A syntactic typology of topic, focus and contrast*

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Abstract. In this paper we argue for a typology of various information-structural functions in terms of three privative features: [topic], [focus] and [contrast] (see also Valldurví and Vilkuna 1998, Molnár 2002, McCoy 2003, and Giusti 2006). Aboutness topics and contrastive topics share the feature [topic], new-information foci and contrastive foci share the feature [focus], and contrastive topics and contrastive foci share the feature [contrast]. This typology is supported by data from Dutch (where only contrastive elements may undergo A'-scrambling), Japanese (where aboutness topics and contrastive topics must appear sentence-initially), and Russian (where the new-information foci and contrastive foci share the same underlying position). To the best of our knowledge, there are no generalizations over information-structural functions that do not share one of the features adopted here.

1.   Introduction

As is well-known, topics and foci have dedicated positions in a variety of languages. This paper is concerned with what this fact can tell us about the typology of information-structural notions and their mapping to the syntax. We argue that the data support two conclusions, both of which can be shown to clash with a cartographic outlook on sentence structure (for a general overview of the cartographic framework, see Cinque 2002, Rizzi 2003, and Belletti 2004). The first is that there are no fixed landing sites for topic and focus movement. The second is that there are cross-cutting generalizations over topics, over foci, and over contrastive elements. These jointly motivate the following four-way typology:

(1)

	Topic	Focus
Non-contrastive	aboutness topic [topic]	new information focus [focus]
Contrastive	contrastive topic [topic, contrast]	contrastive focus [focus, contrast]

What the table in (1) expresses is that topic and focus are basic notions in information structure that can be enriched to yield a contrastive interpretation.

In other words, a contrastive topic and a contrastive focus are an aboutness topic and a new information focus interpreted contrastively. We are not the first to make a suggestion along these lines; related ideas can be found in Vallduví and Vilkuna (1998), Molnár (2002), McCoy (2003), and Giusti (2006).

Cartography is based on two core tenets. First, it assumes a one-to-one correspondence between syntactic position and interpretive effect. Topic and focus will hence be realized in designated functional projections, which according to Rizzi (1997) are located in the left periphery of the clause. Second, cartography tacitly adopts a radically decompositional approach to syntactic categories. This second assumption is in fact implied by the first: if there are two interpretive effects, there must be two designated positions in which these are licensed. Consequently, every semantic feature that has syntactic import must head its own functional projection. This drives the cartographic research program to the highly articulated phrase structure found in much recent work.

Our claim that topic and focus do not have designated positions in the clause obviously runs counter to the first tenet of cartography. The cross-cutting generalizations that we establish have the consequence that the presence of [contrast] is conditional upon the presence of either [topic] or [focus]. This conclusion does not mesh with the second tenet of cartography, that of radical syntactic decomposition. Specifically, an encoding of these features as heads of functional projections TopicP, FocusP and ContrastP cannot capture the data provided in the following sections. We will develop both arguments in more detail in sections 3 and 6.

In order to make the comparison with cartography as explicit as possible, we will treat [topic], [focus] and [contrast] as privative syntactic features. This is a matter of presentational convenience; in fact, none of our arguments are adversely affected if [topic], [focus] and [contrast] are merely discourse notions targeted by mapping rules operating between syntax and information structure.

The strongest evidence for the typology in (1) comes from the syntactic distribution of constituents with different information-structural functions. If we treat contrast, topic and focus as privative features, we expect to find rules that mention [topic] and therefore generalize over aboutness topics and contrastive topics, rules that mention [focus] and therefore generalize over new information focus and contrastive focus, and rules that mention [contrast] and therefore generalize over contrastive topic and contrastive focus. We do not expect to find rules that generalize over aboutness topics and new information foci, over contrastive topics and new information foci, or over aboutness topics and contrastive foci. None of these pairs share a feature.

The import of these predictions of course depends on what we mean by notions like 'focus', 'topic' and 'contrast'. We take 'focus' to be the information

highlighted in a proposition. For example, in the answer to a wʜ-question, the constituent that corresponds to the wʜ-expression is a focus. The rest of the sentence functions as the background to this focus; that is, the focus is highlighted with respect to this material (throughout we use small capitals to mark foci):

(2) a. *What did Rutger buy?*
     b. *Rutger bought A GUN.*

We follow Reinhart (1981) in assuming that topics should be defined in terms of aboutness (the linguistic relevance of aboutness is motivated by several phenomena, including anaphora resolution). On Reinhart's definition, a topic is the entity that the utterance is about. Thus, while 'focus' is notion operative at the level of propositions, 'topic' is primarily a discourse notion (see Tomioka 2007b for recent discussion). But of course some syntactic constituents are used to manipulate the topic of discourse (by introducing a new topic or narrowing down the current topic, and so on). These are often referred to as sentence topics or linguistic topics. We reserve the feature [topic] to distinguish them from constituents with other information-structural functions.

Linguistic topics should be distinguished from expressions contained in the utterance that merely index the current topic of discourse (see Lambrecht 1994 for extensive discussion)[1]. We can illustrate the distinction using the following discourse (throughout we use double underlining to mark topics):

(3) a. <u>Maxine</u> *was introduced to the queen on her birthday.*
     b. *She was wearing a special dress for the occasion.*

In (3a), *Maxine* is a linguistic topic: it introduces a new topic of discourse. The initial comment made about Maxine is that she was introduced to the queen on her birthday. The pronoun *her* in this comment is not a linguistic topic, but a category that indexes the topic. We take the same to be true of the continuation of the discourse in (3b), which is what one might call an 'all-comment' sentence, linked to the topic *Maxine* through the pronoun *she* (see Vallduví 1992, Lambrecht 1994, and Vallduví and Engdahl 1996 for discussion).[2] A consequence of this view is that the traditional notion of aboutness is a reliable indicator of discourse topics, but not of linguistic topics (i.e. constituents that bear the [topic] feature). In what follows, we will introduce tests for linguistic topichood where appropriate.

The final notion we rely on is that of contrast. Constituents that are contrastive are understood to belong to a contextually given set out of which they are selected to the exclusion of at least some other members of the set. Both topics and foci

can be interpreted contrastively. In English, contrastive topics and foci are each marked by a special intonation. Contrastive foci typically carry what Jackendoff (1972) calls an A-accent: a plain high tone (H*), often followed by a default low tone (see Büring 2003 and references mentioned there). Contrastive topics carry a B-accent, maximally realized as L+H* followed by a default low tone and a high boundary tone (L H%). We will not indicate A- and B-accents in examples, but all constituents marked as contrastive topic or focus are taken to carry these accents in languages that distinguish them (like Dutch). Further tests that identify contrastive topics and contrastive foci will be introduced as we proceed. (Throughout we use boldface to mark contrast.)

(4)   a.   *Rutger bought A GUN*

       b.   **_Maxine_** *was introduced to the queen on her birthday.*

On the appropriate intonational contours, (4a) conveys that Rutger bought a gun and not certain other relevant items, while (4b) highlights that the speaker knows that Maxine was introduced to the queen on her birthday, but could not make the same statement about other relevant individuals. (This could be because the speaker lacks knowledge about these other individuals or because he or she knows that a similar statement about them would not be true.)

On these definitions of topic, focus and contrast, the kind of rules excluded by the table in (1) are indeed not attested. However, the kind of generalizations permitted by the table are indeed attested. In each of the following sections we discuss a language with a data pattern that can be captured by a rule that refers to [topic], [focus] or [contrast]. In section 2, we show that Dutch A'-scrambling targets constituents with a contrastive interpretation. In section 4, we show that in Japanese both aboutness topics and contrastive topics must appear in the left periphery of the clause, a requirement that sets them apart from other constituents. In section 5, we show that in Russian new information foci and contrastive foci have the same underlying position. The presence or absence of contrastiveness, however, gives rise to very different surface syntax, as contrastive foci are fronted.

There is one generalization whose effects can be found in all three languages:

(5)   [Contrast] licenses A'-movement.

It is obvious that (5) holds in Dutch. In Japanese, contrastive topics can be shown to be associated with an A'-trace, while aboutness topics are associated with a null resumptive pronoun (see section 4). In Russian, contrastive foci undergo A'-fronting, while new information foci remain in clause-final position (see section 5).

The generalization in (5) is of course not new. It goes back to at least Kiss (1998), where evidence for it is provided from languages other the ones discussed here. An obvious question is why the generalization should hold. Kiss suggests that contrast is inherently quantificational and uses A'-movement, because this operation in general is used to create structures of quantification (a similar idea can be found in Rizzi 1997). We find this an attractive suggestion, although it faces a number of complications (for example, quantification associated with contrast is different in various respects from quantifier scope and scope in wh-questions; compare Zubizarreta 1998). For reasons of space, we cannot address any of these complications here and must leave (5) as a descriptive generalization.

