Contrastive topics, information structural restrictors and sub-informativity:  
A comparison of English and German  
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1 Introduction

1.1 A note on information structure analysis in English-German comparison

Information structure has not so far been among the topics that have been prominently discussed in contrastive studies of English and German.¹ Broadly speaking, three types of expressive devices for the encoding of information structural categories can be distinguished: (i) lexical devices, (ii) syntactic devices and (iii) prosodic devices. Among these, it is probably the class of ‘lexical devices’ that has received most attention in the relevant literature. For instance, König’s (1982) contrastive investigation of focus particles in English and German deals with an entire lexico-grammatical sub-system relating to, and interacting with, information structure. Breul (2008) provides a comparison of the way the information structural category of ‘identifiability’ is lexicalized in English and German, dealing with explicit topic exponents of the type as for and definite articles. As far as the syntactic devices are concerned, substantial work has been done by M. Doherty on the distribution of old and new information in the sentence (e.g. Doherty 2005), but otherwise very few pertinent studies have been prominently published. The third type of expressive device – prosodic means of encoding informations structure – has, to the best of my knowledge, not so far been studied at all in an English-German contrastive perspective. Note that the disregard of information structure in contrastive linguistics is also mirrored in the fact that none of the relevant survey monographs contains a section on information structure (e.g. Burgschmidt & Götz 1974, Hawkins 1986, König & Gast 2007).²

There are several reasons for this neglect of ‘contrastive information structure analysis’. First, the study of information structure was still in its infancy in the 1960s and 1970s, when English-German comparison flourished, at that time carried by the wish to improve foreign language teaching and translation techniques. A second problem probably concerns the conceptual basis of comparison (cf. also Breul 2008: 266–7). As any type of comparative linguistics, contrastive studies need to be based on a more or less clearly delimited tertium comparationis. Ideally, such a ‘third of comparison’ should be defined on a purely notional basis. It constitutes the invariant in the process of language comparison, while variation is expected in the formal means used to encode the relevant categories. In the case of information structural categories, such a tertium comparationis is very hard to define, even for basic notions such as ‘topic’, ‘focus’, ‘aboutness’ or ‘contrast’. The difficulties in defining the notion of ‘topic’ have been commented on, among others, by Reinhart (1981) and Polinsky (1999) (cf. also Jacobs 2001: 643):

Although the linguistic role of the relation topic of is widely acknowledged, there is no accepted definition for it, and not even full agreement on the intuitions of what counts as topic (Reinhart 1981: 56).

Linguists have essentially given up on a rigorous definition of topics — almost everyone [...] mentions the aboutness condition and then moves on to more mundane matters of topichood or topicalization (Polinsky 1999: 572).

¹ This paper is a result of a project entitled ‘Umfassende Bestandsaufnahme, Beschreibung und Erklärung wesentlicher Kontraste zwischen den Strukturen des Englischen und des Deutschen’, funded by the German Science Foundation (DFG) and granted to E. König and the author of this paper. The financial support from this institution is gratefully acknowledged. I would like to thank Florian Haas and all participants of the conference on ‘Contrastive Information Structure Analysis’, held at the University of Wuppertal on March 18–19, 2008, for critical comments and helpful suggestions.

² The comparative analysis of information structure in English and German is one of the primary objectives pursued by the project mentioned in Note 1.
Related to the problem of adequately defining a *tertium comparationis* is a third one, which concerns the form-to-function mapping in the domain of information structure: This mapping is typically many-to-many. Therefore, the definition of notional categories with the help of formal ones is virtually impossible. The many-to-many relationship between notional categories of information structure and linguistic ones is illustrated in Table 1.

<table>
<thead>
<tr>
<th>notional categories</th>
<th>formal categories</th>
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<tr>
<td>uniqueness</td>
<td>definiteness</td>
</tr>
<tr>
<td>givenness</td>
<td>deaccentuation</td>
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<tr>
<td>contrast</td>
<td>fronting (Engl.)</td>
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<tr>
<td>new information</td>
<td>accentuation</td>
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Table 1: Many-to-many relationships in information structure

The notion of ‘uniqueness’ in the top left cell of the table is associated with the linguistic category of definiteness on the right (cf. also Breul 2008 and references cited there). However, definiteness is not associated with ‘uniqueness’ alone but also indicates ‘givenness’. Givenness, in turn, is usually marked by deaccentuation, but it is also associated with specific syntactic operations such as fronting in English (cf. Birner & Ward 1998 and Section 6 below). But then, fronting also requires contrast, which in turn is indicated by accentuation, and so on indefinitely. This situation makes it very hard to base a notional category of information structure on formal distinctions found in natural languages, as is commonly done in in linguistic typology (cf. Lazard 1999, 2001 for a description of such a procedure based on ‘arbitrary conceptual frames’; see also Haspelmath 2008, König & Gast 2008 for discussion).

1.2 The topic of this paper

This paper aims to make a contribution to contrastive information structure analysis by focusing on a specific aspect of information structure in English and German, i.e. the encoding of contrastive topics and related information structural categories. Contrastive topics can be illustrated with the question-answer pair in (1):4

(1) A: *What do your daughters do?*
   B: *[My older daughter]_<sub>CT</sub> studies law, and *[my younger daughter]_<sub>CT</sub> studies history.*

Each of the two sentences in B’s answer contains a topic (*my older daughter, my younger daughter*), here indicated by a subscript ‘CT’, and the two topics stand in a (paradigmatic) relationship of contrast to each other. A similar, but slightly different relationship holds between *academically* and *financially* in (2):

(2) A: *How is your daughter doing?*
   B: *[ Academically]_<sub>CR</sub> she is doing fine but she’s in trouble [financially]_<sub>CR</sub>.*

B answers a question about a single topic (*my older daughter*), but s/he answers it in two different respects. Again, there is a relationship of contrast between the two ‘adverbials of respect’ or ‘frame setters’ (*academically* and *financially*), which will be said to function as ‘restrictors’ in examples like (2) – hence the subscript ‘CR’ for ‘contrastive restrictor’.

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3 Breul (2008) solves the problem of finding a *tertium comparationis* by basing it on a notional category (*‘identifiability’*), but using a formal one (*as for*-expressions) as a diagnostic for identifying instances of identifiability.

4 The notion ‘contrastive topic’ is widely used in research on information structure (see e.g. Lambrecht 1994: 291–5, Erteschik-Shir 2007: 48ff.). The various conceptions of this notion differ considerably, however. The concept underlying the present study will be explicated in Section 3.1. It is mainly based on the work done by Jacobs (1982, 1995, 1997), Krifka (1994, 1998, 2007) and Büring (1994, 1997, 2003).
One of the most prominent features of examples like (1) and (2) is that the answers given by B are made up of more than one sentence, and that the question asked by A is only answered by the conjunction of these sentences. We will say that elements of such ‘conjoined answers’ or ‘answer sets’ – ‘partial answers’, as they may be called – are ‘sub-informative’ relative to the question under discussion. The present paper will investigate the way this information structural function is expressed in English and German at different levels of the lexico-grammatical system.

