Question-answer test and givenness: some question marks

Elke Kasimir

University of Potsdam

In order to investigate the empirical properties of focus, it is necessary to diagnose focus (or: "what is focused") in particular linguistic examples. It is often taken for granted that the application of one single diagnostic tool, the so-called *question-answer test*, which roughly says that whatever a question asks for is focused in the answer, is a fool-proof test for focus. This paper investigates one example class where such uncritical belief in the question-answer test has led to the assumption of rather complex focus projection rules: in these examples, pitch accent placement has been claimed to depend on certain parts of the focused constituents being *given* or not. It is demonstrated that such focus projection rules are unnecessarily complex and in turn require the assumption of unnecessarily complicated meaning rules, not to speak of the difficulties to give a precise semantic/pragmatic definition of the allegedly involved *givenness* property. For the sake of the argument, an alternative analysis is put forward which relies solely on alternative sets following Mats Rooth's work, and avoids any recourse to *givenness*. As it turns out, this alternative analysis is not only simpler but also makes in a critical case the better predictions.

Keywords: Focus, Givenness

1 Focus diagnostics

In order to investigate the empirical properties of focus, it is necessary to diagnose focus (or: "what is focused") in particular linguistic examples. This concerns typological study and corpus annotation, but also any attempt to understand focus from a theoretical point of view. In the following, I assume, following Jackendoff (1972), that focus corresponds to a syntactic feature, say

FOC, which influences interpretation and in various languages, among them German, Turkish, English, also the placement of pitch accents.[1,2] An example:

(1)   a.   [she [only [likes [$_{DP}$ Sue]$_{FOC}$]]]

      b.   *Interpretation:* "She likes Sue and no one else."

      c.   *Intonation:* '*She only likes SUE*', with a pitch accent on Sue.

The FOC feature of the category [$_{DP}$ Sue] in (1a) triggers a particular interpretation which is depicted in (1b), and likewise constraints the intonation in the manner described by (1c). Some relevant aspects of the involved grammatical rules may be sketched as follows:[3,4]

(2)   **Focus alternatives:**

$\llbracket$ [$_Y$ ... X$^1_{FOC}$ ... X$^2_{FOC}$ ... X$^n_{FOC}$...] $\rrbracket^{FOC}$ =$_{def}$ { $\llbracket$ [$_Y$ ... Z^1 ... Z^2 ... Z^n ...]$\rrbracket$ | Z^i replaces X$^i_{FOC}$ in Y, and $\llbracket$Z$^i\rrbracket$ is of the same semantic type than $\llbracket$X$^i\rrbracket$ }

(3)   **'only' and focus**:

(i) $\llbracket$only VP$\rrbracket^w$(x) = $\forall$ m . m $\in$ M $\subseteq \llbracket$VP$\rrbracket^{FOC} \wedge$ m(w,x) $\rightarrow$ m=$\llbracket$VP$\rrbracket$,
for some contextually determined M, |M|≥2.

(ii) $\llbracket$only S$\rrbracket^w$ = $\forall$ m . m $\in$ M $\subseteq \llbracket$S$\rrbracket^{FOC} \wedge$ m(w) $\rightarrow$ m=$\llbracket$S$\rrbracket$,
for some contextually determined M, |M|≥2.

---

1 Selkirk (1996) proposes that focus is expressed by a feature she calls F, but that only those features which are not dominated by other categories with an F-feature enter semantic interpretation. These "undominated" F-features she calls FOC-features. I have followed this terminology in this paper, ignoring however F-features in general.
2 An alternative view which considers focus to be a morpheme is also compatible with the discussion in this paper.
3 As usual, $\llbracket$X$\rrbracket$ denotes the meaning of X, X being a syntactic constituent.
4 X,Y,Z etc. are intended to range over possible natural language expressions, in some suitable sense of "possible natural language expression".

(4) **Pitch accent placement (focus on single-word constituents):**

$[_Y \ldots [_X w]_{FOC} \ldots]$, where w is a phonological word, requires a pitch accent on w.

(2) implements the by now familiar notion of focus alternatives:

$⟦ [\text{likes SUE}_{FOC}] ⟧^{FOC} = \{ ⟦\text{likes Sue}⟧, ⟦\text{likes Bill}⟧, ⟦\text{likes Ann}⟧, \ldots \}$

(3) sketches a simple semantics for *only* which follows Rooth 1992 and makes use of the concept of focus alternatives as follows:

$⟦\text{She only likes Sue}⟧$ = *She likes Sue* is true and for any focus alternative vp which lies in M, vp$\neq ⟦\text{likes Sue}⟧$, *she vp's* is false.

The use of the variable M indicates that sometimes only a restricted subset of focus alternatives plays a role for the meaning of *only*, as is demonstrated here:

(5)   She invited Sue, Bill and Ann, but she only likes SUE.

This is most probably intended to express that of Sue, Bill and Ann, she only likes Sue. In contexts where no salient subset of focus alternatives is made explicit, we expect that a not-too-small set M is chosen, since such a choice makes the use of only more informative, and it is commonly assumed that more informative readings are pragmatically preferred, as long as they are relevant to the hearer. (1a), when uttered out of the blue, most probably means that Sue is the only person she likes, but still doesn't exclude that she likes her canary Tweety, unless whether she likes Tweety or not was relevant to the hearer in the utterance situation. Further below in this paper, a pragmatic constraint is proposed which imposes a precise lower bound onto the size of the set M.

(4) formulates a prosodic constraint for single-worded focused constituents which amounts for the case of (1) to the following:

in *she likes Sue$_{FOC}$, Sue* must carry a pitch accent.

In the general case, so the idea, there are semantic or pragmatic regularities like (2) and (3), which determine how focus influences interpretation: *focus interpretation rules*, and phonological/syntactical rules like (4) which determine how focus influences the placement of pitch accents: *focus projection rules*.[5]

If this picture is somehow on the right track, focus cannot be directly observed in languages like English, but must instead be inferred from its intonational and/or interpretative effects.[6] You hardly have any other choice than to start with some basic insights like (2)-(4), and use them to develop hypotheses for an extended range of both focus interpretation and focus projection phenomena. As an example for this methodology, consider (6), looked upon from a hypothetical initial state of knowledge represented by (2)-(4):

(6)   If she only reads BOOKS all the time, her friends will forget about her.

The sentence most likely doesn't mean (7a), as one would expect from (2)-(4), but (7b), and surely *can* mean (7b):

---

5 The term *focus projection* usually refers to the syntactic aspects of pitch accent placement only; I use it here more inclusively as subsuming also any phonological aspects of focus realization which are relevant for focus diagnostics.
6 The situation might of course be different for languages which express FOC-features by morphological and/or syntactic means.

(7) a.   "If books are the only things she reads all the time, her friends will forget about her."

   b.   "If reading books is the only thing she does all the time, her friends will forget about her."

If (2) and (3) are roughly adequate, (7a-b) should exhibit the following FOC-marking:

(8) a.   If she only reads BOOKS$_{FOC}$ all the time, her friends will forget about her.

   b.   If she only [reads BOOKS]$_{FOC}$ all the time, her friends will forget about her.

Since (7b)/(8b) correspond to a possible reading of (6), it is reasonable to assume that a pitch accent on the object of a VP suffices to express that the whole VP is in focus, that way giving rise to an additional hypothesis on focus projection, which will be something like the following :

(9)   **Pitch accent placement (V-O-focus):**

   $[_X$ ... $[_{VP}$ v O$]_{FOC}$ ... $]$, where v is a verb and O its direct object, can be realized prosodically just like $[_X$ ... $[_{VP}$ v O$_{FOC}]$ ... $]$.

(9) is actually an instance of the generally agreed upon projection rule *the argument projects* and its particular formulation, which involves recursion, requires for its justification a broader range of data than just (6). But it is still the case that (9), or more general formulations, are derived in the manner just described: start with observations of focus interpretation and focus projection in simple examples and use them to understand the more complicated cases.

With the same line of argument as above, using example (10), we can also derive the rule (11) which will turn out to be useful below:

(10) a.   Although she only read three BOOKS, she was well informed.

    b.   *Meaning to be expected iff „books" is the focus:* „Although books were the only things she read three pieces of, she was well informed."

    c.   *Preferred reading:* „Although three books were the only things she read, she was well informed."

That (10c) is a possible interpretation of (10a) suggests that the accent on books can license a FOC-marking of *three books*, which is another instance of the principle *the argument projects* and is formulated for the purposes of this paper as follows:

(11)   **Pitch accent placement (D-N-focus):**

    $[_X \ldots [_{DP} d \ n]_{FOC} \ldots]$, where d is a determiner and n a noun, can be prosodically realized like $[_X \ldots [_{DP} d \ n_{FOC}] \ldots]$.

In the preceding two cases, the focus interpretation rules have been kept constant in order to derive new projection rules. But we can also go the other way around and investigate new focus-sensitive semantic/pragmatic phenomena, keeping the inventory of focus projection rules constant. One case in question is the interpretation of the sentence *that is the problem* whose interpretation seems to be sensitive to the focus marking in the statement which is the antecedent of that:[7]

---

7   The following examples are inspired by Fred Dretske's *I adviced her to steal the bicycle* (Dretske 1977).

(12) a. SHE stole the bicycle. That is the problem.

implication: "If someone else had stolen the bicycle, that wouldn't necessarily be a problem."

b. She stole the BIcycle. That is the problem.

implication can be:

(i) "If she had stolen something else, that wouldn't necessarily be a problem."

or:

(ii) "If she had done something else, that wouldn't necessarily be a problem."

