The Syntax of Topic, Focus, and Contrast

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The Syntax of Topic, Focus, and Contrast

An Interface-based Approach

Edited by

Ad Neeleman
Reiko Vermeulen

De Gruyter Mouton

Preface

This book is part of the output of a project funded by the Arts and Humanities Research Council (A Flexible Theory of Topic and Focus Movement; grant number 119403), which ran from May 2006 to August 2009. We also benefitted from a British Academy grant to Reiko Vermeulen (for a three-month visit to UCLA; grant number SG-50500) and from a grant from the Research Foundation Flanders (FWO) to Liliane Haegeman (grant number G091409) at Ghent University, which has supported Reiko's research in recent years.

The project had six members: Michael Brody, Ivona Kučerová, Ad Neeleman, Kriszta Szendrői, Hans van de Koot and Reiko Vermeulen. In addition, there were three PhD projects that were carried out at UCL in the same period and that were closely associated with our work on the syntax-information structure interface. The students working on these projects were Axiotis Kechagias (who was funded by Hellenic State Scholarship Foundation (IKY) and the Leventis Foundation), Matthew Reeve (who was funded by the AHRC) and Elena Titov (who was funded by UCL).

We are grateful to a number of individuals for important input at various stages of the project. We cannot mention all of them here, but would like to highlight what we think of as the Potsdam group (although not all of them are at Potsdam anymore): Caroline Féry, Gisbert Fanselow, Shinichiro Ishihara, and Malte Zimmermann. They gave us a unique and helpful forum for discussion. We received comments that led to major adjustments and clarifications of our proposals from Klaus Abels, Daniel Büring, Vieri Samek-Lodovici, Michael Wagner and Edwin Williams. We like to think that the influence of Tanya Reinhart is visible throughout. Thanks are also due to Joy Philip for her willingness to provide invaluable help with the editing of the manuscript.

It is inevitable that the papers brought together in this book do not represent the complete output of the project. The works we selected address a limited set of related issues, with chapters supporting the same overall theoretical outlook. This meant that some work had to be left out, in particular that dealing with the syntactic marking of givenness by Kučerová and by Neeleman and van de Koot. It is also inevitable that many questions remain unaddressed, have received only partial answers or have been answered in a way that may well be indicative of our igno-

rance. We have tried to learn as much as we could about the mapping between syntax and information structure, effectively stretching the project to the birth of Reiko's son Kai on the eighth of March 2012. But at some point it is time to stop.

Ad Neeleman and Reiko Vermeulen

Table of Contents

Chapter 1
The Syntactic Expression of Information Structure

Ad Neeleman and Reiko Vermeulen

1.   Setting the scene

This book is about the syntax of discourse-related word order variation. We explore the idea that such word order variation is best explained in terms of effects at the interface between syntax and other components of grammar, namely information structure and semantics. This is in contrast to the cartographic approach, initiated by Rizzi (1997), where discourse-related information is argued to be directly encoded in the syntax in the form of designated, rigidly ordered functional projections and corresponding features.

Work in the cartographic tradition has uncovered a wealth of data that will need to be captured by any alternative theory of discourse-related word order variation. For example, Rizzi (2004) observes that, in Italian, word order in the left periphery adheres to the following template (INT stands for a specific class of interrogative elements):

(1)   Relative operator – Topic* – INT– Topic* – Focus – Modifier – Topic*

Rizzi's explanation for this is phrase-structural. He proposes a sequence of functional projections in the higher regions of the clause. Each projection licenses an element with a particular interpretive function in its specifier. For example, focused constituents are licensed in FocusP. The order in which the various functional projections are merged then captures the linear order found in Italian: specifiers of functional heads merged later surface further to the left:

(2)

```
                    ForceP
                   /      \
              Rel.O.     Force'
                        /      \
                    Force⁰     TopP
                              /     \
                          Topic     Top'
                                   /     \
                               Top⁰      IntP
                                        /    \
                                     INT     Int'
                                            /     \
                                        Int⁰      TopP
                                                 /     \
                                             Topic     Top'
                                                      /     \
                                                  Top⁰      FocP
                                                           /     \
                                                       Focus     Foc'
                                                                /     \
                                                            Foc⁰      ModP
                                                                     /      \
                                                               Modifier     Mod'
                                                                            /     \
                                                                        Mod⁰      TopP
                                                                                 /     \
                                                                             Topic     Top'
                                                                                      /     \
                                                                                  Top⁰      …
```
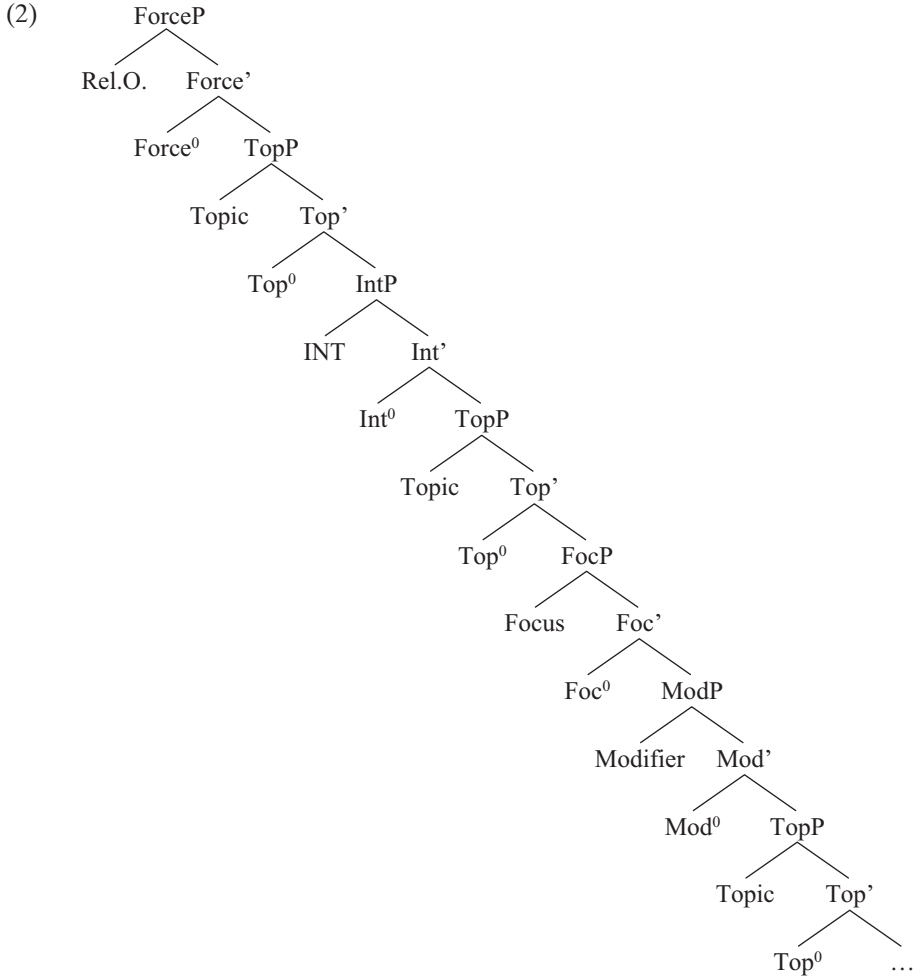
However, relying on an elaborate structure like (2) is not the only way of deriving the discourse-related word order effects summarized in (1). As Abels (2012) shows in some detail, the Italian data can be derived by independently motivated considerations regarding the locality of movement. For example, relative operators can undergo long-distance movement across topics, but topics cannot undergo long distance movement across relative operators:

(3)   a. [$_{CP}$ Rel.Op. …   [$_{CP}$ Topic … t$_{Rel.Op.}$ …]]
       b. *[$_{CP}$ Topic …   [$_{CP}$ Rel.Op. … t$_{Topic}$ …]]

The above asymmetry can be explained as an effect of Relativized Minimality (given certain assumptions about the nature of Relativized Minimality (see Starke 2001) and the features that characterize relative operators and topics). Once we have this account in place for contrasts in long-distance movement, we can also use it to capture word order in the left periphery of a single clause. The ungrammatical order in (4b) is ruled out because it is generated by movement of a topic across a relative operator.

(4)   a. $[_{CP}$ Rel.Op. … Topic … $t_{Rel.Op.}$ …$]$
        b. *$[_{CP}$ Topic … Rel.Op. … t_{Topic} …$]$

If Abels' proposal is on the right track, it will allow us to eliminate the various functional projections in the left periphery without loss of empirical coverage. On this view, movement of topics and relative operators, for example, does not target specific pre-fabricated landing sites. As far as the syntax is concerned such movements can be to a variety of positions. Conditions like Relativized Minimality then filter out the unattested orders.

Notice that the alternative proposal sketched above still requires a hierarchy of semantic and discourse-related features in order to derive the Italian data. This hierarchy may not determine the sequence of functional projections, but it is necessary to regulate movement. For example, the feature complex that identifies relative operators must be richer than that of topics. Similarly, the feature composition of foci must be richer than that of modifiers to capture their relative order. In other words, there is still a stipulated hierarchy underlying the ordering effects in (1).

In view of this, making sense of the observed ordering effects requires a better understanding of the nature of the various semantic and discourse functions of the items in (1) and moreover an explicit theory of how these functions are mapped onto syntactic structures. This is of course a very large question that cannot be dealt with in a single book. For this reason we restrict our attention to three discourse notions – topic, focus and contrast – which we take to be primitives of information structure. The contributions in this book investigate the association of these notions to syntax in a variety of languages (including Dutch, Japanese, Korean, Russian and English). Our aim is to explain word order restrictions in terms of the mapping between syntax and information structure, without recourse to a stipulated order of functional projections or features in the syntax.

One generalisation that will be central to our argumentation is that a focus cannot move across a topic. Thus, in languages in which both topics and foci move, the topic invariably lands in a position higher than the

focus, as in (5). If only one moves, a topic can cross an in-situ focus, but not vice versa, as in (6). If there is no movement, the relative ordering of topics and foci tends to be free, as in (7):

(5)   a.   [Topic [Focus [... t_{Focus} ... t_{Topic} ...]]]
       b.   *[Focus [Topic [... t_{Focus} ... t_{Topic} ...]]]

(6)   a.   [Topic [... Focus ... [... t_{Topic} ...]]]
       b.   *[Focus [... Topic ... [... t_{Focus} ...]]]

(7)   a.   [... Topic ... [... Focus ...]]
       b.   [... Focus ... [... Topic ...]]

We argue that this pattern of data results from the combination of two factors. Firstly, information-structural considerations require that topics be interpreted externally to foci. For now, we can represent this as in (8). Secondly, although mismatches between syntax and interpretation are tolerated, the mapping system is such that it does not allow movements that result in mismatches. This rules out (5b) and (6b), where focus movement turns a structure that allows transparent mapping into a structure that does not.

(8)   [Topic [$_{Comment}$ Focus [$_{Background}$ ...]]]

We will discuss the above pattern in detail below, but first we elaborate on the notions of topic, focus and contrast.

It is important to note, before we proceed, that there seems to be a clash between our claims about topic-focus order (as summarized in (5), (6) and (7)) and the claims Rizzi makes (as expressed in the order of functional projections in (2)). The tree in (2) allows topics to follow a moved focus, but we claim that this is not possible. This apparent contradiction is due to different usages of the term "topic". Rizzi's (1997:285) use of the term is rather broad: it covers elements "normally expressing old information somehow available and salient in previous discourse". Our use of the term is considerably more restricted, as we explain below. We expect that, on this more restrictive use, the ordering effects summarized in (5) can also be observed in Italian. This will of course require that the properties of "high topics" and "low topics" are explicated in sufficient detail (see Benincà and Poletto 2004; Frascarelli and Hinterhölzl 2007; and Samek-Lodovici 2009).

2. Notions of information structure

There is overwhelming evidence from a wide range of languages that "topic", "focus" and "contrast" are autonomous notions of information structure that interact in systematic ways with syntax (see, for example, Vallduví 1992; Rizzi 1997; Vallduví and Vilkuna 1998; Aboh 2004; and Frey 2004). We believe that these notions are part of a system that can be summarized as in the table below:

(9)

	Topic	Focus
	aboutness topic [topic]	new information focus [focus]
Contrast	contrastive topic [topic, contrast]	contrastive focus [focus, contrast]

We will treat [topic], [focus] and [contrast] as discourse notions targeted by mapping rules operating between syntax and information structure (although none of our arguments are adversely affected if they are privative syntactic features). Since [topic], [focus] and [contrast] are notions relevant to mapping rules, they may have syntactic consequences. On the view that syntactic operations may be licensed by having an interpretive effect, movement can take place in order to feed a mapping rule associated with a particular discourse notion.

The table in (9) expresses 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 is an aboutness topic interpreted contrastively. Similarly, a contrastive focus is a new information focus that receives a contrastive interpretation. 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).