2.   Dutch A'-scrambling[3]

There is general agreement that, in Germanic and beyond, there are two types of scrambling. A-scrambling feeds and bleeds binding and secondary predication, does not give rise to weak crossover effects, is clause-bounded, and does not give rise to scope-reconstruction. We cannot illustrate all these properties here, but for relevant discussion, see Vanden Wyngaerd (1989), Mahajan (1990), Zwart (1993), Neeleman (1994), and Neeleman and Van de Koot (2007). In contrast, A'-scrambling does not affect binding or secondary predication, gives rise to weak crossover effects, is not clause-bounded, and reconstructs (obligatorily) for scope. Again, we will not demonstrate these properties here, but refer the reader to Neeleman (1994), Jacobs (1997), Haider and Rosengren (1998), and Neeleman and Van de Koot (2007) for discussion.

In Dutch, the two types of scrambling can be easily told apart, because in this language only A'-scrambling can alter the basic order of arguments (subject – indirect object – direct object).[4] A-scrambling is restricted to the reordering of arguments and adjuncts (see Zwart 1993 and references cited there).[5] The two types of scrambling are also associated with different interpretive effects. A-scrambling operations typically mark the scrambled DP as discourse-anaphoric (that is, the DP refers back to an entity introduced earlier in the discourse); see Reinhart (1995), Neeleman and Reinhart (1998), and Choi (1999), among others, for discussion. Abstracting away from pied-piping, A'-fronting operations typically require the moved DP to be interpreted as either a contrastive focus or a contrastive topic (see Neeleman 1994 and Frey 2001):

(6) a. *Ik geloof dat [alleen **DIT** boek]₁ Jan Marie t₁ gegeven*
         I   believe that only   this book   John Mary   given
         heeft.
         has
         'I believe that John has given only this book to Mary.'

     b. *Ik geloof dat [z̲o̲'̲n̲ ̲b̲o̲e̲k̲]₁ alleen **JAN** Marie t₁ gegeven*
         I   believe that such-a book   only   John Mary   given
         heeft.
         has
         'I believe that only John has given such a book to Mary.'

(7) a. *Ik geloof dat Jan [alleen **DIT** boek]₁ Marie t₁ gegeven*
         I   believe that John only   this book   Mary   given
         heeft.
         has
         'I believe that John has given Mary only this book'

     b. *Ik geloof dat Jan [z̲o̲'̲n̲ ̲b̲o̲e̲k̲]₁ alleen **MARIA**₁ gegeven*
         I   believe that John such-a book   only   Mary   given
         heeft.
         has
         'I believe that John has given such a book only to Mary.'

(8) a. *[Alleen **DIT** boek]₁ zou   Jan Marie t₁ geven.*
          only   this book   would John Mary   give
         'John would give Mary only this book.'

     b. *[Z̲o̲'̲n̲ ̲b̲o̲e̲k̲]₁ zou   alleen **JAN** Marie t₁ geven.*
          such-a book   would only   John Mary   give
   'Only John would give Mary such a book.'

The data demonstrate that A'-scrambling can target a variety of positions. Irrespective of whether the moving phrase is a topic or a focus, it can land in a position between the complementizer and the subject, as in (6), in a position between the subject and the indirect object, as in (7), or in the first position in main clauses, as in (8). Further landing sites are available in structures containing adverbs, as these are (usually) freely ordered with respect to moved topics and foci.

   DPs that are not interpreted contrastively cannot be scrambled across arguments, even if they are topic or focus.

   One might conjecture that A'-scrambling is licensed by a mapping rule that assigns a moved constituent an interpretation as contrastive. The drawback of this suggestion is that constituents that remain in situ can also be interpreted in

this way, so that it is difficult to see what effect the movement could have on the displaced category. This being so, we explore the possibility that A'-scrambling does not affect the interpretation of the moved category itself, but rather that of the constituent to which it adjoins.

The idea, then, is that movement of a contrastive topic or focus marks that material in the sentence used to calculate the contrast (the statement made in relation to the contrasted category to the exclusion of alternatives). We will call this material the domain of contrast (DoC). Thus, if a contrastive topic or focus remains in situ, the domain of contrast need not be a constituent, as indicated in (9a). Therefore, in interpreting the sentence, the hearer must construe an appropriate domain of contrast based on contextual clues. This is different if the contrastive constituent in (9a) moves out of YP, so that an otherwise discontinuous domain of contrast is turned into a constituent, as shown in (9b).

(9)   a.

b.
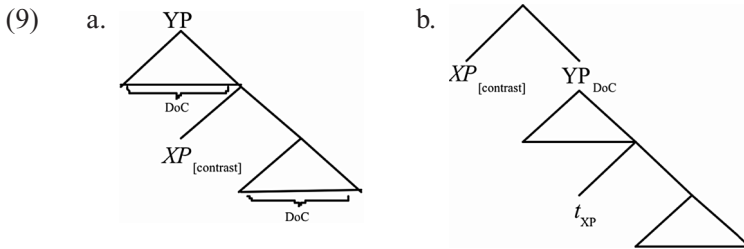
In sum, movements of contrastive topics and foci do not mark the discourse functions of these elements themselves, but rather their domain of contrast; that is, the material relevant to calculating the set of alternatives on which the contrast operates (see Wagner 2005 for related ideas). This proposal can be implemented through the mapping rule in (10). (For the purposes of this paper, we assume that (10) is part of the grammar of Dutch, but not necessarily of the grammars of Japanese and Russian. Of course future research should establish whether it holds more generally. The structure in (11), to which (10) refers, contains the diacritic M that we have used in previous work to encode A'-movement, on a par with the slash notation in HPSG. Nothing hinges on this.)[6]

(10)   *DoC Marking*
        In (11) N_2 is interpreted as the domain of contrast for XP.

(11)
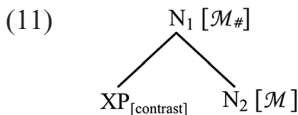
The proposal summarized in (10) and (11) entails that the examples in (6) and (7) differ as to whether or not the embedded subject is included in the domain of contrast. This is because both are movement structures and, given that the sister of the landing site of A'-scrambling is the domain of contrast, the status of the subjects in the examples in (6) differs from that of the subjects in the examples in (7). Note that in the absence of A'-scrambling the subject could of course be included in the domain of contrast.

An immediate question that this proposal raises is how domains of contrast can apparently be of different semantic types (a proposition with a single λ-bound variable in (6) and a constituent with a λ-bound variable and an open slot for the subject in (7)). We assume, following Schwarzschild (1999) and others, that a contrast is always based on an expression containing a single λ-bound variable. This expression is used in information structure to generate the set of alternatives from which the contrastive constituent is chosen. If so, there must be an information-structural procedure of existential closure that transforms the domain of contrast in (7) into an expression of the right type. The interpretation of the existentially bound variable is then provided by the context (it must be as specific as the context allows). Thus, the contrast in (6a) is based on the expression λx [John has given Mary x], while the contrast in (7a) is based on λx ∃y [y has given Mary x]. If y is interpreted as 'someone', then (6a) and (7a) differ in the set of alternatives from which the contrastive focus is selected, namely the set of things that John would give Mary versus the set of things that someone would give Mary.

The proposal put forward above makes a number of predictions. The first set of predictions has to do with the interaction between DoC marking and well-formedness constraints on information structure. It is usually assumed that the first partitioning of a sentence at information structure distinguishes a topic and a comment. The comment may then be further partitioned into a focus and a background. This order of partitioning is in line with the suggestion that the topic-comment partitioning applies to an utterance, while the focus-background partitioning applies to a proposition. Consequently it is possible to embed a focus in a comment (as in (12a)), but it is not possible to embed a topic in a background (as in (12b)). (For relevant discussion, see Prince 1981, Reinhart 1981, 1995, 2006, Vallduví 1992, Lambrecht 1994, and Hajičová et al. 1998.)

(12)   a.   <u>topic</u> [_{COMMENT} FOCUS [_{BACKGROUND} ⋯]]
        b.   *FOCUS [_{BACKGROUND} <u>topic</u> [_{COMMENT} ⋯]]

Given that these partitionings are exhaustive, the domain of contrast for a focus must consist of material chosen from the background, while the domain of con-

trast for a topic must consist of material chosen from the comment. This implies that DoC marking does not only identify material on which a contrast is based, but also forces this material to be construed as belonging to the background or the comment, depending on the interpretation of the contrastive constituent.

