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Without 'Focus'

Abstract: It is widely accepted that a notion of 'focus', more or less as conceived of in Jackendoff (1972), must be incorporated into our theory of grammar, as a means of accounting for certain observed correlations between prosodic facts and semantic/pragmatic facts. In this paper, we put forth the somewhat radical idea that the time has come to give up this customary view, and eliminate 'focus' from our theory of grammar. We argue that such a move is both economical and fruitful.

Research over the years has revealed that the correlations between prosody, 'focus', and the alleged semantic/pragmatic effects of focus are much less clear and systematic than we may have initially hoped. First we argue that this state of affairs detracts significantly from the utility of our notion of 'focus', to the point of calling into question the very motivation for including it in the grammar. Then we look at some of the central data, and show how they might be analyzed without recourse to a notion of 'focus'. We concentrate on (i) the effect of pitch accent placement on discourse congruence, and (ii) the choice of 'associate' for the so-called 'focus sensitive' adverb only. We argue that our focus-free approach to the data improves empirical coverage, and begins to reveal patterns that have previously been obscured by preconceptions about 'focus'.

1. 'Focus' and 'focus effects'

Following Chomsky (2007) and Jackendoff (1972), generative linguists have incorporated into theories of grammar a notion of 'focus': to be a 'focus' is a feature of syntactic constituents which gets interpreted both phonologically and semantically/ pragmatically by rules of the grammar. This notion of 'focus' is intended, of course, to serve as a means of accounting for certain correlations that we observe between prosodic facts on the one hand, and semantic/pragmatic facts on the other.

We think it is fair to say that when "Jackendoffian" 'focus' was incorporated into the grammar, it was hoped, at least initially, that there would be one uniform and well-defined notion of 'focus', with some clear semantic/pragmatic criterion for identifying the focused constituent, and highly systematic prosodic marking of the focused constituent; and that this notion of 'focus' would be useful for stating generalizations and making the right predictions regarding a variety of phenomena which involve a correlation between prosodic facts and semantic/pragmatic facts (those phenomena that we are accustomed to call 'focus effects').

That is, we think that at least initially, a really appealing theory of 'focus' and 'focus effects' was envisaged, one which would supply an affirmative answer to the following three questions.

- **Is there a semantic/pragmatic 'definition' of 'focus'?**
  That is, is there such a semantic/pragmatic criterion which (i) given any utterance α and its context, would enable us to identify the focus (or foci) of α; and (ii) would be independent of any further semantic/pragmatic generalizations that we would like to capture using the notion 'focus'?

- **Is there a prosodic 'definition' of 'focus'?**
  That is, is there some highly systematic prosodic marking of 'focus'? I.e., is there a prosodic criterion which, given any utterance α (including its syntactic structure and prosody), would determine what the possible focal structures of α are?

- **Can we have a prosodic 'definition' and a semantic/pragmatic 'definition' of focus which 'define' the same 'focus'?**
  That is, if a certain semantic/pragmatic phenomenon involves a

constituent which seems to be prosodically marked, and if we want to hypothesize that that constituent is a 'focus', then will our hypothesis be compatible with both the prosodic and the semantic/pragmatic 'definitions' of focus?

Undoubtedly, no semantic/pragmatic criterion for identifying foci could ever be fool-proof (sometimes we might not be able to tell whether the conditions that it specifies hold or not). Also, it has been obvious since very early on that it is not the case that prosody completely disambiguates focal structure. But if it could be possible to come up with both a prosodic and a semantic/pragmatic 'definition' of focus which together give us enough information about what the focus of each utterance might be, then we might still have a contentful theory of 'focus' which could be checked against the facts.

At least when we restrict our attention to a limited set of data, it might seem that an appealing theory of 'focus' can be achieved. Consider examples (1) and (2).[1]

(1) A: Who did you introduce to Sue?
B: I only introduced Bill to Sue.
L∗ H∗L L%

(2) A: Who did you introduce to Sue?
B: I only introduced Bill to Sue.
L∗ H∗ L L%

We observe the following facts:

prosody: In each of the B sentences, there are just two words carrying a pitch accent: *only*, and one of the names. The name carries the nuclear accent.

discourse congruence: B is a felicitous response to A in (1), but not in (2). The accented name in (1B) corresponds to the wh-word in (1A), whereas the accented name in (2B) does not correspond to the wh-word in (2A).

semantic effect: In example (1), the domain of quantification of *only* is unambiguously fixed, so that the only possible interpretation is 'the only individual I introduced to Sue was Bill'. We are accustomed to refer to this interpretation by saying that *only* '**associates with**' Bill. In this particular example, we have just noted that *only* **obligatorily** associates with *Bill*.

These examples are usually analyzed based on the assumption that in the B sentence, the accented name is a 'focus'—that is, the NP *Bill/Sue* carries a syntactic feature F, the H∗ pitch accent is the prosodic manifestation of this feature, and the F feature is semantically/pragmatically interpreted. We may assume, following Rooth (1985), that the F feature semantically induces a set of alternatives, also called a 'focus semantic value'. We may assume the focus semantic value of example (3) is as in (4).

(3) I introduced $[\text{Bill}]_F$ to Sue.

(4) the set of propositions which say of some individual d that the speaker introduced d to Sue—where d is an atomic individual or a plural individual
e.g., something like this:
{I introduced Bill to Sue, I introduced Tom to Sue, I introduced Jack to Sue, I introduced Bill and Tom to Sue, I introduced Bill and Jack to Sue, I introduced Bill, Tom and Jack to Sue,. . . }

This is then used to explain the facts, as follows.

We want to predict that the focus in the answer must correspond to the wh position in the question. Following Roberts (1996), and Beaver & Clark (2008), this can be done by positing the following constraint.

(5) **The Current Question Under Discussion Constraint on Focus:**
A declarative utterance must contain some part whose focus semantic value is identical to—or a superset of—(the ordinary denotation of) the question currently under discussion in the

discourse.

Regarding questions, it is usually assumed in the literature on focus, following Hamblin (1973), that the denotation of a question is a set of propositions which contains all the possible (partial) answers to the question, true and false ones alike. Let us assume that each possible answer to question (1A) specifies either an atomic or a plural individual. This means that the denotation of (1A) is very much like the focus semantic value of (3)—something like the set in (4) above. The only difference is that while the focus semantic value of (3) involves every individual d in the model, we assume that the denotation of question (1A) may be more restricted, possibly involving just a set of individuals that are relevant in the context.

There are a number of different focus-based approaches to exchanges like (1). Let us review the analysis of Beaver & Clark (2008), which provides an elegant and natural account of the data regarding (1) and (2). In example (1), we distinguish three elements: (i) question (1A); (ii) statement (3), called the **prejacent** of *only* in (1B); (iii) *only*. We assume, with Beaver and Clark, that when (1B) is uttered, the current question under discussion in the discourse (CQ) is question (1A). The prejacent provides a (possibly partial) answer to this question: it contributes the claim that Bill was introduced to Sue. Beaver and Clark propose that the function of *only* is twofold: (i) it comments on an overly strong expectation regarding the answer to the CQ, and (ii) it says that the strongest true answer to the CQ is the prejacent. Thus, *only* in (1B) would be used in a context where a stronger answer might have been expected, e.g., that more people were introduced to Sue, adding to the claim made by the prejacent the further claim that none other than Bill was introduced to Sue.

Now we predict the discourse congruence facts. The prejacent in answer (1B) has a focus semantic value which is identical to (or, in context, possibly a superset of) the denotation of question (1A)—both are something like the set described in (4). This satisfies principle (5), so we correctly predict that (1) is congruent. (2), on the other hand, does not satisfy principle (5): the denotation of (2A) is again as in (4), but there is no part of (2B) whose focus semantic value is a superset of this denotation; the prejacent here is (6), and its focus semantic value is something like (7), which is not at all like (4).

(6) I introduced Bill to $[\text{Sue}]_F$

(7) the set of propositions which say of some individual d that the speaker introduced Bill to d
e.g.,
{I introduced Bill to Sue, I introduced Bill to Tom, I introduced Bill to Tom and Sue,. . . }

Beaver and Clark's analysis also correctly predicts the fact that *only* in (1B) must associate with *Bill*. The function of *only* is to say something about the answer to the CQ. It follows from the principle in (5) that the (short) answer to the CQ which is provided by (1B) must be the focus. Hence, *only* must say something about the focus. And here the focus is *Bill*.

In sum, we have an elegant account of (1) and (2): we have a semantic/pragmatic criterion to identify the focus (it is the short answer to the current question under discussion), we have clear prosodic marking of the focus (by the nuclear accent), and both support the idea that what *only* associates with is the focus.

2. WITHOUT 'FOCUS'

In this paper, we shall put forth the somewhat radical idea that it might be **both possible and desirable to eliminate 'focus' from our theory of grammar**. This is work in progress. For the time being, we can only make a start, laying out our reasons for believing that the 'no focus' hypothesis deserves serious consideration (in the present section), and sketching how we would go about accounting for the relevant facts without a theoretical notion of 'focus' (in section 3 below).

To start with, let us point out that, in fact, it is quite possible to explain the facts about our examples (1) and (2) without assuming a theoretical notion of 'focus'.

Concerning the obligatory association of *only* with *Bill*, note that Beaver and Clark's analysis of *only* does not make any reference whatsoever to a grammatical notion of 'focus', or to focus semantic values. Their analysis does relate *only* to the CQ, which is taken to be question (1A)—*only* compares alternative answers which are members of the denotation of (1A). It seems to us that that is quite sufficient for pre-

dicting that *only* must associate with *Bill*. Members of question (1A) are all of the "form" 'I introduced d to Sue'. The prejacent of *only* expresses one of these members, viz., 'I introduced Bill to Sue'. And the function of *only* is to comment on the stronger members, saying that while some of them might have been expected to be true, in fact, they are all false. This yields the desired interpretation, the one we describe as 'association of *only* with *Bill*'. We need not assume that *Bill* carries an F feature, or that the prejacent has a focus semantic value.

