

## Contrastive topics decomposed\*

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**Abstract** The analysis of contrastive topics introduced in Büring 1997b and further developed in Büring 2003 relies on distinguishing two types of constituents that introduce alternatives: the sentence focus, which is marked by a FOC feature, and the contrastive topic, which is marked by a CT feature. A non-compositional rule of interpretation that refers to these features is used to derive a topic semantic value, a nested set of sets of propositions. This paper presents evidence for a correlation between the restrictive syntax of nested focus operators and the syntax of contrastive topics, a correlation which is unexpected under this analysis. A compositional analysis is proposed that only makes use of the flatter focus semantic values introduced by focus operators. The analysis aims at integrating insights from the original analysis while at the same time capturing the observed syntactic restrictions.

**Keywords:** contrastive topics, focus, alternatives, scope, intonation, prosody

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## 1 Contrastive topics

In the analysis of [Büring 1997b](#), contrastive topics are identified by the contexts they occur in, by the implicatures that accompany them, and also by their intonational correlates. One typical use of contrastive identified in [Büring 1997b](#): pp. 55-56 is that of a contrastive ‘aboutness topic’. This is the use of a contrastive topic in a response that addresses the immediate question under discussion and completely resolves it, but in addition, a contrastive topic is employed to invoke a set of additional questions that form part of a greater super-question that is salient in the context:

- (1) A: John ate the spinach.  
 B: What about Fred? What did he eat?  
 A: Fred            ate the beans .  
      LH\* L- H%            H\*    L- L%

The response of speaker A resolves the question under discussion introduced by speaker B, while also acknowledging the fact that this question is part of the larger question that seems to be at issue given A’s first statement, in this case the question *Who ate what?* The analyses in [Büring 1997b](#) and [Büring 2003](#) make use of the alternatives theory of sentential focus ([Rooth 1992](#)), in which a focused constituent evokes contrasting alternatives that serve to form a set of alternative propositions, the ‘focus semantic value’. In this theory, the focus semantic value has to be congruent with the question under discussion. The analysis of contrastive topics extends this analysis, and analyzes contrastive topics as evoking a further set of alternatives that serve to turn the question provided by the focus semantic value into a set of contrasting questions, the ‘topic semantic value’.

Which constituent acts as a contrastive topic and which as a sentence focus is taken to be reflected in their intonation: [Büring \(1997b, 2003\)](#), following [Jackendoff \(1972\)](#), characterizes CTs in English as constituents marked by background accents, or ‘B-Accents’. In ToBI notation they are usually transcribed as L+H\* pitch accents which are followed by a L- H% boundary. Foci are typically H\* pitch accents, followed by a L- L% boundary if the FOC constituent is the last accented constituent in a declarative sentence. Contrastive topics are often assumed to occur in an intonational phrase of their own. In the following, I use a simplified notation: the relevant accented words are in SMALL CAPS, and the fall-rise following a contrastive topic is marked by ‘V’. Some other ingredients of the intonational contour are not

marked: for example, the final fall following a focus accent that is part of a declarative contour. The notation is illustrated in the following examples of answers to pair-list questions, which constitute another typical use of contrastive topics (cf. Büring 2003, van Hoof 2003):

- (2) A: Who ate what?  
 B: FRED<sub>CT</sub> ∨ ate the BEANS<sub>FOC</sub> and MARY<sub>CT</sub> ∨ ate the SPINACH<sub>FOC</sub>.

Büring (2003: p. 519) provides an explicit procedure for how to obtain the topic semantic value for a sentence containing a CT- and a FOC-marked constituent, in which first the FOC marked constituent is replaced by a variable which is varied over a set of alternatives to create a set of propositions, the focus semantics value, following Rooth 1992. This set of propositions has to be compatible (in ways that are made more explicit in the paper) with the question under discussion:

- (3)  $\llbracket \text{FRED}_{\text{CT}} \vee \text{ate the BEANS}_{\text{FOC}} \rrbracket^{\text{F}} = \{\text{Fred ate } \mathcal{Y} \mid \mathcal{Y} \in D_e\}$

In a second step, a set of questions is formed from questions of the same shape that differ only in that alternatives are inserted for the contrastive topic:

- (4)  $\llbracket \text{FRED}_{\text{CT}} \vee \text{ate the BEANS}_{\text{FOC}} \rrbracket^{\text{CT}} = \{\{\mathcal{X} \text{ ate } \mathcal{Y} \mid \mathcal{Y} \in D_e\} \mid \mathcal{X} \in D_e\}$

The topic semantic value of the answer in (1) would then correspond to the set  $\{\text{What did Fred eat?}, \text{What did Hans eat?}, \text{What did Jane eat?}, \dots\}$ . Contrastive topics are claimed to come with a pragmatic implicature, the ‘disputability implicature’, according to which there must still be an open (or disputable) question in the topic’s semantics value after the assertion has been added to the common ground.

This non-compositional two-step procedure predicts a free distribution of CT and FOC throughout the sentence. There is no reason why one should stand in a scopal relationship to the other. This paper presents evidence that this prediction is incorrect: the syntactic distribution of contrastive topics is very restricted. The generalization proposed in this paper is that contrastive topics have to outscope the focus. This generalization suggests that a compositional analysis of contrastive topics is needed, one in which one focus-sensitive operator outscoops another. It is the constituent that associates with the operator taking wider scope that we call a contrastive topic, and it is the constituent that associates with the operator taking narrow

scope that we call the sentence focus. Across languages, the prediction is that the syntax of sentences involving a contrastive topic and a focus should mirror that of sentences involving two nested overt focus operators that stand in the same syntactic configuration with each other.

The remainder of the paper is structured as follows: the second section presents evidence for the cross-linguistic correlation between the syntax of contrastive topics and the syntax of nested overt focus operators. The third section provides a compositional analysis based on the idea that contrastive topic constructions involve recursively nested focus operators.

While a compositional analysis deriving a semantics for contrastive topics involving a nested topic semantic value as in in [Büring 1997b](#) and [Büring 2003](#) is conceivable (see [Büring 2008](#) for some ideas along those lines), the analysis presented here makes use of the simpler focus semantic value only. It can explain the observed distribution of contrastive topics, and also explain other distributional patterns that seem surprising under the alternative analysis involving a topic semantic value. The last part of the paper, finally, explores how the compositional analysis fares in accounting for the well-known effects of contrastive topics on scope, which are closely tied to their pragmatic import.

## 2 Nested focus operators and contrastive topics

When multiple focus operators occur within a single sentence, they can stand in various scope relations to each other, and to their respective associates. [Krifka \(1992: p. 24\)](#) identifies the following five configurations for multiple focus constructions:

- (5) a. John only<sub>1</sub> introduced BILL<sub>F1</sub> to SUE<sub>F1</sub>.
- b. Even<sub>1</sub> JOHN<sub>F1</sub> drank only<sub>2</sub> WATER<sub>F2</sub>.
- c. John even<sub>1</sub> [only<sub>2</sub> drank WATER<sub>F2</sub>]<sub>F1</sub>.
- d. John even<sub>1</sub> only<sub>1</sub> drank [WATER<sub>F2</sub>]<sub>F1</sub>.
- e. John even<sub>1</sub> drank ONLY<sub>2,F1</sub> WATER<sub>F2</sub>.

Suppose that a sentence can include two separate unpronounced focus-sensitive operators, then these might well occur in any or all of these configurations. Here, I will explore the hypothesis that the configuration relevant for contrastive topics as they are discussed in the literature is (5b), and that contrastive topics are the associate of the focus operator that takes wider scope.<sup>1</sup>

<sup>1</sup> Some earlier arguments against a multiple focus analysis of contrastive topics provided

Let's consider the overt focus operators *only* and *even*. I will assume that a sentence including *only* presupposes the prejacent (i.e., the proposition of the clause over which *only* takes scope) and excludes all alternatives to this proposition that are not already entailed by this presupposition (cf. Horn 1969, von Stechow 1999). The alternative set it operates over are generated by substituting the associate of *only* with alternatives:<sup>2</sup>

- (6) Only John read Moby Dick.
- a. *Presupposed*: John read Moby Dick.
  - b. *Asserted*: For all  $x$  such that  $x$  read Moby Dick,  
John read Moby Dick  $\rightarrow x$  read Moby Dick.

We can analyze *only* syntactically as a focus operator that takes two syntactic arguments, a focus constituent, in this case *John*, and an open proposition, in this case  $\lambda x. x$  read Moby Dick.<sup>3</sup>

A second focus operator we will consider here is *even*. *Even* can be given a syntactic analysis similar to that of *only*, taking two arguments, a focus constituent and an open proposition. In this case, the overall meaning of the sentence is to assert the prejacent and presuppose or conventionally implicate that there are true alternatives, but that the prejacent is the least likely among the true alternatives (cf. Karttunen & Peters 1979: pp. 25-26):

- (7) Even John read Moby Dick.
- a. *Asserted*: John read Moby Dick.
  - b. *Conventional Implicature of even*:
    - (i) There are other  $x$  under consideration besides John such that  $x$  read Moby Dick.
    - (ii) For all  $x$  besides John, the likelihood of  $x$  reading Moby Dick is greater than or equal to the likelihood of John reading Moby Dick.

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evidence against treating them as two foci bound by *a single* operator, as in (5b). This is arguably the case in Büring 1997b and Neeleman & van de Koot 2008. See van Hoof 2003 for some discussion of Büring's (1997) original arguments against an analysis in terms of multiple foci.

<sup>2</sup> See Beaver & Clark 2008 for a discussion of problems with this analysis of *only*. The precise analysis of the semantics of *only* is not crucial for the following discussion.

<sup>3</sup> McCawley (1993) already provides such a syntactic analysis of *only* in terms of its scope and focus assuming quantifier lowering, and Wagner (2006) provides an analysis within a theory of syntax that makes use of LF-movement instead.

Here's an example in which both focus operators appear in one sentence:

- (8) The exam was way too difficult.
- a. Even the BEST student only solved ONE PROBLEM.
  - b. Even the BEST student solved only ONE PROBLEM.

The sentence involves two foci which evoke alternative sets: The constituent *one problem* evokes the alternatives {one problem, two problems, ... all problems}, and the constituent *the best student* evokes the alternatives {the best student, the second best student, ...}. Remember that the associate of *even* has to express the alternative that is least likely. In order for the likelihoods in the evaluation of *even* to come out correctly in the present example, *only* has to be part of all the alternatives considered for *even*, in other words *even* has to outscope *only*:

- (9) a. *Scale with Increasing Likelihood* (alternatives include *only*):  
 {The best student only solved one problem,  
 The second best student only solved one problem, ... }  
 b. *Scale with Decreasing Likelihood* (alternatives exclude *only*):  
 {The best student solved one problem,  
 The second best student solved one problem, ... }

Without *only*, the sentence is infelicitous, since that the best student solves the problem would be the most likely alternative, and this is incompatible with the contribution of *even*:

- (10) #Even the BEST student solved a problem.

*Even* thus outscores *only* in (8). The alternatives considered for its interpretation all contain the operator *only*.<sup>4</sup> An example requiring the inverse scope is the following:

- (11) Overall, everyone did pretty well on the exam and was able to solve most problems,
- a. but only ONE student solved even the most DIFFICULT problem.
  - b. but only ONE student even solved the most DIFFICULT problem.

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<sup>4</sup> Or at least so it seems — we will return to scope of *even* below.

