

The information-structural status of adjuncts: A QUD-based approach¹

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Abstract:

In this paper we present an analysis of the information structural properties of different types of verb and sentence modifying adjuncts under a QUD approach. Our study is based on naturalistic data from English, French and German containing adjuncts such as temporal, spatial, or manner prepositional phrases, as well as different types of adverbial clauses. The analysis relies on the approach by Riester et al. (2018), which identifies the (generally implicit, sometimes overt) *question under discussion* preceding each utterance of a text by means of pragmatic principles, and derives from it the information structure of the utterance. The analysis of adjuncts within this approach shows that in certain contexts, despite conveying new information, adjuncts do not answer the QUD that is answered by the sentence they syntactically depend on. We argue that these adjuncts answer a different QUD and behave as independent discourse units. As such, they have an information structure of their own and are in a rhetorical relation with their host clause. Our analysis sheds light on the similarities between adjuncts and Pott's (2005) supplements. Both can be accounted for as independent discourse units; however, while supplements display projective behaviour, adjuncts do not. Following Venhuizen et al. (2014), we ascribe this difference to their different semantic anchor (nominal vs. verbal). Our work therefore highlights a different way for an expression to be independent at a discourse level, other than being projective content.

Keywords: question under discussion, information structure, annotation, discourse structure

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1. Introduction

The study of the information structure of sentences investigates how the information conveyed by an utterance can be divided into what is commonly called the focus part and the background part. These information-structural categories have been investigated under many different perspectives, among them the way in which they are marked in different languages or how they interact with other parts of the language system such as syntactic configurations, prosody, or truth-conditional meaning. The particular role of adjuncts in the information-structural partitioning of sentences is usually not investigated in these studies. An exception is the work by Fabricius-Hansen and colleagues (Fabricius-Hansen and Haug, 2012a) on co-eventive adjuncts represented by non-finite predicate- or clause-like adverbial phrases. Much work has also been done on the prosody of adjuncts, which can reveal some of their informational properties (cf. Selkirk, 1995; Samek-Lodovici, 2005; Truckenbrodt, 2007, and others). Furthermore, since the seminal work by Potts (2005), many studies have focused on the informational and discourse properties of phrases that have – as we will see – many properties in common with adjuncts, namely supplements, such as nominal appositions and non-restrictive relative clauses (from now on, NRRCs), as well as parenthetical expressions (cf. Déhé and Kavalova, 2007; Schlenker, 2013; AnderBois et al., 2015; Onea, 2015; Poschmann, 2018; Jasinskaja and Poschmann, 2018, and others).

In the present study we provide an empirical investigation into the informational and discourse properties of adjuncts that modify either the verb or the whole sentence (from now on, V/S-adjuncts), and which can be either clausal or nonclausal expressions. The data we will use originate from oral corpora as well as written texts in three languages: English, French, and German.

Non-clausal adjuncts are mostly prepositional phrases (PPs), but also noun phrases or adverbs; see, for instance, the complex PP in [1], taken from a spoken interview with Edward Snowden conducted by a German journalist of ARD TV in January 2014 (from now on referred to as SNO).

[1] [SNO]

[...] in the meantime there is a vivid discussion about the situation with the NSA, **not only in America but also in Germany and in Brazil**.

Clausal adjuncts are all kinds of subordinate clauses that are not completive ones, such as temporal, spatial, causal, conditional, concessive clauses, etc.; see, for instance, the temporal clause in [2] from the *Rhapsodie* corpus of spoken French (Lacheret et al., 2014).²

² Our analysis can potentially be extended to absolute constructions such as that in [i], taken from Fabricius-Hansen and Haug (2012b:3); these, however, will not be discussed in the present paper.

[i] Dann kommt Kusna zurück, **einen Brief in der Hand**.
then comes Kusna back a_{ACC} letter in the hand
'Then Kusna returns, with a letter in his hand.'

[2] [Rhapsodie]

[...] ce qui est dur ce n'est pas, **surtout quand on est très jeune**, ce n'est vraiment pas
that which is hard it is not especially when one is very young it is really not
d'être pauvre
to-be poor

'What is hard, especially when one is very young, is not really to be poor'

The study of adjuncts is important from an information-structural point of view in that it reveals an interesting interplay between syntax and discourse. Syntactically, adjuncts are defined as phrases that are added to another phrase but are not necessary for such a phrase to be well-formed, since they are not selected by any lexical head. Applying to V/S-adjuncts what Schlenker (2013) writes about NRRCs (which are adjunct-like elements too), we can say that adjuncts are “syntactically parasitic in the sense that they are added within fully fledged syntactic constituents that would be perfectly well-formed without them”. To put it differently, although dependent on some other constituent, adjuncts are syntactically optional, and this optionality reflects a certain autonomy. In the present paper we will show that the informational and discourse properties of V/S-adjuncts fit well with their special syntactic status. We will see that in some contexts V/S-adjuncts represent new information without being part of the sentence focus; for such cases we will propose that the adjunct forms an independent segment in the QUD-based discourse structure that we assume. In consequence, the *syntactic* autonomy of the adjunct goes hand in hand with its *discourse* autonomy.

As we will see, the parallelism between syntactic and discourse properties of adjuncts does not occur all the time, since – depending on the context – adjuncts can represent any informational category, namely they can be focused, backgrounded, or function as (contrastive) topics. In such cases, while remaining syntactically autonomous and optional, they are no longer autonomous nor optional at a discourse or informational level.

In Section 2, we illustrate what informational functions V/S-adjuncts may take, and concentrate in particular on the special informational status in which some adjunct represents new information together with other material in the same sentence. In order to account for that particular informational status, we adopt the guidelines by Riester et al. (2018) for the annotation of the information structure (IS) of utterances in a text. In Section 3, we summarize the basic principles of Riester et al. (2018), which are aimed at finding an implicit *question under discussion* (QUD) for each utterance or discourse unit. Within the described model, V/S-adjuncts that are part of the new information of a sentence turn out to be elements that – despite being new information – do not answer the current QUD. Such a conclusion leads us to propose, in Section 4, that adjuncts of this kind (which we call *IS-peripheral*) are independent discourse segments in the QUD tree, a discourse representation that is derived during the procedure. A comparison between IS-peripheral adjuncts and parentheticals is made in the same section. The obvious consequence of being an independent discourse segment is that of establishing a rhetorical relation with the preceding segment, which corresponds to the adjunct's host. We discuss this in Section 5. Finally, in Section 6, we compare IS-peripheral adjuncts with Pott's (2005) supplements, whose discourse and information structure has been accounted for in a similar way in the literature and that are said to convey non-at-issue meaning. In Section 7, some conclusions are drawn.

2. The information structure of adjuncts

2.1. Information structure and word order in English, French, and German

In the three languages under study, different information-structural interpretations are favoured by the position in which a constituent occurs in the sentence. This is also true in the case of adjuncts. Before providing an overview of the possible ways adjuncts take part in the information structuring of an utterance, we will therefore briefly review the distributional preferences of constituents representing different informational categories in the three languages.

Following the paradigm of Alternative Semantics (Rooth, 1992; Büring, 2008, 2016b), we assume that utterances contain an obligatory *focus* (which corresponds to the instantiation of a variable in an open proposition) and an optional *background* (the open proposition). We furthermore assume that sentences may have an *aboutness topic* (sometimes called *sentence topic*, cf. Strawson, 1964; Reinhart, 1981; Lambrecht, 1994), which we define as an expression denoting a special referential entity within the background, potentially the most salient one. Topics can be contrastive, in which case they represent a second open variable within the background (Ward and Prince, 1991; Büring, 2003, 2016a).

The three languages under study generally follow the given-new principle (Halliday, 1967; Gundel, 1988; Prince, 1981), according to which given material tends to precede new. In our terminology, *given* material corresponds to the background part and *new* material corresponds to the focus part, at least in non-contrastive sentences.

In English, a language with a rigid constituent order, the information structure of a sentence is primarily marked prosodically. The preverbal subject is typically an aboutness topic. However, also the subject can be focused, if it bears a focal accent, as in [3].

- [3] [Lambrecht 1994]
- I heard your motorcycle broke down?
 - My CAR broke down.

Constituents at the end of the sentence are typically focused, although they can be topics if deaccented (Lambrecht, 1994; Birner, 1994). Contrastive topics can be fronted (Ward and Prince, 1991), like *one* in [4].³

- [4] [Ward and Prince, 1991]
- I'll have to introduce two principles.
 - ONE I'm going to introduce NOW, and ONE I'm going to introduce LATER.

Contrastive topics can also stay in situ and be only signalled prosodically. The traditional picture (Jackendoff, 1972; Büring, 1997, 2003; Steedman, 2000) maintains that – at least in idealized, controlled conditions – contrastive topics are marked by a special rising accent, different from the focal one. In [5], *Fred* bears a focal accent, while *beans* is supposed to be marked with a topical one.

³ The term that is sometimes used in the literature is *topicalized*, which is confusing though, since it designates a syntactic, not a pragmatic phenomenon. Fronted constituents can be either foci or topics.

- [5] [Jackendoff, 1972]
- Well, what about the BEANS? Who ate THEM?
 - FRED ate the BEANS.

The syntax of French is likewise rigid and subjects occupy a preverbal position, but syntax also plays an important role in the information structuring of the sentence. The background-before-focus order seen in English also holds for French, but syntactic operations are employed to mark non-default information structure: the topic constituent is dislocated to the left or to the right (Ashby, 1988; Lambrecht, 1994; Delais-Roussarie et al., 2004), while a focused constituent can be clefted (Lambrecht, 1994). French relies more frequently than English on clefts to circumvent its strict SVO order (Carter-Thomas, 2009; Dufter, 2009), as shown in [6].

- [6] [Lambrecht, 1994]
- Ta moto est en panne?
'Your motorcycle broke down?'
 - C'est ma VOITURE qui est en panne.
it-is my car that is broken
'My CAR broke down.'

Contrastive topics are typically left-dislocated or fronted (Riou and Hemforth, 2015; Abeillé et al., 2008), and may be marked prosodically (Marandin et al., 2002), though prosodic marking is far from mandatory in data of spontaneous speech (Brunetti et al., 2012). An example of a clitic left-dislocated contrastive topic is *Noël* in [7], which is a member of the alternative set denoted by *fêtes* 'holidays' introduced in [7a]:

- [7] [CFPP2000, quoted in Riou and Hemforth, 2015]
- [7a] [...] nous de toutes façons on ne fait rien des fêtes
we in any case we don't do anything of-the holidays;
'We, in any case, do not celebrate any holidays'
- [7b] déjà qu' Noël on le fête pas.
already that Christmas we it celebrate not
'Christmas, we do not celebrate it'

As for German, word order in root clauses is V2, and the preverbal position and the position immediately after the finite verb, i.e. the so-called middle field, are typically used to mark informational categories, see for example Frey (2006, 2004); De Kuthy (2002); Webelhuth (1990). In general, constituents belonging to all information structural categories, i.e. focus, background/topic, contrastive topic, can occur in the preverbal position (cf. Frey, 2004) and in the middle field (cf. Lenerz, 1977; Uszkoreit, 1987; Höhle, 1982). The examples in [8] illustrate the diverse information-structural status of constituents in the German prefield.