We should emphasize that (12a,b) are information structures, and not syntactic configurations. Given that the mapping between syntax and information structure need not be isomorphic, the ban on the embedding of a topic-comment structure in a background will not directly restrict syntactic structure. For instance, it does not follow from (12b) that topics cannot be preceded by foci. Any impact of information-structural constraints on word order in Dutch must result from the application of DoC marking. If no movement takes place, no material is marked as belonging to a domain of contrast (and thus indirectly to a background or a comment). Hence the syntax does not impose any restrictions on the mapping to information structure. However, we expect that the effects of (12b) will be felt if focus movement takes place. The material contained in the domain of contrast marked by movement of a focus must be part of its background. Since by (12b) a background cannot contain a topic, it is predicted that focus movement out of a constituent containing a topic will be impossible.

In other words, what we expect is that the placement of in situ topics and foci is free. However, while a topic can move out of a constituent containing a focus, a focus cannot move out of a constituent containing a topic.

In order to demonstrate that these predictions are borne out, we must sharpen our criteria for classifying a constituent as topic or focus. As pointed out earlier, contrastive foci are associated with an A-accent and contrastive topics with a B-accent. In addition, there are contextual criteria. It is well known that in the answer to a WH-question, the constituent that corresponds to the WH-operator is (usually) a focus. If it is interpreted contrastively, it qualifies as a contrastive focus. By this criterion, *de bonen* 'the beans' in (13a,b) is a contrastive focus. As suggested in the introduction, a contrastive topic is a constituent used to shift the topic of discourse. Such a shift takes place if the hearer answers a question about an entity different from the entity the original question was about. Therefore, *Wim* in (13a,b) can be classified as a contrastive topic (the original question mentioning *Fred*).[7]

What the data in (13) show, then, is that an in-situ focus may follow a topic, but cannot move across it.[8,9]

(13) *Hoe zit het met* **FRED**, *dat heeft* **HIJ** *gegeten*?
    'What about Fred? What did he eat?'
    Nou, dat weet ik niet, maar ik geloof
    'Well, I don't know, but I believe'

a. *dat **Wim** van de **BONEN** meer gegeten heeft dan*
    that Bill from the beans more eaten has than
    vorig jaar.
    last year
    'that Bill has eaten more from the beans than last year.'

b. *[van de **BONEN**]₁ **Wim** t₁ meer gegeten heeft dan*
    that from the beans Bill more eaten has than
    vorig jaar.
    last year

There is a further test that can be used to corroborate the classification of topics and foci: negative quantifiers can function as foci, but not as topics (for obvious interpretive reasons: one cannot say something about nothing). This is corroborated by the fact that they cannot appear in the English *as for* construction, which marks topics:

(14)   *#As for <u>no boy</u>, I like him*

Therefore, if in the relevant context a constituent can be replaced by a negative quantifier, it cannot be a topic. Indeed, when *Wim* in (13a) is replaced by *niemand* 'nobody', the result is decidedly odd, as shown in (15a).[10] (The hearer is left to wonder which person is referred to as 'nobody'.) However, the variant of (13b) in (15b), in which *de bonen* 'the beans' has been replaced by *nergens* 'nothing', is perfectly natural.

(15)   a. # *dat **niemand** van de **BONEN** meer gegeten heeft dan*
        that nobody from the beans more eaten has than
        vorig jaar.
        last year
        'that nobody has eaten more from the beans than last year.'

       b. *dat Wim **NERGENS** van meer gegeten heeft dan vorig*
          that Bill nothing of more eaten has than last
          jaar
          year
          'that Bill has not eaten more from anything than last year.'

The data in (16) show that, by contrast, an in-situ topic may follow an in-situ focus or move across it. This observation is corroborated by the fact that in neither (16a) nor (16b) can 'the beans' be replaced by a negative quantifier (see (17)), whereas replacing 'Bill' by 'nobody' is unproblematic in both of these examples (see (18)). The results of this test are consistent with a classification of 'the beans' as topic and of 'Bill' as focus.

(16)   *Hoe zit het met de SOEP die heeft DIE gegeten?*
       'What about the soup? Who ate that?'
       Nou, dat weet ik niet, maar ik geloof . . .
       'Well, I don't know, but I believe . . .'

   a.   *dat   Wim   van   **de bonen**   meer   gegeten   heeft   dan   vorig*
        that   Bill   from   the beans   more   eaten   has   than   last
        jaar.
        year

   b.   *dat   [van   **de bonen**]₁   WIM t₁   meer   gegeten   heeft   dan*
        that   from   the beans   Bill   more   eaten   has   than
        vorig   jaar.
        last   year
        'that Bill has eaten more from the beans than last year.'

(17)   a.#   *dat   WIM   **nergens**   van   meer   gegeten   heeft   dan   vorig*
             that   Bill   nothing   of   more   eaten   has   than   last
             jaar.
             year

       b.#   *dat   [**nergens**   van]₁   WIM t₁   meer   gegeten   heeft   dan*
             that   nothing   of   Bill   more   eaten   has   than
             vorig   jaar.
             last   year
             'that Bill has not eaten more from anything than last year.'

(18)   a.   *dat   NIEMAND   van   **de bonen**   meer   gegeten   heeft   dan*
            that   nobody   from   the beans   more   eaten   has   than
            vorig   jaar
            last   year

       b.   *dat   [van   **de bonen**]₁   NIEMAND t₁   meer   gegeten   heeft*
            that   from   the beans   nobody   more   eaten   has
            dan   vorig   jaar
            than   last   year
            'that nobody has eaten more from the beans than last year.'

The data considered so far could be captured by a linear constraint. However, as pointed out by an anonymous reviewer, the proposal based on the mapping rule in (10) makes a stronger prediction, namely that focus movement out of a constituent containing a topic will give rise to ungrammaticality whether the launching site of the relevant movement precedes or follows the topic. As we will now show, this stronger prediction is correct.

The answers in (19) involve a ditransitive verb. The context is set up in such a way as to favour a reading of the indirect object as focus (it answers the wh-question), and the direct object as topic (it switches the topic of the discourse from the antique sideboard to the clock). While the answer in (19a) is felicitous, the answer in (19b), where the focus has moved, cannot be produced with the intonation indicated.

(19) *Hoe zit het met het dressoir? Wie heeft grootvader dat nagelaten?*
      'How about the sideboard? To whom has granddad bequeathed that?'
      Nou, dat weet ik niet, maar ik geloof
      'Well, I don't know, but I believe . . . '

  a. *dat grootpapa zijn **BUREN***   *de* *klok* *heeft* *willen*
      that granddad   his   neighbours   the   clock has   want
      nalaten.
      bequeath

  b. # *dat [zijn **BUREN**]₁*   *grootpapa t₁* *de* *klok* *heeft* *willen*
      that   his   neighbours granddad   the   klok   has   want
      nalaten.
      bequeath
      'that granddad wanted to bequeath the clock to his neighbours.'

As expected, it *is* possible to move a topic from a position preceding a focus, as shown in (20). Our classification of 'neighbours' as topic and 'clock' as focus in the examples in (20) receives support from the negative-quantifier test introduced above, but for reasons of space we will not demonstrate this here.

(20) *Hoe zit het met tante Jo? Wat heeft grootpapa haar nagelaten?*
      'How about auntie Jo? What has granddad bequeathed to her?'
      Nou, dat weet ik niet, maar ik geloof
      'Well, I don't know, but I believe . . . '

  a. *dat grootpapa zijn buren*   *de* ***KLOK*** *heeft* *willen*
      that granddad   his   neighbours   the   clock has   want
      nalaten.
      bequeath

  b. *dat [zijn buren]₁*   *grootpapa t₁* *de* ***KLOK*** *heeft* *willen*
      that   his   neighbours granddad   the   clock has   want
      nalaten.
      bequeath
      'that granddad wanted to bequeath the clock to his neighbours'

Our proposal makes a final prediction concerning the distribution of contrastive topics and contrastive foci. This prediction is not about what can*not* be contained in the domain of contrast, but rather about what *must* be contained in it. In particular, it can be shown to follow from our assumptions that a contrastive topic cannot move to a position below a contrastive focus. This is not because there is something inherent in the notion of DoC marking that requires a contrastive focus to be part of the DoC for a contrastive topic. However, if it is not included in this domain, the resulting discourse will be incoherent. We can demonstrate this using the following data:

(21)   *Hoe zit het met de nietmachine? Wie heeft Jan daarom gevraagd?*
        'What about the stapler? Who has asked John for that?'
        Nou, dat weet ik niet, maar . . .
        'Well, I don't know, but . . .'

   a.   *ik geloof dat* **PIET** *Jan om de liniaal heeft willen*
        I believe that Peter John for the ruler has want
        vragen.
        ask

   b.   # *ik geloof dat* ***Piet*** *[om de liniaal]₁ Jan t₁ heeft*
        I believe that Peter for the ruler John has
        willen vragen.
        want ask

   c.   *ik geloof dat [om de liniaal]₁* **PIET** *Jan t₁ heeft*
        I believe that for the ruler Peter John has
        willen vragen.
        want ask
        'I believe that Peter has wanted to ask John for the ruler.'