The alternatives that *even* operates over for this sentence to make sense crucially have to exclude *only* this time in order to form a scale of decreasing likelihood:

- (12) a. *Scale with only: Increasing Likelihood* (alternatives include *only*)  
{only one student solved the most difficult problem,  
only one student solved the second most difficult problem, ... }  
b. *Scale without only: Decreasing Likelihood* (alternatives exclude *only*)  
{one student solved the most difficult problem,  
one student solved the second most difficult problem, ... }

Again, a simple test for which relative scope the two operators take is to see whether the sentence still makes sense if one takes *only* out of the picture. In the case of (11) it clearly does:

- (13) One student even solved the most difficult problem.

The upshot is that focus operators like *only* and *even* take scope relative to each other, and by manipulating the lexical content of the utterances one can manipulate which reading is pragmatically felicitous. The remainder of this section will provide evidence that across different languages, the syntax of sentences with multiple overt focus operators correlates with that of sentences involving contrastive topics.

## 2.1 The case of German

The first language we are going to look at is German, the language that the analysis in Büring 1997b is mostly based on. Büring (1997b) already observed that in German, the contrastive topic has to precede the focus. This is unexpected under his analysis, since in principle nothing should prevent one from marking the later constituent, the constituent that is lower in the structure, with a CT feature and marking an earlier constituent, one that is higher in the structure, with FOC.

In German, CTs often involve a rising pitch accent, usually transcribed as L\* H. The FOC-marked constituent involves a sharply falling accent, transcribed as H\* L according to Féry (1993). The two pitch accents in German are linked with a high pitch plateau, a configuration often referred to as ‘hat’, ‘bridge’, or ‘root’ contour (Féry 1993, Jacobs 1997) based on the shape of

the idealized pitch curve associated with it. I will refer to this contour as the ‘HAT’ contour in the following. In the examples here, I use a simplified notation: the rise that accompanies CT-marked constituents will be marked as ‘/’, and the sharp fall at the end of the ‘HAT’ with ‘\’. Let’s consider a sentence in which it is the subject that encodes a contrastive topic. The subject obligatorily precedes the object:

(14) *A Dialogue with a Subject Contrastive Topic*

- A: Hans hat Spinat gegessen.  
Hans has spinach eaten
- B: Und Fred? Was hat der gegessen?  
and Fred, what did he eat?
- a. CT < FOC:  
A: /FRED hat die BOHNEN\ gegessen.  
Fred has the beans eaten
- b. FOC < CT:  
A: #Die /BOHNEN hat FRED\ gegessen.  
the beans has Fred eaten  
‘Fred ate the beans.’

Sentence (14b) is infelicitous in any rendition in which *Fred* is accented, including one without the HAT contour. It is only felicitous when *hat Fred gegessen* remains unaccented and marked as given, in which case no alternative for *Fred* is evoked and no contrastive topic reading is available. Subject < Object is of course the canonical word order, and this ordering restriction may not seem too surprising. However, the contrastive topic also has to precede the focus when it is the direct object that serves as the contrastive topic, in other words, using the non-canonical order with the fronted direct object becomes obligatory:

(15) *A Dialogue with an Object Contrastive Topic*

- A: Hans hat Spinat gegessen.  
Hans has spinach eaten
- B: Und die Bohnen? Was hat die gegessen?  
and the beans who has those eaten



Contrastive topics decomposed

- a. FOC < CT:  
A: #/FRED hat die BOHNEN\ gegessen.  
Fred has the beans eaten
- b. CT < FOC:  
A: Die /BOHNEN hat FRED\ gegessen.  
the beans has Fred eaten  
'Fred ate the beans.'

Sentence (15a) sounds infelicitous in any rendition in which *Bohnen* is accented, including one without the HAT contour, just as was the case for (14b). In other words: contrastive topics must precede foci, just as was already observed by Buring (1997b).

The explanation for this restriction given in Buring 1997b, following Féry (1993), is that the particular phonological configuration is incompatible with ordering the contrastive topic after the focus, for the simple reason that if a fall preceded a rise, no HAT could ensue. But based on the hypothesis pursued in this paper, the word order restriction observed in German should also be observed in the case of nested overt focus operators, where the HAT contour is not present, or at least not necessary.

Let's look at the relevant examples, first the case in which *sogar* 'even' attaches to the subject and takes wide scope over *nur* 'only'. In the word order in which the object precedes the subject the intended reading is not available:

- (16) *sogar* > *nur*, *sogar* attaches to the subject

Die Klausur war zu schwierig.  
the exam was too difficult

'The exam was too difficult.'

- a. *Sogar* der beste Student hat nur das einfachste Problem  
even the best student has only the easiest problem  
gelöst.  
solved
- b. #*Nur* das einfachste Problem hat *sogar* der beste Student  
only the easiest problem has even the best student  
gelöst.  
solved

'Even the best student only solved the easiest problem'

Sentence (16b) sounds infelicitous because the scale relevant to *sogar* ‘even’ seems to be wrong: it should be the weakest student who is least likely to solve the easiest problem. This infelicity reveals that the reading in which *sogar* outscopes *nur*, the one that can be expressed by (16a) is absent. In other words, the two focus operators take surface scope. When wide-scope *sogar* attaches to the object instead of attaching to the subject, then the object has to precede the subject and the opposite word order preference ensues:

(17) *sogar* > *nur*, *sogar* attaches to the object

Die Klausur war zu schwierig.  
the exam was too difficult

‘The exam was too difficult.’

- a. #Nur der beste Student hat sogar das einfachste Problem  
only the best student has even the easiest problem  
gelöst.  
solved
- b. Sogar das einfachste Problem hat nur der beste Student  
even the easiest problem has only the best student  
gelöst.  
solved

‘Only the best student solved even the easiest problem.’

In the context motivating the reading in which *nur* ‘only’ outscopes *sogar* ‘even’, linear order again must reflect this scope relation, or at least there is a strong preference for the sentence with canonical word order:<sup>5</sup>

(18) *nur* > *sogar*, *sogar* attaches to the subject

Die Klausur war machbar. Viele Studenten konnten die meisten  
Probleme lösen, aber...

‘The exam was doable. Many students could solve most of the  
problems, but...’

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<sup>5</sup> Some consultants report that (18b) improves slightly with the HAT contour.

Contrastive topics decomposed

- a. nur der beste Student hat sogar das schwierigste  
only the best student has even the most difficult  
Problem gelöst.  
problem solved
- b. ?#sogar das schwierigste Problem hat nur der beste  
even the most difficult problem has only the best  
Student gelöst.  
student solved

‘Only the best student solved even the most difficult problem.’

And correspondingly when wide-scope *only* attaches to the object:

(19) *nur* > *sogar*, *sogar* attaches to the object

Die Klausur war machbar. Viele Studenten konnten die meisten Probleme lösen, aber die schlechteren Studenten hatten trotzdem Probleme.

‘The exam was doable. Many students could solve most of the problems, and yet the weaker students still had problems.’

- a. #Sogar der schlechteste Student hat nur das einfachste  
even the best student has even the easiest  
Problem gelöst.  
problem solved
- b. Nur das einfachste Problem hat sogar der schlechteste  
only the easiest problem has only the worst  
Student gelöst.  
student solved

‘Even the worst student solved only the easiest problem.’

To summarize: the word order patterns observed with contrastive topics are mirrored by those observed with nested overt focus operators. The word order restriction on contrastive topics was attributed to a phonological explanation in [Büring 1997b](#) and [Féry 1993](#), but this explanation does not carry over to the case of overt nested focus operators, since they do not involve the HAT contour (or least do not need to involve it). The correlation is as predicted under the compositional hypothesis, which treats both kinds of constructions as involving the same configuration of nested focus operators.

Let's turn to another language to test the correlation further.

## 2.2 The case of Italian

One reason the previous literature did not analyze contrastive topics as 'outer foci' was that they appeared to be realized differently both syntactically and morphologically, at least in certain languages, suggesting that the two are inherently different. An important argument in favor of this view was made by Rizzi (1997: pp. 289-290), who observes that contrastive topics in Italian differ from foci both in their morpho-syntactic realization and in certain semantic properties. This, it would appear, is entirely unexpected if contrastive topics are simply associates of a focus operator taking wider scope over another focus operator, as is argued in this paper.

One difference between contrastive topics and foci operators, already noted by Cinque (1990: 14, 56ff), is that contrastive topics can and sometimes have to involve resumptive clitics while left-dislocated foci cannot. A clitic is obligatory when a direct object serves as the contrastive topic:

- (20) a. Il tuo libro, lo ho comprato.  
           the your book, it have.I bought  
           'Your book, I bought'
- b. \*Il tuo libro, ho comprato.  
           the your book, have.I bought

Using a resumptive clitic in the case of a sentence with only a contrastive focus, however, is impossible:

- (21) a. \*IL TUO LIBRO lo ho comprato (non il suo).  
           the your book it have.I bought (not the his)
- b. Il tuo libro ho comprato (non il suo).  
           the your book have.I bought (not the his)  
           'I bought YOUR book, not HIS.'

This observation has been taken as evidence that contrastive topics and foci are substantively different. Within the cartographic approach, the former involves movement to a topic projection and the latter involves movement to a focus projection. These projections are analyzed as two inherently different and hierarchically ordered projections in the functional spine of a sentence.

Contrastive topics decomposed

Under the analysis proposed here, a sentence containing a contrastive topic involves a covert focus operator that outscopes a lower covert focus operator. Is this compatible with the pattern we just observed? We need to look at cases with two nested overt focus operators.

First, let's consider the case where the focus operator *anche* 'even' attaches to the subject and takes wide scope over the operator *solo* 'only' which attaches to the object. In this case, the object cannot front, whether it is doubled by a clitic or not:

(22) *anche* > *solo*, *anche* attaches to the subject

L'esame era troppo difficile.

'The exam was too difficult.'

a. Anche gli studenti migliori hanno risolto solo un  
even the best students have solved only one  
problema.  
problem

'Even the best students solved only one problem.'

b. #Solo un problema \*(lo) hanno risolto anche gli studenti  
only one problem it have solved even the best  
migliori.  
students

By contrast, if the direct object associates with the wide-scope operator, then clitic-left-dislocation (CLLD) is obligatory, in other words, a wide-scope focus operator must precede the focus operator it takes scope over and the fronted direct object has to be doubled by a clitic:

(23) *anche* > *solo*, *anche* attaches to the object

L'esame era troppo difficile.

'The exam was too difficult.'

a. #Solo uno studente ha risolto anche il problema piu'  
only one student has solved even the problem most  
facile.  
easy

- b. Anche il problema piu' facile \*(lo) ha risolto solo uno  
even the problem most easy it has solved only one  
studente.  
student

'Only one student solved even the easiest problem.'

The facts are exactly parallel in the case where *solo* outscopes *anche*. Let's first consider the case in which *solo* attaches to the subject. As predicted, clitic-left-dislocation is impossible under the intended reading:

(24) *solo* > *anche*, *solo* attaches to the subject

Tutto sommato, ognuno e' andato abbastanza bene nell'esame  
ed e' stato capace di risolvere la maggior parte dei problemi;  
'Overall, everyone did pretty well in the exam and was able to solve  
most problems;'

- a. ma solo uno studente ha risolto anche il problema  
but only one student has resolved even the problem  
piu' difficile  
most difficult

'but only one student solved even the most difficult problem.'

- b. #ma anche il problema piu' difficile \*(lo) ha risolto solo  
but even the problem most difficult it has solved only  
uno studente.  
one student

And, also as expected, clitic-left-dislocation is obligatory when *solo* takes wide scope from object position:

(25) *solo* > *anche*, *solo* attaches to the object

L'esame era decisamente non troppo facile. Molti problemi erano  
tali che solo alcuni studenti li hanno potuti risolvere.