Next, let us consider the discourse congruence facts. It is fairly widely accepted that at least one of the functions often fulfilled by the presence vs. absence of a pitch accent on a word is to mark that word as 'new' vs. 'given' (in some appropriate sense). In current literature, it is usually assumed that the relevant notion of 'givenness' is the notion which Prince (1981) calls **given**$_k$ ('shared knowledge')—that is, a notion akin to Kuno's (1972) 'anaphoric', Clark and Haviland's (1977) 'given', and (1982) 'familiar', where 'given' basically means 'present in prior discourse'. Let us assume for the moment that the sole function of pitch accent placement in the B utterances of examples (1) and (2) is to mark whether a word is 'given' in this sense or not. Now, it is clear that in the context of the question in A, all the words in sentence B except for the words *only* and *Bill* are 'given' in this sense. But that means that the pitch accent placement in (1) is appropriate (the two accented words are the only ones that are 'new'), whereas the pitch accent placement in (2) is not appropriate (the 'given' *Sue* is accented, while the 'new' *Bill* is not). That in itself is enough to predict that (1) is felicitous and (2) is not.[2]

Now, why do we think that it might be desirable to eliminate 'focus' from our theory of grammar? The short answer is this: we do not think that the appealing sort of theory alluded to in section 1 can be achieved; for that reason, we are skeptical about the descriptive and explanatory utility of a theoretical notion of 'focus'.

Let us take an example.

(8) A: What's peculiar about Granny's dog?
B: She only likes John.
H∗ H∗ H∗ L L%

We observe the following facts:

prosody:	Single Intonation Phrase. Each word in B except for the pronoun *she* carries a pitch accent. *John* carries the nuclear accent.
discourse congruence:	B is a felicitous response to A. The whole of B corresponds to the wh-word in A.
semantic effect:	The prominent reading is with only associated with John.

Suppose we want to explain why it is that *only* associates with *John*. When we discussed example (1), we saw that on the analysis of Beaver & Clark (2008), the lexical semantics of *only* determines that it must associate with the answer to the CQ. And, since Beaver and Clark explicitly adopt the view that 'focus' is the answer to the CQ, they predict that *only* must associate with the focus. In example (8), however, what *only* associates with, *John*, is definitely not the answer to the question being addressed. Intuitively, B is directly answering the explicit question uttered by A, and it is the whole sentence that provides the answer to that question. This is further corroborated by the fact that except for the pronoun, every word in the sentence carries a pitch accent.

Given this, it is not clear that we can maintain Beaver and Clark's nice picture. For Beaver and Clark, 'focus' is characterized as the (short) answer to the CQ, and *only* always associates with a focus. The only way to retain both of these generalizations would be to claim that (8B) does not directly answer (8A), but rather a question implicitly present in between (8A) and (8B), namely, *who does Granny's dog like?*. However, the question *who does Granny's dog like?* is not intuitively salient in the context, or even intuitively raised by speaker B; there doesn't seem to be any prosodic evidence that it is the CQ (note that *likes* is accented); and it is not part of an obvious strategy for figuring out what's peculiar about Granny's dog. It rather seems that B simply stated the most peculiar property of Granny's dog that came to mind.

In (9) and (10) we give two more examples where the associate of *only* is not the answer to the CQ.

(9) A: Larry danced with Mary.
H∗ H∗ H∗

B: Yes. The problem is that only Larry danced with Mary.
H∗ L L%

The associate of *only* in (9) is of course *Larry* (which is its syntactic argument). But *Larry* is not the answer to the CQ, is it? There is no explicit question here. So what is the question being addressed by B? We would say that intuitively, the question is *what is the problem?*, or maybe *what is the problem related to the fact that Larry danced with Mary?*, to which the answer is the entire embedded sentence. At any rate, it does **not** seem like B is implicitly answering the question *who danced with Mary?* (to which *Larry* would be the answer).

(10) A: Who only likes bittersweet?
B: Mary only likes bittersweet.
H∗ L L%

In (10), the prominent reading of both question and answer is with *only* associated with *bittersweet*. But in (10B), *bittersweet* is clearly not the answer to the CQ. Intuitively, B is directly answering the explicit question uttered by A; the answer being *Mary*.

If Beaver and Clark's nice picture cannot be retained, then one or both of the generalizations they endorse must be given up. Thus, one is forced to choose one of the following three options:

Option 1: Neither characterize 'focus' as the answer to the CQ nor claim that *only* must associate with a focus—as in Rooth 1992;

Option 2: Give up the characterization of focus as the answer to the CQ, while insisting that the associate of *only* is always a focus;

Option 3: Give up the generalization that *only* must associate with the focus, while characterizing focus as the answer to the CQ—as in Roberts (1996).

Inevitably, giving up one or both of the two generalizations in question would detract from the appeal of one's theory, and would therefore weaken one's motivation for positing the notion 'focus' in the first place. Nonetheless, let us consider the above three options one by one.

Option 1: Rooth (1992) neither characterizes 'focus' as the answer to the current question nor claims that only must associate with a focus. His theory says that foci are subject to the principle in (11), called the FIP.

(11) **The Focus Interpretation Principle (Rooth 1992)**: A focused constituent must be contained in a constituent α of which the following holds: in the environment there is an (independently) salient set Γ, s.t. (i) $\Gamma \subseteq [\![\alpha]\!]^f$; (ii) $[\![\alpha]\!] \in \Gamma$; and (iii) Γ contains some member distinct from $[\![\alpha]\!]$.

The FIP tells us that each focus must be related to some set Γ of semantic objects which is independently relevant and salient in the context (the focus must induce a focus semantic value which is identical to, or a superset of, the contextually given set Γ), and that within the set Γ, it should be possible to draw a contrast or comparison between the actual proposition that was uttered and alternatives (at least one alternative) to it.

The set Γ can be anything that happens to be present in the context—it can be a question under discussion, it can be the domain of quantification of *only*, and various other things. The FIP just requires every focus to be related in the specified way to some set Γ or another. But that means that in the end, what the FIP does is specify what a focus effect amounts to, and require that every focus be involved in some focus effect or another (it can mark the answer to a question, associate with *only*, mark a contrasted element, etc.).

Rooth (1992) does not assume or provide any semantic/pragmatic criterion for identifying a focus, besides what the FIP requires (namely, besides being involved in some focus effect). Therefore, we have no way of checking against the facts, based solely on the semantic/pragmatic properties of focus, either the generalization that foci must satisfy the FIP or any other semantic/pragmatic generalization about focus. For instance, we cannot use example (8) (or example (1), for that matter) as support for the hypothesis that [1]*only* must associate with a focus, since we do not have any semantic/pragmatic criterion that will allow us to identify *John* (or *Bill*) as a focus, beyond the very fact that it is what *only* associates with.

It seems that what Rooth (1992) implicitly assumes is that 'focus'

is identified based on prosodic marking, and the task of semantics and pragmatics is not to give an independent criterion for identifying it, but merely to specify its role in 'focus effects'. Returning to (8), for instance: to the extent that one can assume that the prosody of (8) unambiguously marks *John* as a focus, one can be satisfied that the relation of the prosodically-marked focus of (8) to the domain of quantification of *only* is accurately described by the FIP, and, if one wishes, one **can** also use (8) to test the hypothesis that *only* must associate with a focus.

We feel that the position of Rooth (1992) is in principle defendable. Moreover, we endorse Rooth's idea that what *only* associates with is a matter of a contextually determined semantic parameter. Yet, we may ask the following questions.

(i) **Can** 'focus' be independently indentified by prosody? We know, after all, that the connection between focus and prosody is far from straightforward (cf. e.g. Schmerling 1976, Serlkirk 1984, 1996, 2007, Kadmon 2001, 2011, Féry & Samek-Lodovici 2006, Büring 2006, Rooth 2010).

(ii) If, like Rooth, we do not endorse any semantic/pragmatic generalizations about focus beyond the FIP, is it still necessary and worth our while to retain the notion of 'focus' in our theory of grammar?

Option 2: Another option to consider is giving up the characterization of focus as the answer to the CQ, but at the same time insisting that the associate of *only* is always a focus. If such a position were tenable, then our motivation for retaining the notion of 'focus' in our theory would seem stronger. And, indeed, many leading researchers, while they would acknowledge that *John* in (8) is not the kind of focus characterized as being the answer to the CQ (aka 'rheme' or 'informational focus'), they would at the same time maintain that John **is** a 'focus', perhaps the kind of focus called 'contrastive focus' or Kontrast. In the literature, we find a number of ways of understanding the notion 'contrastive focus'.

Some researchers (Valduví & Vilkuna 1998, Serlkirk 2007) simply use the term 'contrastive focus' or Kontrast to refer to the notion of focus of Rooth (1992).[3] But what is our evidence that John in (8) is a

focus in that sense? There is no semantic/pragmatic evidence, beyond the very fact that it is what only associates with. Is there prosodic evidence then? A leading line of research holds that there is systematic prosodic marking of 'contrastive focus' in the sense of Rooth (1992), governed by the principle in (12):

(12) **Contrastive Focus Prominence Rule:** Within the scope of a focus-sensitive operator, the focus is the most prosodically prominent.
(Truckenbrodt 1995, Rooth 1996, Serlkirk 2007)

Can it be claimed, then, that this principle—or some other prosodic principle—unambiguously marks *John* in (8) as the 'focus' and hence as the associate of *only*? We don't know. However, examples such as (13C) below make us skeptical. In (13C), the most prosodically prominent word in the scope of *only* is *dependants*. This word could perhaps be considered a 'contrastive focus', but it clearly is not the associate of *only*. *Only* associates with *three*, which is not the most prosodically prominent word in the scope of *only*, and which doesn't seem to have any special prosodic marking which could identify it as a 'focus'.