According to the projection rules established so far, and (2), the following FOC-marking should be possible for (12a-b):

(13) a. SHE$_{FOC}$ stole the bicycle

b. She stole [the BIcycle]$_{FOC}$

c. She [stole the BIcycle]$_{FOC}$

But these just give rise to the following focus alternatives according to (2):

(14) a. $[\![$SHE$_{FOC}$ stole the bicycle$]\!]^{FOC}$
$= \{$ x stole the bicycle | x an individual $\}$

b. $[\![$She stole [the bicycle]$_{FOC}]\!]^{FOC} = \{$ she stole x | x an individual $\}$

c. $[\![$She [stole the bicycle]$_{FOC}]\!]^{FOC} = \{$ she vp'ed | vp a VP-meaning $\}$

Seemingly, the pattern is roughly as follows: *That is the problem* expresses that the preceding sentence describes the problem, whereas its focus alternatives do

not necessarily describe a problem. The following interpretation rule captures this:

(15)   **'that is the problem' and focus:**

⟦ S. That is the problem⟧ is true iff ⟦S⟧ is true, and the fact that ⟦S⟧ is true is the problem, and any state of affairs described by some m ∈ M ⊆ ⟦S⟧^{FOC}, m ≠ ⟦S⟧, isn't or wouldn't be a problem, for some contextually determined M, |M|≥2.[8]

What distinguishes *that is the problem* from *only*, and makes it especially useful for the task of focus diagnostics, is that the focus-sensitive element resides outside the sentence whose focus is to be diagnosed: whenever we want to determine the focus of a sentence which does not already contain *only*, at hand of *only*, we must first add one and that way necessarily alter the structure of the sentence under investigation. With *that is the problem*, we can leave the sentence as is.

2   Some qualifications

A not unimportant aspect of the problem of focus diagnostics lies in the fact that the set of established rules may turn out to make the wrong predictions even for those limited cases they are intended to capture. This section points to two known general limitations of the particular rules proposed so far.

The first of these concerns the determination of focus alternatives as defined in (2), has been at least in parts observed before (Rooth 1992,

---

8 It seems to depend on the context whether the focus alternatives are factual or counterfactual. In (12a), the context clearly forces a counterfactual interpretation, whereas (12b) is compatible with a reading where she actually stole something else without causing thereby any problem.

Bonomi&Casalegno 1993) and shows up whenever a generalized quantifier is in focus:[9]

(16)   Only [[few STUdents]$_{FOC}$ own a bicycle].

The relevant alternative set is expected from (2) to be as follows:

(17)   [[few STUdents]$_{FOC}$ own a bicycle]^{FOC}
        = { [[dp owns a bicycle]] | dp a possible natural-language-DP }

But then the proposition expressed by the following sentence should be part of the focus alternatives:

(18)   [Everyone who owns a bicycle, if a linguist snores, otherwise someone
        who doesn't own a bicycle] owns a bicycle.

But (16) just means the same as:

(19)   A linguist snores.

In other words, (19) is part of the focus alternatives relevant in (16) and is expected to show up in at least some readings of (16). It should then be possible to use (16) and thereby entail that no linguist snores.

        But the problem is more general. Since the above argument works for arbitrary propositions, not just for the proposition that a linguist snores,

        [[few students]$_{FOC}$ own a bicycle]^{FOC}

will contain any proposition there is. But then it is just identical to

---

9 In examples like this, I attach *only* to the whole sentence, not just the DP for simplicity.
   Nothing depends on this, as the reader is invited to check by herself.

$$\llbracket[\text{few students own a bicycle}]_{\text{FOC}}\rrbracket^{\text{FOC}}$$

In other words, focus shouldn't make any difference in:

(20) a.   I only want that [few STUdents]$_{\text{FOC}}$ own a bicycle.

b.   I only want that [few STUdents to own a BIcycle]$_{\text{FOC}}$.

But of course, focus *does* make a difference here. The problem cannot by the way be explained away with hindsight to the contextual determination of the set M in the meaning of *only* in (3), since identical contextual influences should be operative in (20a) and (20b).

Are focus alternatives perhaps generally a bad idea, a misled intuition? I am very convinced they aren't; I am also convinced that it will sooner or later be possible to come to a reasonably precise understanding of the focus alternatives being relevant in examples like (16). My optimism stems from the fact that a rather similar problem arises in the context of the determination of the answer set of a question: Traditionally, questions like *who has a bicycle* were analyzed as either having answers like *Sue has a bicycle*, or *Sue and no one else has a bicycle* (Groenendijk&Stokhof 1997). But there is an increasing awareness that in some situations, statements like *few students own a bicycle* provide the most natural answer to *who has a bicycle*. The determination of the answer set of a question thus faces a problem which is similar to the one just described for focus alternatives: arbitrary DP's should be able to occur in answers to questions, without at the same time allowing arbitrary propositions as answers. As it happens, there seems to be an increasing interest in the conditions underlying such non-classical answer sets (Ginzburg 1996, Beck&Rullmann 1999, van Rooy 2003). And it is likely that progress in the understanding of answer sets will also advance the understanding of focus alternatives in complicated cases.

For the time being, and for the limited concern of focus diagnostics, one is however always well advised to better avoid examples where the set of focus alternatives cannot reliably be determined. And this is just what I have tried hard to do in this paper, as the reader will come to notice.

There is another, probably less severe limitation of the rules presented so far. Consider:

(21) a.   She only [bought a BOOK]$_{FOC}$

b.   She only BOUGHT a BOOK

Intended meaning in both cases: "Buying a book was all she did."

It seems that both accent patterns are possible and in more or less free variation. But of course only the second accent on book is predicted by the rules so far, i.e. (9) above. The role of the preceding accent on bought might actually be subject to debate: On one possible view, this accent is a purely phonological effect that might, for instance, depend on velocity of speech, or register. On the second possible view, this accent is input to semantic/pragmatic interpretation and indicates, say, some additional contrast (see Bolinger 1989, Féry 1993, Vallduví & Zacharski 1993, Ladd 1996:223ff. for discussion and viewpoints).

A good method to circumvent potential problems arising from such potentially mere phonological accents in focus diagnostic tasks is to always look at the minimally required accents that allow a specific reading of a sentence. As the reader will have noticed, the formulations of the rules (4), (9) and (11) have been chosen such that they determine a lower limit on the pitch accents required for a particular FOC-marking, without saying anything about the upper limit. Other authors have explicitly or implicitly followed a similar strategy.

3   Question-answer test

The preceding sections may sound rather strange to someone who is accustomed to a certain very simple method of focus diagnostics: the *question-answer test*. The question-answer test relies on an allegedly both simple and uncontroversial state of affairs, one of the "two perhaps most persistent intuitions researchers have expressed about the background–focus distinction" according to Daniel Büring (to appear), and can be stated as follows:

(22)   **Question-answer test**

   If a question asks for some X (X being a syntactic category), in a direct answer to this question, the constituent which corresponds to X is focused.

What the question-answer test promises us is that we need not bother about subtle semantic or pragmatic differences, but can instead rely on simple, "objective", distributional facts: whenever a question and an intuitively "direct" answer follow each other in discourse, we know what is focused in the answer by looking at the question.

   It is seemingly possible to, say, derive the projection rules (4), (9) and (11) from above in an alternative way which avoids all the tricky semantic or pragmatic issues discussed there, by just employing the question-answer test:

(23) a.   „Who does she like?" „She likes Sue!"

   b.   [She [likes Sue$_{FOC}$]]

   c.   *Argument:* Since „Sue" corresponds to what was asked for, we know that it is FOC-marked.

(24) a. „What does she do?" „She reads books!"

   b. [She [reads books]^{FOC}]

   c. *Argument:* Since „reads books" corresponds to what was asked for, we know that it is FOC-marked.

(25) a. „What did she read?" „She read three books!"

   b. [She read [three books]$_{FOC}$]

   c. *Argument:* Since „three books" corresponds to what was asked for, we know that it is FOC-marked.

Nice as this story sounds, the rest of this paper will show that things are not nearly such simple: examples will be discussed where the question-answer leads to the assumption of, so the claim, unnecessarily complex focus projection rules and focus interpretation rules. It will finally even turn out that these complex rules make inferior predictions in some interesting cases.

Before all this, let's have a short look on two notions which are relevant for (22) namely that of a *direct answer to a question*, and that of *the constituent that is asked for*, in order to make the following discussion more precise. Consider to this point:

(26) a. Who does she like?

   b. She likes SUE.

   c. SHE likes SUE.

   d. She DOES like Sue! (But not so much as she likes Ann)

There is little controversy that (26b) is the direct answer we are after for the sake of the question-answer-test, whereas (26c) and (26d) should obviously not count as direct answers, but merely as indirect ones. Many people would say that (26c)

is instead a direct answer to: *Who likes whom?*, and (26d) is a direct answer to *Does she like Sue?* So one possible operational definition for the concept of direct answer is to rely on plain intuition: A sentence is a direct answer to a question when people agree that it is. This, I would guess, is the common view.