'The exam was definitely not too easy. Many problems were such that  
only some students could solve them.'

Contrastive topics decomposed

- a. #Anche lo studente peggiore ha risolto solo il  
even the student worst has resolved only the  
problema piu' facile  
problem most easy
- b. Solo il problema piu' facile \*(lo) ha risolto anche lo  
only the problem most easy it has resolved even the  
student peggiore.  
student worst

'but only one student solved even the most difficult problem.'

The pattern in sentences with multiple overt focus operators are exactly parallel to the case of contrastive topics in terms of clitic placement. If a contrastive topic subject precedes the focused object no clitics are necessary, and left-dislocation is dispreferred:

- (26) A: Gianni ha mangiato gli spinaci.  
'Gianni ate the spinach.'  
B: E Alfredo? Cos'ha mangiato?  
'And Alfredo? What did he eat?'
- a. A: Alfredo ha mangiato i fagioli.  
Alfredo has eaten the beans
  - b. A: #I fagioli, (li) ha mangiato Alfredo.  
the beans them has eaten Alfredo  
'Alfredo ate the beans.'

The word order preferences are reversed when the contrastive topic is the direct object, in which case CLLD is obligatory:

- (27) A: Gianni ha mangiato gli spinaci.  
'Gianni ate the spinach.'  
B: i fagioli? Chi li ha mangiati?  
'And the beans? Who ate those?'
- a. A: #Alfredo ha mangiato i fagioli.  
Alfredo has eaten the beans

- b. B: I fagioli, \*(li) ha mangiato Alfredo.  
 the beans them has eaten Alfredo  
 ‘The beans, Alfredo ate.’

The Italian data confirm the correlation between nested overt focus operators and contrastive topics. But why is it that at least some arguments that are left-dislocated as contrastive topics in Italian must be resumed by a pronoun? The reason for this might have nothing to do with contrastive topics themselves, but rather with a restriction on the number of focus operators that can occur within a single clause in Italian. Calabrese (1984), and, more recently, Stoyanova (2008), present evidence that multiple pair-list wh-questions, which arguably involve a configuration of two focus operators equivalent to a sentence with a contrastive topic and a focus, are not grammatical in Italian. Instead, one has to ask such ‘multiple’ questions by coordinating two matrix questions.

Suppose then that Italian more generally rules out multiple focus operators within a single clause, and every nested focus configuration in Italian necessitates a construal in which the outer focus is actually in a separate clause. If that was the case, this would mean that a contrastive topic (the higher focus operator) must always be construed in a clause separate from the matrix clause containing the focus. This would explain why clitic doubling is obligatory in the case of direct object contrastive topics but not, say, in the case of subjects: every clause with a direct object must include an overt exponent in Italian, and, in contrast to subject pronouns, direct object pronouns cannot be dropped.

If this characterization of the obligatory pronoun is correct, then contrastive topics in Italian are syntactically similar to *as-for* topics in English in that their associate is also unable to fill an argument slot of the clause the *as-for* topic attaches to.<sup>6</sup> Consider the case where an NP is co-referent with a direct object acts as an *as-for* topic:

- (28) a. As for John, Mary really likes him.  
 b. \*As for John, Mary really likes.

*As for* introduces a topic (Reinhart 1981), but this topic constituent doesn’t seem to be part of the main clause itself since it cannot satisfy an argument

<sup>6</sup> They seem pragmatically more similar to regular contrastive topics in English rather than *as-for* constructions, but this is something that will not be explored in this paper.



slot. Instead, *as for* and its complement seem to attach higher. Perhaps *as for* takes the topic NP as its first argument and a proposition (the remaining sentence) as its second. The link with the matrix clause is indirect: the *as-for* topic refers to one of the implicit or overt arguments of the matrix clause. Because it is not part of the matrix clause, the argument expressed in an *as-for* topic has to be resumed by a pronoun in the main clause, at least if it is an obligatory argument of the clause. In English, in contrast to Italian, the pronoun would be obligatory even if the topic is co-referent with the subject, simply because English is not a pro-drop language. But when an optional constituent is part of the *as-for* topic, no pronoun is necessary, and the topic corresponds to an implicit temporal argument in the clause:

(29) As for Monday, we'll go shopping (then).

The link between topic and main clause in Italian CLLD and in English *as-for* clauses is co-reference: the topicalized constituent co-refers with one of the explicit or implicit arguments of the main clause. If this link is indeed mediated by reference this explains a number of apparent interpretive differences between topic and focus. Rizzi (1997: pp. 290-291) and Cinque (1990: pp. 57-60) observe, for example, that certain constituents that Rizzi (1997) calls 'bare quantificational elements' like *nessuno* 'no one' and *tutto* 'everyone' cannot function as contrastive topics but can function as foci. This is unsurprising, since these elements cannot be an antecedent for a free pronoun:

- (30) a. A: Hai visto nessuno?  
          'You saw no one?'  
      B: \*Si, lo ho visto.  
          Yes, it have.I seen.
- b. A: Hai visto tutto?  
          'You did everything?'  
      B: ??Si, lo ho fatto.  
          Yes, it have.I done

The examples in (30) show that *lo* cannot refer to a set of individuals that was made salient in the context. *Nessuno* and *tutto* are not good antecedents for free pronouns. The same quantifiers resist CLLD (cf. Cinque 1990). If

the link between the CLLD-ed constituent and the clause it attaches to is simply co-reference, then the restriction on which constituent can be CLLD-ed follows from the usual requirements that free pronouns impose on their antecedents.

One difference between CLLD and *as-for* topics is that the dislocated constituent shares case and other properties with the constituent they co-refer with in the main clause, while in *as-for* topics, case is assigned by the preposition (*as for me/\*as for I, I...*). This seems surprising under the present analysis — how could Italian contrastive topics be assigned case, if they do not originate in the main clause? Related to this, CLLD shows various connectivity and island effects which lead earlier researchers to postulate movement from the main clause.

The connectivity effects are compatible with the claim that CLLD-ed constituents are ‘outside’ the main clause and connected only via pronominal reference as argued here and also in [Wagner 2009b](#) if the dislocated constituents are actually sentence fragments, as recently argued by [Ott \(2012\)](#). The dislocated constituent would be analyzed as involving an entire sentence in which left-dislocation (without clitic/pronoun) has taken place, and subsequent IP-deletion derives a fragment.

A second possibility is that CLLD involves adjunction between two NPs, similar to the case where an appositive attaches to an NP, as in:

(31) He, a former astronaut, knows how to skydive.

Under this view, in CLLD, the appropriate relation between the pronoun and the adjunct would have to be established at LF.<sup>7</sup> In the surface structure, the modifying NP attaches to the clause in which the pronoun it modifies occurs:

(32) A former astronaut, he knows how to skydive.

Appositives, like CLLD-ed constituents, match their host in case in languages with case-marking (e.g., in Italian or German), so this analysis has some initial plausibility. The question which of these two analyses could work will have to remain for another day. Both, however, would explain case-matching and connectivity effects, without necessitating a direct derivation in terms of movement, and are therefore compatible with the explanation for the semantic differences between topic and focus proposed here.

<sup>7</sup> This raises various syntactic and semantic questions that are beyond what can be discussed here.

The hypothesis that contrastive topics are just wide-scope focus operators also provides a reason for Rizzi's (1997) observation that there can be more than one topic but only one focus in Italian. The reason is that only the lowest focus operator can be within the main clause in Italian, and thus display 'focus-like behavior' (in terms of Rizzi's diagnostics). All additional operators have to be construed in separate clauses and are linked by co-reference, and therefore display the properties that are associated with topic-hood in Rizzi's (1997) analysis.

To conclude, the syntax of contrastive topics and nested overt focus operators also correlates in Italian, and the compositional hypothesis sheds new light on some well-known semantic and morpho-syntactic differences between contrastive topics and foci in Italian. Most importantly, these differences do not provide an argument that contrastive topics are intrinsically different from other types of focus operators.

### 2.3 The case of English

As we already observed, two focus operators in an English sentence are acceptable when their surface order corresponds to their scope. In the following sentence which we already encountered before, *even* attaches to the subject and outscopes *only*:

- (8) The exam was way too difficult.
- a. Even the best student only solved one problem.
  - b. Even the best student solved only one problem.

It seems that in English, the linear order can also be reversed, and a wide-scope operator can *follow* the one taking lower scope. In this example, *even* attaches to the object, but based on the meaning of the sentence it apparently outscopes *only*:

- (33) The exam was way too difficult.
- a. Only one student solved even the easiest problem.
  - b. ?#Only one student even solved the easiest problem.

*Even* must outscope *only* for this example to make sense, or at least so it seems, since once *only* is dropped the sentence ceases to make sense and the wrong end of the scale seems to be associated with *even*. The most likely rather than the least likely alternative is asserted:

(34) #One student solved even the easiest problem.

The acceptability of (33a) and the relative markedness of (33b) suggests that movement might be involved: the NP *even the easiest problem* can undergo LF-movement, but the VP *even solved the easiest problem* cannot. This is the interpretation of the pattern presented in Wagner 2009a.<sup>8</sup> But it is not clear whether movement is really necessary to get the right interpretation of *even*. The following example requires apparent wide-scope for *even* when it attaches to a VP, and if VP-movement at LF is not possible, then it should be infelicitous. Yet it sounded acceptable to my consultants:

(35) Only top students could even solve the easiest problem.

There is a controversy about whether cases of apparent inverse scope of *even* are necessarily due to scope-taking and movement, or whether there is a lexical ambiguity between two kinds of *even*. Rooth (1985), for example, posits a ‘least likely’ vs. a ‘most likely’ version of *even*, the latter of which is a negative polarity item. Rullmann (1997) presents especially convincing arguments for such a ‘most likely’-reading of *even* in downward-entailing environments and against a movement analysis. Others have argued against this view, but I will not review this debate here in full detail (cf. Wilkinson 1996, Guerzoni 2004).

The lexical ambiguity explanation for the licensing of (33a) would be that *only one student* licenses the NPI in object position, and the reason that dropping *only* as in (34) creates a scale problem is that without *only* the NPI-version of *even* with the reversed likelihood presupposition is unavailable.

One argument against a movement analysis of (33) is the comparison to cases in which *only* outscopes *even*. Since there is no NPI-version of *only*, there is no potential confound in this case. And, here, inverse scope between the focus operators is impossible:

(36) #Even the worst student could solve only the easiest problem.

- a. *Surface Scope reading* (odd): ‘Even the worst student was such that he could solve only the easiest problem.’
- b. *Inverse scope reading* (natural, but not possible here): ‘Only the easiest problem was such that even the worst student could solve it.’

<sup>8</sup> Thanks to David Beaver for critical comments on the arguments that an earlier version of this paper made in favor of the movement analysis.

## Contrastive topics decomposed

The only available reading is the surface-scope reading, but this requires there to be an alternative to *the worst student* for whom solving only the easiest problem was more likely, which is what makes this sentence odd. The only way to convey the intended reading in this case is to ‘topicalize’ the direct object:

(37) Only the easiest problem, even the worst student could solve.

This is thus a case of obligatory topicalization in English, at least ‘obligatory’ in the sense that this is the only way to express the intended meaning short of resorting to a different sentence structure altogether. There are other ways to convey this meaning, for example by using a passive:

(38) Only the easiest problem could be solved even by the worst student.

English thus seems similar to Italian and German in not allowing inverse scope for focus operators, and in English, getting a certain scope between focus operators can necessitate a change of word order through topicalization or passivization.