(13) A: Why won't Smith get the subsidy?
B: Because he has only three kids.
H∗ H∗ H∗ H∗ L L%
C: No, it's because he has only three DEPENDANTS.
H∗ H∗ H∗ H∗ L L%
↑longer duration, higher intensity

Suppose now that there is some prosodic marking that systematically helps us identify the associate of *only*. In that case, what would we gain by insisting that the associate is prosodically marked as a 'focus' or 'contrastive focus'? The alternative is to assume that the prosody simply helps us identify the associate of *only* (when it is not syntactically unambiguous). Which seems to us like it might be a good enough option.

Other researchers use notions of 'contrastive focus' which are meant to come closer to our intuitive understanding of what it is to explicitly

make a contrast (Erteschik-Shir 1997, 2007, Féry & Samek-Lodovici 2006, Zimmermann 2008, Büring 2008). Such notions do not seem to be useful in helping us to identify *John* in (8) as a focus. Intuitively, *John* in (8) can easily associate with *only* without being contrasted with someone else. Further, in (13), where *dependants* is explicitly contrasted with *kids*, *only* associates with *three*, and not with the contrasted element.

Option 3: The last remaining option is to give up the generalization that *only* must associate with the focus, while characterizing focus as the answer to the CQ—as in Roberts 1996. Choosing this option would mean losing the focus-based account of the obligatory association of *only* with *Bill* in example (1), as well as leaving example (8) unexplained. To explain why *only* associates with *John* in (8), we would obviously need an account that does not rely on 'focus'. For (1), we have already provided a focus-free account, above. So maybe we can do without 'focus' in all cases?

3. WORKING WITH THE 'NO FOCUS' HYPOTHESIS

Obviously, it is a major research project to take every fact that has ever been explained using the notion 'focus' and try to show that it can also be explained without it. And yet we can, in the present paper, at least give some idea of why we think that a lot of facts can indeed be explained without 'focus'. In this section, we present a sketch of how we would go about accounting for some of the central data.

Our current working hypotheses may be summarized as in (14).

(14) Our current working hypotheses:

- **A major role of pitch accent placement is to indicate given$_p$ vs. new$_p$.**
  Following Kadmon 2011, we believe that the notion of 'givenness' relevant to pitch accent placement is not 'givenness$_k$' ('present in prior discourse'), as usually assumed in the literature, but rather 'givenness$_p$' ('predictable' or 'recoverable').

- **So-called 'conventional association with focus' effects are all cases of contextually-determined semantic parameters.**
  We have argued above, contra Beaver and Clark 2008, that the 'associate' of *only* is not necessarily the answer to the CQ. We will propose below that the 'associate' is an argument required by the semantics of *only*, whose value is not fixed by that semantics, but gets recovered based on the syntactic scope of *only* and any available contextual and prosodic clues. We hypothesize that a similar account can be given to *even*, *also*, and other operators that would be classed by Beaver and Clark as 'conventionally' focus-sensitive.

We believe that in the long run, eliminating the notion 'focus' while striving to delegate its descriptive and explanatory roles to hypotheses such as the ones in (14) will yield a more elegant and coherent theory of grammar, and also improve empirical coverage, by revealing patterns that have previously been obscured by preconceptions about 'focus'.

3.1. Discourse Congruence and Pitch accent Placement

One central thing that the notion of 'focus' was meant to help explain is the relation between prosody and discourse congruence; in particular, the relation between pitch accent placement and discourse congruence. We believe, however, that this relation can be explained without recourse to 'focus'.

3.1.1. Facts Explained Based on Givenness$_k$

Consider the following example, adapted from Selkirk 1984. The different versions of (16) will make appropriate answers to (15) in different contexts.

(15) What did she do on Monday?

(16) a. She sent her sketches to the publisher.
H∗ H∗ H∗ L L%

b. She sent her sketches to the publisher.
H∗ H∗ L L%

(16a) is a natural 'out of the blue' response to (15), while (16b) can answer (15) only in the right context—if, say, Jane's job is illustrating books, and we've been talking about the sketches that she has recently prepared. Clearly, the presence or absence of a pitch accent serves to indicate the informational status of the different words. Note that the notion of 'focus' can't help us explain the facts here, since it is clear that in both versions of (16), 'the short answer to the CQ' is the whole VP. Completely independently of the 'focus' issue, then, we can make the assumption in (17).

(17) A central function of pitch accent placement is to indicate whether a word is 'given' or 'new' (in some suitable sense).
(Schmerling 1976, Ladd 1980, Serlkirk 1984; widely accepted view; independent of the 'focus' issue)

As noted in section 2 above, it is usually assumed in current literature that the relevant notion of 'givenness' is the notion which Prince (1981) calls **given**$_k$ (or at least a notion of 'givenness' closely modeled on given$_k$).

(18) **'given' basically means 'present in prior discourse'**
given$_k$ ('shared knowledge') of Prince (1981)
(Kuno's (1972) 'anaphoric', Clark and Haviland's (1977) 'given', Heim's (1982) 'familiar')

As already evident in Schwarzschild (1999), a wide array of facts concerning the relation between pitch accent placement and discourse congruence can be explained based on givennessk, or some species of it, without recourse to 'focus'. That includes examples like (15)+(16) above, as well as examples like the following.

(19) A: What did you do about Bill?
B: I invited Bill
H∗ LL%

(20) A: What did you do about Bill?
B: I invited Bill
H∗ L L%

(21) A: What did you do about Bill?
B: I invited Bill
H∗ H∗ L L%

Of course, (19)–(21) have often received accounts which rely on the notion of 'focus'. However, as already illustrated in section 2, facts of this sort can be explained without recourse to 'focus', based on givenness$_k$. Suppose we assume 1–1 correspondence between accent and 'novelty', as in (22).

(22) If a word is not accented, that means it is given$_k$
If a word is accented, that means it is new$_k$.
(i.e., 1–1 correspondence between accent and 'novelty')

Clearly, in (19)–(21), *Bill* is given$_k$, and *invited* is not. Hence, (22) means that only *invited* should be accented, correctly predicting the facts.

3.1.2. Difficulties for Givenness$_k$ which Suggest that we Need 'Focus' After All?

There are also facts of discourse congruence which cannot be explained by merely assuming that the presence vs. absence of a pitch accent means 'new$_k$' vs. 'given$_k$':

All-new$_k$ transitive VPs with the verb unaccented

It is usually assumed that in an all-new transitive VP, if the object is accented, the transitive verb is allowed to not be accented, as in (23). However, (23) is incompatible with assumption (22) above, since *invited* is unaccented despite being new$_k$. It would be difficult for a theory of discourse congruence based on (ordinary) givenness$_k$ to account for such facts.

(23) A: What did you do?
B: I invited Bill
H∗ L L%

The standard account of these facts (see Serlkirk 1984, Rochemont 1986, Serlkirk 1996) employs the notion of 'focus', and a syntactic feature F which is associated with accented words and gets projected upwards. First, it is assumed that the principles of F-projection determine that accenting the object alone is enough to license F-marking of the VP. Secondly, it is assumed that since the VP may be F-marked, it may be interpreted as a 'focus' (i.e., the short answer to the CQ and/or that which generates a set of alternatives). Finally, it is assumed that if the VP is the focus, that makes (23B) a congruent answer to (23A).

As a matter of fact, there **is** a given$_k$-based theory which **does** manage to account for the congruence of (23) **without** using a notion of 'focus'—that of Schwarzschild (1999). Schwarzschild defines a sophisticated notion called GIVENness, which it is fair, we think, to describe as a species of givenness$_k$. Schwarzschild's theory does not assume a 1–1 correspondence between accent and 'novelty', allowing a non-GIVEN word to not be accented.

Another approach is that of Büring (2006), where the pattern exemplified by (23) is not explained based on 'givenness', but is not explained using 'focus' either:

> In a nutshell, if a larger constituent is to be made prominent, this is generally not done by assigning maximal prominence to each and every word (or syllable) within that constituent, but rather by assigning a default pattern of relative prominence across that constituent. And the default pattern for English (and other Germanic languages including Dutch and German) happens to be such that predicates don't receive a pitch accent if their argument(s) do. (Büring 2006)

All in all, we do not think that the pattern exemplified by (23) forces us to adopt a notion of 'focus'. We also have reasons to believe that the acceptability of (23) does rely on some notion of givenness, namely givenness$_p$, which will be discussed below. Note, for the time being, that, out of the blue, (24) is not good.

(24) A: Why are you so upset?
B: I've beheaded Bill.
H∗ L L%

A word expressing the short answer to the CQ must carry a pitch accent, even if it is given$_k$.

Consider the simple fact that a word expressing the short answer to the CQ must carry a pitch accent, even if it is given$_k$.[4] For instance, consider examples (25)–(26), adapted from Schwarzschild (1999).

(25) A: Who borrowed the book that Max had purchased?
B: I'll answer your question: Max borrowed it.
H∗ L L%

(26) A: Who borrowed the book that Max had purchased?
B: I'll answer your question: Max borrowed it.
H∗ L L%

As noted by Schwarzschild himself, his 1999 theory cannot account for these facts (both *Max* and *borrowed* are given$_k$ and GIVEN). It might be argued that to account for such facts, some principle of the grammar is needed which determines that the 'focus' (in the sense of 'the answer to the CQ') must carry (or contain) a pitch accent. We will argue that it is possible to do without such a principle, if we make use of the other notion of 'givenness' to be discussed below, viz., givenness$_p$.

3.1.3. Difficulties for Givenness$_k$ which Suggest that we Need Givenness$_p$

Consider the following example (from Kadmon 2011). In the context of (27), (28a) is felicitous. *Anna* is accented, despite the fact that it is given$_k$. In fact, *Anna* **must** be accented in this context—again despite being given$_k$: without further context, (28b) is not a felicitous response to (27). A given$_k$-based theory[5] would predict exactly the opposite judgments.