The discussion starts in Section 2 with a brief characterization of the notions ‘topic’ and ‘restrictor’. Section 3 introduces a new term for what is typically dealt with under the notion ‘contrastive topic’, i.e. the relation of ‘sub-informativity’. It functions as the tertium comparationis of this study. Section 4 distinguishes several types of sub-informativity. There are two major types (‘focus-related’ and ‘topic-related’ sub-informativity), and two sub-types of ‘topic-related sub-informativity’ (‘context-preserving’ and ‘context changing’). Sections 5 and 6 provide a comparison of the most important lexical (Section 5) and syntactic markers (Section 6) of sub-informativity in English and German. Only minor contrasts can be identified in these domains. In Section 7, the most important prosodic devices for marking sub-informativity are introduced, i.e. the fall-rise accent in English and the ‘hat contour’ in German. It is shown that they are not equivalent in terms of their information structural appropriateness conditions, and that the German hat contour is used only in specific types of sub-informativity, i.e. in ‘context-changing’ instances. Section 8 concludes with a brief summary and some general remarks on methodological problems of contrastive information structure analysis.

2 Topics and information structural restrictors

The notorious difficulties of defining the notion of ‘topic’ have been mentioned already. As has been shown by Jacobs (2001), at least part of the problem originates from the fact that the notion ‘topic’ is not a monolithic concept but comprises a number of information structural properties associated with the relevant constituents. Accordingly, Jacobs (2001) argues that topicality is in fact a prototypical notion that varies along four major dimensions: (i) ‘informational separation’, (ii) ‘predication’, (iii) ‘addressation’ and (iv) ‘frame-setting’. More recently, Krifka (2008) has argued that topicality can be captured in terms of only two dimensions, which he calls ‘addressation’ (following Jacobs) and ‘delimitation’. Delimitation is similar to Jacobs’ parameter of ‘frame-setting’, but is defined more broadly (cf. also Krifka & Féry 2008). It concerns the fact “that the current contribution to the CG [common ground] is not the full contribution that may be expected at the current point in conversation” (Krifka 2008: 3). Accordingly, topicality is associated with two functions: (i) the identification of an ‘address’, i.e. a referent about which information is retrieved or stored, and (ii) the delimitation of an assertion to a given conceptual or predicational domain.

Given that these functions are clearly different (though closely related to each other, cf. Krifka 2008), they need to be kept apart. In the following, I will reserve the term ‘topic’ for referential expressions that function as an ‘address’ in the ‘common ground management’. In other words, ‘topic’ will be used more or less synonymously with what is often called an ‘aboutness topic’ or a ‘referential topic’. Expressions that serve the function of delimitation, in the sense of Krifka (2008), will be called ‘information structural restrictors’, or ‘restrictors’ for short. The examples in (3)–(5) illustrate that the function of a topic and that of a restrictor are independent of each other. Constituents may be topics without being restrictors (cf. (3)), they may be restrictors without being topics (cf. (4)), and they may be both topics and restrictors (cf. (5)).

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Topics that are also restrictors are regarded as contrastive topics by Krifka (2008); cf. below.
(3) constituent is a topic (T) but not a restrictor (R)
   A: What about Bill? What did he want to do?
   B: [Bill]T wanted to go to a pub and have a beer.
(4) constituent is a restrictor but not a topic
   A: How is Bill doing?
   B: [Financially]R he is doing fine....
(5) constituent is both a topic and a restrictor
   A: How are your parents doing?
   B: [My father]TR is doing fine, but [my mother]TR had an operation yesterday.

3 Contrastive topics, contrastive restrictors and sub-informativity

3.1 Three theories of contrastive topicality

Having provided a broad characterization of the notions ‘topic’ and ‘restrictor’ in the preceding section, we can now turn to those instances where topics or restrictors ‘contrast’ with some other element in the discourse environment. Such contexts are usually dealt with under the label ‘contrastive topic’. Even though the present paper deals with ‘contrastive restrictors’ as well, we will thus start with a brief review of three of the most influential conceptions of ‘contrastive topicality’, i.e. the ones of Krifka (1994, 1998, 2007), Jacobs (1982, 1995, 1997) and Büring (1994, 1997, 2003). As will be seen, the conceptions of Jacobs and Büring will allow us to include ‘restrictors’ in our comparison without any major modifications of their theories.

Krifka (1994, 1998, 2007) regards ‘contrastive topics’ as constituents with a (prosodically realized) focus feature that have been topicalized as a result of ‘Spec-CP movement’ (referring to Frey 1993 for this operation). He calls this type of movement ‘contrastive topicalization’. Contrastive topics are thus regarded as topics that are in focus (cf. also Erteschik-Shir 2007 for this view of ‘contrastive topicality’), where ‘being in focus’ means to stand in the paradigmatic relation of contrast to some alternative value from the discourse environment. On this analysis, contrastive topicality is regarded as a property of constituents – in (6), [sister] and [brother]:

(6) A: What do your siblings do?

In terms of Krifka (2008), contrastive topics can be regarded as constituents whose denotations serve the function of both ‘addressation’ and ‘delimitation’. They break down a given (referential) topic (an address) into sub-topics, so that different comments can be made about each of these sub-topics, thus ‘delimiting’ the range of the relevant predications.

A different approach is taken by Jacobs (1982, 1995, 1997), who uses the term ‘i-topicalization’ for (the German counterparts of) configurations like those in (6). ‘I-topicalization’ is regarded as “a kind of contrastive topicalization in German” (Jacobs 1997: 91). However, ‘i-topicalization’ differs from ‘contrastive topicality’ as conceived of by Krifka in some respects. First, it does not only apply to topics, but also to restrictors. The example in (7) states that the assertion at issue does not hold under deontic modality while it does hold under potential modality. Its propositional content is ‘readers will like the book’. This proposition is ‘delimited’ in two contrasting ways: by a deontic operator ‘it is necessary that…’ and by a potential operator ‘it is possible that…’. Neither of these operators has the status of an ‘address’ or referential topic, however. They are restrictors.\(^7\)

\(^6\) ‘I’ stands for ‘intonation’, and ‘i-topicalization’ contrasts with ‘s-topicalization’ (‘s’ for Germ. Stellung).

\(^7\) Slashes and backslashes indicate rising and falling accents, respectively. Underscore indicates the range of an accent. The ‘root accent’ (\(\sqrt{\) will be explained in Section 7.2.
A second important difference between Jacobs (1997) and Krifka (1998) is that Jacobs regards i-topicalization as a sentence- or utterance-level property: “...i-topicalization reflects the presence of an illocutionary operator inducing predication and certain restrictions on information structure” (Jacobs 1997: 91). In other words, the semantic effect of i-topicalization cannot be determined by looking at the relevant constituents alone (like muss or nicht) but is determined at a higher level of interpretation. The question of how i-topicalization is interpreted takes us to the most elaborate semantic theory of ‘contrastive topicality’ to date, i.e. the one proposed by Büring (1994, 1997, 2003).

According to Büring (2003), contrastive topics indicate the presence of open questions (with specific properties) in the discourse environment of the relevant sentence. Büring’s analysis of contrastive topics is based on a hierarchical model of discourse which is inspired by a conception of discourse developed by Roberts (1996), and which makes use of the notational device of ‘d(iscourse)-trees’ (cf. Diagram 1, from Büring 2003: 516). The highest level entity in a d-tree is a ‘discourse’. A discourse is made up of questions (which may be implicit) and answers to those questions. D-trees abide by certain well-formedness conditions such as ‘Informativity’ (“Don’t say known things, don’t ask for known things!”) and Relevance (“Stick to a question until it is sufficiently resolved!”).