Let’s now turn to contrastive topics. Jackendoff (1972: p. 261) illustrates typical uses of contrastive topics with the following examples:

- (39) a. *BA-contour*:  
A: Well, what about Fred, what did he eat?  
B: FRED<sub>∇</sub> ate the BEANS.
- b. *AB-contour*:  
A: What about the beans? Who ate them?  
B: FRED ate the BEANS<sub>∇</sub>.

According to Jackendoff (1972), foci are marked with A-accent or ‘answer-accent’, and contrastive topics with B-accent, or ‘background accents’, and contrastive topics can either precede or follow foci, with intonational contours that I will henceforth refer to as the BA-contour and the AB-contour. Jackendoff’s examples are fragments of a dialogue, which involve a situation in which a broader question such as *Who ate what?* is at issue. It’s worthwhile to look a little closer at these examples. Let’s first consider the case in which the subject is the contrastive topic. I am adding an additional sentence in order to avoid the sense that the context is not quite complete:

- (40) A: John ate the spinach.  
 B: And what about Fred? What did he eat?  
 A: FRED $\checkmark$  ate the BEANS.

This dialogue seems felicitous, even if the B-accent on *Fred* is not obligatory and maybe not even be preferred. The contribution of the B-accent on *Fred* seems to be that it makes explicit that there is a contrast in the context (i.e., *Fred* is contrasted with *John*). Crucially, in this dialogue, A's rejoinder could very well be the last move in addressing the question of *Who ate what?* Switching the word order by fronting the direct object is infelicitous in this dialogue:

- (41) A: John ate the spinach.  
 B: And what about Fred? What did he eat?  
 A: #The BEANS $\checkmark$ , FRED ate.

Let's now consider the case in which the direct object acts as the contrastive topic. The first thing to note is that fronting the object becomes perfectly acceptable:

- (42) A: John ate the spinach.  
 B: And what about the beans? Who ate those?  
 A: The BEANS $\checkmark$ , FRED ate.

While the example may sound a bit cumbersome because a sentence with this word order might not be the response of choice of many speakers if they were to choose what to respond in this context, it does seem to fit the context quite well. A more natural way of conveying the same meaning could involve a passive construction:

- (43) A: John ate the spinach.  
 B: And what about the beans? Who ate those?  
 A: The BEANS $\checkmark$  were eaten by FRED.

But what about the case where the object remains in situ? I will distinguish two renditions of the sentence, with different intonations, Jackendoff's AB realization, and a realization with a regular H\* pitch accent on *beans* (with or without a fall-rise after *Fred*):

- (44) A: John ate the spinach.  
B: And what about the beans? Who ate those?
- a. A: ?FRED ate the BEANS $\checkmark$ .  
b. A: #FRED( $\checkmark$ ) ate the BEANS.

The judgments for (44b) are quite comparable to the ones we saw for German and the other languages in this paper — speakers strongly prefer not to accent *the beans*, since it's given in the context, and accenting it seems infelicitous, or at least requires accommodating something that is not apparent in the discourse context.

The situation with the rendition in (44a) is more complicated. I've marked it with a question mark, in contrast to Jackendoff's original judgment, reported in (39b), since to my consultants it is either infelicitous or it sounds as if the speaker is trying to insinuate something in addition to what is literally said, an intuition absent from (39a). What is conveyed is similar to the case of what one conveys with *Duh!*, when one uses it with a particular intonation. *Duh!* literally means something along the lines of 'yes' or 'of course', but in addition it is often used to convey something like 'That's completely obvious!', and is then accompanied by a particular intonation contour. Without this particular contour, pronouncing (44a) with an accent on *beans* sounds odd — the pattern in English is thus parallel to that of German, and contrastive topics are preferred when they precede the focus. The presence of this contour in English has arguably confounded issues in the analysis of contrastive topics especially with respect to their pragmatics, but the two phenomena are orthogonal to each other, as the next section will argue in more detail.

#### 2.4 The RFR-contour and its relation to contrastive topics

The intonational contour in question is today standardly called the 'rise-fall-rise contour' (RFR) following Pierrehumbert & Steele 1987 and Hirschberg & Ward 1992 (see Hirschberg 2004, Ladd 2008, and Constant 2006 for recent discussions). It can be transcribed as L\*H L-H%. The RFR-contour often serves to insinuate something that is left unsaid:

- (45) A: Do you think Mary was involved in the candy store robbery?  
B: She likes SWEETS $\checkmark$ .

The intuition about (45) is that the speaker is trying to insinuate something in addition to what is literally said, in this case maybe that yes, Mary *was* involved in the robbery. It is not clear in what sense a contrastive topic is at stake in this example, and arguably the use of this contour is orthogonal to the question of whether the sentence involves a contrastive topic or not.

Ward & Hirschberg (1985) analyzed this contour (which they call ‘Fall-Rise-Contour’) as a sentence tune indicating speaker uncertainty. Oshima (2005) and Constant (2006) present analyses of the intonational contour of the RFR as an operator over alternative sets, incorporating insights from Ward & Hirschberg’s (1985) analysis. Constant (2006) holds that the RFR introduces the conventional implicature that ‘none of [the evoked] alternatives can safely be claimed’. I propose a slightly different existential operator that introduces the presupposition *that a salient alternative is possibly true*. This analysis is similar to the analyses of contrastive *wa* in Japanese in Oshima 2005 and Hara 2006.<sup>9</sup>

$$(46) \quad \llbracket \text{RFR} \rrbracket = \lambda P \in D_{\langle s,t \rangle}. \exists P' \in \llbracket P \rrbracket_a^g, P \not\vdash P' \text{ and } \diamond P': P$$

I assume that implying that a proposition is possibly true leads, via Gricean reasoning, to the implicature that the speaker did not assert the alternative for a reason, be it uncertainty, politeness, or something else (cf. Ward & Hirschberg 1985). Speaker uncertainty is one possible motivation for using the RFR out of many. Maybe the speaker in (45) does not want to flat out incriminate Mary for being involved in the robbery although (s)he believes that it’s obvious that she was. So ‘speaker uncertainty’ seems too narrow to characterize the usage of this contour, and the weaker characterization here is more compatible with the various rhetorical uses of this contour.<sup>10</sup>

It seems hard if not impossible to embed the RFR under attitude predicates like *believe*, which embed propositions, but unlike verbs like *say* cannot embed assertions or quotations. In the following example, it is the speaker

<sup>9</sup> The index *g* stands for an assignment function, and the index *a* indicates that the denotation of the expression is the focus semantic value in the sense of Rooth 1992. I assume that propositions are functions from possible world’s to truth values, and that entailment between propositions is defined as a subset-relation between them. The possibility operator expresses that there is a possible world for which a proposition returns a true value.

<sup>10</sup> A reviewer points out that the alternative characterization of the RFR as implying that there is an alternative that is possibly false is another possibility, and maybe one that is superior to the positive entry used here. I have the impression, however, that the contour is most frequently used to imply that something else is possibly true. A look at broad set of examples with the contour from a corpus might be necessary to resolve this issue.



and not John who is making the insinuation, and the RFR seems to operate over the entire sentence and not just the embedded clause:

- (47) A: Do you think she had anything to do with the candy store robbery?  
B: John believes that she likes SWEETS∨.

The RFR, it seems, cannot just operate over an embedded proposition to the exclusion of a matrix predicate. Consider the following example:

- (48) [B's marshmallow has disappeared.]  
A: Why are you looking at me?  
B: I think that SOMEONE has eaten the marshmallow∨.

It's not obvious whether RFR operates over the entire sentence or just the embedded sentence in this example, however, if the insinuation can be computed at the embedded level, as is claimed in [Constant 2006](#), one might expect that it should be possible independent of the embedding clause. The following dialogue, however, seems infelicitous:

- (49) [B's marshmallow has disappeared.]  
A: Why are you looking at me?  
B: ??You don't seem to think that SOMEONE has eaten the marshmallow∨.

If RFR could operate of the embedded sentence, then one would expect the speaker should be able to use (49) to make the same insinuation as in (48), that A has eaten the marshmallow, and assert that *You don't seem to think that someone has eaten the marshmallow*. To the extent that this sentence can be made sense of at all, it conveys the insinuation that the speaker thinks that A thinks that some other person has eaten the marshmallow, which is the implication one would expect if the RFR operates over the entire sentence, but the more reasonable insinuation one would expect of RFR could only operate over the embedded clause is not possible. On the other hand, it seems possible to place a constituent with the RFR within another assertion:

- (50) John — who likes sweets∨ — was an obvious suspect.

The RFR can thus be used either at the matrix level or in modifiers that introduce non-at issue conventional implicatures in the sense of [Potts 2005](#).

This latter observation is in line with the analysis in [Constant 2006](#). One way to capture the distribution of the RFR is to posit that the RFR takes an assertion rather than a proposition as its argument. This would also explain why it cannot occur in questions (they are not assertions but sets of propositions), and also why it cannot occur in complement clauses (they are not assertions but propositions). The meaning of the RFR then has to be characterized based on the applicability of an alternative assertive speech act rather than the possible truth of an alternative proposition (where  $S$  is a speech act, and  $D_S$  is the set of all entities of the type that assertive speech acts have, and assuming that a notion of entailment between speech acts  $\rightarrow$  is defined):

- (51)  $[[\text{RFR}]] = \lambda S \in D_S. \exists S' \in [S]_a^g, S \not\vdash S'$  and performing  $S'$  might be justified:  $S$

If the expression that the RFR attaches to contains a prosodic focus then the evoked alternative can be one of the focus alternatives evoked by focus, in which case one could say that it ‘associates’ with that focus. However, the evoked alternative can also be unrelated to the linguistic material in the sentence the contour attaches to, and simply be some other assertion relevant in the current discourse. For example, in the case of *Duh!*, what is conveyed apart from the literal content (presumably: ‘yes’), is not a structurally related alternative, but rather something like ‘Isn’t that obvious?’

One type of example that shows that association of focus is not obligatory in the case of the RFR can be found in [Ward & Hirschberg 1985](#). The response with the RFR involves fragment answers, and the alternatives evoked by the fragment answer here are arguably alternative credit cards:

- (52) A: Do you take credit cards?  
B: Visa and Mastercard $\checkmark$ .

[Ward & Hirschberg \(1985\)](#) interpret these examples as conveying uncertainty with respect to a relevant scale. B’s answer clearly rules out all alternatives (i.e., no other credit cards are accepted). What B conveys along with this answer is that he or she is uncertain with respect to whether the answer to A’s question is *yes* or *no* — but these polar alternatives are not alternatives of the constituent *Visa and Mastercard*, they are the alternatives evoked by A’s original question. What the RFR conveys is that the answer to A’s original question might be *yes*. The conclusion to draw under the analysis proposed

here is that association with focus is not obligatory.<sup>11</sup>

The analysis presented here accounts successfully for an observation by [Ward & Hirschberg \(1985: p. 755\)](#): in the following dialogue, the response (53a) is infelicitous. If they had a boy, the salient alternative — ‘it’s a girl’ — must be false, and hence all salient alternatives have been resolved. Again, the only sense (if any) one can make of the contribution of the RFR contour in B’s response in (53a) is: *Duh!* But now observe (53b), which, in contrast to [Ward & Hirschberg’s \(1985\)](#) example, works quite well: they may still also have a girl, even if they have a boy, but maybe the speaker is not sure about this:

- (53) a. A: Did they have a boy or a girl? (Ward & Hirschberg 1985)  
B: ??They had a BOY∇.
- b. A: Do they have kids of both genders? (Wagner 2009a)  
B: They have a BOY∇.