The strongest evidence for the typology in (9) comes from cross-cutting generalizations, to be explored throughout this book, that jointly motivate a three-way typology. If contrast, topic and focus are privative features, we expect to find rules that refer to [topic] and therefore generalize over aboutness topics and contrastive topics, rules that refer to [focus] and therefore generalize over new information focus and contrastive focus, and rules that refer to [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 elaborate on this in the following two subsections.

2.1.   Focus and contrastive focus

Let us assume that a proposition P answers a *wh*-question Q. The focus of P is often taken to be that part of P that corresponds to the *wh*-expression in Q. By this criterion, *The Selfish Gene* is the focus in (10), while *John* is the focus in (11) (here and below, small capitals are used to indicate focus).

(10)   A: *What did John read?*
        B: *He read THE SELFISH GENE.*

(11)   A: *Who read The Selfish Gene?*
        B: *JOHN read The Selfish Gene.*

Focus is clearly a grammatical notion as it affects linguistic phenomena like stress. In English and many other languages, a focused constituent receives the main stress of the sentence (see Selkirk 1984, 1995, among many others). Thus, the object carries sentence stress in (10), while the subject does so in (11): it is infelicitous to deviate from these stress patterns. Other languages have different or additional means of marking focus. In Thompson River Salish, for example, focused constituents are licensed at the edge of an intonational phrase, but do not need to carry stress (see Koch 2008). In Gùrùntùm, focus is marked by a designated particle *a*, which precedes focused constituents (see Hartmann and Zimmermann 2006).

It is one thing to motivate the existence of focus, but it is another to explain why the relevant part of an answer to a *wh*-question must be marked as such. A widely accepted solution to this puzzle is proposed by Rooth (1985, 1992). The starting point of Rooth's approach is that the semantics of questions is the set of potential answers, both true and false (see Hamblin 1973). So, the meaning of the question asked by A in (10) can informally be represented as the set in (12), while the meaning of the question in (11) corresponds to the set in (13).

(12)   {[John read The Selfish Gene], [John read The Blind Watchmaker], [John read The Ancestor's Tale], [John read The Extended Phenotype], ...}

(13)   {[John read The Selfish Gene], [Johanna read The Selfish Gene],
         [Gerald read The Selfish Gene], [Jennifer read The Selfish Gene], …}

Rooth's proposal, widely referred to as "alternative semantics", is that focus itself evokes a set of alternative propositions. More specifically, it generates a set of alternative propositions that differ only in the focused position, and share all other material. This set of alternatives is called the focus value of a sentence, in contradistinction to its ordinary value (the proposition expressed by the sentence). Thus, the ordinary and focus values of the answers in (10) and (11) are as in (14) and (15), respectively:

(14)   a. *Ordinary value*: [John read The Selfish Gene].
         b. *Focus value*: {[John read The Selfish Gene], [John read The Blind
             Watchmaker], [John read The Ancestor's Tale], [John read The
             Extended Phenotype], …}

(15)   a. *Ordinary value*: [John read The Selfish Gene].
         b. *Focus value*: {[John read The Selfish Gene], [Johanna read The
             Selfish Gene], [Gerald read The Selfish Gene], [Jennifer read The
             Selfish Gene], …}

A congruent question-answer pair is one in which the set of potential answers that constitutes the meaning of the question matches the focus value of the answer. More precisely, a match is achieved if the former is identical to, or a subset of, the latter. (Why the subset relation must be allowed will not be discussed here.) Therefore, the focus marking in the answer in (10) fits the question asked, as the meaning of the question is the set in (12) and this set is identical to the focus value of the answer in (14). However, the question in (10) does not permit focus marking of the subject (as in (11)), because the latter has the focus value in (15), and (12) is not a subset of (15b).

The above representations are widely used (see, for example, Büring 1997). We will use a slightly different notation, which explicitly represents the focus, as well as the set of alternatives to the focus found in the alternative propositions. Thus, we treat the information in (14) and (15) as triplets consisting of a function (corresponding to the background in (8)), the focus and a set of alternatives to the focus. The ordinary value is generated by applying the function to the focus, while the focus value is generated by applying it to members of the set:

(16)   a.   <λx[John read x], The Selfish Gene, {The Blind Watchmaker, The
              Ancestor's Tale, The Extended Phenotype, …}>
        b.   <λx[x read The Selfish Gene], John, {Johanna, Gerald, Jennifer, …}>

Since sentences must normally have a focus, the semantics of almost every
sentence will contain this component of meaning. This is true also of all-
focus sentences. Take an exchange like *What happened? – John left.* The
answer can be represented as below, using an identity function as the first
member of the triplet:

(17)   <λp.p, John left, {Bill left, Mary played the piano, John sang, …}>

It is important to note that the use of focus is not limited to answering a
wh-question. There are other contexts in which focus is employed. For
example, it is commonly assumed that in B's contribution to the dialogue
in (18) the subject is focused (it attracts main stress).

(18)   A: *John bought a Jaguar.*
        B: *(It's a trend.) Even MARY bought an expensive car.*

Of course, if *Mary* is focused, one must address the question of what prin-
ciple of discourse makes the exchange in (18) congruent. One possibility,
suggested by Krifka (2008) for comparable cases, is that the exchange in
(18) includes a hidden question answered by the relevant part of B's reply,
something like: *If it's a trend, who (else) bought an expensive car?* Although
the presence of hidden questions is widely assumed, it is not readily test-
able, because there is no explicit theory about the process of contextual
enrichment that introduces such questions, at least in examples like (18).
We will therefore leave the matter open for the time being.
     We now turn to the notion of contrast. There seems to be an interpre-
tive difference between examples like (19) and (20) on the one hand and
examples like (10) and (11) on the other. In the former the focused con-
stituent stands in opposition to an alternative explicitly mentioned in the
discourse, while in the latter there is no explicit alternative and no sense
of contrast. (Here and below we use boldface to mark constituents that we
take to have contrastive reading.)

(19)   A: *What did John read, The Selfish Gene or The Extended Phenotype?*
        B: *He read THE SELFISH GENE.*

(20)   A: *John read The Extended Phenotype.*
        B: *(No, you're wrong.) He read THE SELFISH GENE.*

However, there is nothing in the system described above that distinguishes a regular focus from a contrastive focus. It may well be that in certain cases the sense of contrast is only pragmatic (see also Krifka 2008). By general Gricean reasoning, the hearer infers that the answer to a *wh*-question he or she asked will be complete. It would therefore follow that alternative answers explicitly given in the context are taken to be false. So, in an example like (19), Gricean reasoning leads to the conclusion that John did not read The Extended Phenotype. Of course, this effect will be strongest when the set of alternative propositions is closed, as in the case at hand. However, a similar, but weaker effect can still be observed when the set is left open (as in "What did you read this summer? I read THE SELFISH GENE").