Each node in a d-tree is called a ‘move’, and “[a]ny sub-tree of a d-tree which is rooted in an interrogative move is a strategy” (Büring 2003: 518). An example of a ‘strategy’ is given in Diagram 2 (from Büring 2003: 520):

The assertion Fred ate the beans at the left terminal node serves as an answer to the question immediately dominating it, i.e. What did Fred eat (the ‘question under discussion’, or QUD). In the example given in Diagram 2, this sentence answers only one of the questions in the ‘strategy’, which is rooted in the question Who ate what?.
questions’ in addition to What did Fred eat?, e.g. What did Mary eat?. According to Büring (2003), contrastive topic marking on Fred (in Fred ate the beans) indicates that this sentence does not provide a complete answer to the root question (Who ate what), i.e. there are other sub-questions that need to be addressed. The constituent carrying contrastive topic accent is the one distinguishing the relevant sub-questions from each other (Fred, Mary). Accordingly, the sentence [Fred]_{CT} ate the [beans]_{F} indicates that there is a question of the form ‘x_{CT} ate the y_{F}’ in the strategy which is not answered by this sentence. In this framework, contrastive topic marking is thus regarded as a relation between an assertion (Fred ate the beans) and the strategy containing that assertion (i.e. the strategy rooted in the question Who ate what?).

3.2 From contrastive topicality to sub-informativity

As the brief review of different conceptions of ‘contrastive topicality’ has shown, this term can be interpreted as a property of constituents (‘constituent x is a contrastive topic’, cf. Krifka 1998), as a property of sentences or utterances (‘this sentence/utterance contains an illocutionary operator indicating i-topicalization/contrastive topicalization’, cf. Jacobs 1997) or as a relation between an utterance and the strategy containing that utterance (cf. Büring 2003). The following discussion will largely be based on Büring’s (2003) conception of ‘contrastive topicality’. The reason is that this conception is maximally inclusive (e.g. in not being restricted to referential topics), and that it provides a reasonable basis for a comparison of English and German (a tertium comparationis), since discourse situations with specific properties (‘d-trees’) are easily reproducible across languages. Moreover, it allows us to abstract away from the type and locus of encoding (lexical material, constituents, syntactic operations, prosody, etc.), and thus to determine the range of variation found in the formal encoding, in the languages under comparison.

As has been shown by Büring (1997, 2003), the most important property of sentences with contrastive topics is that they are in some way ‘sub-informative’ relative to some strategy they are contained in, insofar as they leave open questions. The notion of ‘sub-informativity’ will be used as the basis of our comparison. It is defined as follows:

\[(8) \quad \text{A declarative sentence } S \text{ is sub-informative relative to a strategy } Q \text{ (containing } S \text{) iff } S \text{ does not answer all questions in } Q.\]

As pointed out above, the notion of ‘sub-informativity’ is ‘maximally inclusive’ insofar as it also covers sentences that do not contain a topic or a restrictor. In particular, it also applies to ‘distributed focus sentences’, i.e. answers to (‘matching’) multiple wh-question (as in the Fred-ate-the-beans example discussed above).

Having identified ‘sub-informativity’ as the central notion underlying the phenomena discussed in this paper, we will now have a closer look at this notion and distinguish several sub-types, focusing on those aspects that are relevant to a comparison of English and German.

4 Types of sub-informativity

4.1 Focus-related and topic-related sub-informativity

We will start with a distinction between two major types of sub-informativity. The first type is found in sentences with ‘distributed foci’. Such sentences are answers to multiple wh-questions (‘matching questions’ in terms of Krifka 2001). Note that I use the term ‘distributed foci’ rather than ‘multiple foci’ because such sentences can be conceived of as containing a single focus which is distributed over several constituents, rather than containing several foci. Consider (9):

\[(9) \quad \text{A: Who read what?} \]
\[\text{B: John read the bible and Mary read the newspaper.}\]
One way of looking at this question-answer pair is to regard it as containing two foci, each of them corresponding to one of the wh-pronouns (who, what). However, from the perspective of the model of discourse adopted in the present study it is preferable to regard such sentences as having only a single focus (cf. also Krifka 2001: 309–312), and “to assume that the background is a function over pairs (or triples, quadruples, ...), with the domain defined as the Cartesian products of the domains of the question constituents” (Krifka 2001: 310). In cases such as (9) the focus thus corresponds to pairs of elements like <John, bible> and <Mary, newspaper>, but it is still a single focus in each case. The domain is the set \{<a,b> | a ∈ [[person]], b ∈ [[BOOK]]\}. Questions like the one in (9) and the corresponding answers can thus be rephrased using a single wh-pronoun (which [pairs]), as is illustrated in (10):

(10) a. Question: Which pair(s) <x,y> are contained in the extension of the predicate READ?
   b. Answer: The extension of the predicate READ contains the pair <John, bible>.

‘Binary foci’ such as <John, bible> are generally ‘distributed’ over (at least) two constituents, hence the term ‘distributed’ foci. The type of sub-informativity associated with distributed foci as in (9) will be called ‘focus-related sub-informativity’. It is not primarily a result of ‘imperfect common ground management’ (as in cases of topic-related sub-informativity, cf. below), but of the fact that natural language does not normally provide for ‘relational’ (i.e. more than unary) wh-pronouns and corresponding foci. Distributed foci give rise to sub-informativity insofar as each of the answers given in examples like (9) above is sub-informative relative to the superordinate question Who ate what?.

In the second major type of sub-informativity, more than one topic-comment relation is established. This type will be called ‘topic-related sub-informativity’. There are two reasons why more than one topic-comment relation may be established. First, there may be a mismatch between the background assumptions made by the interlocutors involved; and second, the interlocutors may have the same propositional background, but the question may be phrased in such a way that it cannot be answered in a single sentence. Instances of the first type will be called ‘context-changing’ and instances of the second type ‘context-preserving’ cases of sub-informativity.

Let us start with the second case, where both speakers share (more or less) the same propositional background, but one of the interlocutors phrases a question in such a way that a single answer is not possible, i.e. s/he establishes a discourse topic about which no single piece of information can be given (‘topic of laziness’). A relevant example is given in (11) (= (1)):

(11) A: What do your daughters study?

   B: My older daughter studies law and my younger daughter studies history.

Speaker A is (or at least may be) aware that B’s daughters do not study the same subject. However, the two questions are ‘compressed’ into one (hence, ‘topic of laziness’). They could have been asked separately, but more ‘communicative effort’ would have had to be spent, as two questions would have had to be asked and answered. The ‘sub-informativity’ of each of the answers given by B is thus anticipated and in fact provoked by A.

This is different in ‘context-changing’ instances of sub-informativity, where the propositional backgrounds of the interlocutors differ, and the common ground is actively modified by one of the speakers. This type of context is illustrated in (12):

(12) A: What does your daughter do?

   B: [My older daughter]_CT studies law, and [my younger daughter]_CT studies history.

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8 Note that the adverb respectively can be used in order to express distributed foci in a single sentence (with conjoined NPs), e.g.: The cups and saucers cost £5 and £3 respectively (Longman Dictionary of Contemporary English, s.v. respectively).
Speaker A is not aware that speaker B has two daughters. Accordingly, the contrastive topic marking on my first daughter is not merely a reflex of the discourse structure imposed by A, but an instruction given by B to A to modify his/her propositional background. It indicates that the relevant sentence does not provide a complete answer to the question and, at the same time, ‘announces’ the introduction of a new sub-topic (my younger daughter). The difference between ‘context-preserving’ and ‘context-changing’ instances of sub-informativity can thus be described as follows: In context-preserving cases a given topic is under discussion, but is summarized under a single term (e.g. ‘your parents’ ≡ {‘your father’, ‘your mother’}), while in context-changing cases a new topic is introduced by actively modifying the common ground.