The presence of the RFR-contour in English has arguably confounded the analysis of contrastive topics. Let’s return to the meaning of the AB-contour. If the AB-contour (as in 44a) actually involves the RFR, this would explain why an utterance with AB-contour comes with additional pragmatic baggage. Crucially, the particular pragmatic import observed here is absent from all other uses of contrastive topics we have seen.

In fact, my consultants found use of the AB-contour about equally acceptable independent of which of the two arguments was the contrastive topic. In other words, it is not clear whether the AB-contour is really sensitive to which of the two constituents is the contrastive topic:

- (54) a. A: John ate the spinach.  
B: And what about Fred? What did he eat?  
A: ?FRED ate the BEANS∇.
- b. A: John ate the spinach.  
B: And what about the beans? Who ate those?  
A: ?FRED ate the BEANS∇.

That the pragmatics of the AB-contour is quite different from that of the BA-contour is further confirmed by the observation by [Lee \(2007: p. 156\)](#) and

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<sup>11</sup> An alternative interpretation of this fact would be that the proposed meaning in (51) is not actually the correct analysis, and rather the RFR conveys something like: ‘It is at least true that X’ where X is the proposition that RFR operates over. The meaning of B’s response would then convey something similar to ‘at least Visa and Mastercard’. This alternative analysis raises other issues, which I will not explore in this paper.

Constant (2006) that the AB-contour is infelicitous in the last answer of a pair-list question. When reaching the last answer, all alternatives have been resolved, and using the RFR-contour is odd (55b), just as would be predicted based on its meaning. As was observed in Krifka 1999, this is not the case with the BA-contour, which is acceptable at the end of such a list of answers:

- (55) a. A: Who kissed whom?  
       B: ANNA $\vee$  kissed JOHN, and JIM $\vee$  kissed BERTA.  
       b. A: ??Who kissed whom?  
       B: ANNA kissed JOHN $\vee$ , and JIM kissed BERTA $\vee$ .

It seems that (55b) is not, in fact, impossible, but the sense one gets from employing an AB-contour in the answer is again that the speaker wants to insinuate something above and beyond what is conveyed by the pair-list answer itself. Since the context doesn't really give any guidance as to what this insinuation might be, the dialogue sounds somewhat infelicitous. Suppose A says, "This was a boring party." Then B could use the pair-list answer in (55b) to answer the accommodated question "Who kissed whom?", and to insinuate with the entire pair-list: "No, it wasn't!" Crucially, no such context is necessary in order to use BA, and there is no such sense of an insinuation being made in (55a).

The BA-contour does place constraints on the discourse. For example, as observed by Büring (2003: p. 529), in the following dialogue the BA contour sounds odd (56b), as does the AB-contour (56c):<sup>12</sup>

- (56) A: It looks like someone already ate from the buffet!  
       a. B: Yes, JOHN<sub>F</sub> ate the BEANS<sub>F</sub>  
       b. B: #Yes, JOHN<sub>F</sub> $\vee$  ate the BEANS<sub>F</sub>  
       c. B: #Yes, JOHN<sub>F</sub> ate the BEANS<sub>F</sub> $\vee$

What BA requires, it seems, is a salient contrast to *John*, and this is missing in the context in (56b).<sup>13</sup> If the context provides such a contrast, then BA is possible, even if all alternatives to the proposition are resolved as true or false, in contrast to the AB-contour. In fact, BA is possible even in

<sup>12</sup> Judgements according to Büring (2003). It seems based on my elicitations that (b) is better than (c).

<sup>13</sup> Some consultants said that (56b) fine as long as a contrast between *John* and another person is inferred, and that (56c) is fine if A wants to insinuate something in addition to just conveying that John ate beans.

a context in which *all salient alternatives are false*. I am using an example adapted from [Büring 2003](#) (p. 529) by Irene Heim (class-handout), but I am reporting the judgments that I elicited for it:

- (57) A: I heard that John and Mary split up. I wonder who dumped who.
- a. B: MARY<sub>F</sub> broke up with JOHN<sub>F</sub>.
  - b. B: MARY<sub>F</sub>∨ broke up with JOHN<sub>F</sub>
  - c. B: #MARY<sub>F</sub> broke up with JOHN<sub>F</sub>∨

The rendition in (57b) is acceptable — or at least better than (56b) — because the context provides a contrast to *Mary*, as the B-intonation on that constituent requires. The AB-contour (57c) sounds odd, because the only salient alternative (*John broke up with Mary*) is already resolved as false by the answer, and hence this example is incompatible with the contribution of the RFR contour. The intonation suggests that (57c) conveys something above and beyond what is asserted, but it's not clear just what that could be in this context, and hence this rendition sounds infelicitous.

Interestingly, the contour without any fall-rise, which one could call the 'AA' contour (following Jackendoff's terminology) seems acceptable in both dialogues. I assume that this contour involves a single focus operator that binds to foci. When asked to produce the sentences without further instructions, many speakers seem to go for the AA-contour, which suggests that the use of a contrastive topic is not obligatory in these contexts.

The judgments that I elicited for the paradigm in (57) are different from the ones reported for a similar paradigm by [Büring \(2003: p. 529\)](#). While the claims about English made here will have to undergo closer scrutiny in experimental studies, the picture that emerges is that the distribution of contrastive topics in English may differ from what is commonly assumed, and, most importantly, a potential confusion with the RFR contour has to be controlled for.

According to [Jackendoff \(1972\)](#), the BA- and AB-contour are mirror-images of each other, and this assumption is adopted by [Büring \(1997b, 2003\)](#), who furthermore assumes that any sentence with a contrastive topic triggers a 'disputability implicature', which consists of requiring that there is an element in the topic semantic value that remains disputable after uttering the utterance that involves the contrastive topic. This implicature is close in meaning to that of the RFR. [Büring \(2003\)](#) states the pragmatic import differently but concurs in predicting that both the AB- and BA-contour should

be pragmatically equivalent. The conclusion reached here is different: the pragmatic import often attributed to contrastive topics was claimed to be part of the meaning of the RFR-contour, which is involved in Jackendoff's AB-examples but is absent from the BA-examples. The precise meaning of the RFR is something that still needs to be further explored.<sup>14</sup>

Once the RFR-contour is taken out of the picture, the pattern of English contrastive topics is similar to that in Italian and German: contrastive topics precede foci. And the linear order restrictions for contrastive topics mirror those nested focus constructions, lending further support to the predicted correlation: a wide-scope focus operators has to precede the operator that it takes scope over.

### 3 A compositional analysis of contrastive topics

The compositional view of contrastive topics holds that constructions with contrastive topics and foci actually involve two nested unpronounced focus operators. The associate of the focus operator taking wider scope is referred to as a contrastive topic by Büring (1997b, 2003) and is marked with CT in that approach. The associate of the one taking lower scope corresponds to the sentence focus, which is marked with FOC in that approach.

In order to implement the compositional analysis, let's define a focus operator that makes use of an ordinary semantic value and a focus semantic value of its arguments, following the assumptions of alternatives semantics (Rooth 1992). The focus semantic value is determined by replacing F-marked constituents with alternatives and creating an alternative set. The operator takes two overt arguments, a focus constituent  $\alpha$ , and a second argument  $P$ , and is thus similar in structure to *only* and *even*:<sup>15</sup>

<sup>14</sup> For example, a puzzling use of the contour is the following, which doesn't fit the present analysis or that of Ward & Hirschberg (1985) or Constant (2006):

- (i) A: I know that on two occasions someone insulted someone else. Did John insult Sally?  
 B: Yes, you're right. And SALLY insulted BILL.

It doesn't seem that any alternative is still left open after B's utterance, nor does there seem to be any uncertainty involved, and it's not necessary that the speaker intends a *Duh!* kind of implicature conveying 'Isn't that obvious?'

<sup>15</sup> The subscript 'o' stands for ordinary semantics value and the subscript 'a' for the set of alternatives associated with that constituent, the focus semantic value. In the ordinary semantic value, I am separating the presupposition from the asserted content with a colon.

Contrastive topics decomposed

- (58) a. *Ordinary Semantic Value*:  $\forall \sigma \in T: \llbracket \text{FOCUS} \rrbracket_o^g = \lambda x_\sigma. \lambda P_{(\sigma, st)}. \exists a \neq x \in \llbracket x \rrbracket_a^g$  and  $\llbracket x P \rrbracket_a^g$  is salient:  $P(x)$   
 b. *Focus Semantic Value*:  $\llbracket x P \rrbracket_a^g$

One crucial difference to other focus operators is that the FOCUS operator, rather than ‘consuming’ the alternatives introduced by a focus in its scope, is able to pass them up to a higher focus operator via its focus semantic value. An earlier version of this paper (Wagner 2009a) involved a focus operator that did not have this property, which made several incorrect predictions.<sup>16</sup> Here’s an example of a sentence involving a FOCUS operator:<sup>17</sup>

- (59) FOCUS (Moby Dick) ( $\lambda x. \text{John read } x$ ):  
 a. *Assertion*: John read Moby Dick.  
 b. *Presupposition*:  $\{x \mid \text{John read } x\}$  is salient and there is a non-trivial alternative to *Moby Dick* in  $a \in \llbracket \text{Moby Dick} \rrbracket_a^g$   
 c. *Focus Semantic Value*:  $\{x \mid \text{John read } x\}$

What happens when we nest two FOCUS operators?

- (60) Fred  $\vee$  ate the BEANS.

The proposed LF parallel to that of nested overt focus operators looks as follows:

- (61)  $[\lambda P_1. \text{FOCUS}(\text{Fred})(P_1)]([\lambda x. \text{FOCUS}(\text{beans})(\lambda y. x \text{ ate } y)])$

The presuppositions introduced by the two focus operators are as follows:

- (62) a. *Presupposition introduced by inner FOCUS*:  
 $\{y \mid \text{Fred ate } y\}$  is salient and  $\exists a \in \llbracket \text{beans} \rrbracket_a^g$  other than *beans*  
 b. *Presupposition introduced by outer FOCUS*:  
 $\{x, y \mid x \text{ ate } y\}$  is salient and  $\exists a \in \llbracket \text{Fred} \rrbracket_a^g$  other than *Fred*

Note that there is no topic semantic value (i.e., a set of questions) that is

<sup>16</sup> Thanks to Büring (2008) and Heim (class-handout) for their suggestions on how to fix this. Thanks also to Pranav Anand, Jon Gajewski, and Uli Sauerland for helpful discussion of this issue. Tomioka (2010) proposes an analysis of contrastive topics that also involves a topic operator that binds a lower focus. In his analysis, this is accomplished using a representation with indexed focus variables following Kratzer (1991) and Wold (1996).

<sup>17</sup> Noah Constant (p.c.) points out that this analysis is still not entirely compositional due to the particular use it makes of the focus semantic value.

derived here. Both focus operators require the salience of a simple set of alternatives (i.e., a question), and one question is a super-question of the other. Switching the roles between focus and contrastive topic context changes the meaning:

(63)  $[\lambda P_1.\text{FOCUS}(\text{the beans})(P_1)]([\lambda x.\text{FOCUS}(\text{Fred})(\lambda y.y \text{ ate } x)])$

The two presuppositions introduced by (63) are the following:

- (64) a. *Presupposition introduced by inner FOCUS:*  
 $\{y \mid y \text{ ate the beans}\}$  is salient and  $\exists a \in \llbracket \text{Fred} \rrbracket_a^g$  other than *Fred*  
 b. *Presupposition introduced by outer FOCUS:*  
 $\{x, y \mid x \text{ ate } y\}$  is salient and  $\exists a \in \llbracket \text{beans} \rrbracket_a^g$  other than *beans*

The asymmetry in the presuppositions introduced by the two operators serves to account for why switching the roles of contrastive topic and focus can lead to an infelicitous result. However, sometimes the roles of two constituents *can* be freely switched, and either constituent can serve as a contrastive topic (cf. Neeleman & van de Koot 2008). As noted earlier, one such context is a multiple wh-question:

- (65) A: Who ate what?  
 B: JOHN $\forall$  ate the spinach, and the BEANS $\forall$  were eaten by MARY.