Although this could be the right analysis for (19), there are instances of contrast that have grammatical effects and that are therefore unlikely to be entirely pragmatic in nature. For example, correction contexts such as (20) allow movement of focused constituent, especially if the contrast is made explicit in the answer, as in (21). *Wh*-questions, however, do not normally provide a context compatible with focus movement in the answer, as (22) demonstrates (cf. É Kiss 1998).

(21)   A: *John read The Extended Phenotype.*
        B: *(No, you're wrong.)* **THE SELFISH GENE** *he read.* **THE EXTENDED**
            PHENOTYPE *he only bought.*

(22)   A: *What did John read?*
        B: *#THE SELFISH GENE he read.*

B's answer is infelicitous in the context in (22) on a non-contrastive reading of the fronted constituent. (It is highly marked even when interpreted contrastively, because it presupposes a contrast that is not readily part of the common ground. Hence, B's reply forces a non-trivial accommodation on the part of A, namely the assumption that there is a contrast between The Selfish Gene and some other reading material. B may have in mind what this reading material is, but this is not made accessible to A here. B's answer is therefore likely to trigger a request for clarification, such as *What do you mean? What did he not read?* This effect can only be understood if the movement is linked to a contrastive reading.)

The different behaviour of contrastive and regular focus is not limited to movement possibilities. Contrastive focus is often assumed to require a so-called A-accent in English (a plain high tone (H*), frequently followed by a default low tone; see Jackendoff 1972 and Pierrehumbert 1980),

whereas regular focus on objects is marked with nuclear stress. The contrast between an A-accent and a nuclear stress may not be obvious in all contexts, but there is clear evidence for the claim that contrast requires special prosodic marking. To begin with, Katz and Selkirk (2011) show that the phonetic prominence of contrastive focus is greater than that of discourse-new material in comparable syntactic positions (the latter of course includes regular foci)

Moreover, there is some evidence for the phonetic relevance of contrast in the realm of second occurrence focus. A second occurrence focus is a contrastive focus that has already been introduced in the discourse. It is now widely recognized that it must bear some degree of prominence: Beaver et al. (2007) observe that it manifests itself with greater phonetic duration and intensity than material that is simply given. For example, *wine* is most prominent in the prosody assigned to the VP in B's reply in (23), as indicated by the acute accent on *wine*. This is because *a glass of wine*, which is associated with the focus-sensitive particle *only*, is a contrastive focus (see chapter 7 for discussion). For similar examples, Beaver et al. show that this pattern carries over to the VP in C's continuation, although the peak on *wine* is clearly significantly reduced in comparison to that in B's utterance, presumably because it is now given (second-occurrence focus is marked by dotted underlining here).

(23)   A: *What did John and Bill bring over to Mary?*
        B: *John only [*~VP~* brought a* ~GLASS~ ~OF~ ~WÍNE~ *over to Mary].*
        C: *Oh, that's funny. Bill only [*~VP~* brought a* ~GLASS~ ~OF~ ~WÍNE~ *over to Mary], too.*

Although native speakers do not always perceive the greater phonetic prominence of the second occurrence focus, it is quite clear that in C's reply in (23) it is at least possible for *wine* to bear a higher level of stress than *Mary*.

The same effect is not found with a regular focus. *A glass of wine* in B's reply below is intended to be a focus, but it is not intended to be contrastive (notice the absence of *only*). On this interpretation, the relative prosodic peak on *wine* cannot be maintained in C's continuation, demonstrating that it is the feature [contrast] rather than [focus] that triggers the phonetic reflex in (23) (see also Selkirk 2008).

(24)   A: *What did John and Bill bring over to Mary?*
        B: *John brought a* GLASS OF WÍNE *over to Mary.*
        C: *Oh, that's funny. Bill [brought a glass of wine over to Mary], too.*

Notice that *a glass of wine* in C's utterance also corresponds to the *wh*-part of A's question, and by this criterion it must be classified as a focus. What (24) shows is that the destressing associated with givenness overrides the marking of regular focus.

The special behaviour of contrastive focus is not a peculiarity of English, nor is it restricted to movement and prosody. In languages like Bole (West Chadic), the difference is expressed morphologically: there is a marker for contrastive focus that does not attach to regular focus (see Zimmermann 2008).

Any theory of focus must account for these data. The most conservative approach is to leave the standard theory of focus intact, but add something to it that accounts for the distinct behaviour of contrastive focus. We propose that contrast, where it is linguistically encoded, is a quantifier. In general, quantifiers give information about the relationship between two sets in the universe of discourse. For example, the sentence *most sheep eat grass* expresses to what extent the set of sheep is contained in the set of grass eaters: it is asserted that most members of the set of sheep are also members of the set of grass eaters. In the same vein, contrast gives information about the relation between two sets. In an example like *The Selfish Gene he read* in (21), contrast expresses to what extent the set of (contextually relevant) books is contained in the set of things that John read. The sentence asserts that one member of the set of books is also a member of the set of things that John read. It also expresses that there is at least one other member of the set of books that is NOT contained in the set of things that John read. In the case at hand this other member is The Extended Phenotype.

The positive statement and the notion that there are alternatives to The Selfish Gene derive from the normal interpretation of focus. The negative statement about an alternative, however, is part of the semantics of contrast. The negation is not just a pragmatic effect, as it is not cancellable. Consider the context in (25), which is organised around the implicit question "which books has John read?" We intend Dad's reply to be understood as a contrastive focus. That is, it asserts that there is at least one other relevant book that John did not read. This interpretive effect is confirmed by the oddness of the continuation in (ii), which explicitly states that there is no such relevant book.[1]

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1   Some speakers have indicated that they find it easier to pronounce the fronted constituent in Dad's reply in (25) with a B-accent and to interpret it as a contrastive topic (see section 2.2). This is certainly a possibility in this context. However, the point that we are trying to make is related to the notion contrast:

(25)   (Mum and Dad know that John must read five books to prepare for the
         exam; they are discussing which books he has read so far.)
         Mum: *John's read The Selfish Gene.*
         Dad: *Yes, I know. **THE SELFISH GENE** he's read.*
                 (i) *But **THE EXTENDED PHENOTYPE** he hasn't read.*
                 (ii) #*In fact, he's read all five books on the reading list.*

Notice that since the negative statement is associated with the semantics
of contrast rather than focus, we do not expect to find it with regular focus.
Indeed, the continuation in (ii) is perfectly natural in the discourse below,
where the object in Dad's reply is a non-contrastive focus:

(26)   (Mum and Dad know that John must read five books to prepare for the
         exam; they are discussing which books he has read so far.)
         Mum: *John's read The Selfish Gene.*
         Dad: *Yes, I know. He's read THE SELFISH GENE.*
                 (i) *But **THE EXTENDED PHENOTYPE** he hasn't read.*
                 (ii) *In fact, he's read all five books on the reading list.*

In sum, we propose that contrastive focus differs from regular focus in
that it also encodes a negative statement. Thus, the interpretation of B's
initial answer in (21) differs from that in (10) (or (20), for that matter) in
having a negative statement in addition to the normal focus semantics, as
shown below:

(27)   a. $<\lambda x[\text{John read } x]$, The Selfish Gene, {The Blind Watchmaker, The
               Ancestor's Tale, The Extended Phenotype, …}>
         b. $\exists y \, [y \in$ {The Blind Watchmaker, The Ancestor's Tale, The Extended
               Phenotype, …} $\& \neg[\text{John read } y]]$.

Having two semantic components as above is not particularly novel. This
kind of analysis is standard for analyses of focus-sensitive particles like
only. The semantics of a sentence like *John read only The Selfish Gene* is

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the implications of contrast are not cancellable. So it is orthogonal to at least
some extent whether contrast is combined with focus or topic. Moreover, the
possibility of interpreting the fronted constituent as a contrastive focus in this
context can clearly be seen in languages like Japanese, which morphologically
distinguishes contrastive foci and contrastive topics (the former bear regular
case while the latter are marked by *wa*). There is no requirement to use *wa*
here.

generally analysed as consisting of two separate components (see Horn 1969; König 1991; Krifka 1999; among others). The first is essentially the semantics of the sentence without *only* (sometimes referred to as "the prejacent"), while the second is the quantificational statement "there is no alternative to The Selfish Gene such that John read that alternative". In our notation, these components can be represented as below:

(28)   a.   <λx[John read x], The Selfish Gene, {The Blind Watchmaker, The Ancestor's Tale, The Extended Phenotype, …}>

       b. $\neg \exists y, y \in$ {The Blind Watchmaker, The Ancestor's Tale, The Extended Phenotype, …}, [John read y]

One advantage of treating contrast as quantificational is that it implies that contrastive foci take scope, while regular foci do not. This can be tied in with the observation, already illustrated above, that contrastive foci may undergo A'-movement, which is known to mark scope. Notice that in view of the data in (29) and (30) it must be the element introducing the quantificational statement that licenses A'-movement. As is well-known, *only* can attach directly to the DP it modifies or be placed at a distance in an adverbial position. Movement is restricted to the case where *only* attaches directly to its associate, as in (29). One explanation for the ungrammaticality of the examples in (30)b and (30)b' is that the fronted category does not contain the quantificational element that would license A'-movement.

(29)   a.   *John read only THE SELFISH GENE.*

       b.   *Only THE SELFISH GENE did John read.*

       b'.   *%Only THE SELFISH GENE John read.*

(30)   a.   *John only read THE SELFISH GENE.*

       b.   **THE SELFISH GENE did John only read.*

       b'.   **THE SELFISH GENE John only read.*

We will see that a very similar decompositional analysis can be given for contrastive topics.

2.2.   Topic and contrastive topic

We follow Reinhart (1981) in characterizing topics in terms of "about-ness". Speakers generally have intuitions regarding what a given sentence is about. In fact, one could see the mere existence of expressions like "as for", "about", "regarding", "concerning", and so on, as evidence for the existence of aboutness. Yet, it is surprisingly difficult to pin down the exact content of the notion and how it is linguistically relevant. This is reflected in the variety of definitions of topic in the literature (compare Chafe 1976; Reinhart 1981; Givón 1983; Vallduví 1992; Lambrecht 1994).

There is some consensus, however, that it is important to distinguish between the topic of a unit of discourse and the syntactic constituent used to introduce the referent that the sentence is about. This referent may then function as the topic of the subsequent discourse. We will refer to topics in this first sense as "discourse topic", and to the second type of topic as "sentence topic" or simply "topic" when the distinction is clear. Since this book is concerned with the syntactic behaviour of constituents with a particular information-structural function, we will concentrate mainly on sentence topics, limiting the discussion of discourse topic to what is necessary to understand its opposition to sentence topic.

Consider (31). Speakers generally have the intuition that *Maxine* is a sentence topic in the first sentence of this small monologue (here and below we use double underlining to mark sentence topics). The person that *Maxine* refers to continues to function as the topic of the subsequent discourse. The pronouns *her* and *she* that refer to this person are not sentence topics: they do not introduce the referent as the topic of discourse. Rather, they are discourse-anaphoric elements whose antecedent is the topic of discourse. It would be misleading to treat these pronouns as sentence topics just because they refer back to the discourse topic. After all, in other circumstances pronouns do not inherit the information-structural status of their antecedent either. For instance, a pronoun whose antecedent is a focus is not thereby itself a focus. Similarly, a pronoun whose antecedent is new is not thereby new itself.

(31)   *Well, Maxine was invited to a party by Claire on her first trip to New York. She was amazed by the strange crowd with their bell-bottom trousers and star-studded jackets.*

Much of the confusion surrounding the notion of topic in the literature stems from complications involving discourse topics. A discourse always has an overarching topic, but in addition it may be divided into smaller

units of discourse, each of which has their own discourse topic (see also Givón 1983). This structure is in principle recursive, so sub-topics of discourse can themselves have sub-topics. We can illustrate this by considering several contexts that may potentially precede the monologue in (31).

The simplest context is (32)a. It is an explicit request to introduce Maxine as the topic of discourse, which is of course what happens in (31). Notice that *Maxine* in (32)a is not a topic. The sentence is not about Maxine. If it were, at least some (new) information about her would have to be provided. Moreover, in languages that have overt morphological marking of topics, such as Japanese and Korean, it is not marked as such. Therefore, even in the context of (32)a, *Maxine* in (31) is not simply discourse-anaphoric, but qualifies as a sentence topic.

(32)   a.   *Tell me about your friend Maxine.*
        b.   *Tell me about one of your friends.*
        c.   *Tell me about your friends' experiences in New York.*
        d.   *Do you know anything about parties in New York?*

The context in (32)b is very similar. We have added it here to make it clear that a topic need not be old information (a point also made in Reinhart 1981).