The leading sentence in (13) sets up a context in which we are discussing the various things that his fellow workers have asked John for. In all three answers there is a shift in topic from the stapler to the ruler, identifying the latter as a contrastive topic. The set of elements out of which this contrastive topic is selected are those things that Peter – as opposed to other fellow workers of John's – might have asked John for (this is because Peter is a contrastive focus). (21a) is a felicitous answer because nothing moves, and hence the domain of contrast for both topic and focus can be construed freely so as to fit the context. The short topic movement in (21b) marks a domain of contrast that contains two open positions and that therefore must undergo existential closure, yielding $\lambda x \, \exists y$ [y has wanted to ask John for x] (see the beginning of this section for details).

Since by assumption the interpretation of y must be based on the immediately preceding context (here, the discussion about things his fellow workers have asked John for), we are forced to interpret the existentially bound variable as 'his fellow workers'. In other words, the contrast is based on the set of office equipment that his fellow workers have wanted to ask John for, but it should be the set of office equipment that Peter has wanted to ask John for. Hence the degraded status of the answer in (21b). The answer in (21c) is fully grammatical because Peter is included in the domain of contrast and hence the contrastive topic is correctly selected out of the set of office equipment that Peter has wanted to ask John for.

As expected, in a context in which the indirect object John is interpreted as contrastive focus, short movement of the topic is felicitous. We can see this if the leading question sets up a context in which we are discussing which pieces of office equipment Peter has asked his fellow workers for. In this case, the subject need not be included in the domain of contrast, as it is already made available by the context. Thus, in (22b), the open subject variable will correctly be specified as Peter:

(22)   *Hoe zit het met de nietmachine? Wie heeft Piet daarom gevraagd?*
        'What about the stapler? Who has Pete asked for that?'
        Nou, dat weet ik niet, maar . . .
        'Well, I don't know, but . . . '

   a.   *ik   geloof   dat   Piet   **JAN**   om   de   liniaal   heeft   willen*
        I   believe that Peter John   for the ruler   has   want
        vragen.
        ask

   b.   *ik   geloof   dat   Piet [om   de   liniaal]₁   **JAN** t₁   heeft*
        I   believe that Peter   for the ruler   John   has
        willen   vragen.
        want   ask
        'I believe that Peter has wanted to ask John for the ruler.'

Let us summarize the results of this section. We have argued that A'-scrambling in Dutch is associated with the notion contrast. In particular, this type of movement marks the material relevant to calculating the set of alternatives on which the contrast operates. As a consequence, not all topics and foci can undergo A'-movement, but only those that are interpreted contrastively. Despite the fact that topic and focus movement have an identical trigger, they behave differently in certain respects. This is because the domain of contrast of a focus is taken from its background, while the domain of contrast of a topic is taken from its comment.

As a consequence of the interaction between DoC marking and the information-structural constraints in (12), movement of a topic out of a constituent containing a focus is acceptable, but not the other way around.[11]

3.   Interim conclusion

As explained in the introduction, cartography aims at a one-to-one relation between syntactic position and interpretive effect. For example, the interpretive functions combined in the C-node of Government and Binding Theory are distributed across several heads, which encode such things as subordination and sentence type. As a result of this kind of decomposition, a clause consists of a large number of functional projections generated in a fixed order. These should presumably include projections hosting topics and foci, as in Rizzi (1997).

On this view of syntax, one would at first sight expect universal ordering restrictions between any two constituents with distinct syntactic functions. Of course, reality is more complex and the way this additional complexity is dealt with in cartography is by allowing languages to vary in the extent to which movement takes place in overt or covert syntax. However, it can be demonstrated that this is insufficient to deal with the distribution of topics and foci in Dutch.

In other empirical domains that display word order variation, it has already been shown that an analysis in terms of a single hierarchy of functional projections is untenable, even under an extensive parameterization of movement operations. For example, in reaction to Cinque (1999), a number of authors have pointed to problems with the order of adverbials (see Bobaljik 1999, Haider 2000, Ernst 2001, and Nilsen 2003). Bobaljik observes that arguments, verbs and auxiliaries in Italian can be freely interspersed in Cinque's (1999) adverbial sequence. This fact is incompatible with Cinque's proposal that the adverbial sequence is given by the order of functional projections in the verbal domain. Mutatis mutandis, the same conclusion holds of the variable placement of topics and foci in Dutch (see section 6 for further details).

Bobaljik argues that this hierarchy paradox may yet yield to a phrase-structural account. He suggests that there are independent argumental and adverbial hierarchies, which can be conceived of as separate tiers of the syntactic representation that are ultimately collapsed into a single structure. Bobaljik draws an analogy with the shuffling together of two decks of cards, a process that preserves the internal order of each deck while it intersperses the cards of one deck among those of the other.

Although Bobaljik's proposal provides an account of the Italian data in terms of what one might call 'relativized cartography', it cannot capture the syntax of

topic and focus movement in Dutch. One could imagine that there is a topic-focus hierarchy (TopP > FocP), whose positions can be freely interspersed with positions in Bobaljik's argumental hierarchy (AgrSP > AgrIOP > AgrOP). However, this is not sufficient to explain the fact that the order of constituents interpreted as topic and focus is free when they remain in situ, but rigid as soon as one of them moves. As we have shown, a topic can move out of a constituent containing an in situ focus, but a focus cannot move out of a constituent containing an in situ topic. The problem this raises for a 'relativized cartography' approach is that *moved* topics and *moved* foci would occupy positions in the topic-focus hierarchy, while topics and foci that remain *in situ* would occupy positions in the argumental hierarchy. Hence, ordering restrictions must be formulated that involve positions in more than one hierarchy, showing that a tier-based account is insufficient.

4.   Japanese topic fronting[12]

In this section we discuss an example of a rule that mentions the feature [topic] and hence generalizes over aboutness topics and contrastive topics. The rule in question is part of Japanese grammar and requires topics to occur in clause-initial position:

(23)   [Topic] is licensed in clause-initial position.

It may be surprising to some readers that the rule in question regulates word order rather than the distribution of the particle *wa*, which is often taken to be a topic marker. We will show, however, that there is only a one-way implication between topichood and *wa*-marking: topics are marked by *wa*, but constituents marked by *wa* need not be topics. We will show that non-clause-initial *wa*-phrases systematically fail to meet tests for topichood.

   This proposal differs substantially from what one might consider the standard analysis of Japanese topics. It was suggested early on by Kuno (1973) that there are two uses of *wa*: thematic and contrastive. Phrases marked with thematic *wa* typically appear in clause-initial position and are interpreted as what the rest of the sentence is about. Phrases marked with contrastive *wa* implicate contrast and may remain in-situ. Although this goes some way towards the proposal we defend here, thematic and contrastive *wa*-phrases are generally analyzed as aboutness topics and contrastive topics, respectively (see Heycock 2007 for an overview of the literature). (Some of) the latter, then, would be topics in non-clause-initial position, contra (23).

We will now provide some arguments for (23), based on well-established tests for topichood. To begin with, in the reply to a request such as *tell me about X*, X must be interpreted as an aboutness topic (see Reinhart 1981 for relevant discussion):

(24)   a.   *Tell me about John.*
        b.   *Well, <u>John</u> is a PhD student enrolled at the University of Lund.*

As an aside, we may note that there is something puzzling about this test. We have argued in the introduction that constituents that refer back to the current topic of discourse do not need to be linguistic topics themselves. Given that John seems to be introduced as the topic of discourse in (24a), why can't *John* in (24b) simply be a discourse-anaphoric expression? The solution to this puzzle lies in the fact that any given discourse comes in chunks (units of discourse), and for each of these a topic must be established. The imperative in (24a) is an instruction to start a new unit of discourse, and hence the constituent used to fix the topic of discourse for this unit – *John* in (24b) – must itself be a linguistic topic.

When we apply the 'tell me about' test to Japanese, it turns out that the item X in the response must be marked with *wa* and must appear in clause-initial position, as predicted by (23). The examples in (25) illustrate the point for subjects; those in (26) do so for objects.[13] (We will discuss the nature of the empty category in (26a) below.)

(25)   *Tell me about that dog.*
        a.   <u>*Sono inu-wa*</u> *kinoo   John-o   kande-simatta.*
               that   dog-WA yesterday John-ACC   bite-closed
        b.   # *John-o$_1$ <u>sono inu-wa</u> kinoo t$_1$ kande-simatta.*
               John-ACC that   dog-WA   yesterday   bite-closed
               'The dog bit John yesterday.'