As will be seen below, the distinction between context-changing and context-preserving topics is relevant to an English-German comparison, as the two languages differ in the way they encode these functions prosodically (cf. Section 7). The three types of ‘sub-informativity’ introduced in this section are summarized in Diagram 3:

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sub-informativity
   /             \
  /               \
focus-related     topic-related
   \               / \
  \             /  \  
context-preserving context-changing
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Diagram 3: Types of sub-informativity

We will now consider lexical, syntactic and prosodic means of indicating sub-informativity in English and German.

5 Lexical indicators of sub-informativity

English has a number of lexical devices that are commonly regarded as explicit topic exponents, e.g. as for, speaking of and talking of. Some relevant examples are given in (13)–(15):

(13) As for external funding, Smith has a grant application pending.  
    Huddleston & Pullum (2002: 1371)
(14) Any noise it made was lost in the wind. Speaking of the wind, it was getting stronger and I was getting colder. [BNC A6T]
(15) Regarding training, the document said that food business operators must ensure that food handlers are fully trained or supervised... [BNC A0C]

The question arises to what extent these lexical devices can be regarded as indicators of sub-informativity. We will consider the most prominent marker, i.e. as for. The main condition that must be met for a constituent to be accompanied by as for is that it must be ‘contextually accessible’ (cf. Lambrecht 1994: 152):

...the phrase as for NP (as well as similar phrases in other languages) can be appropriately used only if the NP referent is already a potential topic in the discourse at the time the phrase is used, i.e. the referent is contextually accessible.

In the major reference grammars of English, as for is described as a ‘resumptive’ topic marker: It is said to have “the meaning of ‘returning to the question of’” (Quirk et al. 1985: 706/7), and to “[indicate] a change of topic, typically to something that has been mentioned earlier” (Huddleston & Pullum 2002: 1371).
According to the descriptions provided above, *as for* is not an indicator of sub-informativity, but one of ‘topic resumption’ (and, hence, topic shift). However, there is a close relationship between this function and the one of contrastive topicality: *as for* is typically used in contexts in which a given ‘sub-topic’ is highlighted, e.g. in the second (or third etc.) member of a set of sub-informative sentences. For instance, (13) above would typically be used in a context in which the ‘scientific activities’ of ‘Smith’ are under discussion, i.e. there is a strategy rooted in a question like (16), with sub-questions like those in (17):

(16) *What news are there concerning Smith?*
(17) SQ1: *What news are there concerning the book he was writing?*
    SQ2: *What news are there concerning external funding?*
    etc.

Smith functions as a ‘discourse topic’, i.e. as an aboutness topic that controls a certain amount of discourse. Each of the sub-topics (his book, his projects, etc.) is therefore inherently given at the time it is taken up explicitly, i.e. each of these sub-topics is resumptive. An attested example is given in (18):

(18) *United nearly drew first blood, but they fell apart in the second half. Pompey cruised home with [3 goals]T. [The first ∅]ST1 was a real horror story for Oxford full-back, Les Robinson, who scored one of the own goals of the season. There was nothing United could do about [the second ∅]ST2; a great piece of football skill from Alan McLoughlin. [As for [the third ∅]ST3], well that possibly should have been stopped.* [BNC, spoken]

The main topic of this passage is the ‘three goals’ – a ‘topic of laziness’, which is then broken down into three sub-topics, i.e. each individual goal. The ‘root question’ of this strategy can be phrased as ‘What were the three goals like?’, and it is answered in terms of three assertions, each of which is sub-informative relative to the superordinate question. In the description of the three goals there is an (inherent) moment of ‘contrast’, and the third goal – which is introduced by *as for* – moreover contrasts with the other sub-topics in being the only one ‘that possibly should have been stopped’.

Even though *as for* is basically a ‘resumptive topic marker’, it thus stands in a particularly close relationship to sub-informativity, as topic resumption is typically found in contexts of sub-informativity. A number of similar (though not completely parallel) operators can be found in German (cf. Breul 2008). The most prominent one is probably *anbetrifft*. Like *as for*, it is basically a ‘resumptive topic marker’, but it is most typically used in combination with late-coming members of sets of contrastive topics or restrictors. The following example from the IDS-corpus illustrates this:


The main topic of this passage can be called ‘current trends in drapery’. This topic is delimited along two dimensions, i.e. ‘material’ and ‘design’. The first part of the paragraph in (19) (D1) deals with ‘material’, and the second (D2) with ‘design’. As in the English example in (18) above, the notions of ‘sub-informativity’ and ‘contrast’ are thus both recoverable, the only difference being that (18) provides an example of a set of ‘contrastive topics’ whereas in
it is two ‘restrictors’ that are contrasted with each other. Note that this is not a difference between English and German, or between *as for* and *was ... anbetrifft*, as is shown by the corresponding translations: The relevant part of (18) could be rendered in German as *was das dritte Tor anbetrifft*, and the second part of (19) could be introduced in English with *as for design*.

To conclude this section, sub-informativity is not lexicalized in either English or German, but topic resumption, which does have lexical correlates in both languages under comparison, is typically used in contexts of sub-informativity, since most resumptive topics are also partial topics. The relevant expressions of English and German seem to behave similarly, so we cannot identify any major contrasts in this domain.

6 Syntactic indicators of sub-informativity

6.1 Fronting in English

The syntactic operation of ‘fronting’ (or ‘preposing’) – i.e. of moving a non-subject constituent to a position preceding the subject – is sometimes regarded as a specialized syntactic indicator of contrastive topicality. For instance, Givon (2001: 263) provides the following examples of ‘contrastive topicalization’ (see also Gundel 1974: 133ff., who calls this operation ‘topic topicalization’):

(20) *I saw John there. Mary, I never saw ti.*
(21) *I gave it all to Mary. [To Joan], I gave nothing ti.* (Givón 2001: 263)

A wealth of examples of this type has been assembled by Birner & Ward (1998). A selection of these examples is given in (22)–(24).

(22) Customer: *Can I get a bagel?*
    Waitress: *No, sorry. We’re out of bagels. A bran muffin I can give you.*
    (Birner & Ward 1998: 33)
(23) *Humble they may be. But daft they ain’t.* (Birner & Ward 1998: 46)
(24) *I’ll have to introduce two principles. One I’m going to introduce now and one I’m going to introduce later.* (Birner & Ward 1998: 78)

All of the examples given above certainly fit our definition of ‘sub-informativity’ in (8). For instance, the sentence *Mary I never saw* is sub-informative insofar as it functions as an answer to the question *Did you see John and/or Mary?* It thus seems that fronting is indeed very closely associated with contrastive topicalization. However, just like the lexical marker *as for*, it cannot be regarded as a specialized expressive device for that function. The reason is that fronting is also possible with focal constituents, i.e. with constituents that are neither topics nor restrictors. This is illustrated in (25) and (26):

(25) *I had two really good friends. DAMON and JIMMY their names were.*
    (Hudleston & Pullum 2002: 1381)
(26) *Did you want tea? COFFEE I ordered.*
    (Hudleston & Pullum 2002: 1381)

(25) and (26) are not sub-informative under the definition given in (8). Rather than pointing to an open question in the discourse environment, these sentences make reference to a set of alternative assertions, which is the function of focus marking within the comment (cf. Rooth 1985).

As has been shown by Birner & Ward (1998), the main conditions that must be met for a constituent to be fronted is that this constituent must function as a ‘link’ between the sentence and the preceding discourse – in other words, it must be given or at least accessible – and that there must be a contrasting element in the discourse environment. Note that ‘contrast’
is to be interpreted rather broadly in this context. For instance, *anything you don’t eat* in (27) does not *prima facie* seem to imply any type of contrast:

(27) *Anything you don’t eat put back in the fridge.* (Huddleston & Pullum 2002: 1372)

However, an element of contrast is also recoverable in cases like (27). The sentence implies that some of the food *will* be eaten, so *anything you don’t eat* contrasts with *everything you do eat*. Therefore, the notion of sub-informativity is also recoverable in this case, as the sentence answers the (superordinate) question *What am I supposed to do with the food* only partially (note that the answer to one of the sub-question – the one about the food that *has* been eaten – is of course trivial: *Digest it!*).