The contexts in (32c) and (32c) are more complex. The overarching topic about which information is requested in (32c) is more abstract and suggests that the subsequent discourse may be divided into smaller units that are each about one of the hearer's friends. (31) is one such unit, with *Maxine* as its topic (a sentence topic and consequently a discourse topic). Maxine is therefore a sub-topic of the larger discourse.[2] As for (32d), the overarching topic about which information is requested is parties in New York. Maxine is introduced as a sentence topic in (31), because her experiences are relevant to this overarching discourse topic.[3] It is clear from these two examples that the relation between the overarching topic and the sub-topics can be quite diverse and complicated.

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2   This "narrowing down" of the referent of the topic allows *Maxine* in (31) to be interpreted contrastively (see below for a discussion of contrastive topics). However, this is not obligatory in this context, and accordingly it is possible but not necessary to use the B-accent that contrastive topics.

3   The context in (32d) cannot be used as a test for topichood however, as it allows, but does not force, *Maxine* in (31) to be a sentence topic. This is apparent from languages like Japanese, where *Maxine* is only optionally marked with *wa* in the context of (32d).

Despite this complication, what remains constant across the contexts in (32) is that Maxine is a sentence topic in (31). Since we are mainly interested in sentence topics, we will put aside issues concerning the theory of discourse topics, in particular the division of topics into sub-topics in larger units of discourse.

There are several grammatical effects associated with sentence topics. Our starting point is the observation that, all else being equal, unstressed pronouns have a strong tendency to refer to the topic of discourse (if they are interpreted through coreference as opposed to variable binding). There are various proposals that capture this fact as part of a larger theory of anaphora resolution, in particular Givón (1983) and Ariel (1987, 1990). An illustrative example, adapted from Reinhart (1995:80), is given in (33). The preceding context is about Max, who is therefore the topic of discourse. As a consequence, the unstressed pronoun *he* refers to Max, as opposed to the epithet *the guy*, which preferably refers to Felix.[4]

(33)   *Max was on his way home from school, worrying about how things were*
         going to turn out. After a while he ran into Felix, and …
         a. *he proposed they go to a pub.*   (*he* refers to Max, not Felix)
         b. *the guy proposed they go to a pub.* (*the guy* refers to Felix, not Max)

In view of the above effects, we can use anaphora resolution to identify structures that mark a constituent as a sentence topic. Such a constituent is predicted to function as a preferred antecedent in anaphora resolution. The clearest case is the *as for* construction. This construction marks the DP-complement of *as for* as a topic, as shown by the fact that this DP is the preferred antecedent for following pronouns in examples like (34) and (35).

(34)   *As for <u>Maxine</u>, Claire invited her to a party in New York. She was amazed*
         by the strange crowd with their bell-bottom trousers and star-studded
         jackets (#and wanted to share this experience with Maxine).

(35)   *As for <u>Claire</u>, she invited Maxine to a party in New York. She was amazed*
         by the strange crowd with their bell-bottom trousers and star-studded
         jackets (and wanted to share this experience with Maxine).

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4   Judgments shift if the pronoun is stressed, in which case there is a preference
    for *he* to be construed as referring to Felix. This falls out from Accessibility
    Theory, as stressed pronouns are associated with less accessible antecedents.

In the first example, the unstressed pronoun *she* is most naturally inter-preted as Maxine. The preference for Maxine is further demonstrated by the garden path effect that the continuation between brackets creates. This effect is not surprising, because the content of the second sentence more readily applies to the person invited to a party than to the one invit-ing. However, in (35) the second occurrence of *she* preferably refers to Claire, despite Claire being the one inviting. Thus, there must be an over-ruling grammatical effect of Claire appearing as the complement of *as for*. This follows if *as for* marks its complement as the topic.

A similar effect has been observed with subjects of passives (see Givón 1983 and Reinhart 1981, 1995). *She* in (36), when unstressed, has a strong tendency to refer to Maxine. This seems to be related to the fact that the initial sentence in (36) is passive. In (37), where the initial sentence is active, *she* can be associated with either subject or object (although there is a weak preference for a subject-oriented reading). It is much harder to construe *she* as referring to Claire in (36).

(36)   *Maxine was invited by Claire to a party in New York. She was amazed by the strange crowd with their bell-bottom trousers and star-studded jackets (#and she wanted to share this experience with Maxine).*

(37)   *Claire invited Maxine to a party in New York. She was amazed by the strange crowd with their bell-bottom trousers and star-studded jackets (and she wanted to share this experience with Maxine).*

The traditional interpretation of these data is that the subject of a passive construction must, or has a very strong tendency to be, a topic. This description of the data is not optimal, given that the subject of a passive can be a focus, a *wh*-expression or a negative quantifier, elements that are incompatible with topichood. Perhaps, a better description would be to say that the demoted subject in the *by*-phrase cannot introduce, or refer to, a discourse topic, while there is a general preference to realise topics as subjects. This description receives some support from the contrast between the following examples. Coreference between *John* and *him* in (38)b is decidedly odd.

(38)   a.   *As for John, he was seen by Mary.*
         b.   *#As for John, Mary was seen by him.*

If a passive construction is used at the beginning of a unit of discourse (such as a narrative like (36)), the pressure to establish a topic will force

the derived subject to function as such. This explains why *she* in (36) preferably refers to Maxine.

There is a range of other grammatical effects of sentence topics as opposed to old information or constituents that refer back to the topic of discourse. Vallduví (1992), for instance, demonstrates that in Catalan the distinction is formerly marked by the direction of dislocation: sentence topics must be left-dislocated, while elements that refer back to the topic of discourse must be right-dislocated together with other backgrounded material. Frascarelli and Hinterhölzl (2007) show that in Italian and German sentence topics bear a different intonation from discourse-given items. Moreover, the former cannot be right-dislocated, while the latter can (see also Lambrecht 1994). Choi (1999) shows that in Korean the so-called topic marker *nun* typically marks sentence topics and not elements that refer back to the topic of discourse, which pattern with other discourse-given material.

We take the above to be sufficient to establish the linguistic relevance of topichood. We would now like to sketch how the interpretive effects of topic might be captured. Like foci, we take sentences containing topics to be associated with a set of alternatives. However, in the case of foci the function introduced by the lambda operator generates propositions, whereas in the case of topics it generates utterances. These utterances vary only in the value for the position occupied by the topic.