(26)   *Tell me about that hat.*
        a.   <u>*Sono boosi-wa$_1$*</u> *John-ga kinoo e$_1$ kaimasita.*
               that   hat-WA   John-NOM yesterday   bought
        b.   # *John-ga   <u>sono boosi-wa</u> kinoo   kaimasita.*
               John-NOM that   hat-WA yesterday   bought
               'John bought that hat.'

Contrastive topics display comparable behavior. As explained in section 3, one function of a contrastive topic is to shift the current topic of discourse from one item to another. The exchange in (27) therefore forces *Bill-wa* in the answer to be a contrastive topic, as this constituent is used to shift the topic from John.

As predicted by (23), *Bill-wa* must appear in clause-initial position. (It differs from the simple aboutness topics in (25) and (26) in that it must bear stress.) The same observation holds when the constituent interpreted as contrastive topic is the object, as demonstrated by the examples in (28).[14]

(27) *What did John eat at the party yesterday?*
      Hmm, John-wa doo-ka sira-nai-kedo,
      'Well, I don't know about John, but . . . '

  a. **_Bill-wa_** *8-zi-goro*   ***MAME-O***   *tabeteita*   *(yo)*
      Bill-WA   8 o'clock-around   beans-ACC   was.eating   (PRT)

  b. # ***MAME-O₁*** **_Bill-wa_** *8-zi-goro t₁*   *tabeteita*   *(yo)*
      beans-ACC   Bill-WA   8 o'clock-around   was.eating   (PRT)
      'As for Bill, he was eating beans around 8 o'clock.'

(28) *Who ate the pasta at the party yesterday?*
      Hmm, pasta-wa doo-ka sira-nai-kedo,
      'Well, I don't know about the pasta, but . . . '

  a. # **BILL-GA** **mame-wa** 8-zi-goro   *tabeteita*   *(yo)*
      Bill-NOM   beans-WA   8 o'clock-around   was.eating   (PRT)

  b. **_Mame-wa₁_** ***BILL-GA*** *8-zi-goro t₁*   *tabeteita*   *(yo)*
      beans-WA   Bill-NOM   8 o'clock-around   was.eating   (PRT)
      'As for the beans, Bill was eating them around 8 o'clock.'

Thus, contrary to what is commonly assumed, *wa*-phrases that meet the interpretive criteria for contrastive topichood *must* appear clause-initially. They cannot remain in situ.

   Although the rule in (23) generalizes over aboutness topics and contrastive topics, the syntax of these two types of topics is not identical. As argued in the introduction, [contrast] licenses A'-movement (see (5)). This generalization seems to extend to Japanese: it has been argued that contrastive topics bind an A'-trace, while aboutness topics are base-generated in a left-peripheral position and associated with an (empty) resumptive pronoun (Saito 1985 and Hoji 1985, but see Kuroda 1988 and Sakai 1994 for an opposing view). Hoji demonstrates that this distinction explains a number of differences between aboutness topics and contrastive topics, including contrasts involving weak crossover, reconstruction for binding and sensitivity to island constraints. For example, an aboutness topic can be associated with a position inside a relative clause, but a contrastive topic cannot. This allows the former to appear in a non-thematic, dislocated position in the matrix clause. Moreover, the pronoun inside the relative clause

that is associated with an aboutness topic can be overtly realized, but positions associated with contrastive topics cannot contain a resumptive pronoun (the data below are slightly modified from Hoji 1985: 152, 161):

(29)   <u>*Sono boosi-wa₁*</u> *[TP John-ga [NP [TP e₂ e₁/ sore-o₁ kabutteita]*
         that hat-WA   John-NOM   it-ACC   was.wearing
         hito₂]-o   yoku sitteiru]
         person-ACC   well   know
         'As for that hat, John knows well the person who was wearing it.'

(30)   ?*(*Susan zya nakute*) <u>***Mary-wa₁***</u> *[TP John-ga [NP [TP e₂ e₁/*
         (not Susan, but)   Mary-WA   John-NOM
         kanozyo₁-O butta] hito₂]-o   sagasite-iru]
         she-ACC   hit   person-ACC   looking.for
         Lit.:'(Not Susan, but) Mary, John is looking for a person who hit (her).'

In sum, contrastive topics in Japanese, like their Dutch counterparts, undergo A'-movement. Let us point out (perhaps superfluously) that the trigger for the movement is different in the two languages. The variation in landing site found in Dutch suggest that A'-scrambling marks the domain of contrast. The fact that topics must move to clause-initial position in Japanese is suggestive of a different trigger, possibly the marking of comments. We will not elaborate on this here, leaving (23) as a descriptive generalization.

As pointed out at the outset of this section, the rule in (23) mentions the notion [topic], rather than the morphological marker *wa* (which typically accompanies topics). This implies that if there are any *wa*-phrases not interpreted as topic, these need not appear in first position. The literature acknowledges that there are *wa*-phrases that need not be fronted, but at the same time it is often claimed that *any* constituent marked by *wa* is a topic (but see Kuroda 1988, 2005). However, as a matter of logic, the fact that topics are marked by *wa* does not warrant the conclusion that *wa* attaches only to topics. To elucidate the issue, let us consider the interpretation of non-clause-initial *wa*-phrases. If these systematically fail to be interpreted as topics, the rule in (23) would receive support. If they do meet tests for topichood, this would refute (23). (Rest assured: the data confirm the rule in (23).)

We first turn to unstressed *wa*-phrases. Although an aboutness topic must appear in clause-initial position, an unstressed *wa*-phrase can follow a fronted focus in the response to a question like (31). The rule in (23) predicts that the *wa*-phrase in (31b) should not be a topic. This seems to be correct; in particular *sono inu-wa* 'this dog-*wa*' is best characterized as a simple discourse-anaphoric expression (on a par with the English pronoun in (3b))

(31)   <u>*Who did the dog bite*</u>?

    a.   *sono inu-wa JOHN-O   kinoo   kande-simatta*
           that   dog-WA John-ACC yesterday bite-closed

    b.   **JOHNO**$_1$ *sono inu-wa kinoo t$_1$ kande-simatta.*
           John-ACC that   dog-WA yesterday bite-closed
           'The dog bit John yesterday.'

Whereas the requests in (25) and (26) require that a new unit of discourse be opened, a WH-question and the utterance that answers it belong to the same unit of discouse. Therefore, no new topic of discourse needs to be established following the question in (31).[15] This allows the topic of discourse (as previously introduced) to carry over to the reply, which in turn allows 'the dog' to be a simple referring expression, rather than a linguistic topic.

That discourse anaphoricity – rather than linguistic topichood – is the relevant notion for *wa*-marking of the subject in the above examples is confirmed by the fact that the reply in (31b) is infelicitous if uttered in response to a question that does not mention 'the dog', such as *What happened?* (Kuno 1973, Tomioka 2007).[16]

Moreover, the *wa*-phrases in (31) do not show the syntactic behavior of topics. Recall that an aboutness topic can be base-generated in a non-thematic position in the matrix clause and be associated with an (empty) pronoun inside a relative clause. However, as shown below, an unstressed *wa*-phrase licensed in a context like (31) does not display such behavior, regardless of its position:

(32)   *Who did the dog that the child bought yesterday bite?*

    a. # *[sono kodomowa]$_1$ kooen-de [$_{NP}$[$_{TP}$ pro$_1$ e$_2$ kinoo*
         that   child-WA   park-at   yesterday
         *katta]   inu$_2$]-ga **JOHNO** kande-simatta.*
         bought dog-NOM John-ACC bite-closed

    b. # **JOHNO**$_3$ *[sono kodomowa]$_1$ kooen-de [$_{NP}$[$_{TP}$ pro$_1$ e$_2$*
         John-ACC that   child-WA   park-at
         kinoo   katta] inu$_2$]-ga t$_3$ kande-simatta.
         yesterday bought dog-NOM   bite-closed
         'The dog that this child bought yesterday bit John in the park.'

If all unstressed *wa*-phrases were aboutness topics, the above examples should be grammatical, on a par with the example in (29). Thus, discourse anaphoric *wa*-phrases have a syntax that differs from that of aboutness topics: only the latter are base-generated in a dislocated position, binding an empty pronominal in a thematic position.

We now turn to stressed *wa*-phrases that remain in situ, of which an example is given in (33) (see Kuno 1973, Hoji 1985, Saito 1985, Watanabe 2003, Hara 2006 and Tomioka 2007 for discussion). It is often assumed that such *wa*-phrases are contrastive topics. We believe that such a characterization is incorrect. Stressed in-situ *wa*-phrases do implicate contrast, but they fail to meet independently established criteria for topichood.