As the preceding discussion has shown, fronting in English cannot be regarded as a grammatical device specialized to contrastive topicalization. However, given the two conditions on its use – that the fronted constituent must function as a link and that there must be an element of contrast – it comes as no surprise that fronting is *typically* found in instances of sub-informativity. In fact, cases like those in (25) and (26) (where a focus has been fronted) are very rare, and only a handful of such examples can be found in Birner & Ward (1998).

### 6.2 Movement to the Forefield in German

German does obviously not have a syntactic operation analogous to fronting. The verb-second structure of German main clauses precludes movement of an element to a position preceding the Forefield, and the Forefield itself is not associated with any particular discourse function. It may be taken by dummy subjects (cf. (28)), by cataphoric pronouns in extraposition structures (cf. (29)), by referential topics (cf. (30)) as well as by foci (cf. (31)):

(28) *Es regnet.*

(29) *Es, hat mich gefreut, [dass du gekommen bist].*

(30) A: *Was ist mit Thomas?*
   
   B: *[Er]TOP hat jetzt eine neue Freundin.*

(31) *Hast du gestern den Kanzler getroffen?*
   
   *Nein, [den Rektor]FOC habe ich getroffen.*

The traditional picture in the literature on German syntax is that the Forefield is taken by ‘given’ material, by constituents that function as a ‘link’ or by otherwise ‘prominent’ matter (cf. Lötscher 1984: 118). However, as is illustrated in (28) and (29), the Forefield can also host constituents that do not carry any specific information structural function, for instance expletives and specific types of adverbials. Moreover, in information structurally neutral sentences it is typically the subject that occupies the Forefield, without there being any particular pragmatic implications. Frey (2004, 2006) has therefore pointed out that a distinction needs to be made between those cases where a constituent occupies the Forefield basically because the grammar of German requires that this position must not be empty, and those cases where moving a given constituent to the Forefield triggers specific information structural effects (cf. also Fanselow 2002, 2004 and references cited there for related discussion). He calls the former type of movement ‘Formal Movement’ and the latter (true) ‘A’-movement’. In the case of Formal Movement, it is simply the highest element in the Middle Field that is moved to the Forefield. In most cases, this will be a subject, which is why sentences with subjects in the Forefield tend to be information structurally neutral. However, when a lower-level constituent is moved to the Forefield, this is information structurally meaningful. Such constituents are necessarily prosodically prominent (cf. also Féry 2008 for the phonological implications of movement to the Forefield). Mostly, this means that they contrast with another element (cf. Frey 2006), or that they are associated with some type of scalar implicature (cf. Frey 2008).

Even though a ‘contrast’ may not be easily recoverable in all cases of A’-movement, I will assume that A’-movement is typically associated with this function. Note that there
seems to be a correlation between the depth of embedding and the degree of contrast attributed to the relevant constituents, insofar as the lower a constituent in the Middle Field is embedded, the stronger the perceived contrast will be. For instance, the degree of contrast associated with the constituent occupying the Forefield increases from a.–d. in the following set of examples:

(32)  a. Karl, hat t, gestern seinem Sohn ein Fahrrad gekauft.  
     b. Gestern, hat Karl t, seinem Sohn ein Fahrrad gekauft.  
     c. [Seinem Sohn], hat Karl gestern t, ein Fahrrad gekauft.  
     d. [Ein Fahrrad], hat Karl gestern seinem Sohn t, gekauft.

The sensation of contrast is even stronger when an element from a lower clause is moved to the Forefield (‘long movement’):

(33)  [Den Karl], behauptete er, t, gesehen zu haben.

Moreover, there is a certain correlation between the length of the fronted constituent and the perceived degree of contrast. VP-fronting is typically (though not necessarily) contrastive and is often found in instances of sub-informativity, as is illustrated in (34):

(34)  A: Hat Karl seinem Sohn die Haare geschnitten und dann ein Fahrrad gekauft?
     B: [Die Haare geschnitten], hat er ihm nicht t, (ein Fahrrad gekauft hat er ihm schon).

The idea of a syntactic movement operation in German that is specialized to ‘contrast’ can also be found in Krifka (1998), who assumes that ‘Spec-CP movement’ of a focused phrase results in ‘contrastive topicalization’ (remember that contrastive topics are regarded as topics that carry a focus feature and are thus associated with a set of alternative values). This point of view is certainly compatible with the proposal made by Frey (2004, 2006).

If there is in fact a categorical difference between two types of movement to the Forefield – ‘Formal Movement’ and (true) A’-movement – we can assume that German has a syntactic operation that is specialized to the notion of ‘contrast’. Quite obviously, however, this operation is, once again, not specialized to sub-informativity, as it may apply to topics as well as to foci. However, the same prototypicality effect that we observed in the case of fronting in English can also be recovered in German. Given that the Forefield is typically taken by given or at least accessible constituents, and given that such constituents tend to be topical rather than focal, ‘A’-movement’ can be regarded as an operation that typically applies to contrastive topics, which combine the properties of givenness and contrast.

It should be borne in mind, however, that syntactic movement operations like those described in this section are usually accompanied by specific prosodic contours, and that it is, in most cases, primarily these contours that are responsible for notions such as ‘contrast’, ‘topicality’, ‘focality’, etc. and, therefore, for the encoding of ‘sub-informativity’. This takes us to the third and, in the present context, most important set of expressive devices, i.e. the prosodic ones.

7 Prosodic indicators of sub-informativity

Prosody takes up a particularly central position in the present context not only because the relevant expressive devices are ubiquitous and usually accompany other (lexical, syntactic) devices, but also because there is a relatively clear-cut contrast between English and German, which can be summarized as follows:

There are differences in the level of generality at which sub-informativity is prosodically marked as such: English treats it on a par with other instances of the more general phenomenon of ‘partiality’, whereas German has an intonational contour (the ‘hat contour’) which is specialized to one type of sub-informativity, i.e. context-changing sub-informativity.
In what follows we will deal with the ‘fall-rise accent’ of English and the aforementioned German ‘hat contour’, both of which have been extensively discussed in the relevant literature. We will start with the former accent in Section 7.1 and turn to the latter in Section 7.2. The contrasts between English and German will be summarized in Section 7.3.

7.1 English: The fall-rise accent

Since Jackendoff (1972), it has been widely assumed that English has a specialized contour for the expression of contrastive topics, i.e. a contour that Jackendoff calls ‘B-accent’ (referring to Bolinger 1958, who does, however, not use the term ‘B-accent’ for contours of this type). Its use is exemplified in (35), and the intonational contour is illustrated in Diagram 4 (from Liberman & Pierrehumbert 1984: 168).

(35) A: Who came with whom?
   B: √Anna came with ∨Manny.

