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Studies on the Acceptability of Object Movement to Spec,CP*

1 Introduction

It has often been observed that changes in constituent order may reduce the acceptability of sentences even in so-called free word order languages. Languages seem to have a 'canonical' arrangement of arguments (typically subject > object), and whenever a syntactic rule (topicalization, focus movement, scrambling) changes this canonical order, the result often seems less than perfect, as can be seen from the results of various controlled acceptability rating experiments, or huge frequency differences in corpora between, say, subject- and object initial sentences in languages such as German, Czech, or Russian.

Essentially, such observations may be explained in two different ways. The reduced quality of object-initial sentences (or other types of marked constituent order) might be due to 'intrinsic imperfections' of the structure caused by violations of syntactic principles (reducing grammaticality) or caused by processing problems of sentences with a marked word order (reducing overall acceptability). Alternatively, the use of marked word order sentences might simply be confined to a restricted number of contexts, so that the low acceptability of, e.g., an object initial sentence presented in isolation may just reflect that the sentence is not usable in a default context (but it would still be grammatically perfect). The most straightforward way of addressing this issue is by conducting acceptability rating experiments in which sentences are presented in context, and the present paper will report the results of four such experiments concerned with the proper interpretation of the markedness of object-initial sentences.

The results of Experiments 1 - 2 show that the focus fronting of objects yields fully grammatical and fully acceptable results when sentences are judged in a proper context. Experiments 3 and 4 are concerned with the precise

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identification of the pragmatic conditions licensing object fronting. In line with what is predicted by Fanselow & Lenertová (2006), we observe that focus fronting is not only acceptable when the preposed object is the narrow focus of the sentence, but rather, sentences with fronted objects can be acceptable even when larger categories such as the VP are in focus.

The paper is thus organized in two parts. Firstly, after a general discussion of the acceptability of object initial sentences taking into consideration recent experimental results in the respect (2.1), we present the acceptability rating experiments 1 and 2 (2.2-2.3) which support the view that object fronting may yield perfect results when it is applied in the proper context. The second part (section 3) focuses on the nature of the conditions licensing focus movement. We shortly discuss reasons for a prosodic reinterpretation of focus movement related to the so-called subpart-of-focus fronting as discussed in Fanselow & Lenertová (2006) and present Experiments 3 and 4 testing the predictions of the prosody-based account on German and Czech (3.2-3.3).

2 The acceptability of object initiality

2.1 Theoretical and empirical background

It constitutes textbook knowledge about German that any constituent can be placed into the clause initial position Spec,CP (see, e.g., Thiersch 1978). While the status of (1b) as fully grammatical had not really been questioned in the early years of generative grammar (but see Chomsky 1965), it had, however, been observed fairly early that subject-initial (1a) and object initial (1b) differ in terms of sentence processing: (1b) is harder to parse than (1a), as was already shown in Krems (1974), see also Hemforth (1993), Meng (1997), Fanselow, Kliegl & Schlesewsky (1999), Fiebach, Schlesewsky & Friederici (2002), Felser, Münte & Clahsen (2003), among many others.

(1) a. Ein Schüler hat das Buch gefunden.
A.nom pupil has the book found
'A pupil has found the book.'
b. Das Buch hat ein Schüler gefunden.

Object initial sentences are not only more difficult to understand: they also occur with much lower frequency than their subject-initial counterparts (see, e.g., Meng 1997, Kempen & Harbusch 2004). Until quite recently, these observations were considered as evidence for a reduced grammaticality of object initial sentences. This situation changed somewhat when systematic grammaticality rating studies revealed that object-initial sentences are also rated as less acceptable in controlled experiments (see Pechmann et al. 1994, Keller 2000, Weskott et al. 2004).

Where does the reduced acceptability of object-initial sentences come from? As mentioned above, a first possible explanation might result from the claim that these sentences are less than perfect from a grammatical point of view. In particular, in theories that work with violable constraints, the difference in acceptability between subject- and object initial sentence may result from the fact that the latter have a worse constraint violation profile than the former. See, for example, Uszkoreit (1987), Müller (1999) and Keller (2000) for quite different versions of that view. Both Müller and Keller take care to still draw a distinction between what is 'ungrammatical' and what is merely 'marked' (Müller), or between structures with a low grammatical 'harmony' and those that are not optimal/grammatical (Keller), so that the grammar related explanation of the reduced acceptability of object initial structures does not force the assumption that they are not 'grammatical' (in fact, Müller does not make that assumption), and whether they are less grammatical than subject initial sentences depends, in Keller's model, on whether the two sentence types compete with each other grammatically (as Keller seems to assume) or not.