(33)   *Who was being helpful at the accident scene?*
         JOHN-GA   3-nin-wa   *tasuketa.*
         John-NOM   3-CL-WA   helped
         'John helped at least three people.'

There has been much recent work on the interpretation of contrastive *wa*-phrases. Hara (2006), for instance, argues that a sentence containing a stressed *wa*-phrase induces the presupposition that a scalar alternative stronger than the assertion exists, as well as the implicature that this stronger alternative could be false. This seems to provide a correct characterization of the interpretation of stressed *wa*-phrases, as suggested by the use of 'at least' in the English translation of (33). However, nothing in Hara's description of the semantics of contrastive *wa*-phrases forces these constituents to be topics. As Hara notes, stressed *wa*-phrases differ from contrastive topics in that they do not require the presence of a focus in the sentence, something that contrastive topics strongly favor (as observed for German in Büring 1997). Moreover, it is a well-known property of topics (both contrastive and non-contrastive) that they must be specific, simply because it is difficult to make a statement about something unspecific (see Reinhart 1981). This effectively rules out a topic interpretation for *3-nin* '3-classifier' in (33), which is a non-specific, quantified nominal. Indeed, an English translation of (33) that explicitly marks the object as a topic is decidedly odd: *#As for at least three people, John helped them*

Finally, a theory that treats all contrastive *wa*-phrases as contrastive topics would have to say that fronting of topics is optional. However, the *wa*-phrase in (34) (which, to repeat the point, does not meet the semantic criteria for topichood) resists fronting:

(34)   *#3-nin-wa₁ John-ga t₁ tasuketa*
         3-CL-WA   John-NOM   helped
         'John helped at least three people.'

Summarizing this section, the syntactic distribution of both aboutness topics and contrastive topics in Japanese can be captured by a single rule that refers to the

notion [topic]. This correctly predicts the non-topical properties of *wa*-phrases that do not occupy the clause-initial position.

5.   The position of Russian foci[17]

In the previous sections we have discussed rules that mention [contrast] (Dutch A'-scrambling) and [topic] (Japanese topic fronting). We now consider a rule that mentions the third and final feature in (1), namely [focus]. The Russian data discussed below show that all foci in this language share an underlying clause-final position. In other words, the grammar of Russian has the following rule:

(35)   [Focus] is licensed in clause-final position.

It is irrelevant to the argument we present whether foci are base-generated clause-finally or end up there via a derivation involving movement.

The generalization in (35) does not hold on the surface. New information foci indeed show up clause-finally, as illustrated in (36)[18], but contrastive foci typically occupy positions further to the left, as we will see below (see Krylova and Khavronina 1988, King 1995, and Brun 2001).[19]

(36)   a.   *Čto   Saša   čitajet?*   *Saša   čitajet KNIGU*
              what-ACC Sasha reads?   Sasha reads   book-ACC
              'What does Sasha read?'   'Sasha reads a book.'

        b.   *Kto   čitajet knigu?*   *Knigu   čitajet Saša*
              who reads   book-ACC   book-ACC reads   Sasha
              'Who reads the book?'   'Sasha reads the book.'

        c.   *Komu   Anja dala knigu?*   *Anja dala knigu   KATE*
              who-DAT Anna gave book-ACC Anna gave book-ACC Kate-DAT
              'Who did Anna give the book to?' 'Anna gave the book to Kate.'

        d.   *Čto   Anja dala Kate?*   *Anja dala Kate   KNIGU*
              What-ACC Anna gave Kate-DAT Anna gave Kate-DAT book-ACC
              'What did Anna give Kate?'   'Anna gave Kate the book.'

What our claim amounts to, then, is that the launching site for the movement of contrastive foci is the position in which new information foci must surface. This follows if contrastive foci are a composite of the features [focus] and [contrast], while new information foci are characterized by the first feature only. Movement of contrastive foci to the left periphery would then be triggered by the feature [contrast], but the launching site of that movement would be dictated by (35):

(37)   a.   [$_{CP}$ ... [FOCUS]]
       b.   [$_{CP}$ [FOCUS, CONTRAST]$_1$ ... t$_1$]

The reader may wonder how we can substantiate the generalization in (35), if contrastive foci move.

A first argument is that it correctly follows from (35) that new information and contrastive foci are in complementary distribution: any sentence can contain only a single focus because all foci are licensed in clause-final position. For example, a locational PP like 'in the concert hall' can appear in final position on the condition that it is interpreted as new information focus (see (38a)). This is no longer possible when another category is fronted as a contrastive focus. At best, the PP in (38b) has the status of an afterthought.

(38)   a.   *Ja slušala jazz-pianista   v KONCERTNOM ZALE.*
            I heard jazz-pianist-ACC in concert   hall
       b.   **JAZZ-PIANISTA$_1$ ja slušala t$_1$ v KONCERTNOM ZALE.*
            jazz-pianist-ACC I heard   in concert   hall
            'I listened to the jazz pianist in the concert hall (and not the jazz-guitarist)'

Our second argument is based on the scopal properties of contrastive foci, and in particular on the observation that they take scope in the same position as new information foci. The data fall out from (35), assuming that focus movement obligatorily reconstructs for scope.[20]

As a point of departure, consider the scopal properties of new information foci. In general, Russian exhibits surface scope (see Ionin 2001) and, in line with this, quantifiers that constitute a new information focus scope under other quantifiers. After all, new information foci occupy the clause-final position.[21]

(39)   a.   *Odin mal'čik ljubit KAŽDUJU DEVOČKU.*
            one boy-NOM loves every   girl-ACC
            'One boy loves every girl.'   ∃ > ∀; *∀ > ∃
       b.   *V každom klasse   odnu devočku ljubit KAŽDYJ*
            in every classroom one girl-ACC loves every
            MAL'ČIK.
            boy-NOM
            'In every classroom every boy loves one girl.' ∃ > ∀$_s$; *∀$_s$ > ∃
       c.   *Ty   predstavil odnogo učitelja   KAŽDOMU*
            you-NOM introduced one   teacher-ACC every
            STUDENTU
            student-DAT
            'You introduced one teacher to every student.' ∃ > ∀$_s$; *∀$_s$ > ∃

d. *Ty   predstavil odnomu studentu   KAŽDOGO*
    you-NOM introduced one   student-DAT every
    UČITELJA.
    teacher-ACC
    'You introduced every teacher to one student.'   ∃ > ∀; ∗ ∀ > ∃

The pattern of surface scope breaks down in the case of contrastive foci.[22] Even though these are fronted, they systematically take lowest scope. That is, they reconstruct obligatorily to a position below other quantifiers. Thus, the fronted contrastive foci in (40) take scope in exactly the same position as the in situ new information foci in (39).

(40) a. **KAŽDUJU DEVOČKU** *ja   xoču čtoby odin mal'čik*
          every   girl-ACC   I-NOM want that one boy-NOM
          ljubil (a ne každuju babušku).
          loved and not every   grandma-ACC
          'I want one boy to love every girl   ∃ > ∀; ∗ ∀ > ∃
          (and not every grandma).'

      b. **KAŽDYJ MAL'ČIK** *ja   xoču čtoby v každom*
          every   boy-NOM I-NOM want that in every
          klasse   odnu devočku ljubil (a ne každyj
          classroom one girl-ACC loved and not every
          DEDUŠKA).
          grandpa-NOM
          'In every class, I want one girl to be loved by   ∃ > ∀; ∗ ∀ > ∃
          every boy (and not by every grandpa).'

      c. **KAŽDOMU STUDENTU** *ja   xoču čtoby ty predstavil*
          every   student-DAT I-NOM want that you introduced
          odnogo učitelja,   (a ne každomu PROFESSORU)
          one   teacher-ACC and not every   professor-DAT
          'I want that you introduce one teacher to every   ∃ > ∀; ∗ ∀ > ∃
          student (and not to every professor).'

      d. **KAŽDOGO UČITELJA** *ja   xoču čtoby ty predstavil*
          every   teacher-ACC I-NOM want that you introduced
          odnomu studentu,   (a ne každogo dekana).
          one   student-DAT and not every   dean-ACC
          'I want that one students is introduced by you   ∃ > ∀; ∗ ∀ > ∃
          to every teacher (and not to every dean).'

It is not very surprising that Russian contrastive foci can move, given that contrast licenses A'-movement (see (5)). However, what is surprising is that the position into which contrastive foci reconstruct should be as low as it seems to be. For example, subjects and indirect objects normally outscope direct objects in Russian, because their position c-commands (and precedes) the direct object position. However, if these elements are fronted as contrastive foci, they must scope under the direct object, suggesting that the fronting operation is launched from the sentence-final position.