Bolinger himself introduces a profile that he calls ‘AC’ (as it is a combination of the A-profile and the C-profile) and notes that “AC becomes a pretty good theme-marker regardless of position” (Bolinger 1986: 321). He provides the examples in (36), where Cynthia is a theme both in initial (cf. (36)a.) and final position (cf. (36)b.):

(36) a. Cynthia they adored

Similarly, Steedman (1991) regards “the tune L+H* LH%” – which (more or less) corresponds to Jackendoff’s ‘B-accent’ and Bolinger’s (1986) ‘AC-profile’ – as a topic marker. He furthermore points out that this tune requires an element of ‘emphasis’ or ‘contrast’ (cf. also Steedman 2000):

It seems as if at least one function of the tune L+H* LH% is to mark a constituent whose translation corresponds to the open proposition in the question. It may thus be

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9 A contrastive study of the fall-rise accent in English can also be found in Hetland (2008), who compares this accent with the Korean particle nun.
thought of as marking WHAT THE SENTENCE IS ABOUT... However, the tune does something more. The presence of a pitch accent also marks some or all of the open proposition as emphasized or contrasted with something mentioned or regarded by the speaker as implicated by the previous discourse and/or context. (Steedman 1991: 275)

Steedman refers to the classic Jackendoff example and represents it as shown in (37), where the beans, though occupying a sentence final position, functions as a theme:

(37)  Q: Well, what about the **BEANS**? Who ate THEM?
    A: (Fred) (ate the **BE.ANS**)  
    H*L  L + H* LH%
    (Steedman 1991: 274)

Tunes such as Jackendoff’s (1970) ‘B-accent’, Bolinger’s (1986) ‘AC-profile’ and Steedman’s (1991, 2000) ‘tune L+H* LH%’ are often summarized under the label ‘fall-rise accent’ (or equivalent terms) in the British school of intonation (e.g. Cruttenden 1986, Wells 2006; see Ward & Hirschberg 1985: 249 for further notational variants of this and similar contours). However, a note of caution is appropriate when postulating correspondences between the ‘contours’, ‘tunes’, ‘tones’, etc. assumed by the various prosodic theories. Given the differences in the modelling of the mapping from suprasegmental elements to segmental ones, a one-to-one correspondence between any one pair of prosodic patterns from different theories is hardly conceivable. Moreover, there are some obvious terminological divergences that are independent of theoretical background assumptions. For instance, the ‘fall-rise accent’ of the British school can be described as shown in (38) (cf. Wells 2006: 23). This contour is (basically) equivalent to the three tunes mentioned above (though it lacks an initial L-tone; cf. below):

(38)  the fall-rise accent of the British school

\[/\text{Mine}\]

By contrast, Ward & Hirschberg (1985) use the term ‘fall-rise accent’ for contours of the form L*+HLH%, which differ from Steedman’s (1991) L+H* LH% tune in having primary stress on the initial L-tone. It can be illustrated as in (39), using the type of representation found in Pierrehumbert & Hirschberg (1990: 281):

(39)  Ward & Hirschberg’s (1985) ‘fall-rise accent’

\[L^*+H  L  H%\]

Ward & Hirschberg point out that Bolinger’s ‘AC-profile’ does not correspond to the tune shown in (39) (and, hence, not to their ‘fall-rise accent’), but rather to the one in (40), i.e. to Bolinger’s (1958) ‘A-rise contour’:

(40)  Ward & Hirschberg’s (1985) ‘A-rise contour’

\[L+H^*  L  H%\]

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10 D. Bolinger, in turn, disagrees on this point: “Bolinger (p.c.) identifies an ‘AC contour’ he believes is the same as our FR [fall-rise]” (Ward & Hirschberg 1985: 750).
Even though Ward & Hirschberg (1985: 752) claim that there is not only a phonetic but also a functional difference between their ‘fall-rise accent’ and the ‘A-rise contour’, it is pointed out by Hirschberg & Pierrehumbert (1990) that the tunes share certain phonological characteristics, and “[t]unes that share certain tonal features seem intuitively to share some aspects of meaning. For example, tunes such as L* + H L H%, H* L H%, and L + H* L H% that share a L phrase accent and a H boundary tone share also a sense that the current utterance will be completed by a subsequent utterance (Hirschberg and Pierrehumbert 1986)” (Pierrehumbert & Hirschberg 1990: 285).

Given that fine-grained differentiations such as those made by Ward & Hirschberg (1985) and Pierrehumbert & Hirschberg (1990) are very difficult to pin down, esp. when it comes to semantic or pragmatic interpretation, I will adopt a broader definition of the ‘fall-rise accent’ than Ward & Hirschberg (1985), abstracting away from the exact position of the position of primary stress. The term ‘fall-rise accent’ is thus used precisely for the family of contours pointed out in the quotation from Hirschberg & Pierrehumbert (1990) given above and thus comprises contours of the form given in (41)a. A diagrammatic representation in the style of Hirschberg & Pierrehumbert (1990) is given in (41)b., where the bold dotted line indicates a potential pitch accent, which may be either on the low tone (L) or on the high tone (H), or somewhere in between. The rise leading to the first H tone is moreover optional, which is here indicated by parentheses:

(41)  
\[
\begin{align*}
\text{a. the fall-rise accent as defined in this study} \\
\{L, L^*\}H(*)LH% \\
\text{b. diagrammatic representation} \\
\end{align*}
\]

Having delimited the term ‘fall-rise accent’ we can now return to a characterization of this pattern in terms of common ground management. All of the examples given above (i.e. (35)–(37)) match the semantic/pragmatic analysis of Büring (1994, 1997, 2003). However, as becomes apparent from the vast literature on the fall-rise accent (cf. Ward & Hirschberg 1985: 751 for a survey), sub-informativity is not the only function of this accent (cf. also the quantitative study by Hedberg & Sosa 2008). For instance, the fall-rise accent is also used with sentence-initial adverbials, with a relatively neutral function (though it is perhaps more emphatic than a plain rising accent). The following examples have been taken from Tench’s (1996) descriptive study of English prosody (tunes from the family of ‘fall-rise accents’ will be indicated by ‘\’’ in the following):

(42)  \textit{Unfortunately, \ they can’t} \textit{\ make it.} \\
(43)  \textit{Unfortunately, \ he can’t} \textit{\ make it.} \\
(44)  \textit{He can’t \ make it, \ unfortunately.} \\
(45)  
\begin{align*}
\textit{a. In the \kitchen \ you’ll find a surprise.} \\
\textit{b. In the \kitchen \ you’ll find a surprise.} (Tench 1996: 83) \\
\end{align*}

The examples in (42)–(44) differ in terms of the ‘weight’ or ‘importance’ that is attributed to the adverbial \textit{unfortunately}. With respect to the two examples in (45), Tench remarks:

\[(45)\text{a.}\] and [(45)b.] represent a typical case of marked theme ..., but whereas the rise in [(45)a.] merely leads on to the major information, the fall-rise in [(45)b.] highlights the theme itself. (Tench 1996: 83)
The fall-rise accent can also be used as a sole sentence accent. In that case it expresses some kind of ‘reservation’, as in (46)–(48):

(46) *It’s */cheap.* (reservation: ‘but that’s not the only thing that’s true about it’)
(47) *It */looks expensive.* (reservation: ‘but is it really?’)
(48) */Well...* (well is meaningless; speaker signals that information is missing)

Tench (1996: 84) comments on these example as follows:

It is generally agreed that such uses of the fall-rise indicate some kind of **implication**.

Halliday once glossed the meaning as ‘there is a *but* about it’... [emphasis original]

The feeling of an ‘implication’ as stated by Tench (cf. also Wells 2006) has also been called ‘incompleteness’, ‘up-in-the-airness’ (Bolinger) and ‘uncertainty as to the relevance of a speaker’s contribution’ (Ward & Hirschberg 1985). In the following, I will use the term ‘partiality’ to characterize the type of implicature triggered by the fall-rise accent. Note that the notion of ‘uncertainty as to the relevance of a speaker’s contribution’ (Ward & Hirschberg 1985) can also be regarded as an instance of ‘partiality’, as it implies a weakening of the illocutionary force, thus making the assertion ‘partial’, as far as the epistemic value of the speech act is concerned.