We saw that contrastive topics in general have to precede the focus, so why would this not seem to hold in this particular context? This receives a straightforward explanation based on the proposal here, since in contexts with multiple wh-questions, the presuppositions of either scope are fulfilled. What changes when shifting the word order in the two answers in (65) is arguably not the order of the contrastive topic relative to the focus, as was argued for a related example in Neeleman & van de Koot 2008, but instead, what changes is which argument, agent or theme, *is* the contrastive topic (i.e., the argument associating with the higher FOCUS operator) and which is the focus (i.e., the argument associating with the lower focus operator). In both cases, the contrastive topic precedes the focus. This flexibility is unexpected within a theory that involves a topic semantic value which rigidly structures the discourse into super- and subquestions as in Büring 2003 but is expected under the proposal here where the distribution of what we call contrastive topics is guided simply by the success of the focus presuppositions that come about by nesting focus operators.



That the optionality resides in which constituent is the contrastive topic rather than in the relative order between contrastive topic and focus is further confirmed by the fact that a switch in word order is also felicitous in German, where it has generally been accepted since [Büring 1997b](#) that contrastive topics have to precede foci. In the context of a multiple wh-question, the word order between subject and object can be switched, just as in English:

(66) A: Wer hat was gegessen?

‘Who ate what?’

B: /HANS hat den SPINAT\ gegessen und die /BOHNEN hat  
Hans has the spinach eaten and the beans has  
FRED\ egesen.  
Fred eaten.

‘Hans ate the spinach and Fred ate the beans.’

One potential problem with this account is that overt focus operators like *even* and *only* seem to behave differently from our FOCUS operator at least in one way: the higher operator cannot rebind the focus associated with the lower operator. Consider the following example:

(67) At this costume party, everyone came dressed up as a clichéd representative of their country.

a. #Even the Germans wore Lederhosen.

b. The Germans even wore Lederhosen.

‘It was even the case that the Germans wore Lederhosen.’

The example (67a) is infelicitous because Germans—unlikely to wear Lederhosen though they may be compared to how likely an American, say, might be to wear a baseball hat—can still be considered more likely to do so than any alternative nationality (at least according to stereotype). The sentence is infelicitous except in the reading where there is some other alternative to *Germans* that is more likely to wear Lederhosen. The unavailability of the reading paraphrased below the example shows that the alternatives considered are of the form *x wore Lederhosen* and not *x wore y*, which means that *even* cannot associate with both foci, but only associates with *Germans*. In (67b), however, this reading *is* available, and association with the entire sentence (or maybe with two separate foci, one on the subject and one on the

VP) is possible. This was already observed by Jackendoff (1972: pp. 247-248).<sup>18</sup>

The unacceptability of (67a) with the intended reading suggests that the option of ‘passing up’ the alternatives, as in our FOCUS operator, is not, in fact, an option for overt focus operators. So either there is a crucial difference between pronounced and unpronounced focus operators, or the configuration of foci involved in contrastive topics must be a different one.

Let’s consider the possibility of a contrastive topic operator that takes two arguments and operates on alternatives on both. Such an operator could achieve a similar result as our FOCUS operator — it would simply take two focus constituents, one of which is the VP containing the lower focus constituent. This CTOPIC operator would operate on alternatives to both the focus constituent (e.g., the subject if it attaches to the subject) *and* to the open proposition (e.g., the remaining VP), and directly introduce two presuppositions, achieving a similar effect as two nested FOCUS operators:

- (68) a.  $\forall \sigma \in T: \llbracket \text{CTOPIC} \rrbracket_o^g = \lambda x_\sigma. \lambda P_{(\sigma, st)}. \gamma: P(x)$   
 b.  $\gamma = \{a \in \llbracket P \rrbracket_a^g \mid x \text{ ate } a\}$  is salient, *and*  $\{a \in \llbracket P \rrbracket_a^g, b \in \llbracket x \rrbracket_a^g \mid b \text{ ate } a\}$  is salient

CTOPIC would remove the need to define a non-typical focus operator that passes on alternatives to be rebound by a higher focus operator.<sup>19</sup> A downside of CTOPIC, however, is that the asymmetry between contrastive topic and focus is simply stipulated in its lexical entry, and a similar operator CTOPIC’ with swapped roles could easily be defined, such that the contrastive topic could just as well be lower in the syntax than the focus argument.

And yet there may be reasons to believe that such a 2-place operator could exist: the German discourse particles *zumindest* ‘at least’, *aber* ‘but’, *jedenfalls* ‘in any case’, *jedoch* ‘however’, and *hingegen* ‘on the other hand’ (‘hingegen’ was suggested to me by Rainer Ludwig, p.c.) might require an analysis similar to that of CTOPIC, at least in their use as discourse modifiers

<sup>18</sup> However, at least when preceded by *not*, *even* can associate with the entire sentence:

- (i) Not even a dog barked.

This raises interesting questions about the syntax of the sentence in (68), but there is not enough room to elaborate on this here.

<sup>19</sup> A contrastive topic operator that takes two arguments that evoke alternatives was also proposed by Ludwig (2006) to account for contrastive topics in German. This operator differs from the one proposed here in that it introduces a symmetric presupposition that does not distinguish between contrastive topic and focus, which is arguably incompatible with the word order restrictions observed in German.

that attach to topicalized constituents:<sup>20</sup>

- (69) Peter *hingegen* hat Maria eingeladen.  
Peter on the other hand has Mary invited  
'Peter, on the other hand, invited Mary.'

The post-nominal discourse particle *hingegen* seems to evoke alternatives to the topicalized constituent and requires that there be an alternative property that applies to at least one of them and that contrasts with the one in the original sentence. The post-nominal particles *aber* and *jedoch* are quite similar, while *jedenfalls* means something closer to 'at any rate'. Whether an account with nested FOCUS operators or a single CTOPIC operator is desirable is a question that can't be conclusively decided based on the data in this paper.

The analysis in terms of a recursive nesting of FOCUS improves on earlier attempts to derive the semantics of contrastive topics compositionally by recursively nesting two focus operators. Williams (1997) proposes such an analysis, but posits that contrastive topics are *embedded* foci and take *narrow* scope relative to a focus. This idea is probably motivated by the scope-inverting effect that contrastive topics can have, which will be discussed in the next section. However, it conflicts with the scope facts discussed in this paper, which clearly suggest that if anything, contrastive topics must take wide scope. Sauerland (2005) proposes that contrastive topics involve two nested givenness operators. This leads to entirely symmetric presuppositions for the operators associating with the contrastive topic and the focus respectively:

- (70) John saw Mary.  
John G-[x G-[y . x saw y] Mary]
- a. *Presupposition 1*: John saw someone.
  - b. *Presupposition 2*: Someone saw Mary.
  - c. *Presupposition 3*: Someone saw someone.

The approach therefore cannot capture the asymmetry between contrastive topic and focus and the ensuing constraints on relative order, although the basic idea is close to the proposal here.<sup>21</sup>

<sup>20</sup> The translations of the discourse particles are merely approximate, since there are no exact translations for these in English.

<sup>21</sup> A non-compositional approach with very different predictions about the syntactic distribution of contrastive topics is presented in Neeleman & van de Koot 2008. A more detailed discussion can be found in Wagner 2009b.

## 4 The scope of the associate

There are two issues related to scope that any analysis of contrastive topics has to explain: first, the use of contrastive topics often goes along with scope inversion, so contrastive topics have to be able to take lower scope than the focus — a fact that seems at odds with the claim that contrastive topics are defined as the associate of a focus operator taking wide scope. Second, the scope inversion observed with contrastive topics sometimes appears to be obligatory, and explaining this effect has been a key issue in the literature on contrastive topics both in English and in German. So far, there is nothing in the present analysis that would directly account for this. In the following, I will outline how scope inversion can be accounted for under the proposed analysis after all, and I will argue that the disambiguating effects often attributed to contrastive topics is really due to the pragmatic import of certain intonational tunes.

### 4.1 The possibility of scope inversion

In the compositional analysis, contrastive topics in Büring's sense are constituents associated with focus operators that take wide scope over a lower focus operator. Does this mean that the associate of the wide-scope operator also obligatorily takes wide scope over the associate of the lower operator? It is clear that any analysis that makes such a claim would be doomed, since, as is well-known, contrastive topics often show inverse scope (Büring 1997b, Krifka 1998):

(71) /ALLE Politiker sind NICHT\ corrupt.  
 all politicians are not corrupt

'Not all politicians are corrupt'

\* $\forall > \neg$ ;  $\forall \neg > \forall$

The key to understanding this apparent paradox is to distinguish between the scope of the focus operator and the scope of the associate. This is best illustrated with examples involving overt focus operators. Büring & Hartmann (2001: p. 262) claim that in German the overt focus operator *nur* 'only' cannot reconstruct, and *yet its associate is free to do so*:

Contrastive topics decomposed

- (72) Nur ein Bild von seiner Frau besitzt jeder Mann t.  
only a picture of his wife possesses every man
- a. LF: only \_\_\_ possesses every man<sub>i</sub> [a picture of his<sub>i</sub> wife]  
The only person every man possesses a picture of is his wife.
  - b. \*LF: \_\_\_ possesses every man<sub>i</sub> [only a picture of his<sub>i</sub> wife]  
Every man only possesses a picture of his wife.

The claim that constituents like *only x* cannot reconstruct has been questioned in Meyer & Sauerland 2009. For the present purposes, it is sufficient to show it is possible for the associate of a focus operator to reconstruct without the operator itself. I will use German data to do so, since the greater flexibility of word order makes it much easier to test this. The scope between the two focus operators is controlled by the presuppositions that they introduce and the scales they operate on, as before. Reconstruction of the associate is forced by manipulating binding relationships between two arguments. In a sentence without focus operators, reconstruction is in principle possible when the canonical word order is inverted, but not in the canonical word order, so word order has to be controlled for as well.

Let's first look at a sentence in which *nur* 'only' has to outscope *sogar* 'even'. I am assuming a context in which everyone was assigned a different set of problems, ranging in difficulty. Reconstructing the associate without reconstructing the focus operator as in (73b) is clearly possible:<sup>22</sup>

- (73) a. #Sogar jeder Dumpfbeutel<sub>i</sub> löste nur sein<sub>i</sub> einfachstes  
even every blockhead solved only his easiest  
Problem.  
problem
- b. Nur sein<sub>i</sub> einfachstes Problem löste sogar jeder  
only his easiest problem solved even every  
Dumpfbeutel<sub>i</sub>.  
blockhead
- 'Only his<sub>i</sub> easiest problem even every blockhead<sub>i</sub> solved.'

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<sup>22</sup> The translation into English is awkward but not impossible, while a version of this sentence with SVO order is nonsensical. This contrast in English could thus also be used to make the same point. The German data is clearer since inverting subject and object is much more common.

Sentence (73a) is infelicitous because the complement of *sogar* ‘even’ seems to be on the wrong end of the scale — in order to outscope *sogar*, *nur* has to precede it. Sentence (73b) is felicitous, so reconstruction must be possible, but this crucially must be reconstruction of the associate of *only* without the focus operator itself, since otherwise the infelicitous meaning of (73a) would ensue.