A reviewer casts some doubt on the relevance of the example in (40b) in view of the preverbal position of the object, plausibly the result of a scrambling operation across the position from which the subject has moved. As a consequence, the fact that the object outscopes the subject may seem unsurprising. Three remarks are in order. First, this criticism does not extend to the data in (40c,d). Second, the preverbal position of the object is the result of it belonging to the background. Now, backgrounded objects of monotransitive verbs may marginally be placed in postverbal position. However, if we shift the preverbal object in (40b) to a postverbal position, this does not affect its scopal interpretation. Third, a backgrounded object of a ditransitive verb need not be fronted if the other object appears as a sentence-initial topic (for reasons unclear to us). In this situation, a displaced contrastively focused subject must still scope under the postverbal object:

(41)   *Kniga [KAŽDYJ MAL'ČIK]₁ ja xoču, čtoby dal dvum devočkam t₁ (a ne kažyj deduška).*
        book-ACC every boy-NOM I want that gave two girls-DAT (and not every grandpa-NOM)
        'As for books, I want every boy to give them $2 > \forall$; $* \forall > 2$
        to two girls'

A final argument in support of (35) can be based on so-called split scrambling. Russian allows extraction of a contrastively focused element out of a larger constituent. There are many questions surrounding this phenomenon, but what is crucial here is that the material stranded by scrambling of the focused constituent provides an overt indication of the movement's launching site. If (35) holds, what we predict is that the stranded material must always occupy a clause-final position. The data below bear this out. If extraction takes place out of the object, then the object itself must be clause-final. If it takes place out of the subject, it is this constituent that must appear in clause-final position. (Although not

illustrated here, all other examples in which 'performance' is not clause-final are ungrammatical as well.)[23]

(42) a. ***JAZZ-PIANISTA**₁ mal'čiki slyshali [vystuplenje t₁]*   *(a*
          jazz pianist-GEN boys-NOM heard   performance-ACC and
          ne   jazz-gitarista)
          not jazz-guitarist-GEN)
          'The boys listened the performance of the jazz pianist and not
          of the jazz guitarist.'

     b. ****JAZZ-PIANISTA**₁ mal'čiki   [vystuplenje t₁] slyshali (a*
          jazz pianist-GEN boys-NOM performance-ACC heard   (and
          ne   jazz-gitarista)
          not jazz-guitarist-GEN)

(43) a. ***JAZZ-PIANISTA**₁ devočku potrjaslo [vystuplenje t₁]   (a*
          jazz pianist-GEN girl-ACC amazed   performance-NOM (and
          ne   jazz-gitarista)
          not jazz-guitarist-gen)
          'The performance of the jazz pianist amazed the girl (and not of
          the jazz guitarist.'

     b. ***JAZZ-PIANISTA**₁ devočku [vystuplenje t₁]   potrjaslo (a*
          jazz pianist-GEN girl-ACC performance-NOM amazed   (and
          ne   jazz-gitarista)
          not jazz-guitarist-GEN)

The same point can be made on the basis of double object constructions. Split scrambling requires that the object containing the trace of the fronted constituent appear in final position:

(44) a. ***JAZZ-PIANISTA]**₁ ja podaril Saše   [fotografiju t₁]*
          Jazz-pianist-GEN I gave   Sasha-DAT picture-ACC
          (a   ne jazz-gitarista).
          (and not jazz-guitarist-GEN)
          'I gave a picture of a jazz-pianist to Sasha.'

     b. ****[JAZZ-PIANISTA]**₁ ja podaril [fotografiju t₁] Saše*
          Jazz-pianist-GEN I gave   picture-ACC   Sasha-DAT
          (a   ne jazz-gitarista).
          (and not jazz-guitarist-GEN)

    c. ?*[JAZZ-PIANISTA]$_1$ ja posvjatil etot prazdnik*
       Jazz-pianist-GEN I dedicated this celebration-ACC
       [vystupleniju t$_1$ (a ne jazz-gitarista).
       performance-DAT and not jazz-guitarist-GEN)
       'I dedicated this celebration to the performance of a jazz-pianist'

    d. **[JAZZ-PIANISTA]$_1$ ja posvjatil [vystupleniju t$_1$] etot*
       Jazz-pianist-GEN I dedicated performance-DAT this
       prazdnik   (a ne jazz-gitarista).
       celebration-ACC (and not jazz-guitarist-GEN)

To summarize, if we assume, as stated in (35), that all foci in Russian are licensed in clause-final position, then both the scopal properties of fronted foci and the position of stranded material can be readily understood.

6. Decomposition and cartography

The analytical depth of our analyses of Dutch, Japanese and Russian is not equal (only in the Dutch case do we have an explanation for the empirical generalization we argued for). Nevertheless, we may draw the following conclusions: (i) There is no designated landing site for moved topics and foci (based on the Dutch data); (ii) The features [topic], [focus] and [contrast] have independent syntactic effects (based on the Dutch, Japanese and Russian data). These conclusions allow us to complete our case against cartography.

    We have already argued that the variation in the landing site of A'-scrambling observed in Dutch is very hard to reconcile with the rigid phrase structure that characterizes cartography. We sketched the core of the argument in section 3, but we can be more precise. In earlier work we have demonstrated that the following assumptions must be made if moved topics and foci are licensed in the specifier of TopP and FocP, respectively (see Neeleman and Van de Koot 2008 for details):

i.   The position of TopP and FocP is free (at least in Dutch). (This captures the observed variation in landing sites.)
ii. Projection of either [contrast] or [topic] and [focus] is optional (at least in Dutch). (This allows in-situ topics and foci.)
iii. Heads containing [contrast] mark their complements as the domain of contrast. (This, in conjunction with restrictions on information structure, captures the observed ordering restrictions.)

However, each of these assumptions sacrifices an assumption central to the cartographic framework. Assumptions (i) and (ii) give up the idea that there is

a fixed clausal skeleton. Assumption (iii) gives up the idea that movement is triggered by properties of the specifier. These sacrifices seem considerable.

But the Dutch data are even more damaging in the right second conclusion. Within the cartographic framework, the independent syntactic effects of [topic], [focus] and [contrast] require an account in terms of three separate functional projections: TopP, FocP and ContrastP. This is because cartography strives for a one-to-one relation between syntactic position and interpretive effect, and the data motivate three separate interpretively relevant syntactic features. Cross-linguistic variation would be captured by the extent to which these projections trigger displacement. In Japanese, topics appear in the specifier of TopP. In Russian, foci appear in the specifier of FocP, while contrastive foci move on to the specifier of ContrastP. Finally, in Dutch, contrastive topics and foci move to the specifier of ContrastP.

The addition of ContrastP to the topic-focus hierarchy requires an additional ordering statement. Given that TopP is generally assumed to dominate FocP, there are three logical possibilities:

(45)   a.   ContrastP > TopP > FocP
        b.   TopP > ContrastP > FocP
        c.   TopP > FocP > ContrastP

The Russian data suggest that ContrastP dominates FocP, because contrastive foci in this language move from the position in which foci in general are licensed. This rules out (45c). We are thus left with (45a) and (45b), but it can be demonstrated that neither of these orders is compatible with the Dutch data.

If ContrastP dominates TopP, the landing site for contrastive topics and foci is identical and it is therefore impossible to capture the ordering restrictions associated with topic and focus movement. In particular, this arrangement implies that moved foci always cross the position in which topics are licensed. As a result, it becomes hard, if not impossible, to explain why – at an observational level – topics may move across foci but foci may not move across topics. As far as we can see, this point is not affected by the possibility of a recursive ContrastP. This rules out (45a).

If ContrastP occupies a position between TopP and FocusP, one might attempt to capture the Dutch data by saying that contrastive topics move on to the specifier of TopP, while contrastive foci surface in ContrastP. We should then require TopP to trigger movement, which in turn would lead to expect displacement of aboutness topics, contrary to fact. This rules out (45b).

These considerations suggest that, although [contrast] has syntactic effects that can be distinguished from those of [topic] and [focus], a cartographic de-

composition into three separate functional projections is not possible. But the logic of cartography requires such a decomposition.

Notes

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1.   Our notion of (linguistic) topic corresponds to what Lambrecht calls 'reference-oriented topic expressions', while our notion of indexing elements corresponds to his 'role-oriented topic expressions'.

2.   Backgrounds differ from comments in this respect: as focus is a notion associated with propositions, there is no such thing as an all-background sentence. Backgrounded information is backgrounded with respect to a focus. Therefore, if focus is a propositional notion, the background and focus must be part of the same proposition.