For example, the passive structure in (36) can be represented as a triplet, as in the case of focus. The triplet consists of a function (corresponding to the comment in (8)), the topic and a set of alternatives to the topic. The difference with the representation of focus is that the function contains an assertion operator, which means that its application derives an utterance, rather than a plain proposition (see also Tomioka 2010). Applying the function to the topic generates an assertion whose propositional content is the ordinary value of the sentence. Applying it to members of the set of alternatives generates a set of utterances that one might call the topic value of the sentence. The triplet thus represents the intuition that when a speaker utters the sentence in (36), he or she performs the following speech acts: (i) Consider Maxine (out of a set of possible topics); (ii) I assert that Maxine was invited by Claire to a party in New York (compare Jacobs 1984; Kuroda 1992; Krifka 2008; Portner 2007; Brunetti 2009; Endriss 2009; and Ebert and Hinterwimmer 2010).

(39) $<\lambda x$ ASSERT [x was invited by Claire to a party in New York], Maxine, {Susan, Bill, …}>

The above representation of topichood captures the contrast between (40a) and (40b), which was explored first by Strawson (1964) and subsequently discussed by Reinhart (1981) (we have adjusted the examples somewhat). In the first sentence, *the King of France* is a sentence topic, which implies that this utterance consists of the following two speech acts: (i) Consider the King of France; (ii) I assert that he visited the exhibition yesterday. However, considering that there is no King of France, the first speech act cannot be performed: it presupposes that there exists such an individual.

The utterance in (40b) can be paraphrased as follows: (i) Consider the exhibition; (ii) I assert that it was visited by the King of France yesterday. In this case, the first speech act will not lead to a presupposition failure, assuming that there is indeed an identifiable exhibition in the domain of discourse. Rather, the example is judged to be false. If we check the set of visitors to the exhibition, we will not find the King of France, as there is no such individual.[5]

(40) a. *As for <u>the King of France</u>, he visited the exhibition yesterday.*
      b. *As for <u>the exhibition</u>, it was visited by the King of France yesterday.*

We are aware that topicality is not the only factor that gives rise to a difference in judgements of the sort in (40). However, the claim in Lasersohn (1993) and von Fintel (2004) that topicality is irrelevant seems to be too strong. Abrusán and Szendrői (2011) call the referent used to evaluate the truth value of a proposition a "pivot". Based on experimental data, they show that pivots do not have to be topics, but that the default choice of a pivot is a topic. Thus, even though the original form of the argument in Strawson (1964) is too simplistic, a more sophisticated version of Strawson's argument can be developed. Since topicality is relevant for the choice of a pivot and since the choice of a pivot is crucial in accounting for a contrast like (40), it follows that the notion of topic must be accessible to sentence grammar (including truth-value judgements).

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5   The example at hand is intended to be a claim about the actual world. Of course, when discussing a fictional world, topics may refer to entities in that world that have no correspondent in the actual world: *As for Emma Bovary, she is a beautiful woman.* A truth value can be assigned to this sentence within the context of the fictional world described in the relevant novel. "Emma Bovary is a beautiful woman" is true if an only if, within the world depicted in the novel *Madame Bovary* by Gustave Flaubert, Emma Bovary is a beautiful woman. (See Reicher (2010) for further discussion on this topic.)

In the previous section we have argued that a focus can have an additional contrastive interpretation. The same is true for topic, as (41) demonstrates. In reply to the question by A, *Maxine* in B's reply is interpreted contrastively. B is unable or unwilling to make about Bill the comment that he/she makes about Maxine. Notice that there is no sense of contrast in the earlier example in (31).

(41)   A: *Tell me about Bill. Was he invited to a party when he went to New York?*
        B: *Well, I don't know about Bill, but* **_Maxine_** *was invited to a party on her first trip to New York by Claire.*

We argued that contrast is quantificational and therefore licenses A'-movement. Thus, contrastive focus can undergo A'-movement, but as we saw, new information focus must remain in situ. The same is true for topics. If a topic undergoes A'-movement, it must be interpreted contrastively. Consider B's reply in (42), where the topic *the female popstars* is fronted and therefore requires a contrastive interpretation. Such an interpretation is felicitous because *the female popstars* denotes a subset of the topic introduced in the context question (the popstars) and therefore stands in opposition to the complement set (the male popstars).

(42)   A: *What about the popstars? Who showed them around?*
        B: *Well, **_the female popstars_**, Bill gave a tour.*

The same utterance is awkward in contexts that do not require or suggest a similar contrastive interpretation. To the extent that B's answer in (43) is acceptable, it requires accommodation of contrast, or it would trigger a further request for clarification such as *What do you mean?*, *Was there a problem with the male popstars?*

(43)   A: *Tell me about the female popstars.*
        B: *#Well, _the female popstars_, Bill gave a tour.*

Like contrastive focus, a contrastive topic must be prosodically marked in English. Contrastive topics typically carry what Jackendoff (1972) calls a B-accent, maximally realised as L+H*, followed by a default low tone and a high boundary tone (L H%). Regular topics do not require any such marking.

Finally, like the opposition between contrastive and non-contrastive focus, the opposition between contrastive and non-contrastive topics can

be marked morphologically, as has been observed for Tsez by Polinsky and Potsdam (2001).

The effects of a contrastive interpretation for topics are different from those for focus. In the case of focus, the alternatives are propositions, (at least) one of which is claimed to be false. In the case of topics, the alternatives are utterances, and the interpretive effect of contrast is therefore that the speaker is unwilling to utter (at least) one alternative. This could be for a variety of reasons. It could be that the speaker knows that the propositional content of the alternative is false, but is not a position to share this information or does not want to be held responsible for it. It is also possible that the speaker is uncertain of the truth value of the proposition expressed by the alternative (as is the case in (41)).

This difference in the interpretation of contrast is unsurprising. It follows naturally from the fact that focus is a notion relevant to propositions, whereas topic is notion relevant to utterances (Tomioka 2010). Consequently, contrastive foci deny an alternative proposition, whereas contrastive topics indicate that the speaker is unwilling or unable to make an alternative utterance. We therefore propose the following representation for the interpretation of B's answer in (41).[6]

(44) a. $<\lambda x$ ASSERT $[x$ was invited by Claire to a party in New York], Maxine, {Susan, Bill, …}>
      b. $\exists y [y \in$ {Bill, Susan, …} & $\lambda x \neg$ASSERT $[x$ was invited by Claire to a party in New York](y)].

Notice that the assertion regarding the female popstars in (42) indeed does not imply that Bill did not show the male popstars around, as is apparent from the fact that all the continuations below are felicitous.