- [8] [Frey, 2004]
- [8a] Ich erzähle dir etwas über Hans.
I tell you something about Hans
Den Hans wird eine polnische Gräfin heiraten.
the_{ACC} Hans will a Polish countess marry
'Hans, a Polish countess will marry him.'

- [8b] Dem Hans hat Maria nicht geholfen, wohl aber dem Otto.
 the_{DAT}Hans has Mary not helped, PRT but the_{DAT} Otto
 'Hans, Mary did not help, but Otto, she did.'
- [8c] Wem hat Maria geholfen?
 whom has Mary helped
 Dem Hans hat sie geholfen.
 the_{DAT}Hans has she helped
 'She has helped Hans.'

In [8a], the constituent *Den Hans* in the prefield can be considered to be a topic, given the preceding sentence. In [8b], it is a contrastive topic, whereas in [8c], the prefield constituent answering the preceding *wh*-question is the focus of the sentence. In order to characterize the word order possibilities in the German middle field, one needs to distinguish between the so-called unmarked word order (cf. Lenerz, 1977; Höhle, 1982), as in [9b], where no information structural restrictions can be observed, and the marked word order, where restrictions such as background before focus can be observed, as in [9c].

- [9] [Lenerz, 1977]
 [9a] Wann hast du meinem Bruder geschrieben?
 'When did you write to my brother?'
- [9b] Ich habe gestern deinem Bruder geschrieben.
 I have yesterday your_{DAT}brother written
- [9c] Ich habe deinem Bruder gestern geschrieben.
 I have your_{DAT}brother yesterday written
- [10] [Lenerz, 1977]
 [10a] Wem hast Du gestern geschrieben?
 'Who did you write to yesterday?'
- [10b] Ich habe gestern deinem Bruder geschrieben.
 I have yesterday your_{DAT}brother written
- [10c] ?*Ich habe deinem Bruder gestern geschrieben.
 I have your_{DAT}brother yesterday written

Under the unmarked word order, where the adjunct *gestern* 'yesterday' precedes the dative argument *deinem Bruder* 'your brother', the adjunct can be the focus of the sentence, as in [9b], or the dative argument can be the focus, as in [10b]. Under the marked word order, where the dative argument precedes the adverb, only *gestern* can be focussed, as in [9c], whereas focus on the dative argument, as in [10c] is much less acceptable. This word order is thus marked in the sense that is restricted by information-structural principles such as background-before-focus. Given that the same position can be occupied by different informational categories, prosody in German plays a disambiguating role: while foci are marked by a falling pitch accent (see e.g. Féry, 1993; Truckenbrodt, 2002), contrastive topics are typically, though not always, marked by rising pitch accents.⁴

The information-structural properties of adjuncts may further be related to whether the adjunct modifies the verb or the whole sentence. In the three languages, V/S-adjuncts have a certain liberty in the position they occupy in the sentence. If they are subordinate clauses (and

⁴ What counts as a contrastive-topic accent, however, mostly depends on the degree of the pitch excursion, see e.g. Braun (2006); Mücke et al. (2006); Riester et al. (2020).

typically modify the sentence), they occupy either a sentence-initial or a sentence-final position. If adjuncts modify the verb, they usually occupy a position to the left or to the right of the verb. With respect to German sentence structure, V/S-adjuncts can either occur in the preverbal position, or after the verb in V2 position, i.e. in the middle field, or they can be extraposed and thus occur in the sentence-final position.

2.2. Adjuncts as contrastive topics

Adjuncts can function as any of the informational categories mentioned above: they can be focus, background, or (contrastive) topic. Consider first the case where a V/S-adjunct is a contrastive topic. Since contrastive topics tend to be sentence initial in the three languages of our study, a sentence initial adjunct often displays such a pragmatic function. A typical example is one with two contrasting temporal frame-setting adverbials. The first example (in German) is taken from the *Stuttgart21* corpus, a transcribed panel discussion broadcasted on Phoenix TV, Oct – Nov 2010, about the pros and cons of constructing an underground train station in the city of Stuttgart.

[11] [Stuttgart21]

[11a] [...] **zuerst** definieren Sie, welche Gleise gebaut werden [...],
 first define you which tracks built are
 'first you define which tracks are to be built'

[11b] und **anschließend** fangen Sie an, sich zu überlegen [...] wie
 and subsequently start you off yourselves to consider how
 denn der Fahrplan aussehen soll.
 however the timetable look-like should
 'and then you start thinking what the timetable should look like.'

The two adverbs *zuerst* 'first of all' and *anschließend* 'subsequently' are used as the two contrasting times of a temporal alternative set under discussion.

A similar example is [12], from the French spoken *CFPP2000* corpus, a series of interviews conducted by linguists with people living in different districts of Paris (Branca-Rosoff et al., 2009).

[12] [CFPP2000]

[12a] [...] en fait j'crois que **la première semaine** mes parents m'emmenaient à l'école (...)
 in fact I-think that the first week my parents brought-me to the-school
 'Well, I think the first week my parents brought me to school'

[12b] et **après, dès qu'on a emménagé** euh bah ça allait
 and then since that-we have moved ehm well that went
 'and then, after we moved, ehm well, it was ok'

The two temporal expressions *la première semaine* 'the first week' and *après, dès qu'on a emménagé* 'later, once we moved' are clearly contrasted, since the two different ways in which the speaker reached her school take place at each of these times.⁵ Finally, an English example still involving two contrasting times is given in [13].

⁵ Note that the first contrastive topic (*la première semaine*) is at the beginning of the subordinate clause introduced by *j'crois* 'I think'.

[13] [SNO]

[13a] “The greatest fear I have”, and I quote you, “regarding the disclosures is nothing will change.”
That was one of your greatest concerns **at the time**

[13b] but **in the meantime** there is a vivid discussion about the situation with the NSA.

The PP *in the meantime* is in contrast with the temporal specification given in the preceding utterance, namely *at the time* (which seems not to have been marked as contrastive by the speaker).⁶

2.3. Adjuncts as background

Examples of V/S-adjuncts as background material are given in [14] and [15]. The former is taken from Barack Obama’s keynote address at the 2004 Democratic National Convention in Boston (from now on, OBAMA corpus).

[14] [OBAMA]

[14a] Through hard work and perseverance, my father got a scholarship to study in a magical place, America, that shone as a beacon of freedom and opportunity to so many who had come before.

[14b] **While studying here**, my father met my mother.

The content of the temporal clause *while studying here* is already given in the context, since both the fact that Obama’s father was studying and the place where he was studying were introduced in [14a]. The clause is not in any obvious sense contrastive, although that possibility cannot be ruled out entirely.

An example for German and one for French are given below. The former is taken from the GRAIN corpus, a collection of German radio interviews from SWR2 public radio (Eckart and Gärtner 2016; Schweitzer et al. 2018).

[15] [GRAIN]

[15a] Ich glaube, es geht zum Beispiel auch darum, dass Griechenland sehr darunter leidet unter diesen völlig unsinnigen Wirtschaftssanktionen.

’I think it’s also about for example that Greece is suffering a lot from these completely nonsensical economic sanctions.’

[15b] **Durch die Sanktionen** sind sie jetzt sozusagen auf der „schwarzen Liste“.

Through the sanctions are they now so-to-speak on the black list

’Through these sanctions they are now, so to speak, on the “black list”.’

The PP adjunct *durch die Sanktionen* ’through the sanctions’ is given, since the fact that Greece is suffering because of the sanctions is mentioned in the preceding utterance, [15a]. The French example is taken from an internet blog.⁷

[16] [Blog]

[16a] Elle [...] a créé [...] Kestumdis, qui propose des ateliers familiaux de Langue des Signes avec les bébés.

’She has created Kestumdis, which offers family workshops on sign language with babies.’

⁶ Another example of adjuncts – clausal ones – that typically have a contrastive topic function are hypothetical conditionals, about which see the discussion in Riester et al. (2018: 432).

⁷ <https://www.bloghoptoys.fr/connaissez-vous-la-langue-des-signes-avec-les-bebes>.

- [16b] **Dans ces ateliers,** elle accueille aussi les enfants différents.
 In these workshops she hosts also the children different
 'In these workshops, she also hosts children that are different'

The content of the adjunct *dans ces ateliers* 'in these workshops' is clearly given by the preceding discourse, where the existence of such workshops is mentioned by means of the relative clause. The content is not contrastive, since the goal of the writer is to present the workshops and explain what they consist of, not to oppose them to other types of events.

2.4. Focused adjuncts

Due to the same background-before-focus principle, focused adjuncts are often sentence final. An example of a focused PP adjunct – a spatial one – is given in [17].

- [17] [GRAIN]
 [17a] Wir haben in der Hospizversorgung in den letzten Jahren gewaltige Fortschritte erreicht, wir haben aber noch nicht genug.
 'We have made tremendous progress concerning the availability of hospices but we do not have enough of them yet.'
 [17b] Wir brauchen diese Versorgung **in jedem Winkel unseres Landes.**
 we need this supply in every corner our country
 'We need these facilities in every corner of our country.'

The PP in boldface is the focus, since it is the informative part of the utterance, the one that answers a potential question about where these necessary facilities discussed before are needed.

An English example of focused adjuncts with a manner interpretation is given in [18].

- [18] [SNO]
 [18a] [...] the public had a right to know about these programs, the public had a right to know that which the government is doing **in its name,**
 [18b] and that which the government is doing **against the public**

As in the German example, the adjuncts *in its name* and *against the public* constitute the only informative parts of the utterance. Finally, a spoken French example is provided in [19].

- [19] [CFPP2000]
 [19a] [...] comment est-ce que euh toi ou tes parents vous êtes arrivés dans l'quartier
 'How did you or your parents arrive in the neighborhood?'
 [19b] donc moi j'suis arrivé à Paris j'étais tout petit [...] et mes parents sont venus à Paris
 so me I-have arrived in Paris I-was all little [...] and my parents have come to Paris
pour le boulot
 for the job
 'So I arrived in Paris when I was very little and my parents came to Paris because of their job'

The causal PP adjunct *pour le boulot* 'because of their job' is the answer to the overt question in [19a] and therefore constitutes the sentence focus.

In conclusion, and not unexpectedly, temporal, spatial, and other kinds of V/S-adjuncts do not have fixed informational properties, but depending on the context and on their position in the sentence, they can function as contrastive topics, as foci, or as background material. In the next section, we will discuss yet another informational status of adjuncts, where the adjunct represents new information, but is part of a broader focus. As we will see, in that case the adjunct is not only syntactically but also pragmatically optional.

2.5. Adjuncts with special informational properties

Consider [1], repeated in [20] in a larger context:

[20] [SNO]

[20a] “The greatest fear I have”, and I quote you, “regarding the disclosures is nothing will change.”
That was one of your greatest concerns at the time,

[20b] but in the meantime there is a vivid discussion about the situation with the NSA, **not only in America but also in Germany and in Brazil.**

The complex spatial adjunct is at the end of the clause and provides new information, so it can clearly be analysed as focused. Unlike in the examples of focused adjuncts seen in the previous section, however, this adjunct is not the only focus. The sentence that hosts the adjunct, [20b], is a presentational sentence. Presentational sentences introduce a new event and are therefore all-focused (Lambrecht, 1994). Within such a broad focus, the part of new information provided by the adjunct is not mandatory: the piece of information that needs to be provided at this point of the discourse is that there is a vivid discussion now, while there was no discussion before. The information contained in the adjunct is just some additional specification about the scope of the discussion.