The assumption that the fall-rise accent is used to indicate ‘partiality’ can easily explain why it tends to be used in combination with contrastive topics. In the present study, ‘contrastive topicality’ has been defined in terms of the relation of ‘sub-informativity’: the speaker signals that s/he is aware that there are open questions (in the strategy at issue). In fact, the fall-rise accent can be used with each one of the three types of sub-informativity distinguished above. It is used with distributed foci (cf. (49)), with context-preserving topics (cf. (50)) and with context-changing topics (cf. (51)).

(49) Distributed focus sentences
   A: *Who ate what?*
   B: */Fred ate the */beans...*

(50) Context-preserving topics
   A: *What do your parents do?*
   B: */My */father works on a */freight ship...*

(51) Context-changing topics
   A: *What is your daughter doing?*
   B: */My */younger daughter studies */medicine...*

It is important to note that ‘sub-informativity’ as defined in (8) above is just one instance of the more general notion of ‘partiality’, with other instantiations of this notion being the triggering of (unspoken) implications or implicatures (cf. (46)–(48) above; see also Wells 2006: 27–29 for a number of illuminating examples). Note furthermore that the fall-rise accent can also be used on foci (within the comment), as in the following example from Hedberg & Sosa (2008: 118):

(52) ... and I, frankly, think this guy is pretty attractive. I don’t find him unattractive.

As the preceding discussion has shown, the information structural category of sub-informativity does not have a direct prosodic correlate in English. As will be argued in the next section, this is different in German, where a rather specific contour is used for a rather specific information structural function.

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Note that there is an important difference between the three instances of sub-informativity: Only in context-changing topics (as in (51)) is the fall-rise accent obligatory. In (49) and (50) a different type of intonation is also possible.
7.2 The distribution of the hat contour


Jacobs (1995) … points out that the intonational contour involved should … be described as a slight fall followed by a rise on the first accent, and a fall on the second. He symbolizes these two accents by √ and \, and calls it “root contour”. This seems to be indeed the intonational target, although the first accent can be realized by /, especially in allegro speech. (Krifka 1998, fn. 9)

In the notation of Pierrumbert (1980), the hat contour can be represented as L*H H*L. It is illustrated in (53):

(53) the ‘hat contour’

\[
\text{L*+H} \quad \text{H*+L}
\]

It should be noted that the identification of the (phonological) hat pattern is not always straightforward, as this pattern is prosodically rather complex and tends to be simplified (as pointed out by Krifka), in particular, by replacing the ‘root accent’ with a simple rising accent (cf. also Jacobs 1997: 93). The resulting ‘simplified’ hat contour is phonetically very similar to the combination of a simple rising or high tone and a later (falling) focus accent, with the pitch remaining at a high level between the two accents. This contour – which we could call a ‘fake hat contour’ – is described by Féry (1993) (who calls it ‘hat contour 1’) as follows:

...a sequence of two completely linked pitch accents, the first of which is a high prenuclear pitch accent (H*) which is derived from an underlying H*L. The second is a falling (H*L) nuclear tone ... The voice remains (or can remain) on a high level between the two pitch accents ... (Féry 1993: 149–50)

The combination of a pre-nuclear pitch accent and a falling nuclear tone as described by Féry (1993) (cf. (54)) clearly differs from the ‘genuine’ hat contour in not allowing the use of a clearly articulated ‘root accent’ instead of the first (rising or high) tone. An example of the ‘fake hat pattern’, where the corresponding ‘genuine’ hat pattern is inappropriate, is given in (55).

(54) the ‘fake hat pattern’ (Féry’s 1993 ‘hat contour 1’

\[
\text{H*} \quad \text{H*+L}
\]

(55) a. H* H*L

/Bald ist sie /da,
soon is she here
‘She’ll be here soon.’

Uhmann (1991: 252–253) does not use the term ‘hat contour’ but regards L*+H as a contrastive topic accent.
As a criterion for the identification of the ‘genuine’ hat pattern we will use substitutibility: A hat contour is assumed to be present phonologically only if the first accent of the pattern can be realized as a fully fledged ‘root accent’ as shown in (53).

As far as the distribution of the hat pattern is concerned, there is agreement in the relevant literature that it is restricted to a relatively well defined set of contexts, i.e. to cases of ‘contrastive topicality’ (‘i-topicalization’ in Jacobs’ terms) or, in terms of the present paper, to instances of ‘sub-informativity’. As will be argued below, it is in fact restricted to one specific type of sub-informativity.

We will consider its distribution by comparing it to the English fall-rise accent. Unlike the fall-rise accent, the hat pattern cannot simply be used on sentence-initial adverbials (cf. (56)), nor is it normally used as a sole sentence accent (cf. (57)).

(56) Unglücklicherweise kann er nun doch nicht kommen.
‘Unfortunately, he can’t come.’

(57) Na ja...
‘Well...’

Accordingly, the hat contour cannot be regarded as a general indicator of ‘partiality’ or ‘uncertainty’. Even among instances of sub-informativity, its distribution is severely restricted. Note first that the hat contour is inappropriate with distributed foci, a point also made by Jacobs (1997). Consider (58):

(58) Wer hat wie auf das Buch reagiert?
‘How did who react to the book?’

a. /Löffler hat es empfohlen, /Karasek hat es verriissen.
b. #/Löffler hat es empfohlen, /Karasek hat es verriissen.

Löffler recommended it, Karasek trashed it. (Jacobs 1997: 99)

Jacobs (1997: 99) points out that “the b-version is at least unusual; it is associated with additional pragmatic components of meaning” [my translation]. More commonly, the question in (58) would be answered without a root accent, e.g. as shown in (58)a. above or as in (59):

(59) a. /Löffler hat es empfohlen, /Karasek verriissen.
b. /Löffler hat es empfohlen, /Karasek hat es verriissen.

We may add that the original Jackendoff examples (which are instances of ‘focus-related sub-informativity’ as well) also sound awkward (or ‘hyper-informative’) when translated into German and pronounced with a hat contour (cf. (60)). Possible intonations are given in (61).

(60) A: Nun, was ist mit Fritz? Was hat er gegessen?
B: #/Fritz hat die /Bohnen gegessen:

(61) B': Fritz hat die /Bohnen gegessen.
B'': /Fritz hat die /Bohnen gegessen.

Furthermore, the hat contour is also inappropriate in instances of what we have called ‘context-preserving sub-informativity’. Therefore, it would not normally be used in an answer to the question in (62)a. (cf. Krifka 1998):

Note that (57) is probably better than (56), but a boundary signal such as Engl. \well would usually be rendered with a long falling tone in German. There is probably significant idiolectal variation, however.
What about Maria and Hans. What did they read?

a. Maria hat den Schatz im Silbersee gelesen
   Maria has the treasure in the Silver Lake read

   und Hans den Winnetou.
   and Hans the Winnetou.

b. ??Maria hat den Schatz im Silbersee gelesen
   Maria has the treasure in the Silver Lake read

   und Hans den Winnetou.
   and Hans the Winnetou.

   ‘Mary read The Treasure of the Silver Lake, and John Winnetou.’

Krifka (1998: 85) remarks: ‘This sentence [(62)b.] is bad, presumably because it does not satisfy Büring’s criterion – that there must be alternatives for the contrastive topic for which the truth value of the sentence is still disputable’.