(27) John and Anna walked in.
And then what happened?

(28) a. Anna yawned (27)+(28a) GOOD
H∗ H∗ L L%

b. Anna yawned. (27)+(28b)
H∗ L L% BAD without further context

Next, let us look at words that are **un**accented despite being **new**$_k$. Consider the following examples (also from Kadmon 2011).

(29) *Context: B is the host of a variety show on TV, which doesn't specialize in anything in particular. It has interviews, performances, etc.*

A: What's happening on your show tonight?

B-1: Pavarotti is singing.
H∗ L L%
B-2: Pavarotti is singing.
H∗ H∗ L L%
B-3: Obama is singing.
H∗ L L%
B-4: Obama is singing.
H∗ H∗ L L%

Whether *singing* should be accented or not depends on the subject NP: following *Pavarotti*, it is very unnatural to accent *singing* (as in B-2), and the natural pronunciation is as in (B-1), with *singing* unaccented; following *Obama*, the reverse is the case—(B-3) with *singing* unaccented is strange, and (B-4), with *singing* accented is natural. A given$_k$-based theory would have no means of accounting for these data.

3.1.4. Givenness$_p$

Kadmon (2011) suggests that the above examples can be explained by using a different notion of 'givenness', the one Prince (1981) calls **given**$_p$, which may be described as in (30).

(30) **'given' basically means: 'its figuring in a certain role/ position in the utterance is inferable/expected/natural given prior context'**
given$_p$ of Prince (1981)
(Kuno's (1972) 'predictable', Halliday's (1967) 'recoverable')

Kadmon (2011) assumes 1–1 correspondence between accent and 'novelty', as in (31).

(31) If a word is not accented, that means it is given$_p$
If a word is accented, that means it is new$_p$.
(i.e., 1–1 correspondence between accent and 'novelty')

We should like to stress two things, however:

(i) Given$_p$, as we understand it, is a vague notion (when does something count as inferable or expected?);

(ii) By choosing not to accent a word, a speaker **presents** that word as given$_p$; the hearers will accept this or not, depending on whether treating that word as inferable or expected does not seem to them to be too far fetched.

With givenness$_p$ we can account for the data as follows.

The given/new$_p$ approach immediately predicts the fact that, as a rule, words which are part of the question being addressed by the current utterance do not carry pitch accents.[6] For instance, if you have asked me who ate the beans, then, when I answer *Fred ate the beans, ate the beans* is obviously as given$_p$ as it gets—even if I just answer with the single word *Fred*, you cannot fail to figure out that I meant 'Fred ate the beans'. Note that this is a focus-free account—it does not rely on the assumption that the expressions which are part of the CQ are 'outside the focus'.

Further, note that a word which constitutes the short answer to the CQ is invariably (presented as) new$_p$, since we ask a question precisely because we don't know what the answer is. That correctly predicts the fact that a word which constitutes the short answer to the CQ must be accented, even if it is given$_k$. (Recall example (25): *Max* is accented despite being given$_k$ because it is the answer to the CQ.) Hence, we are not forced to say that carrying a pitch accent sometimes signifies being newk and other times signifies being a 'focus'. Instead, if all goes well, we would have a unified analysis of what carrying a pitch accent means—it means new$_p$.

Now consider example (27)+(28). *Anna* is given$_k$, since it is present in prior discourse. However, it is not given$_p$, in the sense that it is not inferable or expected or particularly natural that the subject NP of the

response in (28) should be *Anna*; it could just as well be *John*, or *they* (i.e., John and Anna). Hence, it must be accented.[7]

Next, let us look at example (29). If the subject NP of the response is *Pavarotti*, then *singing* is given$_p$: assuming that on the relevant show, a guest usually does what they are good at or known for, and given the world knowledge that Pavarotti is a famous singer, it is rather predictable that the action to be described should be 'singing'. Hence, in that case, *singing* should not be accented. We see then that to determine accent placement, we don't need to know here if *singing* is a familiar or known thing (given$_k$); rather, we need to know if *singing* is likely to be the action that the **subject of the sentence** will perform on the show. If the subject NP is *Obama*, *singing* is not given$_p$, and hence must be accented.

Finally, we turn to examples (23) and (24). Contra what is assumed in the literature, we believe, following Kadmon (2011), that in an all-new$_k$ transitive VP, the verb does have to be accented, unless it is given$_p$. We believe, in particular, that example (23) is not really good totally out of the blue. It is good in a context where we are planning a party, and therefore talking about inviting people is highly expected. This sort of context is not so hard to accommodate, and for that reason the example may seem good when presented out of the blue. Craige Roberts (p.c.) also notes the following: of the two internal arguments of *invite*—the invitee and the event to which they are invited—the second one is omitted, which strongly suggests to the hearer that (23B) presupposes some context rich enough to supply it. This strengthens our tendency to automatically assume that inviting is salient in the context. Note also that 'what did you do?' is a question which is often asked with regards to some task or problem—what did you do **about** something; hence, it encourages accommodating additional context, such as the party-planning context. Further, note that (32) is less acceptable than (23), because the less specific question does not immediately hint at further context—at least not the party-planning context.

(32) A: What happened?
? B: I invited Bill
H∗ L L%

In contexts where it is not at all natural or expected that the answer should involve inviting someone, (23B) is not a good response to (23A), and (32B) is not a good response to (32A). Surely, replying with (33) would be a much more natural response in such a context.

(33) I invited Bill
H∗ H∗ L L%

Now compare (23) with (24), which is definitely infelicitous—people judge that in (24) the verb *beheaded* does have to carry a pitch accent. This is not hard to explain, since a context where speaker B is expected to behead people does not easily come to mind.

3.1.5. Accent Placement, Contrasts and Patterns

As is well known, there is a strong intuition that in some cases the placement of pitch accents specifically serves to attract attention to a contrast or comparison that is being drawn. For instance, in the following examples.

(34) A: John drove Mary's red convertible. What did he drive before that?
B: He drove her blue convertible.
H∗ L L%
(Schwarzschild 1999)

(35) On my way back on the train, I was too tired to read, and just half listened to what was going on around me.
In the restaurant car, an American farmer happened to
L∗ L∗ L H% H∗
meet a Canadian farmer.
H∗ L H% H∗ L L%
(a variation on the classical example from Rooth 1992)

Examples of this sort give rise to the following question: must we recognize that certain patterns of pitch accent placement directly convey that a contrast is being drawn (independently of the role of pitch accent placement as conveying givenness$_p$ vs. newness$_p$)? In this section, we will argue that the speakers' intuitions about contrast do **not** force us to the conclusion that some notion of 'contrast' is conventionally asso-

ciated with certain prosodic patterns. We will analyze these examples using the notion of givennessp and a number of pragmatic strategies involved in how the speaker manipulates what she chooses to present as givenp, and how the hearer figures out what the speaker's intentions are.

On the face of it, examples such as (34) and (35) seem like counterexamples to the givenness_p approach. In (34B), it seems that the word *convertible* is entirely new_p (right after we've heard A, we don't know what type of vehicle John drove previously), and yet it is unaccented. Similarly for the second occurrence of *farmer* in (35). Worse yet, note that response (36B) to the same question as in (34) is infelicitous. But the givenness_p theory would predict that it should be felicitous, wouldn't it? Similarly for (37).

(36) A: John drove Mary's red convertible. What did he drive before that?
B: # He drove her blue convertible.
H∗ H∗ L L%

(37) On my way back on the train, I was too tired to read, and just half listened to what was going on around me.
In the restaurant car,
an American farmer happened to meet a Canadian farmer.
L∗ L∗ L H% H∗ H∗ L H% H∗ H∗ L L%

We think, nevertheless, that examples (34)–(37) are in fact compatible with the givennessp approach. We would like to suggest the following.

The speaker of (34B) is attuned to the fact that both of the cars that John used to drive are convertibles, differing only in their color. She deliberately presents the word *convertible* as given_p, in order to draw the hearer's attention to what the two cars have in common, and to the contrast in their colors. It works as follows. A cooperative, accommodating hearer faced with (34B) is forced to think of a way in which the unaccented *convertible* could count as given_p. Noting what *blue convertible* and *red convertible* have in common, the hearer concludes that there is a **continuation of a pattern** in which John drives different convertibles, and is satisfied with the idea that if one keeps talking about that pattern, then *convertible* is given_p. (A similar story goes for (35).)

But what is wrong with (36B), then? Why can't the speaker of B choose not to act like she is continuing a pattern, and just treat both color and type of vehicle as new_p, in accordance with the fact that they are both equally new to the hearer? We would suggest that that is because of parallelism. The two assertions in A and B have exactly the same syntactic structure and word order, and their meanings are identical in everything except for the color. But that so strongly suggests a continuation of a pattern in which everything is kept constant apart from the color, that it becomes very unnatural to treat the word *convertible*, occurring a second time, and in the same position in the sentence, as new_p. (A similar story goes for (37).)

Support for the account we have just suggested comes from the fact that when parallelism is broken, accenting *convertible* becomes OK. In both (38) and (39) below, all intonation patterns indicated are felicitous. It is quite natural in these examples to accent *convertible*.

(38) A: John drove Mary's red convertible. What did he drive before that?
B-1: He drove the convertible she bought for him.
L∗ H∗ L L%
H∗ H∗ L L%
B-2: He drove the convertible she bought for him.
H∗ L L%

(39) A: In 1994, John drove Mary's red convertible. In 1995, he drove her blue Jeep. And what did he drive in 1996?
B-1: In '96,
he drove her blue convertible.
H∗ H∗ L L%
L∗ H∗ L L%
B-2: In '96,
he drove her blue convertible.
H∗ L L%
B-3: In '96,
he drove her blue convertible.
H∗ L L%

In (38), parallelism is broken by altering the syntactic structure and word order - the modifier now occurs in the form of a relative clause,

which follows rather than precedes the word *convertible*. In (39), parallelism is broken by adding enough context to ensure that (i) the assertion in B doesn't immediately follow the assertion differing only in the color, (ii) the pattern in which we keep talking about convertibles is no longer the only salient possible pattern to continue, since we might instead be talking about blue-colored vehicles.