The German written example [21b], taken from a novel,⁸ also has a PP adjunct in sentence-final position:

[21] [novel]

[21a] Es dauerte eine ganze Weile, bis Paul in der Dämmerung des Tunnels bemerkte, dass er nicht allein war.

‘It took quite a while until Paul noticed in the dusk of the tunnel that he was not alone.’

[21b] Ein Mädchen musterte ihn neugierig **mit großen, dunklen Augen.**

a girl looked-at him curiously with big dark eyes

‘A girl looked at him curiously with big, dark eyes.’

Here again, the PP *mit großen, dunklen Augen* ‘with big, dark eyes’, is part of a broader focus. In particular, the sentence introduces a new referent by means of the indefinite expression *ein Mädchen* ‘a girl’. The piece of information provided by the adjunct is not particularly relevant at this point; what is crucial is that there was a girl in the tunnel. The adjunct has an atmospheric effect, but it is not relevant to push the discourse forward. The crucial information is why Paul was not alone.

Finally, consider the French spoken example in [22].

[22] [CFPP2000]

[22a] Spk1: ouais donc vous allez beaucoup à René Le Gall ou au petit qui...

⁸ Krause, Ute (2018), *Im Labyrinth der Lügen*, cbj Kinder- und Jugendbuch Verlag, München.

- 'yeah, so do you often go to René Le Gall [= playground] or to the little one that...'
- [22b] Spk2: ouais bah quand on est pas très motives on peut descendre
 yeah well when we are not very motivated we can go-down
 juste en bas [...] **pour une petite heure**
 just down for a little hour
 'yeah, well, when we are not very motivated we may go just down the road for about an hour'

Spk2's utterance answers Spk1's question about which of the two possible playgrounds the latter visits more often with his children. Spk2 answers that they go to the playground right down the street, and then adds the temporal expression *pour une petite heure* 'for about an hour' to specify the general duration of their stay when they go to that playground. The adjunct constitutes new information, which, however, is not directly relevant to the interviewer's question.

Consider now [23], a German example taken from an online newspaper.⁹

- [23] [*Neue Westfälische*]
- [23a] Bei einem Alleinunfall auf der L 756 hat sich eine 19-Jährige am Sonntagnachmittag schwere Verletzungen zugezogen. Die Frau war mit einem Fiat gegen 15:45 Uhr aus Borchten kommend in Fahrtrichtung Haaren unterwegs.
 'In a solo accident on the L 756 a 19-year-old girl sustained serious injuries on Sunday afternoon. The woman was driving a Fiat around 15:45, coming from Borchten in the direction of Haaren.'
- [23b] **Aus bislang noch unbekannter Ursache** kam sie [...] nach rechts von der Fahrbahn ab
 for so-far still unknown reason came she to the-right from the road off
 und überschlug sich.
 and rolled-over herself
 'For reasons as yet unknown, she came off the road to the right [...] and rolled over.'

Unlike in the previous two examples, here the PP adjunct is fronted. The adjunct informs us about the absence of reasons for the car's deviation off the road. This information comes as additional with respect to the information about the event itself – the accident – since it is the latter piece of information that provides the description of what happened.

Finally, a peripheral piece of information can also be provided through adjuncts in an internal position, as illustrated by [24] and [2].

- [24] [*TAZ*]
- [24a] Die aktuelle Republikanische Partei hat nur noch wenig mit der Partei des verstorbenen John McCain zu tun, der bei der Präsidentschaftswahl 2008 gegen Barack Obama unterlag.
 'The current Republican Party has little in common with the party of the late John McCain, who lost to Barack Obama in the 2008 presidential election.'
- [24b] McCain verteidigte damals seinen Kontrahenten **während eines Wahlkampfauftritts**
 McCain defended at-the-time his opponent during a campaign-appearance
 gegen die rassistischen Äußerungen einer Wählerin.
 against the racist remarks of-a female-voter
 'At the time, McCain defended his opponent during a campaign appearance against the racist remarks of a female voter.'

⁹ Neue Westfälische, 09.09.2020, https://www.nw.de/lokal/kreis_paderborn/polizeimeldungen_kreis_paderborn/22556766_Von-der-Fahrbahn-abgekommen.html

In [24b], taken from the German newspaper *TAZ*,¹⁰ the temporal PP *während eines Wahlkampfauftrittes* 'during a campaign appearance' provides new information on top of the focus expressed by the verb *verteidigte* 'defended' and its complement *gegen die rassistischen Äußerungen einer Wählerin* 'against the racist remarks of a female voter' (the rest of the sentence being all given in this context).

Finally in [2] from Section 1, a piece of spoken interview of a journalist with French writer and politician Françoise Giroud, the subordinate temporal clause *surtout quand on est très jeune* 'especially when one is very young', is contained in a larger focus represented by the second part of a pseudo-cleft: *(Ce qui est dur) ce n'est pas d'être pauvre* '(What is hard) it's not to be poor'. The temporal clause contains some parenthetical information specifying under what circumstances the speaker's statement (that being poor is not hard) most likely holds.¹¹

Summarizing, the adjuncts above express new, but at the same time additional, parenthetical, or peripheral information concerning the event described by the utterance that contains them. Unlike the adjuncts seen in Section 2.4, they are not only syntactically but also pragmatically optional and could be removed without affecting the acceptability of the host in its context.

How can we capture these information-structural properties? In order to answer this question, we need to be more precise concerning our assumptions on information structure, and in particular on focus. As mentioned earlier, we adopt Rooth's (1992) alternative-based definition of focus. What needs to be clarified in the following is how focus is captured in each utterance of a text. Until now, we have identified it intuitively, by trying to find "the most informative part of the utterance" or "what is relevant to push the discourse forward". In order to be more precise, we will assume a *question under discussion* (QUD) model of discourse (Roberts, 2012; van Kuppevelt, 1995; Ginzburg, 1995; Onea, 2015) and argue that the information structure of an utterance is determined by the implicit question it provides an answer to. In order to precisely determine the different informational parts of an utterance on the basis of QUDs, we will follow the principles that we developed in Riester et al. (2018).

3. A QUD-based approach to IS identification in naturalistic data

3.1. Determining QUDs based on givenness

In line with Roberts (2012); van Kuppevelt (1995); Ginzburg (1995); Onea (2015) and many others, the starting point of Riester et al. (2018) is that for any assertion contained in a text there is a *question under discussion*, determining which parts of the assertion are focussed or backgrounded. The focus of the assertion is the value given to the variable contained in the question (Rooth, 1992). The special feature of the Riester et al. (2018) model is that it provides an explicit procedure to reconstruct QUDs. The reconstruction is constrained by a small number of basic principles. A second characteristic of this model is its applied perspective, namely its aim to determine the information structure of utterances in naturalistic data (oral or written, dialogic or not). We refer to Riester et al. (2018) for more detailed

¹⁰ *TAZ*, 10.12.2020, <https://taz.de/Trump-und-die-US-Republikaner/!5737298/>

¹¹ On the relation between the adjuncts presented in this section and parentheticals, see Section 4.5.

information concerning the procedure described in the present section. For a closer look at some further aspects of the model, see also Reyle and Riester (2016), De Kuthy et al. (2018) and Riester (2019).

There are basically two methods of QUD reconstruction. The default method to determine the QUD for a new assertive discourse segment is backward-oriented. In this case, the QUD is determined on the basis of which parts of the incoming discourse unit are given vs. new information. The method is guided by the principles listed in [25].

[25] *Principles of backward-looking QUD reconstruction*

[25a] Q-A-CONGRUENCE: A QUD must be answerable by the assertion that it immediately dominates.

[25b] MAXIMIZE-Q-ANAPHORICITY: A QUD should be formulated using all the given semantic content of its answer.

[25c] Q-GIVENNESS: An implicit QUD can only consist of given content.

Principle [25a] is trivial: the reconstructed question must be such that the target utterance (the utterance whose information structure we want to determine) answers it. But this principle alone is too weak and many questions may fulfill it. Principle [25b] further constrains the formulation of a question and prevents that the focus be too large (cf. Williams, 1997; Schwarzschild, 1999; Büring, 2008). In practice, it ensures that all parts of the assertion with anaphoric (given) content should be part of the QUD answered by that assertion. But this is still not enough to exclude all possible questions but one, and a third principle is necessary, which ensures that no discourse-new content is contained in the question. Indeed, if one assumes that the focus of the assertion is what answers the question and therefore corresponds to the *wh*-phrase (Rooth, 1992), principle [25c] makes sure that any part of the question that is not the *wh*-phrase will be given. For an illustration of how the three principles in [25] work, consider [26], which is the continuation of [14].

[26] [OBAMA]

A₁: While studying here, my father met my mother.

Q': #*What did he do after studying here?* *Q-A-CONGRUENCE

Q'': #*What else?* *MAXIMIZE-Q-ANAPHORICITY

Q''': ***What about Obama's mother?***

Q^{iv}: #*Where was Obama's mother born?* *Q-GIVENNESS

A₂: She was born in a town on the other side of the world.

The assertion whose QUD we want to reconstruct is A₂. Question Q' might naturally arise from A₁, but it cannot be answered by A₂, so it is excluded by Q-A-Congruence. Q'' to Q^{iv} are all questions that A₂ is able to answer. However, Maximize-Q-Anaphoricity rules out Q'', because this question is not specifically about Obama's mother, who is given in the context and referred to in A₂ by means of the pronoun *she*. Q''' and Q^{iv} both contain a reference to Obama's mother, but Q-Givenness rejects Q^{iv}, because some of its content is not yet given in the preceding context (A₁ does not mention *being born*). The only question that adheres to all three principles is therefore Q''' (in boldface), which simply asks for some additional information about Obama's mother.

Once the QUD of a discourse unit is determined, the *focus_F* label will be assigned to the part of the utterance that answers the QUD, while the *background* (which is not tagged) corresponds to the QUD minus the *wh*-phrase. Together focus and background form the *focus domain*, delimited by square brackets and marked by the squiggle symbol ~ (as in Rooth,

1992). We take any referent in the background to be a potential *aboutness topic* (*sentence topic*). Example [27] shows the IS annotation obtained for A₂ in [26].

[27] [OBAMA]
 Q₂: {What about Obama's mother?}
 > A₂: [She_T [was born in a town on the other side of the world]_F.]~

Given the reconstructed QUD Q₂, *she* in A₂ is the background (and the topic, since it is a referential item), while the rest of the sentence is the focus, because it is the part that answers the QUD. If, instead, question Q' had been chosen, *she* in A₂ would have been wrongly included in the focus part; if, on the other hand, Q^{iv} had been chosen, then some linguistic material, specifically *was born*, would have been wrongfully excluded from the focus part.

3.2. Determining QUDs based on parallelism

The second method of QUD reconstruction is forward-looking, which means that Q-Givenness, and the corresponding principles [25b] and [25c] are no longer of importance. Instead, QUDs are now determined on the basis of [28], which requires the existence of two discourse segments that share part of their semantic content.