As for the question of what a question asks for, the idea is to look for the syntactic constituent in the question which "replaces" in the answer the wh-pronoun of the question. In the case of (26a-b), here repeated:

(26) a.   Who does she like?

      b.   She likes SUE!

this means that it is a DP which is asked for in (26a), and that the DP *Sue* is the suitable correspondent for it in (26b). In general:

(27)   **What a question asks for (who/what-questions):**

        A question of the form *who/what VP's* asks for a DP *dp* which makes the sentence *dp VP's* true. In an answer of the form *dp VP's*, *dp* is the syntactic constituent which corresponds to what is asked for.

It should by the way not go unnoticed that the idea that what "replaces" the wh-constituent in the question is focused in the answer works well here, but not necessarily in the case of (24): There, the wh-word *what* is a DP, but what is asked for is commonly believed to be a VP. This shows to what extent the believed-to-be merely "distributional" question-answer test is actually governed by plain intuition.

We have seen now that the question-answer test promises an elegant shortcut to focus diagnostics which apparently avoids the complicated procedures of focus diagnostics sketched in the initial two sections of this paper. But it will turn out soon that the question-answer test comes with a certain prize:

it forces one two assume complicated focus projection rules which need additional pragmatic input in form of a *givenness* property: the next section demonstrates this important implication of the question-answer test. After that, the main thesis of this paper will be formulated, which amounts to the claim that this prize is too high and the question-answer test should be abandoned in its role as the authoritative device for focus diagnostics. The rest of the paper will then present arguments and facts that support this claim.

4   Givenness

Consider:

(28) Q.   Who owns a bicycle?

A.   This STUdent owns a bicycle!

What does the question-answer test say is focused in (28.A)? Under the assumption that (28.A) is a direct answer to (28.Q) in the sense of the question-answer test, and using the definition of what is asked for in (27), the answer will clearly be that *this student* is focused in (28.A). This also fits our expectations, since the accent placement in (28.A) is just as predicted by (11). All this is most likely uncontroversial. But now consider the following:

(29) Q.   As for the students: who owns a bicycle?

A.   THIS student owns a bicycle!

Following the question-answer test, one is again forced to assume that in (29.A), *this student* focused, since nothing that is relevant for the question-answer test has changed. However, whereas the accent placement in (28.A) was just as

expected, the accent on *this* in (29.A) isn't. How comes, and how to account for this?

One difference between (28) and (29) perhaps worth to be considered is that (28.Q) asks for arbitrary bicycle-owners, whereas (29.Q) is contextually understood to specifically ask for a DP which selects from students. The following revision of (27) acknowledges the fact that what a question asks for might be context-dependent:

(30)   **What a question asks for (context-dependent variant):**

A question of the form w*ho VP's* asks for a DP *dp* such that *dp VP's* is true and fits any additional contextual restrictions onto an answer to *who VP's*. In the answer *dp VP's*, *dp* is the syntactic constituent which corresponds to what is asked for.

However, using (30) instead of (27) doesn't actually change the predictions of the question-answer test for (29.A): It is still the DP *this student* which should be focused according to the question-answer test. So the question remains how it comes that (28.A) and (29.A) differ in their requirements on pitch accent placement.

There seem to be only two logical possibilities: Either fix the problem from the side of the projection rules such that these somehow predict (28.A) and (29.A) to be different, or question the results of the question-answer test and assume for (29.A) a FOC-marking which is compatible with the projection rules assumed so far. The aim of this paper is to show that the second strategy is actually viable and has some surprising advantages over the first. However, recent literature on the topic (Selkirk 1996, Rochemont 1998, Schwarzschild 1999, Büring 2003) has unanimously voted for the first strategy, so that this strategy will be looked upon first.

The basic idea which is common to the just mentioned approaches (which considerably differ in other respects) is the intuition that the crucial difference between

[this STUdent]$_{FOC}$

in (28.A) and

[THIS student]$_{FOC}$

in (29.A) lies in the fact that in the latter, but not the former, *student* is *given*, or *discourse-given*. The discourse-givenness of the noun lets the the pitch accent, so to speak, move to the left, into the only other available position, which is the determiner *this*.

A projection rule which resembles (11) (=pitch accent placement / D-N-focus), but respects *givenness*, can be formulated as follows:[10]

(31)   **Intonation for determiner-noun-focus (context-sensitive variant):**

[$_{YP}$ ... [$_{XP}$ d n]$_{FOC}$ ...], where d and n are phonological words, and d is a determiner and n a noun, *and where n is given,* is realized by pitch accent on the determiner d.

The notion of *givenness* has been around for a long time in the context of focus and information structure (see for instance Halliday 1967, Chafe 1976, Allerton 1978), but its precise context has often been left open. Somehow prominent is the idea to compare *givenness* to the notion of *familiarity* which plays a role in anaphora resolution and the licensing of indefinites, or to say that given things are *presupposed*. A third approach which has been proposed by Roger

---

10 See Selkirk 1996, Rochemont 1998, Schwarzschild 1999, Büring 2003. The rule systems proposed there are of course much more general and sophisticated.

Schwarzschild (1999) relates the *givenness* of an expression to the fact that a related linguistic expression, for instance an identical expression, has been *previously uttered in discourse*. For the case of *student* in (29.A), these three ideas would amount roughly to the following:

(32) *student* is *given* iff:

a. There is a set of students pre-established in the context to which *student* is anaphorically related.

b. *student* comes with an existential presupposition such that *this student owns a bicycle* is infelicitous instead of plainly wrong in case there are no students.

c. A linguistic expression which is synonymous to *student* has already been mentioned in the context.

All of these conditions seem to be fulfilled in (29.A). The question-answer test, that is (22) and (27), or alternatively (30), together with the modified projection rule (31) and one of the characterizations of *givenness* in (32a-c), therefore correctly predict the accent pattern in (29.A).

5   The main thesis

Let's summarize: after the first two sections have portrayed focus diagnostics as a rather tricky issue in languages like English, due to the fact that the syntactic FOC-marking is not directly observable in these languages, the third section offered a comfortable shortcut: just look at question-answer pairs and let the question-answer test decide on FOC-marking. The preceding section however demonstrated the cost of this move: projection rules must be assumed which are more complicated and involve reference to additional pragmatic input, namely *givenness*.

The main thesis of this paper now amounts to the claim that this prize need not be paid and is perhaps too high. It will be demonstrated that an analysis is possible which allows for simpler projection rules which do not make use of *givenness*, with equal if not superior empirical properties, if only the question-answer test is abandoned. The central idea can be illustrated at hand of the problematic example (29.A), here repeated:

(29) Q.   As for the students: Who owns a bicycle?

A.   THIS student owns a bicycle!

Whereas the question-answer test predicts *this student* to be in focus here, simpler projection and interpretation rules obtain if one simply assumes *this* to be in focus here, in accord to (4), the projection rule for single-word focus from the first section. This will be demonstrated in the next section.

The remaining sections make frequent use of the just mentioned competing analysis of (29.A) - focus on *this student* versus focus on *this* - in order put forward various arguments in favor of the second option: section 6 demonstrates that an alternative approach to focus in answers can be formulated which just predicts focus on *this* in (29.A) and does so without any recourse to *givenness*. Section 7 shows that focus projection rules which respect *givenness*, like (31) above, in turn require interpretation rules which also respect *givenness*. That the relevant pragmatic concept of *givenness* cannot be easily made precise will be argued for in section 8. Sections 9 and 10 finally show that projection which respect *givenness*, together with interpretation rules which respect *givenness*, even make the inferior predictions in critical examples.

6   An alternative analysis to focus in answers

The preceding section demonstrated that in order to stick to the predictions of the question-answer test in examples like:

(29) Q.   As for the students: Who owns a bicycle?

     A.   THIS student owns a bicycle!

special amendments to the focus projection rules are necessary and have indeed been proposed in the literature, which rely on additional pragmatic input in the form of a *givenness* property. This section investigates the alternative option: ignore the question-answer test and instead keep the projection rules simple. At the core of this endeavor lies the idea to re-analyze (29.A) as involving narrow focus on *this*:

(33)   THIS$_{FOC}$ student owns a bicycle.

The obligatory pitch accent on *this* now follows immediately from the projection rules assumed so far, i.e. (4) (intonation for single-word focus). However, as was explained in detail above, the FOC-marking in (33) contradicts the predictions of the question-answer test, which consequently must be assumed to be invalid for examples like (29.A). As a substitute, this section proposes an alternative pragmatic rule for focus in answers to questions which just predicts the following FOC-marking:

(28') Q: Who owns a bicycle?

     A: [This STUdent]$_{FOC}$ owns a bicycle.

(29') Q: As for the students: Who owns a bicycle?

A: THIS$_{FOC}$ student owns a bicycle.

This alternative analysis of focus in answers will be based on focus alternatives - no separate notion of *givenness* is involved. In total, this section thus demonstrates that there is actually no real need for complicated *givenness*-related projection rules if one is willing to give up the unrestricted validity of the question-answer test as a pre-theoretic tenet.