We can make the correct predictions regarding (38) based on givenness$_p$. The speaker of (38B-1) does not expect the hearer to expect any connection between the two cars John used to drive, and places her pitch accents accordingly: the car John drove previously could be any car, so neither noun nor modifier are given$_p$, hence they are both accented. The speaker of (38B-2) is attuned to the fact that the cars are both convertibles, differing only in the additional attribute given, and is drawing the hearer's attention to this connection, and to the contrast between their additional attributes, in the same way that that is done in (34). (Note, incidentally, that a simple given$_k$-based theory, using (22), would incorrectly predict that in (38) it should be obligatory not to accent the word *convertible*.[8])

In the case of (39) too, givennessp allows us to make the correct predictions. The speaker of (39B-1) does not expect the hearer to expect any connection between the cars John drove before and the one he drove in '96, and places her pitch accents accordingly: the '96 car could be any car, so neither adjective nor noun are given$_p$, so they are both accented. The speaker of (39B-2) or (39B-3) is attuned to the connection between the '96 car and one of the previous cars. The speaker of (39B-2) is thinking of the fact that the '96 and '94 cars are both convertibles, differing only in their color, and is drawing the hearer's attention to this connection, and to the contrast in their color, exactly as in (34). The speaker of (39B-3) is thinking of the fact that the '96 and '95 cars are both blue, and is drawing the hearer's attention to that connection, and to the contrast in the type of car. In both cases, the hearer is able to recover the pattern that the speaker has in mind by searching the context. (Note that a simple given$_k$-based theory, using (22), would incorrectly predict that both *blue* and *convertible* should be unaccented.[9])

We think that the above discussion sheds some interesting light on how we manipulate pitch accent placement when we want to draw a

contrast. What such examples seem to show is that, at least in this case, the notion of givenness$_p$ allows us to give some explication of the intuition that a contrast is being drawn, without having to maintain that the pitch accent itself directly marks contrast (or 'contrastive focus'), and without using a theoretical notion corresponding to contrast.

But now consider example (40), from Wagner (2006) (the tune of B-3 was added by us).

(40) A: Mary's uncle, who produces high-end convertibles, is coming to her wedding. I wonder what he brought as a present.
B-1: He brought a CHEAP convertible.
B-2: #He brought a RED convertible.
B-3: He brought a red CONVERTIBLE.
H∗ H∗ LL%

On the face of it, it seems that givenness$_p$ cannot help us explain the difference between B-1 and B-2, since *cheap* and *red* are both new$_p$. Wagner notes that, intuitively, the difference is that it makes sense to contrast cheap convertibles with high-end convertibles, while it doesn't make sense to contrast red convertibles with high-end convertibles. He says that that means that the account has to make reference to appropriate alternatives of the form 'x convertible'. In terms of 'focus', that would mean making reference to (relevant members of) the focus semantic value of *CHEAP convertible* or *RED convertible*. Do we have to say then that the pitch accent on the adjective marks it as the 'focus', or 'contrastive focus', of its NP?[10] We don't think so.

Here is what we think is going on. In (40B-1) and (40B-2), the absence of pitch accent on *convertible* signifies that the speaker is presenting it as given$_p$. The hearer of the response (i.e., speaker A) must figure out (i) how *convertible* could count as given$_p$, and (ii) what B's goal might be in presenting it as given$_p$.

For (40B-1), it is quite easy for the hearer (i.e., A) to answer these questions. Via (40B-1), A is being informed that the present Mary's uncle brought was a convertible; A also notices that *convertible* is being marked as given$_p$; and A knows that the uncle produces high-end convertibles, and that at this point B knows that too. This strongly suggests the expectation in (41).

(41) The wedding present that Mary's uncle brought for her is a high-end convertible produced in his factory.

Therefore, A concludes that B is behaving as if (41) is what one would naturally expect. In other words, B has succeeded in creating the conversational implicature that it is presupposed that (41) is what one would naturally expect. But why would B want to implicate that? Why doesn't B just answer the question, accenting both *cheap* and *convertible*, given that in fact A didn't know what the present was? The answer that suggests itself is that B wants to convey the message that **there is a gap between reality and expectations**, perhaps because B wants to convey the message that the uncle is stingy.

As for (40B-2), if the present was a red convertible, that is not incompatible with the expectation in (41). Hence, (40B-2) can't be used to point to a gap between reality and expectations. But that means that B has no reason to present *convertible* as given$_p$: if B is not going to say anything about the connection between the wedding present and the expectation in (41), there is no reason to hint at this expectation in the first place. It is much more natural to present *convertible* as new$_p$, as in (40B-3).

Note that, contrary to what is implied by Wagner, the accented adjective modifying the unaccented *convertible* does not have to contrast with 'high end'. For instance, (42B-1) is perfectly felicitous. It is clear to us that the answer to the question posed by A is once again presented as incompatible with the expectation in (41); this time, the given answer, *IMPORTED convertible*, is incompatible with the expectation that the convertible given to Mary should come from the uncle's own factory. The speaker's intention in pointing to this gap between reality and expectations might be to hint that the uncle is eccentric, or to hint that there might be problems with his factory, or whatever.

(42) A: Mary's uncle, who produces high-end convertibles, is coming to her wedding. I wonder what he brought as a present.
B-1: He brought an IMPORTED convertible.

Now consider the data in (43). Our judgment is that (43B-2) is a felicitous response, just like (40B-1), whereas (43B-1) is very strange, despite the recent mention of luxury convertibles.

(43) A: Mary's uncle, the one who produces expensive bicycles, is currently stuck in Margaret's luxury convertible on Route 97, so he's going to be late for the wedding. Guess what he's giving her as a present.
B-1: #I know what he's giving her. He's giving her a CHEAP convertible!
B-2: I know what he's giving her. He's giving her a USED bicycle!

This supports the account we have given above. It would be very farfetched to interpret A's utterance as suggesting the expectation that the uncle would give Mary a luxury convertible; hence, it is not natural to present *convertible* as given$_p$. On the other hand, it is quite natural to interpret A's utterance as suggesting the expectation that the uncle would give Mary an expensive bicycle; hence, it is quite natural to present *bicycle* as given$_p$.

Note also example (44)—it shows that the unaccented noun does not have to be mentioned in prior context.

(44) a. You have your own vineyard.
Why are you using bought grapes?
H∗ L L%
b. You have your own vineyard.
Why are you using green grapes?
H∗ L L%

Finally, what about Rooth's (1992) original example with the American farmer and Canadian farmer? In that example, to be thought of as the beginning of a joke, both occurrences of *farmer* are unaccented. The tune might be as indicated in (45).

(45) An American farmer was talking to a Canadian farmer.
H∗ L H% L∗ H∗ L L%

The FIP of Rooth (1992) accounts for this example, if we assume that (i) in each NP, the adjective is the focus of that NP, and (ii) the focus of each NP is licensed based on the other NP. But the given$_p$ approach faces a difficulty: how is it that the first occurrence of *farmer* is allowed to be unaccented? It may be part of a pattern, but it certainly isn't the

continuation of a pattern. . . so how could it count as given$_p$?

We think it is not a coincidence that Rooth says that his example is to be thought of as the beginning of a joke. Compare with (46).

(46) The American president is meeting with the French president.
H∗ L H% H∗ H∗ L L%

(46) is not something that we would hear on a news broadcast. In such a setting, not accenting the first occurrence of *president* sounds very odd. It seems clear that there are essential differences between the styles of ordinary conversation and reading the news (etc.) and the styles of telling a joke, or an anecdote, or a story. So we do not think that (45) is a relevant piece of data when studying the role of accent placement in ordinary conversation. It may be that there are specialized prosodic formulas used in story-telling.

3.1.6. Two Other Cases that May Seem Problematic for the Givenness$_p$ View

Consider the following example.

(47) If you can't read this, maybe you should put on your glasses.
L∗ L∗ H∗ L L%
(anonymous referee)

In example (47), why should there be a pitch accent on *glasses*? One would think that given the rest of the example, *glasses* should be highly predictable. And indeed it is, to us the readers. And yet, we think that it makes sense for the speaker to present *glasses* as not predictable, because presumably she is addressing someone who is aware they can't read this, and doesn't seem to have thought of using their glasses, so that her main point is to remind the addressee of their glasses.

Next, consider example (48).

(48) A: What's the matter?
B: My Geranium plant is almost dead!
H∗ L L% (Bolinger 1972)

In (48), is *almost dead* does not seem to be really expected or predictable, and that is a problem for givenness$_p$. (Likewise, it is a problem for givenness$_k$.) For clarity, let us characterize this sort of example as follows.

(49) an all-new sentence—all of whose parts are both new$_k$ and new$_p$—which contains just one pitch accent (possibly with a fairly long stretch of unaccented words)

It may be possible to explain (48) by saying that predicates (or some predicates) are special in that they are allowed to be unaccented even when 'new', as long as they are contained within a broad 'focus' which also contains one of their arguments, which is accented. This may be done via F-projection rules, or in terms of a 'default pattern', as in Büring (2006). We think, however, that this approach faces empirical difficulties, and also misses a significant characteristic of this type of example.

To see the empirical difficulties, look at (50)–(52). Here the words which are 'new' but unaccented are not predicates, but arguments.

(50) Birds are singing again!
H∗ L L%

(51) The neighbors are quarreling again!
H∗ L L%

(52) The man on the left is drowning!
H∗ L L%

Let us offer the following observation. Examples like (48),(50)–(52) seem to always express some **special emotional message**—horror, surprise, frustration, urgency, delight, etc. Compare the two versions of B in (53).