[28] *Principle of forward-looking QUD reconstruction*
 PARALLELISM: A QUD that is directly answered by two or more answers is formulated on the basis of the semantic content that is shared by the answers.

There are two cases of parallelism: either the utterances share some background content and only vary regarding the instantiation of the focus alternatives (what we call *simple parallelism*, see [29], taken from Ronald Reagan's *Tear down this wall speech*; West Berlin; June 12, 1987); or they share some background and vary with regard to both a focus and a *contrastive topic*_{CT}.¹² We call it a *complex parallelism*, see [30], taken from Riester et al. (2018).

[29] [REAGAN]
 > A₁₄: After these four decades, then, there stands before the entire world one great and inescapable conclusion:
 > Q₁₅: {What about freedom?}
 >> A_{15'}: [Freedom_T [leads to prosperity]_F.]~
 >> A_{15''}: [Freedom_T [replaces the ancient hatreds among the nations with comity and peace]_F.]~,
 >> A_{15'''}: [Freedom_T [is the victor]_F.]~

In [29], we see that Parallelism becomes the dominating principle, overriding Q-Givenness, since we are now dealing with a number (in RST terms: a LIST) of structurally identical statements, from which the QUD can simply be read off, as in Q₁₅. Since Q-Givenness is no longer relevant, the noun *freedom*, is allowed – and in fact required – to be part of the background/QUD.

[30] [SNO]

¹² Cf. the CONTRAST discourse relation, Mann and Thompson (1988).

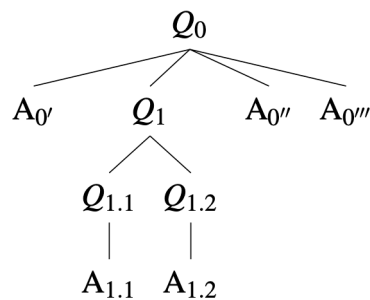
- > A₀: In many countries, as in America too the agencies like the NSA are not allowed to spy within their own borders on their own people.
- > Q₁: {Who can spy on whom?}
- >> Q_{1.1}: {Who can the Brits spy on?}
- >>> A_{1.1}: So [[the Brits]_{CT}, for example, they_T can spy on [everybody but the Brits]_F]-
- >> Q_{1.2}: {Who can the NSA spy on?}
- >>> A_{1.2}: but [[the NSA]_{CT} can conduct surveillance [in England]_F]-

In [30], A_{1.1} and A_{1.2} share some semantic content, as the two predicates *spy* and *conduct surveillance* can be considered as synonyms in this context. What varies in both assertions is the argument with the semantic role of *agent* (the subjects *the Brits* and *the NSA*) and that with the semantic role of *theme* (the oblique *on everybody but the Brits* and the locative *in England*, under the assumption that *in England* means *on the Brits*, by metonymy). Strictly speaking, both the agent and the theme are focused in both assertions, in that they instantiate a variable. However, following Büring (1997); Büring (2003); Büring (2016a), we take *the Brits* and *the NSA* to be contrastive topics. The subquestions Q_{1.1} and Q_{1.2}, therefore, respectively contain the phrases *the Brits* and *the NSA*.

3.3. QUD trees

The method for QUD identification described above makes strong predictions concerning the structuring of discourse. In our discourse trees – which structurally differ in a systematic way from analyses of SDRT or RST– the terminal nodes of a tree represent the (A)ssertions, and the non-terminal nodes represent the (Q)uestions, as shown in Figure 1. The number of indentations in the examples always represents the level of embedding of a question or an assertion within its QUD tree.

Figure 1: An example of QUD tree.



In Figure 1, Q₀ is answered by A_{0'}, A_{0''} and A_{0'''}, but the last two answers are given only after the two answers to the subquestions of Q₁. Note that the content dependency of a question Q on a preceding assertion A – what van Kuppevelt (1995) refers to as a *feeder question*, e.g. the situation in Figure 1 that Q₁ picks up given material from A_{0'} – is not represented vertically but horizontally. That way the tree is rendered compact, the actual assertions of the text remain the terminal nodes of the QUD tree and can be read off from left to right. In other

words, although A_0' and Q_1 are represented at the same level, Q_1 is anaphoric to the content of A_0' and informationally subordinated to it.¹³

3.4. Comparison with other QUD-based approaches

One difference of this model with respect to other QUD models is that it does not mainly deal with overt questions. In other work (e.g. Ginzburg, 2012) much attention is given to dialogue, in which question-answer exchanges occupy an important part. The main interest of Riester et al. (2018) does not lie in determining the rules of dialogue, although the assumption that each utterance is preceded by an implicit question may support a view of discourse that is eventually dialogic. The detection of implicit questions in Riester et al. (2018) is totally submitted to the identification of the information structure of utterances, no matter what the text genre is. The implicit questions we are dealing with are crucially different from overt ones. Recall that an implicit question is typically all-given, and the only new part is the wh-phrase. An overt question, by contrast, may bring in new content other than the wh-phrase. In some contexts, the overt and the implicit question coincide, in others, namely when the overt question is not answered, a different implicit question must be assumed.

In previous literature there is in fact one study that also discusses *implicit* questions at length, namely Onea (2015), who calls them *potential questions*. Unlike other QUD frameworks, Onea takes potential questions to be questions that an utterance may *raise*, rather than questions that an utterance may address. They are called “potential” since only when the following utterance is considered, one knows which question is the intended one. In Riester et al. (2018), an implicit question is the question that the target utterance *answers*, given the context in which it is uttered. Also, the way to derive the intended question goes in the opposite direction as compared to Onea’s procedure. In our case, the starting point is the target utterance, and the implicit questions this utterance might answer are reduced to one by the application of the three principles in [25], which crucially take the immediately preceding context into account, in order to identify the given content of the utterance. Furthermore, Onea concedes that potential questions “are not intended to be the sole licensing mechanism for questions in discourse” (Onea 2015: 8). On the contrary, in the Riester et al. approach, a QUD can always be reconstructed for an utterance by following the principles in [25] or [28]. In the case of an incoherent discourse or an unexpected turn, it is still possible to formulate a general QUD (“What next?”, “What is happening?”, etc.) which does not share any content with the preceding utterance. Onea’s potential questions thus do not stand in a one-to-one relation to the QUDs as defined in Riester et al. (2018). While both Onea’s and Riester et al.’s models may reveal some interesting aspects of how discourse develops, the latter seems more apt to identify the information-structural properties of utterances in a text, which is what we are interested in in this paper, and more specifically the IS properties of V/S-adjuncts, as we will see in the next section.

4. Adjuncts as independent discourse segments

4.1. Proposal outline

With this theoretical background in mind, let us now turn back to adjuncts discussed in Section 2.5. Their main characteristic is that they are part of a broader focus and provide

¹³ Subordination can be rendered fully transparent in a different kind of representation, *deep trees*, discussed in Riester (2019), in which Q_1 and its dependents are represented as a child branch of A_0' .

some peripheral or parenthetical information. In other words, despite being new information, they do not constitute the main point of the utterance. From now on, we will call them *I(nformation)S(tructure)-peripheral* adjuncts. In a QUD framework, *IS-peripheral* means that they do not answer the relevant QUD at that point of the discourse; more precisely, it means that they are not part of the focus domain that is obtained from the reconstruction of the utterance's QUD. As a matter of fact, what we claim is that when V/S-adjuncts provide new information but do not represent the main point of the utterance, they are themselves the answer to a different QUD than the one that is answered by the sentence hosting the adjunct. This new QUD, however, is related to the current QUD in that it is anaphorically dependent on the sentence hosting the adjunct.

The observation that certain informational elements, despite being new, are not relevant at the point of discourse where the utterance is uttered, as well as the claim that they answer some independent question in the discourse, have already been made in the literature. Ramm (2011: 146), for instance, comments on the constructed example with a manner adjunct in [31].

- [31] [Ramm 2011]
 – When did you arrive?
 – I arrived yesterday evening **with some friends**.

As Ramm argues, *yesterday evening* clearly expresses focus information, since it answers the question about the time of the hearer's arrival. The manner adjunct *with some friends*, like *yesterday evening*, “encodes information that is new, i.e. not part of the background, but does not contribute to answering the relevant question and thus cannot be part of the focus in the strict sense either.” Ramm does not discuss this example further, but notably suggests that “the adjunct, in a way, answers a question that has not been asked” (Ibid.) Onea (2015) discusses the question-answer pairs in [32] (the former pair being taken from Zeevat 2007).

- [32] [Onea 2015]
 [32a] A: Did any stock rise yesterday?
 B: Yes, **Alcatel and Telefonos Mexicanos**.
 [32b] A: Whom did Mary kiss?
 B: She kissed JOHN, **who you met yesterday**.
 [32c] A: Whom did John introduce to Jane?
 B: John, **cheerfully**, introduced MAX to Jane.

Here too, the questions are “over-answered” by the utterances of speaker B, which provide “too much information” (Onea, 2015: 216). The redundant parts are *Alcatel and Telefonos Mexicanos* in (a), the NRRC *who you met yesterday* in (b), and the manner adverb *cheerfully* in (c). Onea analyses these examples within his theory of potential questions. He assumes that the extra information is not at issue and claims that “once we add the at-issue content to the discourse, this will license a new potential question which will accept the not-at issue content of the candidate assertion as congruent answer” (Ibid.)

Both Ramm's suggestion of how to treat the extra piece of information in [31], and Onea's account based on potential questions rely on the idea that the extra piece of information answers a separate question than the question preceding the sentence. Ramm's and Onea's examples are question-answer pairs, namely examples with explicit questions. Our proposal for IS-peripheral adjuncts is that the same conclusions can be drawn with respect to implicit

questions, such as those that we assume to implicitly precede every utterance of a text and that are built according to the principles described in [25].

The proposal receives some support from prosody. In their analysis of English and German co-eventive adjuncts, Fabricius-Hansen and Haug (2012b) follow Truckenbrodt (2007) and assume that adjuncts “are prominent by default and do not trigger deaccenting of an adjacent verb (predicate), in contrast to what may happen when the verb occurs next to a prominent complement.” An example of this difference is given in [33], taken from Truckenbrodt (2007: 446).

- [33] [Truckenbrodt 2007]
 [33a] [What does he do?]
 He [teaches linguistics]_F
 Er soll Linguistik [unterrichten]_F .
 he MODAL linguistics teach
 'He is said to teach linguistics'
- [33b] [What does he do?]
 He [teaches in Ghana]_F
 Er soll [in Ghana unterrichten]_F .
 he MODAL in Ghana teach
 'He is said to teach in Ghana'

Fabricius-Hansen and Haug also point out that “deaccenting the lexical predicate adjacent to a prominent adjunct indicates narrow focus on the latter” (Fabricius-Hansen and Haug, 2012b: 22). In other words, when the adjunct is the only focus, then the verb and the adjunct constitute a prosodic unit, but when they are both focused, they are treated prosodically as two independent units. According to our proposal, when the adjunct does not answer the preceding QUD (in this example, the explicit question *What does he do?*), it constitutes an independent discourse unit answering its own QUD. It is then expected that the adjunct bear its own focal accent (see the QUD annotation applied to Truckenbrodt’s example in [34]).¹⁴

- [34]
 Q₁: [What does he do?]
 > A₁...: Er soll
 > Q₂: {Where?}
 >> A₂: [[in Ghana]_F]-
 > ...A₁: [[unterrichten]_F]-
 'He is said to teach in Ghana'

As Fabricius-Hansen and Haug (2012b: 26) put it: “forming intonation phrases of their own, detached adjuncts have no impact on the information structure of their host [and] behave like ‘orphans’”.