The alternative rule for focus in answers to questions proposed now is not actually new but basically just combines the familiar approach to this very issue in Rooth 1992 with an additional constraint on focus interpretation which was apparently already present in a paper by Roger Schwarzschild (1992).[11] It goes as follows:

(34)   **Focus in Answers to questions (preliminary formulation)**:

An answer A to a question Q must be FOC-marked such that $[\![A]\!]^{FOC}$ is a *minimal superset of the contextually appropriate answers to Q.*

The key idea is to explain the difference in FOC-marking between (28.A) on the one hand, (29.A) on the other hand, with the different size of the contextually appropriate answer sets of (28.Q), (29.A) resp. Whereas (28.Q) expects as an answer just *x owns a bicycle* for some arbitrary x, (29.Q) just expects an answer *x owns a bicycle*, where x is restricted to be a student. The intuition that the set of contextually appropriate answers is limited in this manner for (29.A) was already mentioned above and taken there as an opportunity to formulate (30). However, it turned out that this doesn't change the predictions of the question-

---

11 Here cited after Truckenbrod 1995. The original text was not available to the author at the time this paper was written.

answer test. Principle (34) on the other hand links the size of the contextually salient answer set to the FOC-marking in the answer by way of the alternative sets generated by the latter. It states that differences in the size of the answer sets should be reflected in the size of the focus alternatives of the resp. answers. Let's assume that these are the relevant sets:

(35) a.   *contextually appropriate answers to (28.Q):*

            { x owns a bicycle | x an individual }

      b.   *contextually appropriate answers to (29.Q):*

            { x is one of the students and owns a bicycle | x an individual }

      c.   ⟦ *[This STUdent]$_{FOC}$ owns a bicycle* ⟧^{FOC}:

            { x owns a bicycle | x an individual }

      d.   ⟦ *THIS$_{FOC}$ student owns a bicycle* ⟧^{FOC}:

            { x is a student and owns a bicycle | x an individual }

Both (35c) and (35d) are supersets of (35b), but (35d) is the smaller one. Since (34) requires the focus alternatives to be minimal, the FOC-marking which generates the smaller alternative set, which is (35d), must be chosen for (29.Q). However, since (35a) has only (35c) as a superset - (35d) being too small - the FOC-marking which generates (35a) is chosen for (28.Q). This is the idea behind (34) which will be made more precise shortly.

One point that deserves explanation and should perhaps be clarified first is how the resp. alternative sets (35c) and (35d) are actually obtained. For the case of (35c) this is rather simple: it is assumed that *this student* is a directly referring expression which just contributes an individual to the interpretation, just like *Sue* or *her*. In the case of (35d), the matter is a bit more complicated: in order to align to the analysis of *this student* as a referring expression, it is assumed here that *this* is a function from a predicate (*student* in the case of *this*

student) into an individual such that the individual referred to is in every world of evaluation the same. As a result, *this*, combined with *student*, is in fact a directly referring expression which denotes *this student* irrespective of the world of evaluation.

The following definition captures this:

(36) **Meaning and type of 'this':**

(i) *this N* selects for any world *w* from the individuals who satisfy *N* in *w* just one individual the speaker of *this N* intends to refer to (and, perhaps points the hearer to extra-linguistically). *this N* can be thought of as being n-way ambiguous, where n=| ⟦N⟧ |, and where the particular reading is contextually disambiguated at hand of the intentions of the speaker.

(ii) The type of *this* is the set of functions f such that i=f(w,p(w)) for every world w and 1-place-predicate intension p, i an individual, and such that p(i) holds and f is constant in its first argument.

According to this definition, the type of *this* is identical to the set of all its different readings: For the sake of focus alternatives, *this*, as used to refer to this student, has as its alternative again *this*, this time used to refer to that student, and so forth. This gives us alternatives which range over the set of all students. Notice again that this approach to the meaning and type of *this* is just consistent with the treatment of *this student* as a directly referential term in the calculation of the focus alternatives in (35c). Readers who would prefer to include the whole range of determiners: *a*, *few*, *many* etc. into the focus alternatives of *this* should consequently also include *a professor*, *few teachers*, and *many students* into the focus alternatives of *this student*. But then, the set of the focus alternatives will just explode to include any proposition, as has been shown in section 2 above. The solution presented here seems to me to be both intuitively correct and avoiding the difficulties which arise from focused generalized

quantifiers when fed into the meaning rule (2) (Def. $[\![.]\!]^{FOC}$) from the first section. [12]

Let's now return to the alternative account for focus in answers which was formulated in a preliminary fashion in (34) above. The following presents this account in a more explicit fashion and also derives it from a rather general principle of focus interpretation, called *minimize FOC-marking* here:

(37)   **Focus in answers to question (a bit more precise):**

(i) Let Q^{ANS} be the set of contextually appropriate direct answers to Q:

(ii) $[\![Q]\!]^{ANS} = M \subseteq [\![A]\!]^{FOC}$ for any answer A to Q, for some suitable M.

---

12 More can be said to the meaning of *this* as described in (36) and the the resulting focus alternatives:

(i) (36) is a simplification in that it does not distinguish between interpretation against the world of evaluation, and interpretation against the utterance context. It does furthermore not distinguish between presupposed and asserted parts of an utterance containing *this*.

(ii) What has been described as the semantic type of *this* in (36.ii) which effectively constraints $[\![this_{FOC}]\!]^{FOC}$ is perhaps better understood as constraints resulting directly from the semantic types, and constraints on possible natural language expressions (see footnote 4 above), i.e. conservativity of determiners, which leads to the requirement that $[\![this\ N]\!] \in [\![N]\!]$. This still doesn't explain why the focus alternatives of *this N* are rigid designators, and perhaps they just aren't. In this case, the members of $[\![Mary]\!]^{FOC}$ probably aren't rigid designators either. A lot of technical details would change, but as far as I can see, nothing relevant to the line of argument presented in this paper.

(iii) As an alternative to the assumption of a rather restricted semantic type of *this*, one might assume that what actually is focused in *THIS student owns a bike* is not the whole meaning of *this*, but only a part. Compare to this end *he WENT there* , where focus on the verb can optionally express focus on tense.

All this is interesting in its own right, but should not affect any arguments presented in the text. What is crucial for the argumentation is firstly that $[\![this_{FOC}\ N]\!]^{FOC} \subseteq [\![[this\ N]_{FOC}]\!]^{FOC}$ holds, and secondly that $[\![this_{FOC}\ N]\!]^{FOC}$ restricts alternatives to members of N in a way that $[\![[this\ N]_{FOC}]\!]^{FOC}$ doesn't.

(38)   **Minimize FOC-marking:**

X, X being a syntactic structure inclusive FOC-marking of some sentence or text, is disambiguated to mean some *m* such that there is no grammatical structure Y in the same language which differs from X only in FOC-marking such that $Y^{FOC} \subset X^{FOC}$ and Y can be disambiguated to have the same meaning *m,* where meaning includes both propositional content and contextual restrictions. "Disambiguation" in this definition means the choice of suitable subsets M of the focus alternatives.

(38) effectively imposes a lower bound on the sets M in each of the definitions (3), (15) and (37a) such that the condition $M \subseteq [...]^{FOC}$ which is found in every of these definitions is strengthened to the condition that the resp. $[...]^{FOC}$ must be the minimal superset of M which can be expressed in that language by distributing FOC-features over the syntactic structure without changing it in other ways. Although this principle was introduced here in the context of focus in answers, it is formulated as a more general claim. And this seems to be justified. Just as an example, consider:

(39) a.   Mary [stole a BIcycle]$_{FOC}$. That is the problem.

  b.   Mary STOLE$_{FOC}$ a bicycle. That is the problem.

  c.   Mary stole a BIcycle$_{FOC}$. That is the problem.

From principle (38), it follows that (39a) may not get an interpretation that could also be expressed by (39b) or (39c). Consider for instance, an interpretation which is based on the following choice of M:

M={Mary stole a bicycle, Mary bought a bicycle}

Such M might be intended in a context where Mary was expected to buy a bicycle when she actually stole it. Both (39a) and (39b) are compatible with this

interpretation. But then, by principle (38), only (39b) will actually receive it, since it has the smaller alternative set. This reading is thus expected to be actually unavailable for (39a). And this just seems to fit the facts: We can (39a) use only when we want to contrast Mary's stealing the bicycle with a more general set of behavioral options. If we want just contrast Mary's stealing the bicycle with buying the bicycle, we have to use (39b).

What is so nice is that (38) can be thought of as an instantiation of the Gricean quantity maxim: If the speaker had had some $M \subseteq X^{FOC}$ in mind which could be better approximated by some FOC-marking variant Y^{FOC}, she should have chosen to utter Y. This in turn let's the hearer assume that there is no such Y.

It is hard to deny that the just presented analysis is simple and extends the basic observation of focus projection and focus interpretation in a natural and straightforward way. This section started with the proposal that (29), here repeated,

(29) Q.   As for the students: Who owns a bicycle?

A.   THIS student owns a bicycle!

should be analyzed with a narrow focus on *this* instead of wide focus on *this student*, as was predicted by the question-answer test. It turns out now that such a re-analysis is not only possible, but perhaps even to be preferred, since no additional input in form of *givenness* must be invoked for the explanation of the accent pattern.