(53) A: Why are you buying new potted flowers?
B-1: My Geranium plant is almost dead.
H∗ H∗ H∗ L L%
?? B-2: My Geranium plant is almost dead.
H∗ L L%

We think that B-1 is a natural matter-of-fact response, whereas B-2 sounds rather funny, because it suggests that the speaker is very much

moved by the dying of her Geranium. Now compare this to our (48). There the pitch-accent impoverished pattern sounds perfectly natural, because the question *what's the matter*? suggests that A noted that B looked upset.

Next, we haven't verified this experimentally yet, but our strong impression is that the word carrying the lone pitch accent has extra prosodic prominence, which is audibly stronger and more emphatic than the prominence of an ordinary nuclear pitch accent. The extra prominence may involve intensity, duration, pitch range, choice of pitch accent, and maybe more. Let us call it for the moment 'emphatic prominence'. The simplest hypothesis, it seems, is that there is a special tune expressing emotion, which consists of 'emphatic prominence' on the item which is the central cause or focus of the emotion, and complete absence of pitch accents in the rest of the sentence. In other words, the examples under consideration involve a **prosodic idiom** which expresses emotion.

3.1.7. Conclusion of Section 3.1

In this section (section 3.1), we have presented evidence leading to the following conclusions. (A) A wide array of facts about the relation between pitch accent placement and discourse congruence can be accounted for based on the role of pitch accents in marking words as 'given' vs. 'new', without recourse to a notion of 'focus'—as is already evident in some existing literature, in particular, in Schwarzschild (1999). (B) The notion of givenness$_p$ ('predictable' or 'recoverable') is considerably better suited to explicating the sort of 'givenness' relevant to pitch accent placement than the notion of 'givenness$_k$' ('present in prior discourse')—as proposed in Kadmon (2011). (C) Givennessp is useful as a means of analyzing cases where, intuitively, a contrast is being drawn, without relying on a theoretical notion either of 'focus' or of 'contrast'.

Our evidence was based on examples of the following sorts: (i) examples which pose serious problems for the givennessk approach to pitch accent placement and strongly suggest the givennessp approach—such as the *Anna yawned* example and the *Pavarotti is singing example*; (ii) examples which cannot be explained based on givenness$_k$, and which have previously been treated as involving 'focus', but can be

treated based on givenness$_p$ instead—such as the case of an all-new transitive VP with the verb unaccented and the case of the short answer to the CQ carrying a pitch accent despite being given$_k$; (iii) examples that intuitively draw a contrast, which can be analyzed without using a theoretical notion of 'contrast', based on pragmatic strategies involved in how the speaker manipulates what she chooses to present as givenp, and how the hearer figures out what the speaker's intentions are—these include the examples where first John drove Mary's red convertible and then *he drove her BLUE convertible*, the examples with the uncle who produces high-end convertibles who gave his niece *a CHEAP / #RED / IMPORTED convertible*, and the example where a vineyard-owner is *using BOUGHT grapes*.

3.2. Figuring Out What Only Associates With

3.2.1. The Analysis of *Only*

Our analysis of *only* is based on Sevi's (2005) semantics for the exhaustivity operator originally posited in Groenendijk & Stokhof (1984).

Any sentence can be factored out into two elements—a λ-abstract and something that it can combine with by function application—in any one of several different ways. For instance, (54) can be factored out in any of the three ways given in (55). In each, one of the two expressions can take the other as an argument, and once we perform function-application, we get the logical translation of (54), viz., (56).

(54) Three boys came

(55) a. $\lambda n[\exists x[*BOY(x) \wedge |x|=n \wedge *CAME(x)]]$ 3
b. $\lambda x[*CAME(x)]$ $\lambda P[\exists x[*BOY(x) \wedge |x|=3 \wedge *P(x)]$
c. $\lambda P[\exists x[*BOY(x) \wedge |x|=n \wedge *P(x)]]$ CAME

(56) $\exists x[*BOY(x) \wedge |x|=3 \wedge *CAME(x)]$

In the formulas above, x is a variable of type e, whose possible denotations are atomic as well as plural individuals, and $*$CAME, $*$BOY, $*$P are plural predicates, of type <e,t>, which can apply to atomic and to plural individuals.

We would like to propose that the lexical semantics of *only* determines that it must be interpreted relative to a factoring out of the pre-

jacent (i.e., the sentence minus *only*) into a λ-abstract, which we call the **skeleton abstract**, and an element which can combine with it to yield the prejacent, which we call the **filled-in value**.[11] As will become clear when we look at the examples below, the filled-in value is what *only* associates with, and the skeleton abstract corresponds to the rest of the prejacent. The skeleton abstract always denotes a (characteristic function of) a set.

We take the truth conditional import of *only* to be identical to the truth conditional import proposed by Sevi (2005) for the exhaustivity operator. The semantics of *only* makes reference to subsets of the set denoted by the skeleton abstract, whose members are ordered and form a join semi-lattice (i.e., subsets which are closed under an appropriate join operation). The semantics of *only* is as in (57).

(57) **The truth conditional import of *only*:**

Let T be a variable ranging over possible denotations of the type of the filled-in value. Let P be a variable ranging over possible denotations δ of the type of the skeleton abstract, s.t. δ is partially ordered by some $\leq$. Let Q be a variable ranging over possible denotations d of the type of the skeleton abstract, s.t. δ is partially ordered by some $\leq$, and furthermore, $< \delta, \leq >$ is a join semi-lattice. Let maxQ stand for the maximal member of the semantic value of Q.

only = λTλP[APPLY(T,P) $\wedge\forall$Q[[Q$\subseteq$P $\wedge$ APPLY(T,Q)] $\rightarrow$ BE(T)(maxQ)]]

BE(T) stands for the 'predicative interpretation' of T, derived by the BE operation of Partee (1987a) or some other suitable operation. APPLY(α, β) stands for the result of either applying α to β or applying β to α (whichever is possible).

Let us apply our analysis to derive the two readings of example (58).

(58) Only three boys came.

Case (i): *only* associates with *three boys*.

The skeleton abstract: λ x[$*$CAME(x)] = $*$CAME 'came'

The filled-in value: λP[$\exists$x[$*$BOY(x) |x|=3 $\wedge$ P(x)]] 'three boys'

The predicative interpretation of the filled-in value:
λx[$*$BOY(x) $\wedge$|x|=3] 'are three boys'

only (*three boys*, *came*) = $\exists$x[$*$BOY(x) $\wedge$|x|=3 $\wedge*$CAME(x)] $\wedge\forall$Q[[Q$\subseteq$ $*$CAME $\wedge\exists$x[$*$BOY(x) $\wedge$|x|=3 $\wedge$ Q(x)]] $\rightarrow$ λx[$*$BOY(x) $\wedge$|x|=3](maxQ)]

In words: At least 3 boys came and for every subset of atomic and/or plural comers closed under sum formation which includes a sum of boys with exactly 3 atoms, its biggest element is a sum of boys with exactly 3 atoms. That is, **exactly 3 boys came and no one else came**.

Case (ii): *only* associates with *three*.

The skeleton abstract: λn$\exists$x[$*$BOY(x) $\wedge$|x|=n $\wedge*$CAME(x)]
'the set of natural numbers n s.t. at least n boys came'

The filled-in value: 3 'the number three'

The predicative interpretation of the filled-in value: λn[n=3] 'is the number 3'

only (*three boys*, *came*) = $\exists$x[$*$BOY(x) $\wedge$|x|=3 $\wedge*$CAME(x)] $\wedge\forall$Q[[Q$\subseteq$ λn$\exists$x[$*$BOY(x) $\wedge$|x|=n $\wedge*$CAME(x)] $\wedge$ Q(3)] $\rightarrow$ λn[n=3](maxQ)]

In words: At least 3 boys came and for every finite subset of numbers n s.t. at least n boys came which contains the number 3, its biggest number is 3. That is, **exactly 3 boys came**.

3.2.2. Figuring Out What *Only* Associates With

When we are faced with example (58)—or any example with *only*—we have to ask ourselves what *only* is supposed to associate with. In our view, that means that we are looking for the factoring-out of *three boys*

came into a skeleton abstract and a filled-in value which was intended by the speaker. It is obvious to us that many different factors come to our aid in our quest for the right factoring-out.

(58) Only three boys came.

factor 1

First of all, we assume the principle in (59), which immediately rules out the association of *only* in (58) with the VP.

(59) The associate of *only* (=the intended filled-in value) must be within the syntactic argument (i.e., within the C-command domain) of *only*.

factor 2

Secondly, if (58) occurs in a context which makes clear what the CQ is, and if the prejacent answers that CQ, then that would immediately suggest the factoring-out in which the skeleton abstract corresponds to the CQ and the filled-in element is that short answer to the CQ which is offered by the prejacent. For instance, in (60)+(58), question (60) immediately suggests factoring out the prejacent (54) as in (61). (58) will now mean that exactly three boys came and no one else did. In such cases, only does indeed associate with the (short) answer to the CQ, as per Beaver and Clark's analysis.

(60) Who came?

(58) Only three boys came.

(54) Three boys came

(61) skeleton abstract: $\lambda x[*\text{CAME}(x)]$
= the abstract corresponding to the CQ in (60)
filled-in value: $\lambda P[\exists x[*\text{BOY}(x) \wedge |x|=3 \wedge *P(x)]$
= '3 boys' = the short answer to the CQ in (60)

Note that when (60) is answered by uttering (54), we tend to interpret (54) as 'exactly three boys came and no one else did' (which is identical to the interpretation of (58) with *only* associated with *three boys*). This exemplifies a general tendency to understand answers as exhaustive. Following Groenendijk & Stokhof (1984), we assume that the grammar specifies an implicit semantic operation which turns answers to questions into exhaustive answers (see also Sevi (2005), van Rooij & Schulz (2006)). This operation has the same truth conditional import as *only*, and it may get applied, optionally, to pairs consisting of a question-abstract and a short answer to that question. But if so, we would suggest that *only* in (60)+(58) may be regarded as an explicit manifestation of the exhaustivity operator.