Can the focus operator *nur* reconstruct along with the NP below *sogar*? In order to test this, we need a sentence that requires *sogar* to outscope *nur*:

- (74) a. Sogar jeder Überflieger löste nur sein einfachstes  
 even every overachiever solved only his easiest  
 Problem.  
 problem  
 ‘Even every overachiever<sub>i</sub> only solved his<sub>i</sub> easiest problem.’
- b. ?#Nur sein einfachstes Problem löste sogar jeder  
 only his easiest problem solved even every  
 Überflieger.  
 overachiever

Reconstructing the focus operator along with its associate is hard and may even be impossible, even when we use binding to force reconstruction of the associate as in (74b).

We can create similar examples to test whether the associate of *sogar* can reconstruct without taking the focus operator along, and whether *sogar* can reconstruct along with it. To test the first question, we need an example in which *sogar* outscoops *nur*. Reconstructing the associate without *sogar* is again possible:<sup>23</sup>

- (75) a. #Nur jeder der Überflieger<sub>i</sub> hat sogar sein<sub>i</sub> einfachstes  
 only every of.the overachievers had even his easiest  
 Problem lösen können.  
 problem solve could

<sup>23</sup> According to my consultants, the English translation is a mouthful but not impossible — it’s the closest one I could construct to convey the meaning while still involving a bound variable.

Contrastive topics decomposed

- b. Sogar sein<sub>i</sub> einfachstes Problem hat nur jeder der  
even his easiest problem had only every of.the  
Überflieger<sub>i</sub> lösen können.  
overachievers solve could

‘Even for their easiest problems, only some of the overachievers could solve them.’

Reconstructing *sogar* along with its associate is again harder, but seems less bad than in the case of *only*:<sup>24</sup>

- (76) a. Nur jeder Überflieger<sub>i</sub> hat sogar sein<sub>i</sub> schwierigstes  
only every overachiever had even his difficult.most  
Problem gelöst.  
problem solved

‘Only every overachiever solved even his most difficult problem.’

- b. ??Sogar sein<sub>i</sub> schwierigstes Problem hat nur jeder  
even his difficult.most problem had only every  
Überflieger<sub>i</sub> gelöst.  
overachiever solved

We can conclude that it is possible for a focus operator and its associate to take split scope, and hence the possibility of scope reversal between contrastive topic and foci does not speak against the claim that the focus operator that the contrastive topic associates with always takes wide scope over the focus operator in the same sentence. Having established that the associate *can* take lower scope, we will now turn to cases in which this scope reversal is apparently obligatory.

#### 4.2 The (occasional) necessity of scope inversion

Contrastive topics have been argued to disambiguate certain otherwise ambiguous sentences, both in English and German. Explaining these disambiguation effects is at the heart of the approach to contrastive topics in [Büring 1997a](#) and [Büring 1997b](#). How can the compositional approach pro-

<sup>24</sup> I am not sure what could explain this asymmetry. [Meyer & Sauerland \(2009\)](#) note differences between focus operators and their ability to reconstruct, but as far as I can tell their theory does not predict the difference observed here.

posed here account for these effects? The proposal in this section is that the disambiguating effect is actually due not the presence of a contrastive topic itself, but rather to the intonational tunes that can accompany them. I will illustrate the idea first with the case of English, where the RFR-contour can disambiguate sentences under certain circumstances, and then argue that in German, it is the HAT-contour that is responsible for disambiguation.

As discussed by Oshima (2005), Constant (2006) and many others, the RFR-contour in English sometimes seems to have a disambiguating effect. Here is an example from Constant (2006), pronounced with prominence on the quantifier *all*, judgments as reported there:<sup>25</sup>

(77) /ALL of my friends didn't come\/.  $*\forall > \neg; \checkmark \neg > \forall$

The structure of the explanation proposed in Oshima 2005 and Constant 2006 for the disambiguating effect of the RFR Focus is parallel to Büring's 1997 account of the disambiguating effect of contrastive topics in German: focus on *all* evokes alternatives such as *some* or *many*. The reading in which the universal takes wide scope over negation would resolve the truth value of all alternative sentences and therefore contradict the contribution of the RFR. This is, according to them, why only the inverse-scope reading of the sentences is possible. Since the pragmatic import that is attributed to the RFR-contour itself is attributed to contrastive topics in Büring's account, this example is often discussed in the context of contrastive topics.

The particular example (77) that is used by Oshima (2005) and Constant (2006) is problematic however. In (77), the inverse-scope reading is preferred even *without* the RFR-contour, at least for some speakers, as was first observed in Carden 1970. Labov (1972: p. 193) reports results from pilot experiments (crediting collaborative work with Mark Baltin), showing that scope preferences vary depending on contextual factors, but they observe a preference for inverse scope at least for some examples. Hoeksema (1999) presents corpus evidence showing that subjects with *every* outscoping sentential negation are rare. More evidence for this preference can be found in Musolino 1998. Horn (1989: p. 499) proposes an explanation for this preference, and suggests that using the configuration *every x ... not* is blocked by the logically equivalent lexicalized *no x*. If inverse scope is already preferred without the RFR-contour in (77) then the example cannot be used as argument for a disambiguating effect.

<sup>25</sup> Syrett et al. (2011) presented initial results from an experimental study of scope taking with the RFR, which might shed new light on the discussion of this section.



However, the right context can bring out either reading in examples like (77; cf. Ward & Hirschberg 1985), and furthermore, small variations of the example can tip the balance one way or another. Adding a restrictive modifier to the universal quantifier, for example, seems to tip the balance in favor of surface scope:

- (78) a. Sally hosted a party.  
She was disappointed that all of her friends didn't come.  
*preferred:  $\neg > \forall$*
- b. Sally hosted a party. Her friend Jim was there.  
She was disappointed that all of her other friends didn't come.  
*preferred:  $\forall > \neg$*

While both scope readings are available in both sentences, the sentence in (78b) has a preferred surface-scope reading. Adding a restrictive modifier like *other* makes the wide-scope for the universal operator more accessible, and these examples thus make for a better test for the alleged disambiguating effect of the RFR-contour. A pronunciation with focus on *all* and an RFR-contour indeed seems to tip the preferences in (79) in favor of inverse scope:

- (79) ALL of her other friends didn't come  $\forall$ . *preferred:  $\neg > \forall$*

Another argument in favor of a role for RFR in disambiguation is that an NPI that disambiguates toward a wide-scope reading of the universal quantifier (Carden 1970) makes the utterance with RFR sound strange:<sup>26</sup>

- (80) a. ALL of her friends didn't show up until 11pm.  
b. #ALL of her friends didn't show up until 11pm  $\forall$ .

The claim that the RFR plays a role in disambiguation seems correct. This disambiguating effect can be explained as the interaction between context, the alternatives evoked by the focus marking in the utterance, and the semantic contribution of the intonational contour, which is that an alternative to the proposition is insinuated to be possibly true.

In (79) a focus alternative to *all* is evoked. If the universal took wide-scope over negation, then alternatives such as *Some other friends of hers didn't come* would be made salient. The RFR-contour contributes that one of the

<sup>26</sup> The pattern of NPI licensing in these sentences raises various interesting questions which would merit further attention. See Carden 1970 for some discussion.

alternatives is taken to be possibly true, but the assertion under the surface-scope reading actually rules out all relevant alternatives. Under the reading in which negation takes wide-scope, alternatives are of the form *Some friends of hers came*. The assertion that not all friends of hers came leaves open the possibility that such an alternative is true, and is thus compatible with the presupposition introduced by the RFR, and hence the preferred reading in (79).

We can conclude that the claims about the disambiguating effect of the English RFR-contour have some truth to them, but this effect is arguably orthogonal to the issue of the pragmatic import of contrastive topics, since it is the RFR that is responsible for the insinuated alternative rather than the presence of contrastive topics.

The situation seems different at first in German, where contrastive topics appear to be directly at stake in certain cases of disambiguation. The following example involves a subject that is a contrastive topic and a focal accent on negation:

- (81) Alle Politiker sind NICHT\ corrupt.                    \* $\forall > \neg$ ;  $\checkmark \neg > \forall$   
 all politicians are not corrupt

The distribution of accents makes it clear that alternatives to the universal operator *alle* and the negation *nicht* are evoked. If the universal quantifier took scope over negation, then all alternatives, for example, *Some politicians are corrupt*, would already be entailed as either true or false, so expressing that any of them is possibly true would be either false or uninformative depending on whether it's false or true. If contrastive topics in German have a 'disputability implicature' similar to the meaning of the RFR, then these scope-facts can be elegantly explained, and this is indeed what [Büring \(1997b\)](#) proposes — and yet the analysis advanced here does not attribute any such pragmatic import to contrastive topics.

However, just as in English, the reason for the disambiguating effect is arguably not the presence of a contrastive topic itself, but rather the semantic contribution of the intonational contour. I will assume that the HAT-contour contributes the following meaning, drawing on an analysis of the HAT-contour by [Ludwig \(2006: p. 76\)](#):<sup>27</sup>

<sup>27</sup> According to [Ludwig \(2006: p. 76\)](#), the HAT-contour involves a contrastive-topic-operator taking two foci as its argument and implicates that "there is at least one true proposition (sentence) that is the result of replacing *both* foci with respective alternatives." As mentioned

(82) *Hat Contour*:  $[[\text{HAT}]] = \lambda P \in D_{\langle s,t \rangle}. \exists P' \in [[P]]_a^g, P \not\vdash P'$  and  $P' : P$

The HAT contour differs from the RFR in that it presupposes that an alternative proposition is true, rather than just possibly true. As would be expected based on the proposed meaning, and just like in the case of the RFR, the HAT-contour is impossible when all alternatives except the one expressed must be false, as in (83). The response is only felicitous if someone else insulted someone else but, in the context below such an antecedent is not readily available:

(83) Either Hans insulted Pia or Pia insulted Hans. Did Hans insult Pia?

#Nein. /PIA hat HANS\ beleidigt.

No. Pia has Hans insulted

'No, Pia insulted Hans.'

This incompatibility of the HAT-contour with a context in which all alternatives are either ruled out or already entailed can also explain the disambiguating effect in (81), by the same reasoning that was discussed in the context of the English case.

The HAT-contour is similar to the RFR-contour in another aspect, namely in that it can be used to insinuate that some other alternative statement is true. Consider the scenario in which we know that Hans and Maria are inseparable. In her response, B is implying that Hans will come as well:

(84) A: Wird Hans kommen?

'Will Hans come?'

B: /MARIA KOMMT\.

'Maria is coming.'

By evoking alternatives of the form *x is coming* through focus-marking and by signalling by the HAT-contour that an alternative is true, B's statement insinuates that Hans will come too. In contrast to the RFR-contour, the HAT-contour can be embedded. For example, the following example is compatible with a reading in which it is the subject of the matrix clause, Mary, who conveys that some politicians are corrupt, without any such insinuation being

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before, a problem of this analysis is that it is entirely symmetric and fails to predict any asymmetries in the distribution of contrastive topic and focus. There is also evidence that the HAT-contour can be used in the absence of a contrastive topic, similar to the RFR (see [Wagner 2009a](#) for discussion).

made by the speaker:

- (85) Maria widersprach mir weil sie glaubt dass /ALLE  
 Maria contradicted me because she believes that all  
 Politiker NICHT\ korrump sind.  
 politicians not corrupt are.

‘Mary contradicted me because she doesn’t think that all politicians are corrupt.’