However, Truckenbrodt (2007) shows that the picture is more complex than that, since the prosodic shape of a phrase is also determined by other phonological factors, such as rhythmic constraints or constituent stress clash. Fabricius-Hansen and Haug (2012b: 30) use the term

¹⁴ The assertion A₁ is split into two parts, because the adjunct is sentence internal. We’ll discuss sentence-internal adjuncts in Section 4.4.

non-restrictive “as a cover term for detached adjuncts and adjuncts that are integrated into a VP with broad focus” and *restrictive* for “adjuncts that have narrow focus and/or interact with quantifiers in the matrix clause”. IS-peripheral V/S-adjuncts are therefore non-restrictive in their terminology. Fabricius-Hansen and Haug (2012b) argue that while restrictive adjuncts are obligatorily prosodically integrated, non-restrictive ones are optionally integrated or detached. It might therefore be the case that IS-peripheral adjuncts are not always prosodically detached. This is confirmed by our impressionistic judgment on the data, where IS-peripheral adjuncts do not seem to have an uncontroversial detached prosody, though only a prosodic analysis, which we leave to future research, can confirm our intuitions.

In the following sections, we will apply our proposal to the IS-peripheral adjuncts seen above, which are grouped according to their position in the clause into sentence-final, sentence-initial, and sentence-internal ones.

4.2. Sentence-final IS-peripheral adjuncts

An example of a sentence-final adjunct is *not only in America but also in Germany and in Brazil* in [20]. The adjunct was argued to be part of a broader focus. Our QUD analysis in [35] confirms the pre-theoretic analysis:

- [35] [SNO]
 > A₁₅: “The greatest fear I have”, and I quote you, “regarding the disclosures is nothing will change.”
 > Q₁₆: {*What about this fear?*}
 >> Q_{16.1}: {*What was this fear at the time?*}
 >>> A_{16.1}: [That_T was [one of your greatest concerns]_F [at the time]_(CT)~
 >> Q_{16.2}: {*What has this fear become now?*}
 >>> A_{16.2}: but [[in the meantime]_{CT} [there is a vivid discussion about the situation with the NSA,
not only in America but also in Germany and in Brazil]_F~

We observed above that the piece of information provided by the adjunct is not crucial to the main point of the utterance. The question reconstructed through the three principles in [25] is about the fear that nothing will change (Q_{16.2}). The presentational sentence in A_{16.2} up to ...*NSA* provides information about the fact that there is a vivid discussion about the disclosures (therefore, Snowden’s fear is no longer vindicated). The adjunct expression merely reinforces the point made by the preceding presentational sentence, but the latter already contains sufficient information to let the hearer know about the actual situation: right now, the fear that nothing will change is not grounded.

The secondary role of the adjunct is represented in [36] by the adjunct answering an independent question, Q₁₇, and therefore that it constitutes an independent discourse segment in the QUD tree. The adjunct is in fact further divided into two separate segments, each answering the same question Q₁₇.

- [36] [SNO]
 > A_{16.2}: but [[in the meantime]_{CT} [there is a vivid discussion about the situation with the NSA]_F~,
 > Q₁₇: {*Where?*}
 >> A₁₇: not only [[in America]_F~

> > A_{17''}: but also [[in Germany and in Brazil]_F]~¹⁵

We shall call the QUD answered by the adjunct a *subquestion*, because it is subordinate to the question answered by the sentence hosting the adjunct. We must not confuse subquestions answered by the adjunct with subquestions derived from complex parallelism (cf. Section 3) and notated Q_{x.x}. In the case of a complex parallelism, the subquestion is *entailed by* the dominating QUD, it is therefore a special kind of QUD. A subquestion addressed by the adjunct, on the contrary, is *anaphorically related* to the semantic content of the host sentence. In other words, it is just like any other QUD, the only difference being its dependency on the adjunct's host clause, due to the adjunct's own syntactic/semantic dependency on the host.

Another example is shown in [37].

[37] [SNO]

There was an article that came out in an online outlet [...] where they interviewed officials [...] from the National Security Agency, and they gave them anonymity to be able to say what they want

Q₈: {What did these people tell the reporter that they wanted to do to Snowden?}

> A_{8'}: and [what they_T told [the reporter]_T was that they_T wanted [to murder]_F me_T]~

> A_{8''}: [[These individuals]_T [...] said they_T would be happy, they_T would love [to put a bullet in my head]_F]~,

> A_{8'''}: [[to poison]_F me_T]~

> Q₉: {When would they want to poison Snowden?}

> > A₉: [as I_T [was returning from the grocery store]_F]~

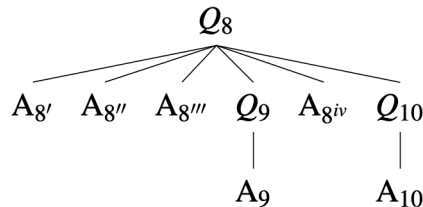
> A_{8^{iv}}: and [[have]_F me_T [die]_F]~

> Q₁₀: {Where would they have him die?}

> > A₁₀: [[in the shower]_F]~

A_{8'}, A_{8''} and A_{8'''} all answer Q₈. The fact that some thinkable poisoning event would happen as Snowden was returning from the grocery store is not relevant to answer that question, and indeed the temporal clause answers a more specific question about the circumstances for such an event (cf. Q₉). The expression *have me die* is the fourth answer to the question about the NSA officials' sinister intentions regarding Snowden: it is the desired effect of the poisoning event. The adjunct *in the shower* is superfluous, that is, it answers an independent, side question about the place where these officials would like Snowden to die. The tree representation of this analysis is given in Figure 2.

Figure 2: QUD tree corresponding to [37].



¹⁵ The two expressions are analysed as a case of simple parallelism, but in fact, the parallelism is perhaps complex, with *not only* and *but also* as contrastive topics.

See, finally, the spoken French example [22], repeated below as [38] and annotated with QUDs.

- [38] [CFPP2000]
 Q₁: Spk1: ouais donc vous allez beaucoup à René Le Gall ou au petit qui...
 'yeah, so do you often go to René Le Gall [=playground] or to the little one that...?'
 > Q₂: {Which playground do you go to?}
 >> Q_{2.1}: {Which playground do you go to, when you are not very motivated?}
 >>> A_{2.1}: Spk2: ouais bah [[quand on est pas très motivés]_{CT} ont [peut descendre juste en bas]_F]~ [...]
 'yeah, well, when we are not very motivated we may go just down the road [...]'
 >> Q₃: {For how long?}
 >>> A₃: [[**pour une petite heure**]_F]~
 'for about an hour'

Q_{2.1} is completely answered by A_{2.1}, and the temporal adjunct *pour une petite heure* 'for about an hour' answers the separate subquestion Q₃ *For how long (do you stay at the playground down the street)?*

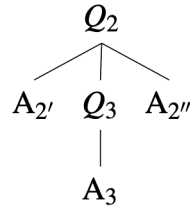
4.3. Sentence-initial IS-peripheral adjuncts

In examples like [36] and [37] adjuncts can be easily separated within the QUD tree, because their position is sentence final, but what about sentence-initial adjuncts? A German example is [23], repeated below as [39] and enriched with QUD and information structure annotation.

- [39] [Neue Westfälische]
 'In a solo accident on the L 756 a 19-year-old girl sustained serious injuries on Sunday afternoon.'
 Q₂: {What happened to her?}
 > A₂: [Die Frau]_T [war mit einem Fiat [...] unterwegs]_F]~
 'The woman was driving a Fiat [...].'
 > Q₃: {Why did she come off the road?}
 >> A₃: [[**Aus bislang noch unbekannter Ursache**]_F]~
 'For reasons still unknown.'
 > A₂'': [[kam]_F sie]_T [...] [nach rechts von der Fahrbahn ab und überschlug sich]_F]~
 'she came off the road to the right [...] and rolled over.'

The adjoined PP answers a different question than Q₂, namely Q₃, which is subordinate to Q₂. It is interesting to note that the adjunct's subquestion Q₃ is reconstructed by looking at a context utterance (A₂'') that *follows* the adjunct. In other words, the subquestion is in a *cataphoric* relation with the upcoming host sentence. This is also illustrated in the QUD tree in Figure 3 where the adjunct question Q₃ occurs before A₂'', an answer to the superquestion Q₂.

Figure 3: QUD tree corresponding to [39].

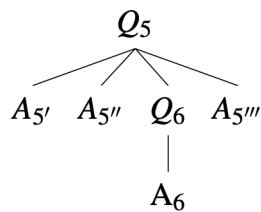


In this specific case, Q_2 is answered by two assertions, but one of the two is yet to be given when the answer to Q_3 (that is, the adjunct) is uttered. The tree nicely captures the fact that 'for reasons still unknown' is a piece of information that suspends the answering of the current QUD by answering a different, side-question.

The same cataphoric dependence of an adjunct PP is also found in [40]. The corresponding QUD tree is given in Figure 4.

- [40] [OBAMA]
 Q_5 : {*What about your father?*}
 > $A_{5'}$: [[My father]_T was [a foreign student]_F],
 > $A_{5''}$: [[born and raised in a small village in Kenya]_F] ~.
 > Q_6 : {*How did Obama's father get a scholarship to study in America?*}
 >> A_6 : [[**Through hard work and perseverance**]_F]~
 > $A_{5'''}$: [[my father]_T [got a scholarship to study in a magical place, America]_F]~

Figure 4: QUD tree corresponding to [40].



The speaker is talking about his father, and answers the implicit question *What about your father?* in Q_5 by uttering $A_{5'}$, $A_{5''}$, and $A_{5'''}$. The latter occurs after the speaker has explained how the scholarship was obtained, namely through his hard work and perseverance. The specification of the means that led the speaker's father to obtain the scholarship is given *before* the very assertion that explains that the father got a scholarship. *Through hard work and perseverance* answers the subquestion *How did Obama's father get a scholarship to study in America?*, which is reconstructed on the basis of the sentence hosting the adjunct, namely $A_{5'''}$, despite it coming after the adjunct.

4.4. Sentence-internal IS-peripheral adjuncts

More problematic is the structural position of sentence-internal adjuncts such as the temporal one in [24], repeated below as [41] with the corresponding QUD analysis.

[41] [TAZ]

'The current Republican Party has little in common with the party of the late John McCain, who lost to Barack Obama in the 2008 presidential election.'

> Q₂: {*What was McCain's behaviour with respect to Obama in 2008?*}

>> A₂...: [[McCain]_T [verteidigte]_F damals [seinen Kontrahenten]_T
McCain defended at-the-time his opponent

>> Q₃: {*In what occasion did he defend him?*}

>>> A₃: [[**während eines Wahlkampfauftritts**]_F]~
during a campaign-appearance

>>...A₂: [gegen die rassistischen Äußerungen einer Wählerin]_F]~
against the racist remarks of-a female-voter

'At the time, McCain defended his opponent during a campaign appearance against the racist remarks of a female voter.'