Regarding (60)+(58), we may note that the word *only* may either carry a pitch accent or not. Why is that? Given the tendency to understand answers as exhaustive, the option of not accenting *only* may be explained by givenness$_p$, since the presence of an exhaustivity operator is highly expected in many question-answering contexts. And what about the option of accenting *only*? Well, the explicit use of only carries a conventional implicature that 'three boys' is **'not that many'** (cf. Zeevat (2007) and Beaver & Clark (2008)). Note that this implicature is stronger when *only* is accented. It seems then that when we accent *only*, what is new$_p$ is the content of the conventional implicature, rather than the presence of an exhaustivity operation.

Due to the general tendency to understand answers as exhaustive, when the prejacent of *only* is clearly answering a CQ given in the context, the tendency of *only* to associate with the short answer to that CQ is very strong indeed. And yet, it is not obligatory; when, for whatever reason, the prejacent is clearly meant to supply a partial answer, *only* associates with something else (—which is OK as long as the result is still a partial answer to the question). For instance, in (62) and (63).

(62) A: Who came?
B: Only three boys, and maybe 5 or 6 girls.

(63) A: Who came?
B: All of the girls came, and only the boys who live nearby.

factor 3

We now turn to the role of world knowledge and general pragmatic strategies in helping us identify the associate of *only*. Note, first, that it is often possible to identify what only associates with relying purely

on world knowledge.

(64) *The following sentence, on a website entitled* Funny Deaths, *has no relevant context that would make salient the question of what the man ate*.

There once was a man who only ate beans and cabbage.
(web example, as cited in Beaver & Clark (2008))

(65) She only wears green shirts. *only* associates with *green*

(66) She only dates tall blonds. *only* associates with *tall blonds*

But let us now turn to examples which possess both context and prosody. Consider (10), a case often treated as involving a 'second occurrence focus' (see, e.g., Partee 1991, 1987b, Krifka 1997, Rooth 1996, 2010, Büring 2006, Beaver et al. 2007, Howell 2007, Féry & Shinichiro 2009).

(10) A: Who only likes bittersweet?
B: Mary only likes bittersweet.
H∗ L L%

Obviously, when (10B) is uttered, the CQ is the explicit question in (10A), and the short answer to the CQ is *Mary*. But that of course cannot be the associate of *only* (=the filled-in value that we're looking for), since it is not in its C-command domain. We must look for another associate, then. Since *only* is part of the CQ, we expect that whatever it associates with in the question, it will associate with in the answer. Clearly, the most prominent reading, the one which immediately comes to mind, is the one where *only* associates with *bittersweet*. And that is simply because we very readily imagine a situation where A is handing out chocolate, and wants to know who likes only bittersweet.

Now look at (8).

(8) A: What's peculiar about Granny's dog?
B: She only likes John.
H∗ H∗ H∗ L L%

We assume that when (8B) is uttered, the CQ is the explicit question in (8A). The short answer to the CQ is the whole sentence, **including *only***. But that of course can't be the associate of *only* (=the

filled-in value that we're looking for). We must look for another associate, then. Only could in principle associate with either *John*, or *likes*, or *likes John*. But it is clear, we think, that general pragmatic considerations lead us to choose the first option: regarding *likes John*, it is hard to imagine that out of some contextually relevant ordered set of properties that this dog might have, the maximal one she has is that of liking John; regarding *likes*, without further context, it is not clear why it would be relevant that the dog does not feel more ardently towards John; regarding *John*, we can easily see that it **would** be highly relevant information about the dog that of all individuals she knows, she only likes John. Indeed, if we change the example a bit, we can easily get association of *only* with the verb or the VP, lending further support to the approach we've suggested for (8):

(67) A: What's peculiar about Granny's dog?
B: She only likes Granny.
H∗ H∗ L L%
Ambiguous:
can be continued with . . . *She doesn't love her* (association with *likes*)
or with . . . *She doesn't like anybody else* (association with *Granny*)

In (67), association with *likes* is a prominent reading. If it's Granny's dog, then what she feels towards Granny is certainly relevant. We think, however, that (67) is also OK on the *only Granny* reading. In that case, the message conveyed is something like what's expressed by (68).

(68) Of course being Granny's dog she only likes Granny.
L∗ L+H∗ L H% H∗ L L%
high intensity
long duration
very low L∗

In (68), *only* associates with *Granny*—that is, *only* associates with the object NP, as in (8B), though this time the object is unaccented. (Note that this example is a lot like the famous (69), where *only* also associates with the unaccented object NP.)

(69) People who grow rice generally only eat rice.
L∗ H∗ L H% H∗ L L%

(Rooth 1992, tune added by us)

(68) may be contrasted with (70), where *only* does not associate with the object NP, but rather with the verb, *likes*.

(70) Despite being Granny's dog she only likes Granny.
H∗ L∗ L+H∗ L H% H∗ L L%
high intensity
long duration

It can't be that the contrast between (68) and (70) is due to the syntax or prosody of the examples. Clearly, the contrast must be due to the content of the left-hand clause combined with general world knowledge.

In fact, we think that in principle the same prosody as in (8) allows for different readings, with different associates for *only*—we just need an example where pragmatic considerations make all these readings plausible. For instance, it seems to us that (71B) can have any one of the three interpretations specified:

(71) A: What can you tell me about Granny's dog?
B: She only sniffs her food
H∗ H∗ H∗ L L%

(i) *only* associated with *her food* (can be continued with
. . . *I mean, she never sniffs anything else*);
(ii) *only* associated with the VP (can be continued with
. . . *I mean, she never does anything else*)
(iii) *only* associated with *sniffs* (can be continued with
. . . *I mean, she never touches it*)

Similarly, we think that in (72), all three readings are possible. (If you have difficulty getting the third one, look also at (73).)

(72) A: Why do you think she won't make a good secretary?
B: She only typed that memo.
H∗ H∗ H∗ L L%

If you know that I assigned her several different tasks, you get: *only VP*
If you know that I asked her to type several things, you get: *only that memo*
If you know that I asked her to prepare and mail a memo, you get: *only typed*

(73) By 4 p.m., she only typed that memo,
H∗ H∗ H∗ L H%
even though I specifically asked her to circulate it by noon.

factor 4

Of course, prosody too plays an important role in determining the associate of *only*. For instance, take (71B) above. Here the transitive verb and its object both carry pitch accents, and are within a single Intonation Phrase. In such examples, there is a bias **against** association with the verb. On the other hand, look at (74). Here we have retained the accent placement, but introduced an Intonation Phrase boundary after the verb. And that creates a strong bias **in favor** of association with the verb.

(74) She only sniffs her food
H∗ H∗ L L% H∗ L L%

Let us make two general comments regarding the role of prosody in determining the associate of *only*:

(i) We know that many aspects of prosody play their parts in disambiguating or biasing many aspects of semantic interpretation. For instance, we can disambiguate the structural ambiguity in *Successful psychologists and models make a lot of money* with the help of prosodic phrasing—and note that here we use the same means of disambiguation as in (74). It therefore seems to us completely unsurprising that various prosodic factors similarly play their role with *only*. (ii) There seem to be certain constraints on the choice of associate per given prosodic pattern. For instance, not only do we have the bias against association with the verb in examples like (71), but also, consider similar examples where *only* C-commands an NP containing an adjective and a noun:

(75) Only green witches eat children.

H∗ H∗ H∗ L L%
can be continued with
. . . *not old ladies*
or . . . *not green ogres*
but not with # . . . *not purple witches/ones*.

(76) rak maxSefot yerukot oxlot yeladim (Hebrew)
H∗ H∗ H∗ L L%
only witches green eat children

can be continued with
. . . lo dodot zkenot
. . . *not aunts old* (. . . *not old ladies*)
or . . . lo sgulot
. . . *not purple (pl., fem.)* (. . . *not purple ones*)
but not with # . . . lo miflacot yerukot.
. . . *not monsters green* (. . . not green monsters)

As far as we can tell, with the prosody indicated, association with the word immediately following *only* is not possible. Interestingly, it doesn't matter whether the noun comes first (as in Hebrew) or the adjective (as in English). This looks like a rather arbitrary constraint, especially if we compare with (77), where *only* can easily associate with the numeral, which is the word immediately following it.

(77) Only three boys came to the party
H∗ H∗ H∗ H∗ H∗ L L%

Interaction of factors:

Example (78) is interesting. The short answer in (B-1) is interpreted as conveying that what John ate only in Paris is crêpes. On the other hand, it is completely impossible to interpret (B-2) in the same way, despite the fact that that is the only interpretation which would answer the question. Why is that?

(78) A: What did John only eat in Paris?
B-1: Crêpes.
B-2: # John only ate crêpes in Paris
H∗ L L%

(due to Roger Schwarzschild (p.c.), as cited in Büring 2008)

Büring (2008) offers an explanation based on prosodic constraints on focus and the assumption that both *crêpes* and *Paris* are foci (one is 'the answer to the question' and the other is the intended 'second occurrence focus'). Büring says that (78) is bad because there is a focus—*crêpes*—intervening between *only* and its intended associate (*in Paris*). He then compares (78) with (79). Büring suggests that the contrast is due to the way different possibilities of prosodic phrasing below the level of the intermediate phrase interact with the prosody of focus—*only accept* can form a small prosodic phrase, whereas the more structurally complex *only ate crêpes* cannot.