7   Givenness in interpretation

In the last section the possibility has been discussed that focus in answers to questions may be narrower than is usually assumed. In (29.A), here again repeated:

(29) Q: As for the students: Who owns a bicycle?

   A: THIS student owns a bicycle.

the assumption of narrow focus on *this*, instead of wide focus on *this student*, contradicts the question-answer test but allows for a simpler focus projection rule. This section will argue that the simpler focus projection rule also helps to keep the interpretation rules simple. Or to put it the other way around: it will turn out that projection rules which involve *givenness* in turn require interpretation rules which also involve *givenness*. Two examples will be discussed to this end which are closely related to (29.A), the first of which being the following:

(40) Q: As for the students: Who owns a bicycle?

   A: Only THIS student owns a bicycle.

   implication: No other student owns a bicycle, and nothing is said about non-students.

The contribution of *only* to the interpretation of (40.A) amounts just to the claim that no other student owns a bicycle except the one denoted by *this student*. It is not excluded that there might be other, non-student owners of a bicycle. As it

turns out, exactly this meaning is predicted by (2) (Def. $\llbracket . \rrbracket^{FOC}$) and (3) (=*only* and focus) if we assume (40.A) to be the following:[13]

(41)   Only [$_S$ THIS$_{FOC}$ student owns a bicycle]

As was discussed at length in the previous section, this leads to the following focus alternatives for the embedded S:

$\llbracket$ [$_S$ [THIS$_{FOC}$ student] owns a bicycle] $\rrbracket^{FOC}$ =

{ x is a student and owns a bicycle | x an individual }

According to (3.ii) (=*only* and focus), the meaning of (40.A) is then:

(42) λ w . $\forall$ m . m $\in$ M $\subseteq$ { x is a student and owns a bicycle
        | x an individual } $\wedge$ m is true in w $\rightarrow$ m=this student owns a bicycle.

This well corresponds to what has just been described to be the meaning of (40.A): in all alternatives, the bicycle-owner is a student. Bad news for everyone who considers the complement of *only* in (40.A) to be a direct answer to the question (40.Q) in the sense of the question-answer test. Since in this case, one had to assume instead wide focus:

Only [$_S$ [THIS student]$_{FOC}$ owns a bicycle]

This of course suggests the following bigger set of focus alternatives:

(43) $\llbracket$ [$_S$ [THIS student]$_{FOC}$ owns a bicycle] $\rrbracket^{FOC}$ =

{ x owns a bicycle | x an individual }

---

13 *only* is again taken as having scope over the whole sentence in order to simplify the presentation.

According to (3.ii), the meaning of (40.A) which obtains now is:

(44) λ w . $\forall$ m . m $\in$ M $\subseteq$ { x owns a bicycle | x an individual }
             $\wedge$ m is true in w $\rightarrow$ m=this student owns a bicycle.

Other than (42), (44) predicts that a reading of (40.A) is available which just says that this student is the only person who owns a bicycle. *only* doesn't range anymore exclusively over students, but over individuals in general. If one furthermore assumes that (38) (= minimize FOC-marking) above is correct, such a stronger reading is even enforced. So it seems that the assumption of narrow focus, as in (41), fits the facts much better here than the wide focus predicted by the question-answer test.

   This is not of course already a conclusive argument against the question-answer test: firstly, one could reply that the embedded *This student* owns a bicycle has indeed narrow focus on *this* in (40.A), but is not a direct answer to (40.Q) and thus need not obey the question-answer test. Since the concept of a direct answer is purely intuitive, it is hard to argue for or against such a move. Secondly, one could argue that (2) (Def. $[\![.]\!]^{FOC}$), or the deployed semantics of *only*, as given by (3.ii), is not appropriate for the cases in question: perhaps, the fact that *student* is given in the context of (40.A) influences not only the accent placement, but also either the focus alternatives, or the meaning rule of *only*. In order to save the question-answer test, one had to find a re-formulation of these interpretation rules such that they respect the *givenness* status of the constituents of the focused phrase.

   The following sketches how such a reformulation of (2) (Def. $[\![.]\!]^{FOC}$) could look like:

(45)   **Focus alternatives (variant which respects givenness):**

⟦ [$_Y$ ... X^1_{FOC} ... X^2_{FOC} ... X^n_{FOC} ...] ⟧^{FOC} = { ⟦ [$_Y$ ... Z^1 ... Z^2 ... Z^n ...] ⟧ | Z^i replaces X^i_{FOC} in Y, ⟦Z^i⟧ is of the same semantic type than ⟦X^i⟧, and for every K_{given} which occurs somewhere inside of some X^i_{FOC} the following holds: Any substitute Z^i for [$_X$^{i} ... K_{given} ...] must have the form [$_Z$^{i} ... K_{given} ...], where K_{given} occupies equivalent structural positions in X^i and Z^i.}

For instance:

⟦ [$_S$ [THIS student$_{given}$]$_{FOC}$ owns a bicycle] ⟧^{FOC}

=\{ ⟦ [$_Z$ A student] owns a bicycle ⟧ | for some suitable A and Z\}

=\{ x is a student and owns a bicycle | x an individual \}

As a result of this modification, the following two structures now generate identical focus alternatives:

[this student$_{given}$]$_{FOC}$ owns a bicycle

[this$_{FOC}$ student owns a bicycle]

(45) therefore allows one to stick to the prediction of the question-answer test that *this student* is in focus in (40.A), and at the same time obtain an interpretation which behaves as if only *this* was in focus.

    To summarize: Examples like (40) can be made consistent with the question-answer test by either claiming that *this student owns a bicycle* in (40.A) is not an answer to (40.Q) and has narrow focus on *this*, or by the assumption of more complicated focus interpretation rules which respect *givenness*.

    Let's now look at the second example to be discussed in this section:

(46) Q: As for the students: Who owns a bicycle?

   A: THIS student owns a bicycle. That is the problem.

   intuitive meaning: That this student owns a bicycle is the problem, and
   when some other student owned a bicycle, that wouldn't necessarily be a
   problem. Nothing is said about non-students who own a bicycle.

It again turns out that the assumption of narrow focus on *this* just gives the right meaning under the already established focus interpretation rules (2) (Def. $[\![.]\!]^{FOC}$) and (15) (=*that is the problem* and focus). The focus alternatives are of course just as before:

$$[\![\, [_S \, [THIS_{FOC} \text{ student}] \text{ owns a bicycle}] \,]\!]^{FOC} =$$

$$\{ \text{ x is a student and owns a bicycle} \mid \text{x an individual} \}$$

(15) says that there is a salient subset M of these alternatives, such that any state of affairs described by some $m \in M$ obtained, this state of affairs wouldn't be a problem. Since M is a subset of the focus alternatives, under any possible choice of M, these factual or counterfactual states of affairs always involves students who own bicycles. It is thus predicted that (46.A) says nothing about bicycle-owning non-students. But this just meets the intuitive meaning of (46.A).

In an analysis which assumes wide focus on *this student* and the usual focus interpretation rules from the first section of the paper, the set of focus alternatives is considerably larger:

$$[\![\, [_S \, [THIS \text{ student}]_{FOC} \text{ owns a bicycle}] \,]\!]^{FOC} =$$

$$\{ \text{ x owns a bicycle} \mid \text{x an individual} \}$$

The contextually determined subset M postulated in (15) may in this case also contain states of affairs where non-students own a bicycle, and will contain them if (37) is correct. However, (46.A) does not seem to have a reading where anything is said about non-students owning a bicycle.

As in the previously discussed example - (40) - one of the following arguments can be put forward in order to save the question-answer test: (i) (46.A) is not a direct answer to (46.Q) in the sense of the question-answer test, and in (46.A) there is a narrow focus on *this*, or (ii) the relevant focus interpretation rules are in fact sensitive to *givenness*, and the problem is just that the rules deployed here, (2) and/or (15), actually need to be revised.

However, argument (i) is much less convincing in the case of this second example, since (46.A) just feels, smells and tastes like a direct answer to (46.Q). If it wasn't, this would certainly also constitute a strong argument against the question-answer test, if not with respect to its validity, so at least with respect to its practical applicability.

So the only remaining counter-argument is (ii), which amounts to the claim that the relevant focus interpretation rules must be made sensitive to *givenness*, for instance in the way that was depicted in (45) (=focus alternatives which respect *givenness*). Since such more complicated interpretation rules can also be avoided, as has been shown above, (46.A) clearly supports the main claim of this section: that the assumption of the validity of the question-answer test leads not only to unnecessarily complex focus interpretation rules, but also to unnecessarily complex focus projection rules.

8   A closer look onto Givenness

In the previous three sections, two alternative analysis have been proposed for (29.A), here again repeated:

(29) Q: As for the students: Who owns a bicycle?

    A: THIS student owns a bicycle.

According to one of them, the accent in (29.A) falls on *this* because the otherwise preferred target *student* counts as given. The competing analysis does without any recourse to *givenness*. Considerable weight lies now on the following question: How easy is it to precisely define the relevant *givenness* property involved in the first analysis? This section presents three examples which demonstrate that finding such a definition will be far from being straightforward. These examples are closely related to the examples discussed so far. The whole problem cannot of course be captured by three examples. But it is to be expected that the problems merely increase if a larger empirical domain is being considered.