Again, under our approach, the adjunct answers a separate QUD, since it provides some peripheral information with respect to what is asked by Q₂. If we make the adjunct independent from the host in the QUD tree, we are forced to split the host into two parts, which both bear the label A₂.

Analogously in [2], repeated below as [42], the temporal clause A₉ is inserted in the middle of the answer A₈' to Q₈. The label A₈' is repeated twice in order to identify the two separate chunks of A₈'.

[42] [Rhapsodie]

'It's an experience that I've never forgotten'

> Q₈: {*What about the harshness of this experience?*}

>> A₈...: [...][ce qui est dur ce n'est pas
'What is hard is not...'

>> Q₉: {*When is it not hard to be poor?*}

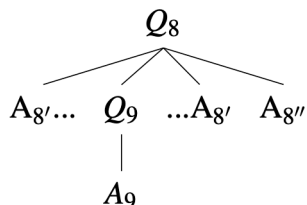
>>> A₉: surtout [**quand on [est très jeune]**]_F]~
'especially when one is very young'

>> ...A₈: ce n'est vraiment pas [d'être pauvre [...]]_F]~
'...it is not really to be poor'

>> A₈'': [[...] c'est [de se dire je n'en sortirai jamais]_F]~
'it is to say "I will never get out of it"'

In order to avoid such a split of the host sentence, we would have to mess up the linear textual order and insert the adjunct and its QUD either before or after the host sentence (as proposed in Riester, 2019). But by treating sentence-internal adjuncts this way we would lose an important property of our discourse trees: following common assumptions in discourse semantics, the only material that is accessible to anaphoric retrieval is material at the right frontier (Polanyi, 1988; Asher, 1993; Asher and Lascarides, 2003), therefore a new segment (and its QUD) can only attach to the right edge of the preceding discourse (that is, directly right to the last assertion or as high as necessary to still ensure discourse coherence). By placing sentence-internal adjuncts to the right of the hosting sentence, such material would, incorrectly, become available as an attachment site for the subsequent discourse. Furthermore, the correspondence between the order of terminal nodes and that of the assertions in the text, now present in our QUD tree, would be lost. Therefore, the solution of splitting the host in two parts seems better and we will adopt it, as illustrated in Figure 5, representing [42].

Figure 5: QUD tree corresponding to [42].



There are two branches for the assertion A_8 in the tree, one with the label A_8' ... representing the part of the utterance preceding the adjunct clause A_9 , and a second one with the label $\dots A_8'$ representing the part of the utterance following the adjunct.¹⁶

Internal adjuncts, similarly to sentence-initial ones, answer a question that is reconstructed on the basis of the host sentence *before* the host sentence has ended. In this case, we may call such a relation *intraphoric*.

As a final observation, we would like to point out that in all the examples seen in the last three sections, the information structure that is reconstructed for the adjunct is rather simple, as it usually only contains a focus, or a focus plus a referential pronoun in the background. Yet, if IS-peripheral adjuncts have their own information structure, we do not exclude the possibility that their information structure might occasionally be richer, especially if the adjunct is a subordinate clause. Accordingly, we also expect that an IS-peripheral subordinate clause may in principle display root phenomena related to a particular informational articulation. Our data, which are focused more on non-sentential adjuncts, do not allow us to explore this phenomenon in depth, which we therefore leave for future research.

4.5. IS-peripheral adjuncts and parentheticals

From a semantic/pragmatic point of view, parenthetical clauses are described as being “outside the focus-background structure of their host utterance and [...] usually associated with non-truth-conditional meaning. Parentheticals typically function as modifiers, additions to or comments on the current talk. They often convey the attitude of the speaker towards the content of the utterance, and/or the degree of speaker endorsement” (Dehé and Kavalova, 2007: 1). Given such a description, parentheticals clearly have much in common with IS-peripheral adjuncts from an informational and discourse point of view. We therefore suggest that parentheticals can be accounted for as IS-peripheral elements too, namely as independent segments in the QUD tree that answer their own QUD. See the example of spoken French in [43].

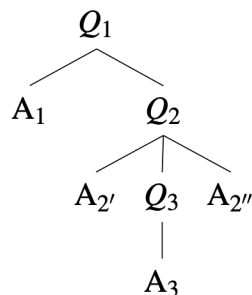
- [43] [Rhapsodie]
 > A₁: Spk1: [[il y a eu votre père]_F]~
 'There was your father'
 > Q₂: {What about your father?}

¹⁶ Note that what we are discussing here is the position of the adjunct in the discourse, not in the syntactic tree. The discussion concerning the syntactic position of the adjunct is a different one and won't be treated in the present paper.

- > > A₂: [[votre père]_T [était riche]_F]~
 'Your father was rich'
 > > Q₃: {What about the term 'rich'?}
 > > > A₃: Spk2: [[**riche**]_T **c'est** [**un grand mot**]_F]~
 rich it-is a big word
 "Rich" is a big word'
 > > A₂'': mais enfin disons qu'[il]_T [appartenait à cette bourgeoisie euh qui n'a pas de problèmes
 d'argent]_F]~
 'Let's say that he belonged to that bourgeoisie ehm that did not have financial problems'

Q₂ (*What about your father?*) is answered by A₂' and A₂'', which are uttered by the interviewer (Spk1) and the interviewee (Spk2) respectively. A₂'' is uttered by the interviewee after she has commented on A₂', namely on the interviewer's statement that her father was rich. A subquestion-answer pair (Q₃-A₃) is inserted in between the two answers to Q₂. The relevant part of the QUD tree in Figure 6 is the same as that of the IS-peripheral adjuncts in Figures 2 to 4, since Q₂ receives at least one answer (A₂'') *after* A₃ answers Q₃.

Figure 6: QUD tree corresponding to [43].



The fact that the QUD tree representation in Figure 6 is the same as that in Figures 2-4 captures well the idea that both parentheticals and IS-peripheral adjuncts are interpolated segments that disrupt the QUD-based discourse structure.¹⁷

Not all IS-peripheral adjuncts, however, have parenthetical properties: while IS-peripheral adjuncts can be described as conveying parenthetical *information*, they may differ from (prototypical) parentheticals from a syntactic and/or a prosodic perspective. From a syntactic point of view, only internal IS-peripheral adjuncts, not initial or final ones, share with parentheticals the property to disrupt the syntactic structure of the host, cf. [42]. From a prosodic point of view, prototypical parentheticals are associated with a detached prosody (Dehé 2007, 2009, and references quoted therein). We have seen at the end of Section 4.1 that prosodic detachment or integration depends on several factors, and we find it plausible that IS-peripheral adjuncts may sometimes be prosodically integrated.¹⁸

¹⁷ Sentence-final adjuncts are uttered when the QUD of their host has already been answered; nothing therefore prevents them to function as an attachment site to start a new discourse topic. Whether the adjunct is interpreted as parenthetical information or the beginning of a new discourse topic will then only depend on whether the superquestion answered by the host has been exhaustively answered or it is still under discussion.

¹⁸ Prosodic integration can in fact also be found with *non*-prototypical parentheticals (see Dehé, 2007).

Finally, recall that adjuncts are not always IS-peripheral and may constitute the focus, the contrastive topic, or (part of) the background of their host, as seen in Section 2. Parentheticals, on the contrary, are never part of the information structure of their host.

5. IS-peripheral adjuncts are in some rhetorical relation with their host

5.1. Non-sentential discourse units

One typical property of a discourse segment is to stand in some rhetorical relation with another segment. In Marcu et al. (1999) – one of the first papers discussing non-sentential phrases as elementary discourse units – the following criterion is given under which any phrase can be an elementary discourse unit (EDU): “EDUs were defined functionally as clauses or clause-like units that are unequivocally the *nucleus* or *satellite* of a rhetorical relation that adds some significant information to the text.” (Marcu et al., 1999: 50).

Within our analysis of V/S-adjuncts, it follows that if a rhetorical relation holds between the adjunct and some other segment, then we have a clue that the adjunct should be separated as an independent discourse unit and as a result have it answer its own QUD. As for the discourse unit the adjunct relates to, we follow Behrens et al. (2012) and assume that it must be the host, no matter what the position of the adjunct is, and that it cannot be a preceding utterance in the discourse. As Behrens et al. (2012) point out, this is a natural consequence of the fact that the adjunct belongs to a complex syntactic structure and, therefore, is not syntactically independent.

In the work by Schauer and Hahn (2000) and Schauer (2000) it is claimed that non-sentential phrases, and adjuncts in particular, can be independent discourse units. Lexical-semantic criteria are given by these authors in order to decide when an adjunct phrase could be separated as an independent discourse unit or not. The underlying assumption is that events are characterized by typical properties such as agent, patient, location, instrument and time frames. They argue that these typical properties should not be part of the coherence relations established between discourse units. However, they add that “whenever nontypical, unpredictable information pieces have to be accounted for, coherence relations may capture their value-adding semantics.” The criteria under which adjuncts should be analysed as independent discourse units are therefore that (i) their straightforward semantic interpretation is precluded because they refer to non-typical properties, or (ii) their semantic interpretation partially refers to typical properties, but the intended meaning is not fully covered by them; only additional computations – inferences taking the preliminary semantic interpretation as a starting point – completely account for the intended meaning.

5.2. Rhetorical relations between IS-peripheral adjuncts and their hosts

The criteria proposed by Schauer and Hahn (2000) and Schauer (2000) seem to correspond to what we have observed with respect to the IS-peripheral adjuncts discussed in the previous sections. Consider first [23] of Section 2.5. The sentence-initial PP (*aus bislang noch unbekannter Ursache* ‘for reasons as yet unknown’) was described as answering a separate QUD, as illustrated by the QUD analysis in [39]. The PP can be characterized as describing a non-typical property of the main event, since the adjunct mentions the cause for the event to

take place, and is therefore in a CAUSE relation with the host sentence (Mann and Thompson, 1988; Stede, 2016).

Other IS-peripheral adjuncts that we have discussed express typical properties of the event. In [35], we proposed to treat *not only in America but also in Germany and in Brazil* as two independent discourse segments both answering a separate QUD *Where?* The adjuncts give the locations in which the discussion takes place, and *location* is a typical property of an event. These adjuncts, however, do more than that: by giving the locations of the discussion, the speaker comments on its extent, on its scope, which reaches other countries than the US. We argue that the intended meaning of the adjuncts is not fully covered by the typical property of location and that a rhetorical relation is established between the adjuncts and the main clause, namely an ELABORATION relation. The definition of ELABORATION given in Mann and Thompson (1988) states that “S presents additional detail about the situation or some element of subject matter which is presented in N”. In our case, the situation presented in the Nucleus, i.e. in A_{16,2}, is that there is a vivid discussion, and the spatial adjuncts elaborate on that information by presenting additional evidence that the discussion is vivid, since it has even extended outside the US soil.

Another case of ELABORATION is found in [38]. Here, too, the temporal adjunct *pour une petite heure* ‘for about an hour’ expresses a typical property of the event, namely its duration. However, the adjunct adds further details to the event of going to the smaller playground (which is the Nucleus). By doing that, it characterizes that event as one of short duration.