(79) A: I only have a credit card.
B: That's quite all right,
we only accept credit cards.
H∗ L L%
(Büring 2008)

We would like to offer an alternative account, which is focus-free. When we hear (78B-2), it is clear beyond any doubt that the short answer to question (78A) must be *crêpes*, since (i) it is the only foodstuff mentioned here, and (ii) it carries the only pitch accent, so it is being presented as the only thing that's new_p (i.e., not expected or predictable). Recall that we have a strong tendency to interpret *only* as associating with the short answer to an explicit CQ. Apparently, this tendency is so great, that it overrides both the fact that there is an *only* associated with Paris already occurring in the CQ and the fact that if *only* in (78B-2) associates with *crêpes*, then (78B-2) fails to answer the CQ.

And what about (79)? Since our proposed account of (78) relies on the explicit CQ, we must ask ourselves now what the CQ of *we only accept credit cards* is. We think that the CQ is something like *Why is it all right that A only has a credit card*?. Certainly, *accept* is **not** the short answer to that question—rather, the short answer seems to be the entire clause, **including *only***. So the strong bias in favor of associating *only* with the short answer to the CQ is not relevant to (79) at all. We are not tempted to associate *only* with *accept*, and we rely

instead on general world knowledge to tell us that *credit cards* is the most plausible associate of *only* in this example.

Recall also that we have suggested that one thing which makes the tendency to associate *only* with the short answer to the CQ so strong is the more general strong tendency to interpret answers as exhaustive. So let us eliminate this latter factor, by making it clear that the answer is not intended to be exhaustive. Consider (80) and (81). We find these examples quite acceptable, providing further evidence for our proposed account of (78).

(80) A: What did John only eat in Paris?
B: I know for sure he only ate crêpes in Paris, and possibly also brie
L∗ L+H∗ L H% H∗ H∗ LL%

(81) A: What do you only eat on the spot?
B: I only eat corn on the cob on the spot.
L+H∗ L H%

Finally, consider (82). We think that (82) shows that Büring's prosody-based account is not general enough to cover all the facts.

(82) A: Where did John only eat crêpes?
B-1: In Paris.
B-2: # John only ate crêpes in Paris.
H∗ L L%

Here the accented *Paris* does not 'intervene' between only and its intended associate *crêpes*, and as far as we understand it, Büring's account would predict that (82B-2) should be a felicitous response, just like (82B-1). However, our judgment is that it is not. We think that (82B-2) is as bad as (78B-2) is. It is important of course to make sure that one is judging (82B-2) pronounced as marked, i.e., as a single Intonation Phrase; (83B), in contrast, seems quite all right.

(83) A: Where did John only eat crêpes?
B: John only ate crêpes in Paris.
H∗ L H% H∗ L L%

Of course the contrast between (82) and (83) shows that prosody does play some role here. . . but we think the role it plays fits quite

nicely with the account we suggested above. The prosody of (83B) separates the part of B which corresponds to the CQ (83A), on the left, from the part of B which provides the answer to it, on the right. This underlines the fact that *only* is part of the CQ. Further, the prosody of (83B) is taken to mark *crêpes* as a 'contrastive topic'—that is, it implies that the CQ (83A) is being selected out of a set of alternative questions of the form *Where did John only eat x*? by assigning x the value *crêpes*(cf. Kadmon (2011), ch.20).[12] This enhances the salience of the fact that *only* associates with *crêpes* in the CQ. As a result, the prosody of (83B) tips the balance of conflicting factors the other way: our general tendency to interpret *only* as associating with the short answer to an explicit CQ (in (83B), that would be *Paris*) **cannot** in this case override the facts that *only* is part of the CQ (and hence cannot be an explicit realization of the default exhaustivity operation), that it is already associated with *crêpes* in the CQ, and that if it were to associate with *Paris* in (83B), this utterance would fail to answer the CQ.

3.2.3. Conclusion of Section 3.2

Much research is needed to better understand the nature of the diverse factors affecting the choice of associate for *only* (and other 'focus-sensitive' adverbs) and the interaction between them. Yet our initial results do already point to several conclusions: (A) The semantics of *only* specifically refers to an associate (i.e., filled-in value). It is to that extent that the relation between *only* and its associate is indeed conventional (encoded in the grammar), as suggested in Beaver & Clark (2008).

(B) Choice of associate, though constrained by the grammar (e.g. by C-command), is by no means determined by it; Rooth's (1985, 1992) idea that 'association' involves an implicit semantic parameter whose value is determined contextually seems right, whereas Beaver and Clark's idea that the associate must be the answer to the CQ is definitely wrong. (C) There is no need to assume that 'focus' plays a role in how the relevant semantic parameter (the filled-in value) is fixed. (D) At least some of the prosodic factors which help fix the associate are factors involved in prosodic disambiguation in general.

APPENDIX: TRANSCRIPTION OF INTONATION CONTOURS

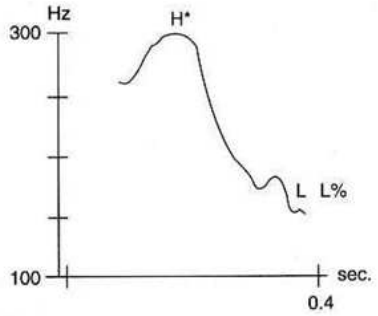
For the phonological representation of intonation, we assume the framework of Pierrehumbert 1980, Beckman and Pierrehumbert 1986. Our transcription of intonation is based on the related ToBI system (Beckman & Hirschberg 1994).

Intonation contours are analyzed into sequences of relatively high and relatively low tones (written H and L). In English (and, it seems, in Hebrew as well), we have the following kinds of tonal entities. One kind of tonal entity, the 'pitch accent', is always aligned with a syllable bearing a main word stress. There are also two kinds of tonal entities which do not align with any particular syllable, but rather occur at edges of prosodic phrases: 'boundary tones' at the end of an intonation phrase, and 'phrase accents' at the end of a smaller phrase called the intermediate phrase. The specific tones are summarized in the table below.

Kind of "tonal entity"	High	Low
Simple pitch accent: a tone that aligns with one particular syllable	H*	L*
Bitonal pitch accent: The starred tone aligns with a particular syllable, and the unstarred tone follows/precedes at some distance without belonging to a particular syllable	H*+L, L*+H L+H*, H+L*	
Boundary tone: a tone which occurs at the edge of the intonation phrase	H%	L%
Phrase accent: a tone which is affiliated with the intermediate phrase	H	L

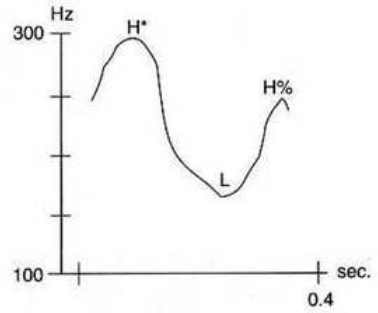
Examples:

Anna
H* L L%



A peak of high pitch on the first syllable, followed by a drop to the bottom of the speaker's range. Such intonation would typically be used when *Anna* is an (exhaustive) answer to a question. e.g., in: A: *Who are you going to marry?* B: *Anna*.

Anna
H* L H%



Like the previous tune, except that the pitch rises again after the low phrase accent. Such a tune would be used when *Anna* is an incomplete answer to a question, indicating that the list may be continued. e.g., in: A: *Who shall we invite?* B: *Anna*,. . . C: *Ginny*,. . .

Notes

[1] For the transcription of intonation contours, we use the ToBI system (Beckman and Hirschberg 1994). For some details, see appendix.

[2] Indeed, that is what the theory of Schwarzschild (1999) predicts, based on GIVENness, which is Schwarzschild's particular adaptation of givenness$_k$, and without recourse to 'focus'.

[3] Valduví & Vilkuna (1998) do not actually say that their term Kontrast corresponds to Rooth's 'focus', but as far as we can tell that is in fact the case. Their Kontrast generates a set of alternatives which are exactly like the members of a focus semantic value, but restricted to those alternatives that are 'comparable', which (as far as we can tell) basically just means relevant in the context. This set therefore corresponds neatly to Rooth's set Γ: it is a subset of a focus semantic value, and possibly a proper subset of that focus semantic value. Serlkirk (2007) is quite explicit about using 'contrastive focus' to refer to the 'focus' of Rooth (1992).

[4] Or GIVEN, in the sense of Schwarzschild (1999).

[5] Including Schwarzschild's (1999) GIVEN-based theory.

[6] An obvious exception is the pitch accents on a 'contrastive topic'—but note that those involve a specialized intonation pattern (they would occur in a separate prosodic phrase ending in a continuation rise), and it is clear that their very purpose is to underline the choice of CQ. Another exception is briefly discussed in Büring (2007)—he suggests that there are 'ornamental' pitch accents which do occur on material which is 'given' and are governed by general principles of rhythm and prosodic organization.

[7] To be precise, *Anna* in (28) must be accented *in the absence of further context*. We think that (28-b) **can** felicitously follow (27) if it is clear in the context that attention is centered around Anna, and it is therefore expected that the answer will concern her (in which case *Anna* is given$_p$).

[8] That is also the prediction made by Schwarzschild (1999).

[9] Schwarzschild (1999) incorrectly predicts that either *blue* or *convertible* should be accented, but not both (based on his constraints FOC and AvoidF).

[10] The 'focus' or 'information focus' of the whole sentence, assuming that there is one, would presumably be the whole object NP.

[11] This may look a lot like 'structured meanings' (the approach to focus developed in von Stechow 1981, 1982, 1989 Cresswell & von Stechow 1982, Jacobs 1983, Krifka 1991, 1992), but it does not involve any grammatical marking of any constituent in the sentence as a 'focus', and the pair of expressions into which the sentence is 'factored out' is not claimed to be a representation of the sentence at any level.

[12] In other words, it strongly suggests the factoring-out of question (83A) roughly as indicated in (i).

(i) the abstract corresponding to (83A): λx[John only ate crêpes at location x]
skeleton abstract: λyλx[John only ate y at location x]
filled-in value: crêpes

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