    The idea that *student* is given in (29.A) draws its initial plausibility from the fact that students have already been mentioned in the previous utterance *as for the students* in (29.Q). Without this preceding *as for the students*, the accent would fall onto *student* instead of *this* in this example. But what exactly lets *as for the students* make *student* given? Three plausible characterizations of the relevant relationship were formulated in section 4:

(32) *student* is *given* iff:

    a. There is a set of students pre-established in the context to which *student* in *this student* is anaphorically related.

    b. *student* comes with an existential presupposition such that *this student owns a bicycle* is infelicitous instead of plainly wrong in case there are no students.

    c. A linguistic expression which is synonymous to *student* has already been mentioned in the context.

(32a-c) each pick out some observable relation between *students* in (29.Q) and *student* in (29.A). They furthermore enumerate the three ways in which *givenness*, or *discourse-givenness*, has been characterized in the literature: *givenness* has been related there to the properties of being *familiar*, being *presupposed*, and/or being *previously mentioned*.[14] As was already mentioned before, (32c) roughly corresponds to the formal treatment of *givenness* in Schwarzschild (1999), whose precise content can be summarized for the case of *student* as follows:

(47)   *student* is *given* iff a linguistic expression e has been uttered which translates into an open (not necessarily first-order) logical expression E with (after appropriate bijective renaming) free variables x_1, x_2, ..., x_n, ($n \geq 0$) and a free world variable w such that

λ w . $\exists$ x_1...x_n . E contextually entails (λ w . $\exists$ x . student(w,x)

For the case of example (29) this amounts of course to (32c): The antecedent *student*s in (29.Q) is a suitable antecedent for *student* in (29.A), since λ w . $\exists$ X. students(X) logically and thus contextually entails λ w . $\exists$ x. students(x). Assuming that one of (32a-c) is the correct characterization of the *givenness* property which influences focus projection, the resp. version should also be able to predict de-accentuation in closely related examples. But as the examples now being discussed suggest, neither does. Consider first:

_____

14 *Given material* has also been characterized in a fourth way, namely as corresponding to those parts of a sentence which are not focused, and are thus common to all focus alternatives. Analysing the *givenness* status of *student* in (29.A) in this manner of course just fits to the alternative analysis proposed above in section 6 were in (29.A) narrow focus on *this* was assumed. For the context of this paper and especially this section, the issue is however whether some *separate* property of *givenness* is needed in addition to the focus-background distinction expressed by focus alternatives.

(48) Q.   As for the students and the professors: Who owns a bicycle?

    A1.   ?THIS student owns a bicycle. And no one else!

    A2.   This STUdent owns a bicycle. And no one else!

(48.A2), with an accent on *student*, is clearly possible here and for my intuition also the only direct answer to (48.Q), whereas (48.A1) becomes appropriate only to the extent that talk is restricted to students by way of additional contextual conditions. But at the same time, all three conditions (32a-c) are satisfied, so that *student* should count as given here in any case.[15]

It is remarkable that in this example neither the alleged antecedent *students* nor the alleged anaphoric element *student* seem to have significantly changed w.r.t. example (29). The change instead consists of the presence of additional material, namely *the professors*. Anyone who insists that the difference between (29.A) and (48.A2) is due to an anaphoric relationship between *students* and *student* in (48.A2) must eventually be able to account for such indirect influences on the licensing conditions of these anaphoric links.

As it turns out, the alternative approach to focus in answers (section 6 : 37/38) which is based on the concept of focus alternatives provides an alternative explanation for the accent placement in (48.A2). In order to see this, have a look at the relevant contextually appropriate answers: in the case of (29.Q), these should be just about students who own a bike, whereas in (48.A2), answers might also be about professors who own a bike. Since according to

---

15 The supplement *and no one else* was added to the answers in (48.A2) and (48.A2) in order to signal that these are intended to provide complete utterances. This kind of explicit disambiguation was felt to be necessary since the introduction of the complex topic *the student and the professors* triggers the expectation of a more complex answer of which the sentence under discussion would then only be the first part. *And no one else* is intended to block a reading of *this student owns a bicycle* as a conversational turn which is incompletely reproduced here. I thank Thomas Wescott for hinting me to this problem.

(37), the focus alternatives of the answer have to be supersets of the answer set, (48.A2) is ruled out.

Consider next:

(49) Q.   Since the students arrived here and brought their bicycles with them, three bicycles were stolen. Who stole the bicycles?

A1.? THIS student stole the bicycles.

A2. This STUdent stole the bicycles.

For my very impression, (49.A1) is only appropriate if the speaker of the question *who stole the bicycles* is in the context understood to believe that one of the students must have stolen the bicycle. In a more neutral situation, only (49.A2) is appropriate.

On the other hand, *student* counts again as *given* according to (32a-c) and is therefore predicted to be de-accented.[16] And again, the alternative approach to focus in answers (section 6: 37/38) just predicts the correct accent placements here: If the contextually salient answer set excludes non-student thieves, (49.A1), the answer with the smaller set of focus alternatives is predicted. If the contextually salient answer set is more general, the FOC-marking found in (49.A2) is predicted.

Consider finally:

(50) Q.   As for the students: Who owns a bicycle?

A1.?? TWO students own a bicycle.

A2.   TWO STUdents own a bicycle.

---

16 Condition (32a) is only satisfied if *this student* is one of the students referred to by *the students,* but this is certainly a salient reading of (49).

It is again the answer with an accent on supposedly given material which is to be preferred in this case, i.e. (50.A2). Interestingly, (50.A1), the answer where *students* is de-accented, is intuitively understood as an answer to:

(51)   How many students own a bicycle?

Assume for the moment that the FOC-marking in (50.A1) was as follows:

(52)   TWO$_{FOC}$ students own a bicycle.

That (50.A1)/(52) is well understood as an answer to (51), but not easily understood as an answer to (50.Q) could be explained by the assumption that *two* actually denotes a numeral which can only be replaced by other numerals, not by *this*, *few*, *many*, *every* or the like. In this case the relevant focus alternatives were as follows:

(53)   ⟦TWO$_{FOC}$ students own a bicycle⟧^{FOC}

$$= \{ \text{n students own a bicycle} \mid \text{n a cardinal} \}$$

But this set is only a superset of the answer set of (51), not one of (50.A1), even if the latter was restricted to ask for students. The alternative theory of focus (section 6: 37/38) can therefore at least explain why (50.A1) is infelicitous. It can of course not readily explain the peculiar accent pattern in (50.A1). Perhaps, a better understanding of focused generalized quantifiers and the alternative sets generated by them will provide for a satisfying analysis of these examples (see the discussion in section 2). It is on the other side not clear how a *givenness*-based explanation for this example should look like.

     Three examples have been presented now which present each an empirical problem for the notion of *givenness* as it is usually understood. It has been

shown that these examples are at the same time amenable to an analysis in terms of focus alternatives, at least to a certain extent. The range of de-accenting phenomena which have been explained with *givenness* in the literature is of course much bigger, so that the observations just presented merely scratch the surface of the problem. They nevertheless hopefully suffice to show that the task to pin down the alleged *givenness* property such that it allows for reliable predictions will not be a straightforward task. This imposes a considerable burden on the proponents of a *givenness*-based account and demonstrates that the complications induced by projection rules and interpretation rules which respect *givenness* are far from being trivial.

I would like to add that when working on *givenness* in the second half of the year 2004 and discussing various issues with colleagues, I had the very impression that the validity of the concept of *givenness* was never put to scrutiny simply because everyone takes it for granted that one cannot do without it anyway. If this was true, counterexamples were of course not of so much interest: they just indicated work that still has to be done. I however hope to present convincing arguments in this paper that the situation actually isn't this way: especially if one is willing to abandon the unrestricted validity of the question-answer test for focus diagnostics, alternative elegant ways show up for the analysis of focus and accent placement which do not make use of *givenness*. Whether a precise and empirically satisfying characterization of *givenness* is possible therefore may turn well out to be a crucial factor in deciding between theories of focus.

9   Focus projection and constituency

Two competing analysis have been under discussion for *this student* in (29.A):

(29) Q.   As for the students: Who owns a bicycle?

    A.   THIS student owns a bicycle!

which can be depicted as follows:

    (i)   [this student$_{given}$]$_{FOC}$
    (ii)   [this$_{FOC}$ student]

These two analysis have been compared from different perspectives, and the second analysis has been claimed to be superior because of its greater simplicity given that it doesn't involve *givenness* and related complications. However, no examples have been discussed so far where the empirical predictions of both approaches clearly and unanimously diverge. The last two sections of this paper are dedicated to such examples.

    The structures (i) and (ii) are hard to distinguish because they trigger the same accent pattern and also the same interpretation. The latter of course only with suitable stipulations: the modified rule (45) for the computation of focus alternatives in chapter 7 basically states that given material, although being focused, just behaves like unfocused material for the sake of interpretation.