As for [21], repeated here as [44] and enriched with QUD annotations, we argued that the sentence-final PP adjunct *mit großen, dunklen Augen* ‘with big, dark eyes’ is not part of the main point of the assertion.

[44] [novel]

A₁: Es dauerte eine ganze Weile, bis Paul in der Dämmerung des Tunnels bemerkte, dass er nicht allein war.

‘It took quite a while until Paul noticed in the dusk of the tunnel that he was not alone.’

Q₂: {*What happened to him?*}

> A₂: [[Ein Mädchen musterte]_F ihn_T [neugierig]_F]¹⁹

a girl looked-at him curiously

> Q₃: {*How did the girl look at him?*}

>> A₃: [[**mit großen, dunklen Augen**]_F][~]

with big dark eyes

Following Fabricius-Hansen (2007), the adjunct can be seen as a concomitant event (or state) intimately connected with the event of looking curiously. The adjunct can be characterized as a typical property, since it represents the instrument by means of which the action of looking at somebody curiously is realized. However, the adjunct also provides additional information beyond the instrument property, in that it gives further support to the idea that the girl’s look was full of curiosity (so full of curiosity that her eyes were wide open). We can again consider this additional information as an effect of an ELABORATION relation that the adjunct establishes with the host.

¹⁹ The adverb *neugierig* ‘curiously’ is an adjunct too, and could perhaps be analysed as an IS-peripheral adjunct. However, in this analysis we refrain from doing so for the sake of simplicity.

Consider now the sentence internal temporal PP *während eines Wahlkampfauftrittes* 'during a campaign appearance' in [41], which we argued provides peripheral information. The PP can be characterized as describing a typical property, namely the particular time of the event of defending the opponent, described in the main clause. Notice that the adjunct's host sentence elaborates on the previous assertion, since it provides more details on the way in which McCain was different from the current members of the Republican party. The internal adjunct's meaning, then, is not just to provide the time of the event, but to emphasize that even under the special circumstances of a campaign appearance, McCain was willing to defend his opponent. The rhetorical relation that can be established here between the main clause and the adjunct clause is therefore a CIRCUMSTANCE relation. The definition given in Mann and Thompson (1988: 272) states that for the CIRCUMSTANCE relation "S sets a framework in the subject matter within which [the Reader] is intended to interpret the situation presented in N." In [41], the situation presented in the Nucleus is thus the assertion in A₂ "defend his opponent against the racist remarks of a female voter", while the adjunct clause in A₃ as the Satellite sets the framework in which the situation of defending the opponent is to be interpreted.

In [37], the temporal adjunct clause in A₉ *as I was returning from the grocery store* again represents the time of the event, which coincides here with the time in which the speaker returns from the store. However, the adjunct also specifies the circumstances in which the event took place. The speaker wants to underline the vulnerability of his situation, since he fears to be assassinated under some unpredictable and unexceptional circumstances, during a random moment of his daily life.

Yet another case of the CIRCUMSTANCE relation is found in the French example [42]. The temporal clause *surtout quand on est très jeune* 'especially when one is very young' is analysed as a separate discourse segment. The temporal clause provides a typical property of the event, again time, but also specifies in what circumstances the speaker's claim (that being poor is not a problem) mostly holds.

The examples above show that IS-peripheral adjuncts play a role not only in the description of the event, but also in the construction of discourse. Indeed, as independent discourse units, they are able to establish a discourse relation with their host. If an adjunct has a specific informational role in an utterance, namely it is the focus or the background, or the contrastive topic of that utterance, then it is clear that it cannot be separated from the rest of it. If the adjunct is the focus, i.e. the only piece of new information the utterance provides, it obviously cannot be an independent segment since we assume that each utterance must have a focus; if it is a contrastive topic or background, then under the same assumption, it must be accompanied by the focus part. Furthermore, if it is a contrastive topic, it is necessary for contrast to be expressed; if it is background, it has an anchoring role with respect to the new information conveyed by the utterance. In each of those cases the adjunct's information-structural role in the utterance is not compatible with the adjunct being an independent discourse unit. Indeed, when the adjunct fulfils such an informational function, it is not possible to omit it without making the host utterance unacceptable in that context (cf. Section 2). The omission of the adjunct does not have an effect on the syntax of the host, which remains well-formed, but the adjunct is obligatory from a pragmatic point of view. When the adjunct is IS-peripheral, on the contrary, it is so to speak useless within the utterance from an information-structural point of view; however, as an independent unit, it acquires a discourse role, which is expressed by its rhetorical relation with the host.

5.3. Discourse subordination and syntactic subordination

Discourse units may be organized hierarchically or non-hierarchically and discourse relations have been divided into coordinating ones (such as SEQUENCE, LIST or CONTRAST) and subordinating ones (such as ELABORATION, CAUSE, CONCESSION and many more), cf. Mann and Thompson (1988); for the corresponding SDRT relations see, for instance, Asher and Vieu (2005). As Behrens et al. (2012), following Asher and Lascarides (2003), put it: “the function of d[iscourse]-subordinating constituents is to provide more detail to, or to comment on, some element present in the preceding discourse unit”, whereas “discourse units connected to the preceding context by a d[iscourse]-coordinating relation continue the “main story line” on the same level of granularity”. Behrens et al. (2012) study co-eventive adjuncts and argue that discourse coordination/subordination generally correlates with syntactic coordination/subordination. They argue that the different behaviour of non-finite adjuncts and coordinated or juxtaposed phrases lies in “their discourse-relational potential in that syntactic coordination generally correlates with discourse coordination [...] while adjunction preferably encodes d-subordination” (Ibid.: 43). The syntax/discourse parallelism is also made by Jasinskaja and Poschmann (2018) in their study on the projective behaviour of NRRCs (namely the property of being indifferent to the syntactic scope of sentential operators, cf. Section 6.3). Jasinskaja and Poschmann link the projective behaviour of NRRCs to the fact that in most contexts, they establish a subordinating relation with their host. They further relate the fact that NRRCs mostly establish a subordinating relation with their host with the fact that they are syntactically subordinated to it. They mention work by Matthiessen and Thompson (1988: 308), who show a statistical tendency for subordinate clauses to realize subordinating coherence relations. The relations that we identified in our examples are indeed all subordinating ones (ELABORATION, CAUSE, CIRCUMSTANCE). Our data therefore confirm, in line with previous studies, the existence of a correspondence between discourse subordination and syntactic subordination.²⁰

Jasinskaja and Poschmann argue that the link between projectivity and discourse subordination is related to the fact that subordinating relations “will most of the time also provide BACKGROUND, EVIDENCE or some other kind of presentational support for some speech act in the context” (Jasinskaja and Poschmann, 2018: 445). From that they conclude that the NRRC is in those cases a speech act on its own and, by consequence, cannot be interpreted locally (it projects). It is not unlikely that in some of our examples the adjunct, other than being in a subordinating relation with its host, likewise establishes a presentational (or pragmatic) relation with it. For instance, in [20], the locative adjunct provides evidence for the speaker’s assertion that there is a discussion about the disclosures and that this discussion is vivid. In [42], *surtout quand on est très jeune* ‘especially when one is young’ could be seen as establishing a JUSTIFY relation, since it justifies the speaker’s hard-to-believe statement that being poor is not a problem. If these analyses are correct, then they provide further support to the idea that IS-peripheral adjuncts are independent discourse units, since they may be proven to be independent speech acts. As mentioned above, Jasinskaja and Poschmann relate this property to the projective behaviour of NRRCs. We cannot push the similarity between IS-peripheral adjuncts and supplements that far, since IS-peripheral

²⁰ It seems evident, moreover, that subordinating discourse relations go hand in hand with backward-looking (i.e. givenness-based) QUDs, while coordinating discourse relations correspond to forward-looking (e.g. parallelism-based) QUDs.

adjuncts, as we will see in Section 6.3, do not convey projective content. In that section, we will account for this difference by adopting an explanation given by Venhuizen et al. (2014) concerning the projective behaviour of supplements.

6. IS-peripheral adjuncts and supplements

6.1. Similarities

While V/S-adjuncts have not received much attention in the literature on information structure, expressions with similar informational properties, namely supplements (nominal appositions, non-restrictive relative clauses, speaker-oriented adverbs, and *as*-clauses) have been studied in depth since Potts' (2005) seminal work, where they are analysed as *conventional implicatures* (CIs).

Among the extensive work on these expressions, Onea's (2015) study of appositives, namely nominal appositions and NRRCs, provides an account which is similar to our analysis of IS-peripheral adjuncts, in that it also points at a particular status of these phrases in the structure of discourse. Onea – as we do for IS-peripheral adjuncts – argues that appositives do not answer the same question answered by their host. He proposes that they answer a subquestion that is raised by the host (in Onea's account, a potential question). Onea motivates his proposal by arguing that the proposition conveyed by appositives is headed by a special 'supplement-assertion' operator, which will require that the supplement answers a potential question "raised by the last utterance that updated the discourse", which is the host. For our part, the existence of a special operator does not seem necessary, at least not for V/S-adjuncts. The procedure developed in Riestler et al. (2018) demands that a QUD be constructed locally, namely based on the linguistic material of the immediately preceding utterance. V/S-adjuncts are neither syntactically nor semantically autonomous, so we expect their QUD to be construed on the basis of the clause they depend on, namely their host, which is the answer to the main QUD.

The similarity between our account and Onea's one is not surprising since appositives are, syntactically, adjuncts, too: the only difference is that they depend on a noun instead of a verb or clause.²¹ Furthermore, both appositives and IS-peripheral adjuncts (unlike presuppositions) necessarily represent new information. Within our framework, appositives can be accounted for in the same way as IS-peripheral adjuncts. Consider for instance the apposition *maman de deux enfants nés en 2007 et fin 2011* 'mum of two children born in 2007 and end of 2011' in the French example below, from a written blog.

[45] [blog]
 >> Q₁: {How do you know Nathalie?}
 >>> A_{1...}: [[Nathalie]_T
 >>> Q₂: {What about Nathalie?}
 >>>> A₂: [[**maman de deux enfants nés en 2007 et fin 2011**]_F~,
 mother of two children born in 2007 and end 2011
 >>> ...A₁: [nous_T [a été présentée par une maman blogueuse]_F~
 to-us has been introduced by a mother blogger

²¹ This assumption is perhaps less obvious for NRRCs. We assume here the standard view that they are attached to the Determiner Phrase, as in Del Gobbo (2003); Koev (2013); Poschmann (2018).

‘Nathalie, mother of two children born in 2007 and at the end of 2011, has been introduced to us by a blogger mom’

The apposition answers its own question, reconstructed according to the QUD principles. The semantic content of the apposition is ‘Nathalie is mum of two kids etc.’ If we take the host sentence as the preceding context, we conclude that the linguistically realized part of the propositional content of the apposition is all-focused, and that the QUD must contain some linguistic material referring to Nathalie. The QUD analysis is the same as that given for the sentence internal adjunct in [42], and the tree representation corresponds to the one in Figure 5.²²

6.2. Differences

Supplements also display crucial differences with respect to IS-peripheral adjuncts. A first difference is pragmatic: V/S-adjuncts are not always IS-peripheral and can have all kinds of information-structural properties, depending on the context, while supplements do not seem to be able to take part in the information structure of their host.²³ A second (semantic) difference is the fact that supplements are straightforwardly interpreted propositionally, while the “proposition” expressed by a V/S-adjuncts needs to be formulated involving its host event.

