains for adverbs. *Lingua* 114. 809–847.
- Pittner, Karin. 2011. Subsidiäre Begründungen. In Gisella Ferraresi (ed.), *Konnektoren im Deutschen und im Sprachvergleich: Beschreibung und grammatische Analyse*, 157–182. Tübingen: Gunter Narr.
- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. 1972. *A grammar of contemporary English*. London: Longman.
- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. 1985. *A comprehensive grammar of the English language*. London: Longman.
- Raposo, Eduardo P. 1996. Towards a unification of topic constructions. Ms., University of California at Santa Barbara.
- Raposo, Eduardo P. & Juan Uriagereka. 2005. Clitic placement in Western Iberian: A minimalist view. In Guglielmo Cinque & Richard Kayne (eds.), *Handbook of comparative syntax*, 639–697. Oxford: Oxford University Press.
- Reis, Marga. 1997. Zum syntaktischen Status unselbständiger Verbzweit-Sätze. In Christa Dürscheid, Karl Ramers & Monika Schwarz (eds.), *Sprache im Fokus. Festschrift für Heinz Vater*, 121–144. Tübingen: Niemeyer.
- Reuland, Eric. 1979. *Principles of subordination and construal*. University of Groningen. (Doctoral dissertation).
- Rizzi, Luigi. 1997. The fine structure of the left periphery. In Liliane Haegeman (ed.), *Elements of grammar*, 281–337. Dordrecht: Kluwer.
- Ros, Hilke. 2005. *Functional phrase structure: Integrating functional ideas in generative adverbial syntax*. Ghent University. (Doctoral dissertation).

- Ross, John R. 1967. *Constraints on variables in syntax*. Cambridge: MIT. (Doctoral dissertation).
- Rutherford, William E. 1970. Some observations concerning subordinate clauses in English. *Language* 46. 97–115.
- Safir, Ken. 1986. Relative clauses in a theory of binding and levels. *Linguistic Inquiry* 17. 663–689.
- Schönenberger, Manuela & Liliane Haegeman. 2023. English rationale *since* and a reassessment of the typology of adverbial clauses. In Łukasz Jędrzejowski & Constanze Fleczonek (eds.), *Micro- and macro-Variation of causal clauses: Synchronic and diachronic insights*, 129–166. Amsterdam: John Benjamins.
- Shaer, Benjamin. 2009. German and English left-peripheral elements and the ‘orphan’ analysis of non-integration. In Benjamin Shaer, Philippa Cook, Werner Frey & Claudia Maienborn (eds.), *Dislocated elements in discourse*, 366–397. London: Routledge.
- Shaer, Benjamin & Werner Frey. 2004. ‘Integrated’ and ‘non-integrated’ left peripheral elements in German and English. *ZAS Papers in Linguistics* 35. 465–502.
- Speas, Margaret. 2004. Evidentiality, logophoricity and the syntactic representation of pragmatic features. *Lingua* 114. 255–276.
- Speas, Margaret & Carol Tenny. 2003. Configurational properties of point of view roles. In Anna-Maria Di Sciullo (ed.), *Asymmetry in grammar*, 315–344. Amsterdam: John Benjamins.
- Stephens, Nola M. 2007. Norwegian *when*-clauses. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG06 conference*, 476–484. <http://clsl-publications.stanford.edu/>. Stanford: CSLI Publications.
- Sweetser, Eve E. 1990. *From etymology to pragmatics*. Cambridge: Cambridge University Press.
- Takami, Ken-ichi. 1988. The syntax of *if*-clauses: Three types of *if*-clauses and X'-theory. *Lingua* 74. 263–281.
- Tenny, Carol. 2006. Evidentiality, experiencers, and the syntax of sentience in Japanese. *Journal of East Asian Linguistics* 15. 245–288.
- Tomaszewicz, Barbara. 2009. Subjunctive mood in Polish. In Gerhild Zybatow, Uwe Junghanns, Denisa Lenertová & Petr Biskup (eds.), *Studies in formal Slavic phonology, morphology, syntax, semantics and information structure*, 221–234. Frankfurt/M.: Peter Lang.
- Tomaszewicz, Barbara. 2012. The syntactic position of Polish *by* and main clause phenomena. In Lobke Aelbrecht, Liliane Haegeman & Rachel Nye (eds.), *Main clause phenomena: New horizons*, 257–278. Amsterdam: John Benjamins.

- van der Wal, Jenneke. 2014. Subordinate clauses and exclusive focus in Makhuwa. In Rik van Gijn, Jeremy Hammond, Dejan Matić, Saskia van Putten & Ana Vilacy Galucio (eds.), *Information structure and reference tracking in complex sentences*, 45–70. Amsterdam: John Benjamins.
- Verstraete, Jean-Christophe. 2002. *Interpersonal grammar and clause combining in English*. University of Leuven. (Doctoral dissertation).
- Wallenberg, Joel. 2009. *Antisymmetry and the conservation of c-command: Scrambling and phrase structure in synchronic and diachronic perspective*. University of Pennsylvania. (Doctoral dissertation).
- Wiese, Heike, Mehmet Tahir Öncü, Hans G. Müller & Eva Wittenberg. 2020. V3 in spoken German: A natural order of information? In Rebecca Woods & Sam Wolfe (eds.), *Rethinking verb second*, 682–699. Oxford: Oxford University Press.
- Williams, Edwin. 1978. Across-the-board rule application. *Linguistic Inquiry* 9. 31–43.
- Williams, Edwin. 1981. Transformationless grammar. *Linguistic Inquiry* 12. 645–653.
- Williamson, Gregor. 2019. Conditional antecedents as polar free relatives. In Katherine Blake, Forrest Davis, Kaelyn Lamp & Joseph Rhyne (eds.), *Proceedings of SALT 29*, 496–508. Ithaca: CLC Publications.
- Wiltschko, Martina. 2017a. Response markers as a window into linguistic modularity. *Wiener Linguistische Gazette* 82. 303–311.
- Wiltschko, Martina. 2017b. Response particles beyond answering. In Laura Bailey & Michelle Sheehan (eds.), *Word order and syntactic structure*, 241–280. Berlin: Language Science Press.
- Wolfe, Sam. 2020. Rethinking medieval Romance verb second. In Rebecca Woods & Sam Wolfe (eds.), *Rethinking verb second*, 448–368. Oxford: Oxford University Press.
- Zagona, Karen. 2007. On the syntactic features of epistemic and root modals. In Luis Eguren & Olga Fernández Soriano (eds.), *Coreference, modality and focus*, 221–236. Amsterdam: John Benjamins.
- Zentz, Jason. 2011. Morphological evidence for a movement derivation of adverbial clauses. In Carissa Abrego-Collier, Arum Kang, Martina Martinović & Chien Nguyen (eds.), *Proceedings of CLS 47*, 373–385. Chicago: Chicago Linguistic Society.