(45) a. *I don't know about the male popstars. Maybe Bill gave them a tour, too.*
      b. *The male popstars, Gary took out for lunch.*
      c. *The male popstars didn't turn up.*

The felicitousness of (42) in the contexts in (45) demonstrates that the use of contrastive topic is licensed in a variety of situations, ranging from

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6 The ASSERT operator can be read as "I assert that …". In other words, it derives a proposition with the speaker as the subject. The fact that negation is usually taken to be a propositional operator is therefore compatible with its being prefixed to the ASSERT operator.

uncertainty of the speaker about the truth of an alternative statement (as in (45a)) to explicit knowledge about the relevant alternative (as in (45b); see Hara and Van Rooij 2007). The latter case may include cancellation of the presupposition of the question (as in (45c)).

There is a link between Büring's (1997, 2003) work on contrastive topics and the proposal made above. Büring defines contrastive topics as elements whose meaning requires a set of sets of alternative propositions, whereas foci simply require a set of alternative propositions, as standardly assumed on the Alternative Semantics approach (see Rooth 1985, 1992). On our proposal a sentence containing both a contrastive topic and a focus will indeed involve representation in which there is a set of alternative utterances, each of which contains a set of alternative propositions. This is very similar to the D-tree representation in Büring 2003, but notice that according to our analysis the order of embedding of the sets associated with topic and focus is a direct consequence of topic being an utterance-level notion and focus being propositional.

There is also a difference, however. Büring's view of topics implies that no sentence that contains a contrastive topic can lack a focus. As Büring himself points out, this may be problematic in view of the following example from O'Connor and Arnold (1973). Note that the interpretation of B's answer is as expected if it is a contrastive topic: it implies that B is unwilling or unable to assert the same for an alternative to *Bill* (namely *Jack*). However, the sentence does not appear to contain an obvious focus.[7]

(46)   A: *Can Jack and Bill come to tea?*
       B: **_Bill_** can.

On our view, nothing in the meaning of a contrastive topic hinges on there being a focus in the same sentence. Therefore, if there are sentences without a focus, we could allow contrastive topics in the absence of focus.

Even though topic is an utterance-level notion, our analysis assumes that it is encoded linguistically (see also Krifka 2001). This means that, as in the case of contrastive focus, the negative statement implied by a contrastive topic must be semantically encoded as well, which predicts that it is not cancellable. This point was demonstrated for Japanese by Oshima (2008), but his conclusion carries over to English (see also Constant 2006). The discourse in (47) is about John and Bill. A's initial statement is about

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7   Notice that the absence of stress on *can* in B's utterance suggests that this context does not require polarity focus in B's answer.

John. The *how about* question guarantees that *Bill* in B's reply will be a contrastive topic (that stands in opposition to *John*). The reply in (i) is infelicitous, as it implies that there is an alternative to Bill about whom the speaker could not make the same assertion. However, this is an odd thing to imply, given that the only alternative to Bill is John, and the speaker has met him. The reply in (ii) works better, because it implies that B could not assert that he didn't meet John, which is consistent with the context.

(47)   John and Bill (and nobody else) came to town.
        A: *So, you met John. How about Bill?*
        B: (i)   #***Bill***, *I met.*
            (ii)   ***Bill***, *I didn't meet.*

The different semantics proposed for contrastive topic and contrastive focus makes a further prediction concerning their respective effects in contexts of correction. A contrastive focus is used for correcting propositional content (and it therefore denies that the original statement is true). Thus, *a Bentley* in A's continuation in (48) must be a contrastive focus, a prediction that is confirmed by the fact that it can carry an A-accent, but not a B-accent.

(48)   A: *John bought a car*
        B: *I know. It was a Rolls Royce*
        A: *No, you're wrong. It was a **BENTLEY**.* / #*It was a **Bentley**.*

On the other hand, a contrastive topic can be used for correcting an invalid conclusion. In such cases, it is not clear that the conclusion is correct given the evidence available to the participants in the discourse. The use of a contrastive topic then indicates that the assertion is not warranted (but its propositional content could still be true). An example is given below, where *the female popstars* in C's statement must be a contrastive topic and must therefore be marked with a B-accent:

(49)   B and C went to a music festival. They saw only the female acts:
        Madonna, Kate Bush and Joni Mitchell. Surprisingly, these performers
        were all wearing kaftans. They missed the other acts (U2, Prince and
        Bob Dylan), so they have no idea what the male stars were wearing.
        A: *So, how was the festival?*
        B: *It was great. All the popstars were wearing kaftans!*
        C: *You can't say that. **The female popstars** were wearing kaftans.* / #***THE**
            FEMALE POPSTARS were wearing kaftans. (But we didn't see the male
            popstars.)*

The contrast between an A-accent and a B-accent in examples like the one above may be difficult to hear. However, there is strong confirmation in Japanese for the claim that the context in (49) indeed requires a contrastive topic. In Japanese, contrastive topics are morphologically marked with *wa*, while contrastive foci bear regular case (at least in the absence of focus-sensitive particles). The point is demonstrated by the following example.

(50) *sore-wa i-e-nai   yo.*   *[__zyosee-no   kasyu__]-wa/#ga*
      that-WA say-can-not SFP.   female-GEN   popstar-WA/NOM
      kahutan-o   kite-ita   *(kedo [dansee-no   kasyu]-wa*
      kaftan-ACC   wearing-PAST   but   male-GEN   popstar-WA
      minakatta   desyoo.)
      see-not-PAST   SFP

So far, we have treated the B-accent that identifies contrastive topics as an autonomous tune. However, it has been proposed by Steedman (2000) and Büring (2003), among others, that the B-accent is in fact a composite of an A-accent plus a high boundary tone (which presumably marks the end of an intonational phrase that contains the contrastive topic; cf. Féry 2007). One piece of evidence supporting this claim comes from examples in which the contrastive topic is a larger constituent ending in given material. In such cases, the B-accent is realised as a high pitch accent on the contrastive material, indicated by H*, and a separate high boundary tone at the end of the phrase, H% (Büring 2003:537):

(51)   A: *Where will the guests at Ivan and Theona's wedding be seated?*
          (L+)H*   (L+)H*L-   H%   H*L-L%
       B: [__*Friends and relatives of the couple*__] *will sit* AT THE TABLE.
          (Reporters have to sit in the back.)

One interpretation of the above observation is to analyse contrastive topic as a topic containing a focus (Krifka 2006; Steedman 2000; Büring 2003; Tomioka 2010). On our definition of focus, this cannot be true, as focus is associated with alternative propositions, while topics are associated with alternative utterances. Note however that the notion of focus as used by some of these authors is rather different from ours. For Krifka (2006) and Tomioka (2010), focus merely signals the relevance of alternatives for interpretation, and the presence of focus inside a topic would therefore signal the existence of alternative aboutness topics.