The only type of sub-informativity where the hat contour sounds impeccable is the one of ‘context-changing sub-informativity’. A relevant example is given in (63):

(63) A: Was macht deine Tochter?
   B: Meine jüngere Tochter studiert Medizin...
   my younger daughter studies medicine...

In (63), speaker B ‘inserts’ a ‘move’ into the strategy (the question What does your younger daughter do?), thus modifying the context, and the higher-level question is accordingly split up into two sub-questions, introducing a new topic in the process. This is not the only type of ‘context-changing sub-informativity’ where the hat contour can be used. It is also appropriate when a speaker refuses to provide information about one of the sub-topics introduced by the other interlocutor, thus ‘removing’ a move from the strategy. Consider (64):

(64) A: What novels by Karl May did Hans and Maria read?
   B: Maria hat den Schatz im Silbersee gelesen.
   Maria has the treasure in the Silver Lake read

With a falling accent at the end of the sentence, the speaker indicates that s/he is not in a position, or not willing, to provide any information about Hans. Thus, one of the two sub-questions raised by A – What did Hans read? – is simply removed from the strategy. Note that the hat contour is not only appropriate in this type of context, but virtually obligatory.

So far we have considered two instances of ‘context-changing sub-informativity’: one case in which a move is inserted into a strategy (‘move insertion’), and one case in which a move is removed (‘move deletion’). In a third type of context, ‘move insertion’ as in (63) and ‘move deletion’ as in (64) are combined, and the sole topic of the original strategy is shifted to a new one, which is metonymically related to the first. This is illustrated in (65):

(65) (at a party)
   A: Hast du Karl schon gesehen?
   B: Seine Frau habe ich schon gesehen.
   his wife have I already seen
   ‘I’ve seen his wife.’

While the question ‘Have you seen Karl?’ is removed from the strategy, the question ‘Have you seen Karl’s wife’ is inserted by speaker B. This operation, which is obviously intended to trigger conversational implicatures, can be called ‘metonymical topic shift’, as information

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14 Krifka’s explanation for the infelicity of (62)b. differs slightly from mine. According to Krifka, the main reason is that the criterion of ‘disputability’ is not met, whereas in my own explanation it is the aspect of ‘context modification’ that is relevant.
about the topic itself is not provided, but information about an entity standing in a particular (metonymical) relationship to the topic.

Finally, we may note that the hat contour can also be used in combination with two types of topics pointed out by Büring (1997), i.e. contrastive topics that are not sub-topics but that are simply taken from the discourse environment (e.g. the speaker, cf. (66)), and ‘purely implicational topics’, which trigger conversational or even conventional implicatures (cf. (67)).

(66)  A: Glaubst du, Fritz würde diesen Anzug kaufen?
B: Also ich würde ihn sicher nicht kaufen.

(67)  A: Hat deine Frau andere Männer geküsst?
B: Meine Frau küssst keine anderen Männer.

Both of these conversations are characterized by the type of common ground modification that we have subsumed under the notion ‘context-changing sub-informativity’.

7.3 Contrasts between English and German

As has been seen, both English and German have contours that are used in contexts of ‘sub-informativity’, but at different levels of generality: the English fall-rise accent is a general marker of ‘partiality’, and therefore covers ‘sub-informativity’ as defined in this paper as one of its functions, whereas the German hat contour is a rather specific marker of ‘context-changing sub-informativity’. This is illustrated in Diagram 5:

![Diagram 5: Types of sub-informativity and prosodic marking in English and German](image-url)

Diagram 5 also captures another generalization that has emerged in the course of the discussion. As has been seen, ‘context-changing sub-informativity’ is the only context in which the German hat contour is appropriate. This type of context also plays an important role in English, as it is the only context where the fall-rise accent is obligatory (to the extent that obligatoriness exists at all in the domain of prosody). All other instances of sub-informativity, as well as the more general notion of ‘partiality’, can also be indicated by other intonational patterns (e.g. a simple rising accent followed by a falling focus accent). The obligatoriness of using a fall-rise accent in English was illustrated in (12) above, which is here repeated in (68).
Omitting the fall-rise accent on my older daughter would be rather unusual here, though it is less compelling on the second.

(68) A: What does your daughter do?
   B: [My older daughter]CT studies law, [my younger daughter]CT studies history.

Another important contrast between English and German concerns the phonological properties of the two contours. While the fall-rise accent in English is not fixed with regard to its position relative to the focus accent, the components of the hat contour cannot change places. The ‘versatility’ of the English pattern was pointed out, among others, by Bolinger (1986) with respect to the example in (69) (cf. (36) above):

(69) a. /Cynthia they adored.
   b. They adored /Cynthia.

The German example in (70) does not allow such a change of position:

(70) Was macht eigentlich deine Tochter?
   a. Meine jüngere Tochter studiert Medizin …
   b. #Medizin studiert meine jüngere Tochter …

What this illustrates is that the hat pattern is a ‘holistic’ pattern whereas the corresponding English sentences are made up of two independent accents, i.e. a fall-rise and a falling focus accent, each of them associated with specific information structural functions.

8 Conclusions

We have considered three types of expressive devices relating to sub-informativity as defined in (8) above: lexical devices, syntactic devices and prosodic devices. Among the lexical devices, we have identified markers of ‘topic resumption’ as the most relevant expressions in the present context. These markers tend to be used in contexts of sub-informativity, as resumptive topics are typically ‘partial topics’ as well. Given that English as for and German was ... anbetrifft and similar expressions seem to behave basically alike, no major contrasts have been identified in this domain. As far as the syntactic devices are concerned, English has an operation of ‘fronting’ whose distribution is governed by two conditions, i.e. ‘givenness’ and ‘contrast’ (cf. Birner & Ward 1998). Since given constituents are typically topical, fronted constituents are often contrastive topics. As far as German is concerned, we have followed Frey (2004, 2006) in assuming that a specific type of movement to the Forefield is associated with ‘contrast’ or at least ‘prosodic prominence’ as well (A’-movement; remember that Frey 2008 has revised this analysis by claiming that A’-movement indicates a scalar implicature rather than contrast). Again, the situation is similar to the one found in English: Constituents (other than subjects) that are moved to the Forefield tend to be given, and as contrast is a prominent (though perhaps not necessary) condition licensing this syntactic operation, A’-movement is, again, typically (though not necessarily) associated with contrastive topics. The only difference between English and German in this domain concerns the fact that the operation of fronting is more easily identifiable than the one of A’-movement, which requires a certain amount of theoretical background assumptions, and the discourse pragmatic restrictions are probably more rigid in English than in German. Finally, a clearer contrast has been identified in the prosodic domain: While German has a contour specialized to one type of sub-informativity – ‘context-changing sub-informativity’, which is indicated by the hat contour – English uses a much more general contour – the fall-rise accent – which is best characterized in terms of the notions of ‘partiality’ and ‘uncertainty’, and which is found in many other contexts as well.

I would like to conclude with a methodological note. The discussion of the expressive devices investigated in the present paper has largely been based on claims made in relevant
publications. Most if not all of these publications rely on intuition and introspection, and the
question arises how phenomena like those investigated in this paper could be studied in a
more objective way, and how they could be put on a more solid empirical basis. Ideally, we
would need a phonologically annotated parallel corpus for such an undertaking. Such corpora
are not available at present, but they are certainly an indispensable condition for more
thoroughgoing investigations of matters of information structure and prosody. This is only
one of the methodological challenges that need to be tackled in the future if contrastive
information structure analysis is to become a well-established and fertile branch of
comparative linguistics.

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