    It is however possible to construct examples where either accent placement or interpretation are expected to differ according to the two competing lines of analysis, even if rules like the just mentioned (45) are deployed. One structure with this desirable property is:

(54)   [$_{VP}$ v [$_{DP}$ d N$_{given}$]]$_{FOC}$

In order to re-analyze this structure such that given material is actually not part of the focus, *two* FOC-features must be assumed:

(55)   [$_{VP}$ v$_{FOC}$ [$_{DP}$ d$_{FOC}$ N]]

As it turns out, for this latter structure the projection rules predict two accents, one onto the verb and the other on the determiner, by projection rule (4) (=focus on single words). For (54) on the other hand, one accent on the determiner d should suffice according to the projection rules (9) (V-O focus) and (31) (D-N focus).

A test situation where one would expect a structure like (54) consists of an answer to a question which asks for a VP, plus additional contextual material that makes N given. In order to construct such a test case we first need to know what kind of questions ask for a VP - up to now, we have always used questions which ask for a DP. The following seems to be widely accepted in the literature:

(56)   **What a question asks for - VP meanings:**

The question *what did x do?*, ⟦x⟧ an individual, asks for a VP-meaning.

As an example, take:

(57) Q: What did Mary do?

A: She [stole a BIcycle]$_{FOC}$! That's the problem.

implication: If she did something else, that wouldn't necessarily be a problem. Nothing is said about someone else doing something.

The pitch accent in (57.A) is well explained by (56) in combination with (9), the focus projection rule for VP's, and (11), the focus projection rule for DP's with no given constituents. That the VP is in focus is independently confirmed by the semantic effect of that's the problem: The focus alternatives of (57.A) are:

{ she *vp* | *vp* a VP-meaning }

According to (15), the meaning rule of *that is the problem*, (57.A) should express that some significant subset of these focus alternatives describe something that isn't a problem. This just seems to fit the intuitive meaning.

Now consider the following context:

(58) Q: As for the bicycles: what did Mary do?

A: She stole this bicycle.

In this context, the question asks for a VP-meaning, and *bicycle* is at the same time *given*. The answer thus just instantiates (54):

(59) She [$_{VP}$ stole [this bicycle$_{given}$]]$_{FOC}$

Now it seems as if (58.A), to the extent that one is willing to de-accent *bicycle* in the first place, strongly prefers the following accent pattern:

(60) She STOLE THIS bicycle.

The accent on the verb is certainly indispensable here. But this just fits a re-analysis along the lines of (55):

[$_{VP}$ stole$_{FOC}$ [this$_{FOC}$ bicycle]]

The analysis depicted in (59) which follows (54) would instead predict that the accent on the verb can be omitted. So it seems that in this case, the re-analysis along the lines of (55) is not only simpler, but also makes the better prediction. The following two examples do not use the question-answer test, but instead *only* and *that is the problem*:

(61)   As for the bicycles: Mary only stole THIS bicycle.

In this case the competing analyses are the following:

(62) a.   Mary only [stole THIS bicycle$_{given}$]$_{FOC}$.

     b.   Mary only stole THIS$_{FOC}$ bicycle.

I again assume for simplicity that *only* has actually scope over the whole sentence for the sake of interpretation. In order to be fair, the focus alternatives in (62a) are computed with the help of (45) from section 7 above such that they respect *givenness*. In that case (roughly):

(63)   ⟦ [Mary [stole this bicycle$_{given}$]$_{FOC}$] ⟧^{FOC}

            ≈ ⟦ [Mary stole$_{FOC}$ this$_{FOC}$ bicycle] ⟧^{FOC}

            ≈ { Mary (does/did/will do) x with y | x an activity, y a bicycle }

For (62b) the set of focus alternatives is considerably smaller:

(64)   ⟦Mary stole this$_{FOC}$ bicycle⟧^{FOC} = { Mary stole x | x a bicycle }

The crucial difference becomes clear: The alternatives in (62a) can involve different verb meanings, where the verb in (62b) is fixed in all alternatives to be *stole*.

       This difference should influence the contribution of *only*: According to (62a), (61) is predicted to mean that stealing this bicycle is the only activity that Mary performs which is directed towards one of the bicycles. According to (62b), (61) is predicted to mean that this bicycle is the only one that Mary stole. Nothing is said about any non-stealing activities from the side of Mary. It seems

to be obvious to me that the second interpretation is the only one which is available for (61).

The same line of argument can be performed at hand of *that is the problem*:

(65)   As for the bicycles: Mary stole THIS bicycle. That is the problem.

with the competing analyses:

(66) a.   Mary [stole THIS bicycle$_{given}$]$_{FOC}$.

      b.   Mary stole THIS$_{FOC}$ bicycle.

The focus alternatives are the same as above. According to (66b), (67) means that if Mary stole or had stolen some other bicycle, that wouldn't necessarily be a problem. Nothing is said about other activities from the side of Mary. According to (66b) however, (68) means that if Mary had done something with one or the other bicycles, that wouldn't necessarily be a problem. It seems again to be obvious to me that the first interpretation is the only one which is available for (66).

10 Focus and PP-Extraction

This concluding section further extends the discussion of the preceding section. A famous example by Lisa Selkirk will be discussed which apparently speaks against the results from the last section. It however turns out that this example can and must be re-analyzed. Under this re-analysis, it fits very well to the examples obtained so far, and the main thesis defended in this paper.

Consider first the following VP:

(69)   [$_{VP}$ stole THIS bicycle]

As was discussed at length above, according to a *givenness*-based analysis, the pitch accent on *this* should be able here to license focus on the VP in suitable circumstances, since it instantiates the following structure:

(54)   [$_{VP}$ v [d N$_{given}$]]$_{FOC}$

According to the alternative line of analysis proposed in this paper, (69) just licenses narrow focus on the determiner *this*:

(55)   [$_{VP}$ v [d$_{FOC}$ N]]

The last section presented some empirical observations which indicated that the structure depicted in (54) is actually not available.

Basically the same situation occurs with nominal phrases which take a PP-complement. In a configuration [d N PP]$_{FOC}$, the accent is commonly assumed to fall by default onto the complement of the preposition, as is demonstrated here:[17]

(70) Q: What did Mary buy?

A: Mary bought [a book about BATS]$_{FOC}$

Consider now the VP in:

(71)   Mary [$_{VP}$ bought a BOOK about bats]

---

17 This is again an instance of the projection principle *the argument projects* - see section 1.

According to a *givenness*-based analysis, the pitch accent on *book* should again be able to license focus on the whole VP in suitable circumstances, since it instantiates the following structure, which closely resembles (54) cited above:

(72) $[_{VP}$ v $[_{DP}$ d N PP$_{given}]]_{FOC}$

According to the alternative line of analysis proposed in this paper, (69) at most licenses narrow focus on *a book*:[18]

(73) $[_{VP}$ v $[\![$d N$]\!]_{FOC}$ PP$]]$

As it turns out, (71) is actually a famous example by Lisa Selkirk (1996). Selkirk adopts for (71) the analysis depicted in (72) and consequently claims that the whole VP can be focused in this example in any context where *about bats* is *given*. Somewhat surprisingly in light of the results from the previous section, there is evidence that the verb *bought* can indeed well be part of the focus licensed by a pitch accent on *book*:

(74)   Mary only bought a BOOK about bats.

This sentence can well mean that the only thing that Mary did with respect to bats was to buy a book about them. This indicates that the relevant alternative set allows for variation in the resp. activity that has to do with bats:

(75) $[\![$Mary [bought a BOOK [about bats]$_{given}]_{FOC}]\!]^{FOC}$

$\approx$ { Mary (did/does/will do) x with y about bats
                | x an activity, y a suitable NP-meaning }

---

18 I assume here for concreteness that [d N] form a DP-internal constituent. If not, the following arguments have to be adjusted as to exclude the determiner from narrow focus.

At the same time, an analysis according to (73) is out, since in that case, the relevant set of focus alternatives was too small:

(76)   ⟦Mary bought [a BOOK]$_{\text{FOC}}$ about bats⟧$^{\text{FOC}}$

        ≈ { Mary bought x about bats | x a suitable NP-meaning }

This seems to be a strong empirical argument for projection rules which respect *givenness*. However, as it happens, (71) and (76) perhaps do not actually instantiate the syntactic structure tacitly assumed so far, for consider:[19]

(77)   Mary only bought a BOOK yesterday about bats.

In (77), the PP *about bats* has most likely been extraposed. It thus could well be that in (71) and (76) the PP has been extraposed too. The following illustrates this option:

(78)   Mary [$_{\text{VP}}$ bought [a book t$_i$]]$_{\text{FOC}}$ [about bats]$_i$

This is the analysis I want to propose for this example. I agree with Selkirk's analysis that the VP is focused in this examples. That *about bats* is ignored for the sake of focus projection I however attribute this to that fact that it has been extraposed. The relevant rule could be stated as follows:

(79)   Extraposed material, and the trace it leaves, is ignored in focus
        projection.

What kind of example could help now to decide between an analysis based on extraposition and (79) on the one hand, and an analysis based on *givenness* and

---

[19] Since several reviewers doubted this: the following example has been judged fine in appropriate contexts, and simuilar examples are discussed in Guéron (1980).

focus projection rules which respect *givenness* on the other hand? As it turns, out, not every [d N PP] structure allows extraposition, for consider:

(80) a. * Bill drank a GLASS yesterday of beer.

b. * Bill met the KING yesterday of Belgium.