A third important difference is finally syntactic, but with repercussions on their semantics. We already said that V/S-adjuncts depend on a verbal head, while appositions and NRRCs, though being adjuncts too, depend on a nominal head.²⁴ Such a difference has drastic effects on their semantic import. We have seen in the previous section that the semantic contribution of the adjunct to the description of the event may be more or less relevant. Still, in all cases, V/S-adjuncts are part of the description of the event, or at most are co-events in the sense of Fabricius-Hansen (2007). The semantic content of appositives, by contrast, is independent from the description of the event, since they only provide some additional property of a participant in the event. By adopting the account in Venhuizen et al. (2014) for the projective behaviour of supplements, we will argue below that it is this last difference that explains why supplements project, while IS-peripheral adjuncts, as we will see in the next section, do not. Since projection is related to the property of not being ‘at issue’, in the next section we also discuss this notion and the way in which it is related to IS-peripheral adjuncts.

²² More accurately, *nés en 2007 et fin 2011* ‘born in 2007 and at the end of 2011’ could be analysed as an IS-peripheral adjunct attached to the complement of the appositive noun, answering a subquestion anaphorically related to the apposition (*What about her children?*).

²³ Such a difference must perhaps be nuanced. While it seems rather obvious that supplements cannot be narrow foci, the constructed example in [i] suggests that an apposition may function as a contrastive topic. The context is one where Mary has two different roles, one as professor and one as secretary, and behaves differently depending on the role she performs. Since the referent is the same, the contrast lies on the property described in the apposition (Mary’s role).

[i] Mary, the professor, would never do that, but Mary, the secretary, would absolutely go for it.

Concerning the possibility of being background elements, if we assume with Potts (2005), Horn (2007), AnderBois et al. (2010) (among many others) that supplements are CIs and therefore convey new information by definition (they precisely differ from presuppositions in that respect) then they obviously can never be part of the sentence background.

²⁴ We’ll come back to the third type of supplements, namely *as*-clauses, below.

6.3. IS-peripheral adjuncts and non-at-issueness

In the recent literature, the definition of non-at-issue content is based on the notion of relevance. Simons (2007), who does not yet use the expression (*not*) *at issue* but talks about content as being (or not) the “main point” of an utterance, proposes that this main point of an utterance U of a declarative sentence S is “the proposition p, communicated by U, which renders U relevant”, and uses “question/response sequences as a diagnostic for main point content”, under the assumption that “whatever proposition communicated by the response constitutes an answer (complete or partial) to the question is the main point of the response” (Simons, 2007: 1036). In their study concerning projective content, Simons et al. (2010) adopt the expression *not at issue* for whatever content does not belong to the main point of the utterance. Their characterization of being or not being *at issue* is more precise than the one in Simons (2007) and relies more explicitly on Roberts’ (2012) *question under discussion* framework of discourse structure. At-issueness is defined in terms of relevance to the QUD, and an assertion is defined as relevant to the QUD iff it contextually entails a partial or complete answer to the QUD.

Another crucial property that Simon and colleagues (cf. Simons et al., 2010; Tonhauser et al., 2013) ascribe to non-at-issue material, in addition to not answering the main QUD, is that it projects. Simons et al. (2010) aim at giving a unified account of projective content: they propose that all projective content shares the property of not being at issue. But the relationship between non-at-issueness and projection for them goes in both directions: all content that projects is not at issue, and all non-at-issue content projects. In their words, projection “is intimately related to the structuring of information in discourse. It is a consequence of the fact that in the totality of information conveyed by an utterance, some is central to the speaker’s conversational goals, and some is peripheral. The peripheral projects.”

In the present paper, our QUD-based model of discourse has allowed us to account for a particular informational status of V/S-adjuncts, where they provide new information but do not answer the QUD that their host sentence answers. We have proposed that adjuncts behaving this way are independent discourse segments in the QUD tree. IS-peripheral adjuncts can thus be considered as “peripheral” in the Simon et al. sense. Do these expressions also display projective behaviour?

Since Potts (2005), it has been noticed that presuppositions are not the only type of content that projects; in particular, it has been shown that CIs, such as supplements, have projective meanings, too (see also Simons et al., 2010; Tonhauser et al., 2013; Faller, 2014, and others). Projection is tested by means of the *family-of-sentences* (FOS) diagnostics, defined in Chierchia and McConnell-Ginet (2000) – and developed further in Tonhauser et al. (2013) – which consist in adding a sentential operator to the sentence; if the content conveyed by a phrase is not affected by such operator, then we say that it projects. The FOS diagnostics are applied in [46] to the apposition *James Clapper*.

[46] [SNO]

The breaking point was seeing the Director of National Intelligence, James Clapper, lie to Congress.

Negation. The breaking point was not seeing the Director of National Intelligence, James Clapper, lie to Congress.

Interrogative. Was the breaking point seeing the Director of National Intelligence, James Clapper, lie under oath to Congress?

Conditional. If the breaking point was seeing the Director of National Intelligence, James Clapper, lie under oath to Congress, then I cannot imagine what will happen.

Modal. It is possible that the breaking point was seeing the Director of National Intelligence, James Clapper, lie under oath to Congress.

The apposition clearly displays projective behaviour, since the proposition expressed by it, ‘the name of the director of national intelligence is James Clapper’, is neither negated, nor questioned when the main clause is, nor is its truth affected, when it occurs inside the scope of the antecedent of a conditional or of a modal.

What about IS-peripheral adjuncts? The FOS diagnostics gives different results when applied to them. Consider [20], which has been modified as in [47], so that the assertion containing the spatial adjunct could be negated or changed into an interrogative without a clash in meaning with the preceding context.

[47] [SNO]

“The greatest fear I have”, and I quote you, “regarding the disclosures is nothing will change.” That was one of your greatest concerns at the time

[47i] *Negation.* and now, there is still no discussion about the situation with the NSA **in America or elsewhere.**

[47ii] *Interrogative.* What about today? Is there a discussion about the situation with the NSA, **in America or elsewhere?**

The meaning of the adjunct is the location where the event takes place, so if the event does not take place, then the location is one where the event does *not* take place. Obviously, if the event realization is put into question, then the same also holds for the fact that the event occurs in a certain location. In [47i], the speaker says that there is no discussion in America, hence, the question of its location does not arise. In [47ii], the question is whether there is any discussion. Again, only if the discussion takes place, it can have a location.

A similar conclusion is reached with regard to the temporal PP *während eines Wahlkampfauftrittes* ‘during a campaign appearance’ in [41], since the occasion in which the event of defending the opponent took place becomes the occasion in which the event did *not* take place. Analogously, in [38], negating the event of going to the small playground makes the specification of the duration of that event inappropriate, since it becomes the duration in which the speaker did *not* go to that playground. As for [44], where the adjunct is the instrument of the action described by the verb – the looking curiously –, the negated sentence means that the girl did not look and that she did it with big eyes, which is absurd. In [39], when the sentence is negated, the unknown reasons are of the woman’s *not* coming off the road, which is again absurd. Finally, in [37], by negating the poisoning event, the circumstances described by the adjunct become the circumstances of the non-poisoning event.

In conclusion, it appears that IS-peripheral adjuncts, though they share some crucial properties with supplements, do not have projective content. If we follow Venhuizen et al.’s (2014) account for the projective behaviour of supplements, the non-projective behaviour of IS-peripheral adjuncts can straightforwardly be explained by means of the syntactic/semantic differences between supplements and IS-peripheral adjuncts mentioned earlier. Venhuizen et al. (2014) observe that supplemental CIs always occur with a nominal anchor. The anchor is syntactic in the case of appositions and NRRCs. As for parentheticals like *as*-clauses in English (see [48a]), they argue that though syntactically dependent on a *verbal* head, they semantically take a noun as their anchor. The anchor for the *as*-clause in [48a] is not the entire event, but rather the referent of the subject *Chuck*. That is proven by the fact that the sentence can be paraphrased as in [48b]. The *as*-clause in [48a] makes the same contribution

as the supplemental clause in [48b], which means that the subject Chuck is the semantic anchor for the supplemental *as*-clause in [48a].

[48] [Venhuizen et al., 2014]

[48a] As the judge wrote, Chuck agreed that the verdict was fair.

[48b] Chuck, about whom the judge wrote that he agreed that the verdict was fair, agreed that the verdict was fair.

The second observation that Venhuizen et al. (2014) make is that the nominal anchor always refers to a specific referent in the discourse context. The anchor is therefore presuppositional (it presupposes the existence of its referent). Venhuizen et al. (2014) propose that supplements project because they piggyback on their anchor, since they provide an elaboration on the description of the anchor's referent. If we now go back to IS-peripheral adjuncts, we see that these do not attach to a nominal anchor, but to a verbal one. Therefore, they cannot take advantage of any projective power of their anchor, and are by consequence unable to project.

An observation to be made at this point is that the QUD-tree representations of Riester et al. do not distinguish between projective and non-projective content, since appositives can be accounted for in the same way as IS-peripheral adjuncts, namely as independent discourse units, which answer independent subquestions. From a discourse perspective, it is thus not possible to distinguish between discourse units that are not at issue and answer a side question (and may have additional properties such as projectivity of their content), and discourse units that similarly answer a subquestion but do not project. The difference has to be captured in the semantic analysis of these clauses: either, in a multidimensional analysis à la Potts, in which non-at-issue content provided by CIs is not part of the semantic content of the main assertion, or like in Venhuizen et al.'s (2014) analysis, where the semantic anchor has to be chosen in a way that the projective behaviour of these expressions can be explained.

7. Conclusions

The goal of the present paper was to discuss the IS properties of a syntactic part of the sentence that is generally neglected in IS studies, namely non-argumental elements such as temporal, spatial, manner, cause, etc. verb or sentence modifying adjuncts. The QUD-based approach to IS annotation in naturalistic data has allowed us to identify some interesting information- and discourse-structural aspects of such adjuncts. We have argued that verb/sentence-adjuncts can occur in contexts where they constitute new information but still are not part of the answer to the QUD that is answered by their host clause. We have accounted for this *IS-peripheral* status of adjuncts by claiming that they are independent discourse units in the QUD tree. As such, we have also shown that they establish a rhetorical relation with their host clause.

Moreover, we have shown that IS-peripheral adjuncts share some properties with parentheticals and with supplements, in that these, too, constitute new information that does not answer the main QUD. Indeed, we have seen that parenthetical sentences, cf. [43], and certain supplements, cf. [45], can be accounted for as independent discourse units in the QUD tree. Supplements, however, display projective behaviour, while IS-peripheral adjuncts do not. Following Venhuizen et al. (2014), we have proposed that this is due to the fact that they have a verbal anchor rather than a nominal one: only a nominal anchor has projective power, which is then inherited by the supplement. By pointing out the similarities and the differences between IS-peripheral adjuncts and supplements, our work has therefore highlighted a

different way, other than having projective power, in which the content of a syntactically dependent expression can be independent at the discourse level.

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