3.   This section is partly based on Neeleman and Van de Koot (2008).

4.   Note that A'-scrambling can also affect categories other than DPs, including adverbials.

5.   Some speakers of Dutch marginally allow A-scrambling of a direct object across an indirect object, a possibility more generally available in German. The judgments reported here are from speakers who reject such scrambling.

6.   The proposal outlined here constitutes a correction on Neeleman and Van de Koot (2008), where it is assumed that A'-scrambling marks a comment or a background rather than a domain of contrast.

7.   The judgments given here and below are based on a pronunciation of the examples in which the constituent marked as focus carries a plain high tone, and the constituent marked as topic carries a tune consisting of a high tone, a low tone and a high boundary tone (this intonation of Dutch topics is in line with the observations reported in Van Hoof 2003). As far as we can judge these matters, this pronunciation is very similar to what is found in English.

8.   As was pointed out to us by Michael Wagner (p.c.), the context in (13) and comparable ones below do not force the interpretations indicated, but merely favour them. All the contexts we use are based on implicit multiple WH-questions. In (13), this question is *Who ate what?*, while in (16) below, it is *What was eaten by whom?* Answers to multiple WH-questions tend to be constructed in such a way as to line up the topic with the fronted WH-phrase and the focus with the in situ WH-phrase. Thus, *Who ate what?* is most commonly answered by something like <u>*John*</u> *ate the* BEANS, <u>*Mary*</u> *ate the* CHEESE, etc. However, when there is reason to do so, it is also possible to swap the topic and focus functions, yielding answers like JOHN *ate the* <u>*beans*</u>, MARY *ate the* <u>*cheese*</u>, etc. (see Roberts 1996 and Büring 2003). Given that the contexts we use presuppose implicit multiple WH-questions, the possibility of a topic-focus swap also presents itself. Hence, in evaluating our empirical claims, one should not

just rely on the effects of context, but also consider other indicators of topic- and focushood.

9.   Notice that overt topic movement cannot be used to rescue structures in which a topic is contained in the background of a moved focus. We speculate that this is because "repair by movement" would violate Relativized Minimality: focus movement creates an A'-position that blocks association of the topic with its trace. If so, comparable structures in which a topic is linked to a pronoun should be acceptable. Indeed, there is a sharp contrast between (i) and (ii). Moreover, topic fronting across a moved focus is widely attested in languages that have clitic doubling (such as Italian) or allow radical pro drop (such as Japanese).

   (i)   *__*Marie*__$_1$ *heeft*   [**DIT**   *boek*]$_2$ *Jan* t_1 *zeker* t_2 *niet*   *gegeven.*
         Mary   has   this   book   John   certainly   not   given.

   (ii)   *Wat*   __**Marie**__   *betreft,*   [**DIT**   *boek*]$_1$ *heeft*   *Jan*   *haar*   *zeker* t_1 *niet*
         what   Mary   regards,   this   book   has   John   her   certainly   not
         gegeven.
         given.

   For related discussion, see Rochemont (1989), Culicover (1991), Browning (1996), among others.

10.   The answer in (15a) is felicitous if the B-accent on the subject is omitted. Doing so allows the example to be construed as providing indirect information about Fred, namely that he did not eat more from the beans than he did last year.

11.   We assume throughout that in situ focus does not move at LF. The data can also be captured, however, if in situ foci do move, so as to create a representation in which focus and background are constituents (abstracting away from many details; see Krifka 2006). Such an analysis requires two additional assumptions. To begin with, when overt focus movement takes place, LF-movement of material marked as belonging to a background must not be allowed. Such movement would repair the ill-formed example in (13b). By contrast, when no overt focus movement takes place, LF-movement must be generally available. For instance, the topic in (13a) must move, as it would otherwise be part of a background created by LF focus movement. (Note, however, that parallel structures created by overt movement give rise to ungrammaticality; see footnote 9 for discussion.)

   The restriction that marking relations established in overt syntax cannot be undone at LF has a precedent in the literature on multiple WH-questions: if overt movement is used to mark the scope of a WH-operator, its scope cannot be extended through subsequent LF-procedures. Consequently, *Who wonders what John bought?* cannot be interpreted as a multiple WH-question, whereas *Who said that John bought what?* does allow such a reading (see van Riemsdijk 1978).

12.   This section is based on Vermeulen 2008.

13.   For reasons unknown to us, an object *wa*-phrase prefers not to surface adjacent to a verb. In order to circumvent this issue, adverbials are inserted between object and verb throughout this section.

14. If movement of contrastive foci in Japanese marks a domain of contrast, then the example in (27b) would also be ruled out by the constraint in (12b). We will not explore to what extent this is true.

15. The question in (31) establishes 'the dog' as a discourse topic if uttered discourse-initially. In this case, 'the dog' must appear in clause-initial position in the question, as in (i), indicating its linguistic topical status. On the other hand, if there is prior discourse, in which 'the dog' is already established as topic, it need not occupy clause-initial position, as in (ii).

    (i) *sono inu-wa dare-o kande-simatta no?*
         that   dog-wa who-acc bite-closed   Q

    (ii) *dare-o₁ sono inu-wa t₁ kande-simatta no?*
         who-acc that   dog-wa   bite-closed   Q

16. The claim that an in-situ unstressed *wa*-phrase is discourse anaphoric, and not a topic, is illustrated here with subjects. The same observation holds for objects:

    (i) Q: *Did John borrow the book from the library?*
         A: *Iya, John-wa sono hon-wa kekkyoku honya-de **KATTA***
            No,   John-wa   that   book-wa in.the.end bookshop-at bought

17. This section is based on Neeleman and Titov (2008).

18. The most neutral word order dictated by the context in (36) requires sentence-final focus (see also Krylova and Khavronina 1988). However, it is possible for the focused constituent to scramble to a preverbal position in a context that does not force contrastive interpretation on the focused constituent in case this constituent is interpreted emphatically. Such constructions do not require the presence of an explicit member of the set of alternatives in the context and can often be uttered out of the blue. The emphatically focused constituent, however, cannot be analyzed as new information focus, as it contains an additional interpretation, namely a conventional scalar implicature indicating that it is surprising or noteworthy in some way (see also Zanuttini and Portner 2003 for a similar analysis of exclamatives). In other words, although no explicit member of the set of alternatives is present in the context, the existence of such a set must be concluded and the emphatically focused constituent is interpreted as an unlikely member within this set:

    (i) *Kto čitaje knigu?*   *SAŠA čitaje knigu*
         who reads   book-ACC   Sasha reads   book-ACC
         'Who reads the book?'   '(Out of all people) it is Sasha
                                          who reads the book!'

19. Space limitations do not permit us to explore why contrastive foci move in Russian. The null hypothesis from the current perspective is that Russian has DoC marking. However, the issue is orthogonal to the claim at the heart of this section, namely that new information foci and contrastive foci share an underlying clause-final position.

20. It has been claimed in linguistic literature that A'-fronting fixes scope relations in Russian (see, for example, Bailyn 2004). However, a careful examination of Russian

sentences involving A'-scrambling reveals that a long-distance scrambled DP always reconstructs into the embedded clause:

(i) *Každuju devočku odin mal'čik xočet čtoby ja poljubil*
     every   girl-ACC one   boy-NOM wants that   I-nom loved
     'One boy wants me to love every girl.' $\exists > \forall$; $^*\forall > \exists$

The reason A'-fronting sometimes appears to result in 'frozen' scope (see (Ionin 2001) lies in the fact that a fronted quantifier not interpreted as a focus may have to reconstruct above the clause-final position, in case this position is occupied by a constituent interpreted as new information focus. This implies that the fronted quantifier must take scope over a quantified new information focus, even though it may take scope below quantifiers in other positions.

21. The examples in (39a) and (39b) do not form a minimal pair. This is because there is a tendency for clause-initial objects to be interpreted as topics, and hence as specific if they are indefinites. We control for this by adding a clause initial adverb that contains a universal quantifier on which the indefinite is dependent. This blocks a specific reading of the indefinite, as desired. The scope judgment given involves the indefinite and the universal subject (indicated by a subscript 'S'). We leave out the adjunct in (39a) in order to avoid the slight artificiality of too many universal quantifiers in a single sentence.

22. In the Russian linguistic literature different types of focus are taken to receive different Intonational Contours (IKs). New information focus is marked by IK1 (a falling tone), whereas contrastive focus receives IK2 (emphatic stress marked by a rising tone). For discussion, see Bryzgunova (1971), (1981), Yokoyama (1986), and Krylova and Khavronina (1988). The judgments in the main text presuppose that the constituents marked as contrastive foci bear IK2, while the rest of the sentence is destressed.

23. In (42) and (43) the DP out of which split-scrambling takes place must be sentence-final and cannot be followed by any material including adverbs. An adverb can only be added as an afterthought after a fairly long pause.

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