This sheds doubt on [Jacobs’s \(1997\)](#) claim that the HAT-contour necessarily operates over speech acts, as was also pointed out also by [Molnár & Rosengren \(1997\)](#). The predicate *glauben* ‘believe’ in (85) embeds propositions, and therefore it should not be able to embed a speech act and, under [Jacob’s](#) analysis, should not be able to embed the HAT-contour.<sup>28</sup>

According to [Krifka \(1998\)](#), the HAT-contour in German does not just resolve ambiguities, it also makes certain readings accessible that are unavailable without the HAT-contour. This is unexpected under [Büring’s \(1997\)](#) analysis, and also under the analysis presented here. A common assumption about German is that a sentence in canonical word order only has surface scope. This claim originates in [Frey \(1993\)](#), who used sentences with *verum*

<sup>28</sup> [Tomioka \(2009\)](#) argues that contrastive *wa* (and contrastive topics more generally) operate on alternative speech acts, as I argued is the case for the RFR-contour in English. However, [Hara \(2006: p. 60\)](#) provides an example in which *wa* is embedded under ‘believe’, a predicate that embeds propositions and not assertions:

- (i) [MARY-wa ki-ta-to] John-ga shinjite-iru.  
 Mari-TOP come-PAST-COMP John-NOM believe-PROG
- a. Reading 1:  
*Asserted:* The speaker knows that John believes Mary came.  
*Implicated:* John doesn’t know whether someone else came.
- b. Reading 2:  
*Asserted:* The speaker knows that John believes Mary came.  
*Implicated:* The speaker doesn’t know whether John believes that someone else came.

Based on the observation by [Hara \(2006: 66ff\)](#) that contrastive *wa* cannot be embedded in relative clauses and adjunct clauses, Hara concludes that contrastive *wa* can only be embedded under attitude predicates. The German HAT-contour also sounds strange in relative clauses (cf. [Jacobs 1997](#), [Molnár & Rosengren 1997](#)), suggesting further parallels to contrastive *wa*. However, the embeddability of contrastive topics under attitudes in Japanese and German suggests that contrastive topics do not necessarily operate over speech acts, contrary to [Tomioka \(2009\)](#).

focus to control for other intervening information structure factors.<sup>29</sup> Krifka argues that the HAT-contour can make inverse scope available even in sentences with canonical word order (Krifka 1998: pp. 75, 80):

- (86) a. Jeder Student hat mindestens einen Roman gelesen.  
 every Student has at least one novel read.  
 ‘Every student read at least one novel.’  $\checkmark \forall > \exists$ ;  $*\exists > \forall$
- b. /JEDER Student hat mindestens EINEN\ Roman gelesen.  
 every Student has at least one novel read.  
 ‘Every student read at least one novel.’  $\checkmark \forall > \exists$ ;  $\checkmark \exists > \forall$

The examples in (86) are hard to judge, however, since the inverse scope reading entails the truth of the surface scope reading. Even if only the surface scope reading was available, the sentence is expected to be compatible with a scenario that motivates the inverse reading. The following example is arguably easier to evaluate:<sup>30</sup>

- (87) Mindestens ein Reviewer hat jeden Artikel gelesen.  
 at least one reviewer has every article read  
 ‘At least one reviewer read every article.’  $\checkmark \forall > \exists$ ;  $\checkmark \exists > \forall$

For this sentence, the surface scope reading is less plausible than the inverse scope reading, at least in a context in which we are talking about hundreds of articles published by a journal over the last decades. And yet the sentence seems quite possible even in such a context, where clearly there was no single reviewer who read every single article — even *without* the HAT-contour. In other words, it is not clear whether the premise that inverse scope in German sentences with canonical word order is impossible is actually correct. So in fact, Büring’s claim that the disambiguating effect of certain uses of contrastive topics always pick one reading out of two independently available ones might be correct after all.

The account for the disambiguating effect of the RFR and the HAT-contour outlined here keeps the insight of Büring’s original analysis: the disambiguating effect can be explained by the presence of something close

<sup>29</sup> This method seems problematic, however, since the contrast that needs to be accommodated for verum focus might itself bias toward one reading or another.

<sup>30</sup> Both scopes seem possible here independent of whether the sentence has verum focus or not.

to his ‘disputability implicature’. But the analysis presented here does not tie this effect directly to the presence or absence of a contrastive topic. Rather, the ‘implicature’ is interpreted as being a presupposition introduced by an intonational tune.

## 5 Conclusion

This paper presented evidence that the syntactic distribution of CTs relative to FOCs mirrors the distribution of certain cases of nested overt focus operators, and is more restricted than earlier approaches would predict. An explanation was provided in the form of a compositional analysis that takes contrastive topics to be the associate of a focus operator taking wider scope over a lower focus operator. The pragmatic import that contrastive topics seem to come with and that is involved in their occasional disambiguating effect was attributed to independently motivated operators that can be realized as intonational tunes, such as RFR in English and HAT in German.

A better understanding of the scope relations between focus operators might also shed light on other phenomena. Some of the data discussed in this paper look very similar to certain ‘intervention effects’. An example of an intervention effect in Korean is the following (cf. Beck 1996):

- (88) a. \*Minsu-man nuku-lûl po-ass-ni?  
       Minsu-only who-Acc see-Past-Q  
       b. Nuku-lûl Minsu-man po-ass-ni?  
       who-Acc Minsu-only see-Past-Q  
       ‘Who did only Minsu see?’

The *wh*-phrase of the question cannot be *c*-commanded by the focus operator *man* ‘only’ and the constituent it attaches to. Kim (2002) identifies focus as a likely source of the ungrammaticality of (88a), based on her discovery that the most consistent interveners cross-linguistically are focus sensitive operators like *only* and *even* and certain NPIs that can be analyzed as involving an unprounced *even*. The explanation for (88a) proposed in Kim 2002 is that focus-sensitive operators that occur between the complementizer and the *wh*-phrase prevent the complementizer from associating with the indefinite, which is necessary to derive the correct question meaning. Beck (2006) proposes a related analysis in which the operator *man* actually associates with the *wh*-indefinite and ‘absorbs’ the alternatives it evokes.

The ungrammaticality of (88a) is derived by the further assumption that the indefinites involved in *wh*-questions, although morphologically identical to indefinite pronouns, do not have an ordinary semantic value, and thus the overall sentence fails to receive an interpretation if the *wh*-indefinite is not bound by the question operator.

The data discussed in this paper suggest the possibility of a different characterization of the problem. Let's assume with Kim (2002) and Beck (2006) that the mechanism involved in relating a question operator and a *wh*-phrase is the same that is involved in focus association (see Cable 2010 for a more recent instantiation of this idea). The problem with (88a) might then be that two focus operators take the wrong scope with respect to each other, rather than reflecting a problem with focus association.

The meaning of a question can be characterized as a set of propositions (Hamblin 1973). Suppose that in a *wh*-question, this set is generated by a focus-sensitive Q-operator, which attaches to its first argument, the *wh*-indefinite, and takes an open proposition as its second argument. In other words, it has a syntax similar to that of *man* 'only' and other focus operators in Korean. Q differs from the regular focus operator in that it returns a set of propositions as its regular meaning, rather than as its focus semantic value. Now, the intended meaning of the question in (88b) is a set of propositions in which each alternative involves the exclusive particle *man* (I only list the English translations of the alternatives):

(89) {Only Minsu saw John, Only Minsu saw Bill, ... }

By the same logic that we applied to the cases where a focus operator outscopes another focus operator, we can take this to mean that the Q operator outscopes *man*. However, if Korean is like the other languages discussed in this paper and only allows surface scope between focus operators, the Q operator cannot take wide scope over *only* in (88a). And this scope problem would then be the reason for the ungrammaticality.

Under this view, the problem with (88a) is not a problem of a faulty association with focus as in Beck 2006, but rather a problem of faulty scope between focus operators: in (88a) the focus operators Q and *man* have the wrong scope relative to each other.

A premise for this new account of the intervention effect is that indeed, scope between focus operators in Korean is fixed to surface scope. We can establish this independently based on the same kinds of examples we used to test for the scope of focus operators in the other languages. Consider the

case in which the operator corresponding to ‘even’, *cocha*, has to outscope the one corresponding to ‘only’, *man*:

(90) *even* > *only*, *even* attaches to object

- a. #ceyil ttokttokhan haksayng-man ceyil swiwun  
 most smart student-only most easy  
 mwuncey-cocha phwulessta.  
 problem-even solved
- b. ceyil swiwun mwuncey-cocha ceyil ttokttokhan  
 most easy problem-even most smart  
 haksayng-man phwulessta.  
 student-only solved

‘Even the easiest problem was solved only by the best student.’

The infelicity of (90a) shows that scope between focus operators in Korean is fixed to surface scope, and crucially the constituent with *man* ‘only’ cannot precede the constituent with *cocha* ‘even’ if *cocha* is to outscope *man*. This is parallel to the wh-intervention case in (88a) where *man* precedes the wh-word with the Q operator, although the Q operator has to outscope *man* given the intended meaning of the question.<sup>31</sup>

Based on the proposal in Beck 2006, the scope fact in (90a) is unrelated to intervention effects in questions like (88a). In (90a) there is clearly no interruption of focus association between a focus operator and its associate, since the focus particles attach directly to their focus constituent. Under the alternative scope-based proposal outlined here, scope facts and intervention effects are one and the same phenomenon. One obvious question to ask about this new proposal is why it is that in (88a) ungrammaticality ensues rather than infelicity. In other words, why is it that instead of leading to an odd meaning that might make sense in some context or other — as in the case of scope between two overt focus operators in (90a) — the sentence in (88a) seems outright unacceptable. However, if the question operator Q returns a set of propositions as its denotation, and *man*, just like *only* and *even* in

<sup>31</sup> Fixed scope is also observed in Korean when *even* attaches to the subject rather than the object (e.g., *Even the smartest student solved only the easiest problem*), and also in the examples in which scope is reversed, and *only* outscoops *even* — the wide-scope focus operator in Korean always precedes the lower scope focus operator, independent of which constituent is the grammatical subject and object. I omit the examples here for reasons of space.



English, is looking for a single open proposition as its second argument, the structure might simply remain uninterpretable due to a type-mismatch.

The parallels between scope-taking between multiple focus operators and prototypical cases of intervention effects pointed out here support the general idea developed by Kim (2002) and Beck (2006) that intervention effects are related to focus. However, they suggest that both phenomena reveal a problem of scope-taking between focus operators rather than a problem with focus association with the *wh*-phrase. The scope restrictions observed in this paper between focus operators seem cross-linguistically robust, which is in line with Kim's (2002) typological observations.<sup>32</sup> A full discussion of intervention effects is beyond the scope of this paper, but it seems clear that a closer look at the scope between multiple focus operators would be relevant for their understanding.<sup>33</sup>

In sum, this paper has taken a look at scope-taking between focus operators and has opened a new perspective on the analysis of contrastive topic and related phenomena. In the course of the paper, potential confounds such as the interaction between the use of contrastive topics and the use of certain intonational contours have been pointed out. There are a number of data points in this paper that conflict with those in earlier work on the topic and should be tested experimentally, since the judgments involved are subtle. I hope that this article will inspire work of this kind and will be a step toward a better understanding of focus and topic in general.

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<sup>32</sup> It would be interesting to test these scope facts in Amharic, which Eilam (2009) claims fails to show certain intervention effects.

<sup>33</sup> Thanks thanks to Mayr (p.c.) for discussing these issues with me, and see Mayr 2011 for a new approach to intervention effects which is related to the discussion here. Eilam (2009) argues that intervention effects reduce to information structure mismatches, following ideas in Tomioka 2007 — a more detailed discussion of this approach has to await another occasion.

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