Examples based on such DP's should not be amenable to an analysis according to extraposition. Consider to this end:

(81)   Bill drank a GLASS of beer. That is the problem.

implication: If Bill drank some other amount of beer, that wouldn't be a problem. Nothing is said about activities other than drinking beer.

(82)   Bill met the PREsident of Belgium. That is the problem.

implication: If Bill met some other representative of Belgian, that wouldn't necessarily be a problem. Nothing is said about activities other than meeting representatives of Belgian.

The analysis based on *givenness* would still predict that the VP can be in focus in these examples. The focus alternatives should therefore include other activities than drinking or meeting someone, as is sketched here:

{ Bill (did/does/will do) x with y of beer
                    | x an activity, y a suitable *np*-meaning }

{ Bill (did/does/will do) x with y of Belgian
                    | x an activity, y a suitable *np*-meaning }

The alternative analysis predicts a narrow focus on the NP in these cases, where the activity is fixed to be drinking, meeting someone, resp.:

{ She drank x of beer | x a suitable *np*-meaning }

{ She meet x of Belgian | x a suitable *np*-meaning }

The intuitive meanings of (81) and (82) clearly favors the second analysis.

The very issue of the interaction between extraposition and information structure clearly deserves a much more thorough investigation than could be done here. In an still ongoing investigation undertaken by the author and Kepa Joseba Rodriguez into the semantics and pragmatics of extraposition, one which currently concentrates on Basque and Turkish, there is ample evidence that extraposition interacts in rather complex ways with information structure. This supports earlier observations on extraposition in English for instance by Jacqueline Guéron (1980). There is by the way some initial evidence that at least in Turkish and Basque, extraposed material can be "backgrounded" in some sense which is well distinguishable from just not being in focus. So it may turn out after all that the semantics and pragmatics of extraposition is the very location where an independent pragmatic concept of *givenness* or so is operative. The intuition that in examples like (71) from Lisa Selkirk some orthogonal pragmatic input is involved in pitch accent placement might therefore turn out to be still true in the end.

11 A final remark on focus alternatives

Throughout this paper, focus alternatives have been used as a means to describe the semantic/pragmatic impact of focus. It has nowhere been claimed that, say, focus alternatives somehow have to lie at the heart of the correct semantic approach to focus, and an implicit claim to this end is also certainly not intended from my side. But the descriptive use of focus alternatives is though not totally innocent: if it turned out that some considerably simpler and less expressive notion of *givenness* would suffice to derive the semantic/pragmatic

effects of focus, as the meaning of *only* or *that is the problem*, this might threaten the line of argument presented in this paper: opponents could argue that *givenness* can replace focus alternatives and than claim that latter be furthermore even worse than *givenness*. A discussion of this interesting issue was unfortunately far beyond the scope of this paper; I can only say that I am personally rather convinced that a concept of *givenness* like the one just sketched can never be formulated; articles which are related to this topic include Schwarzschild 1997, Geurts&van der Sandt 2004 and Jäger 2004.

12 Acknowledgments

References

Allerton, D.J. (1978). The Notion of "Givenness" and its Relations to Presupposition and to Theme. Lingua 44: 133-168.

Beck, S. & Rullmann, H. (1999). A flexible approach to exhaustivity in questions. Natural Language Semantics 7: 249-298.

Bonomi, A. & Casalegno, P. (1993). Only: Association with focus in event semantics. Natural Language Semantics 2: 1-45.

Büring, D. (1997). The 59th Street Bridge Accent. On the Meaning of Topic and Focus. London: Routledge.

Büring, D. (2003). Focus Projection and Default Prominence. In: Valeria Molnar and Susanne Winkler (eds.): Proceedings from the Symposion `Informationsstruktur -Kontrastiv'. Mouton De Gruyter.

Büring, D. (2004). Focus Suppositions. Theoretical Linguistics 30(1): 65-76.

Büring, D. (to appear). Intonation, Semantics and Information Structure. In: Gillian Ramchand and Charles Reiss (eds.): Interfaces.

Chafe, W.L. (1976). Givenness, contrastiveness, definiteness, subjects, topics, and point of view: 25-55. In: C. Li (ed.): Subject and Topic. New York: Academic Press.

Chapman, S. (1998). Accent in Context. The Ontological Status and Communicative Effects of Utterance Accent in English. Peter Lang Publishing.

Dretske, F. (1972). Contrastive Statements. Philosophical Review 81: 411-437.

Dretske, F. (1977). Referring to Events. Midwest Studies in Philosophy 2: 369-378.

Féry, C. (1993). The Tonal Structure of Standard German. Tübingen: Max-Niemeyer.

Geurts, B. & Sandt, R.v.d. (2004). Interpreting focus. Theoretical Linguistics 30: 1-44.

Ginzburg, J. (1996). Interrogatives: Questions, Facts and DialogueThe Handbook of Contemporary Semantic Theory. Oxford: Blackwell.

Groenendijk, J. & Stokhof, M. (1997). Questions. In: von Benthen, J. and ter Meulen, A. (eds.): Handbook of Logic and Language.

Gussenhoven, C. (1983). Focus, mode and nucleus. Journal of Linguistics. 19: 377-417.

Gussenhoven, C. (1992). Sentence accents and argument structure. In: I.M. Roca (eds.): Thematic Structure: Its Role in Grammar. New York: Foris.

Guéron, J. (1980). On the Syntax and Semantics of PP Extraposition. Linguistic Inquiry 11: 637-678.

Halliday, M.A.K. (1967). Notes on transitivity and theme in English. Journal of Linguistics 3: 199-244.

Jackendoff, R.S. (1972). Semantic Interpretation in Generative Grammar. Cambridge: MIT Press.

Jäger, G. (2004). Alternatives or presuppositions? A comparison of the Background-Presupposition Rule with Alternative Semantics. Theoretical Linguistics 30(1): 111-122.

Kaplan, D. (1978). DThat. In: Peter A. French, Theodore E. Uehling, jr. and Howard K. Wettstein (eds.): Contemporary Perspectives in the Philosophy of Language. Minneapolis: University of Minnesota Press.

Kaplan, D. (1978). On the Logic of Demonstratives. Journal of Philosophical Logic 8: 81-98.

Kratzer, A. (2004). Interpreting focus: Presupposed or expressive Meanings? A comment on Geurts and van der Sandt. Theoretical Linguistics 30(1): 123-136.

Krifka, M. (1991). A Compositional Semantics for Multiple Focus Constructions. In: Joachim Jacobs (ed.) Informationsstruktur and Grammatik: Joachim Jakobs .

Krifka, M. (1992). For a Structured Meaning Account of Questions and Answers. In: Frey, Caroline and Sternefeld, Wolfgang (eds.): Audiatur vox sapientiae. Berlin: Akademie Verlag.

Krifka, M. (1995). The Semantics and Pragmatics of Polarity Items. Linguistic Analysis 25: 209-257.

Kuno, S. (1987). Functional Syntax: University of Chicago Press.

Prince, E.F. (1981). Toward a taxonomy of given/new information: 223-255. In: P. Cole (ed.) Radical Pragmatics. NPYP: Academic Press.

Rochemont, M. (1997). Phonological Focus and Structural Focus 29. In: P. Culicover and L. McNally (eds.): The Limits of Syntax, Syntax and Semantics.

Rooth, M. (1985). Association with Focus: Amherst.

Rooth, M. (1992). A Theory of Focus Interpretation. Natural Language Semantics 1(1): 77-116.

Rooth, M. (1996). Focus: 271-297. In: Lappin Shalom (ed.): The Handbook of Contemporary Semantic Theory: Blackwell.

Rooth, M. (1996). On Interface Principles for Intonational Focus. In: T. Gallowayand S. Justin (ed.): Proceedings From Semantics and Linguistics Theory VI. Ithaka: Cornell University.

Rooy, R.v. (2003). Questioning to Resolve Decision Problems. Linguistic and Philosophy 26: 727-763.

Rooy, R.v. & Schulz, K. (2003). Pragmatic Meaning and Non-monotonic Reasoning: The Case of Exhaustive Interpretation. Netherlands: Kluwer.

Schwarzschild, R. (1992). The constructiveness of associated foci.

Schwarzschild, R. (1997) Why some Foci must Associate. Rutgers University.

Schwarzschild, R. (1999). GIVENness, AvoidF and Other Constraints on the Placement of Accent. Natural Language Semantics 7(2): 141-177.

Selkirk, E.O. (1996). Sentence Prosody: Intonation, Stress and Phrasing. In: John A. Goldsmith (ed.): The Handbook of Phonological Theory. London: Basil Blackwell.

Selkirk, E. (1984). Phonology and Syntax: The Relation between Sound and Structure. Cambridge, MA: MIT Press.

Truckenbrodt, H. (1995). Phonological Phrases: Their Relation to Syntax, Focus and Prominence. Doctoral dissertation.

Elke Kasimir
Universität Potsdam
SFB 632 „Informationsstruktur"
Postfach 601553
14415 Potsdam
Germany
elke.kasimir @catmint.de