However, it has also been established that processing difficulty is a factor that reduces relative acceptability (see, e.g., Fanselow & Frisch 2006 for a discussion). Object initial sentences turned out to be more difficult to understand in a variety of experiments using different experimental techniques, as we noted above, so that the postulation of a grammar-based source for the lower acceptability of object-initial sentences does not seem mandatory. Furthermore, infrequent structures are hardly prototypical examples for grammatical sentences, and this frequency influence is also able to negatively affect the acceptability of an object-initial sentence.

These two perspectives assume that object-initial sentences have an inherent deficit, be it grammatical or processing-related. This deficit can be used to explain why they are rarely used in corpora (e.g., along the lines proposed in Stochastic OT, see Bresnan & Nikitina 2003), and why they seem less acceptable (e.g., along the lines proposed by Keller 2000). However, the relatively low frequency of object-initial structures could also be due to the relative rarity of the contextual conditions that license the preposing of an object. We do not want to assume that questions are 'less grammatical' than declarative sentences just because the former are less frequent than the latter in nearly all corpora. Comparisons of corpus frequencies make sense only if the structures to be compared compete with each other. Consequently, the (presumably high) number of subject initial sentences used in situations that would not license object fronting must not count in determining relative frequencies of subject and object initial sentences. Given that we only know little about the exact licensing conditions for object preposing, reliable frequency comparisons seem quite difficult at present. Thus, we do not really know to what extent text frequency is negatively affected by object initiality in the relevant contexts (and if there is such an effect at all).

In the same way, acceptability rating studies which present object initial sentences without context or within some context constructed by the experimenter may suffer from the same limitation: one does not necessarily know whether the context presented in the experiment really is one of those that fully licenses object preposing, and we can be quite certain that the 'null context' is not among such contexts.

This difficulty can, for example, be exemplified by experiment 10 of Keller (2000). He tested the acceptability of subject and object initial sentences in different contexts (all focus, subject and object focus contexts) and found that in sentences involving two non-pronominal arguments, subject > object order is always more acceptable than the reverse arrangement of constituents (Keller 2000:165). Contexts were created by questions such as 'who bought the car' 'what did the father buy', but, crucially, the order manipulation was effected by the scrambling of an object before the subject in an embedded clause (2). Scrambling is even less frequent than object movement to the prefield as in (1b), and we know very little about the contextual conditions that must be met in addition to, say, the givenness of the object, that license object scrambling. Thus, the absence of a context effect eliminating the acceptability problem of object initial sentences in Keller's experiment could merely indicate that questions of the type just illustrated do not suffice to license scrambling.

(2) a. Maria denkt, dass der Vater den Wagen gekauft hat.
Maria thinks that the father the car bought has
'Maria thinks that the father bought the car.'
b. Maria denkt, dass den Wagen der Vater gekauft hat.

Weskott, Stolterfoht, Bornkessel & Schlesewsky (2004) investigated the relative acceptability of object initial sentences as a function of their generation (scrambling vs. movement to Spec,CP), comparing them to subject initial sentences in different types of contexts (neutral, favouring a topical or a focus interpretation on the subject or object; the context manipulation was effected by different question types, just as in Keller's study), and using different types of tasks. A first remarkable result is, that, in line with Keller's findings, structures in which an object is scrambled in front of the subject (as in 2b) never reach the acceptability level of subject initial sentences. However, when the object is moved to Spec,CP, a different pattern emerges: in a context in which the object can be interpreted as the topic of the discourse, object initial sentences turned out to be as acceptable as subject initial ones. If the context favoured a focus interpretation of the object, however, the fronting of an object turned out to be as unacceptable (compared to subject initial sentences) as in a neutral context.

The findings of Weskott et al. lead to a number of interesting questions. Firstly, the elimination of the acceptability problem of object initial sentences

in object topic contexts shows that object movement to Spec,CP does not intrinsically reduce grammaticality and acceptability. This is in line with the observation that acceptability differences between subject and object questions also do not appear to exist in German in the absence of disturbing factors such as superiority or weak crossover violations (see e.g. Fanselow, Kliegl & Schlesewsky 2006): objects can be fronted in German without a loss of acceptability when the semantic (wh-questions) or pragmatic (topichood) conditions for the preposing operation are met. However, one may still wonder why there is no residual effect of the higher processing difficulty of object initial sentences on their acceptability. One can speculate that the processing effects involved here are not large enough for being visible in offline judgment tasks.

Secondly, the absence of a mitigating context effect on scrambled structures such as (2b) both in the experiment of Keller (2000) and Weskott et al. (2004) raises an interesting issue in the analysis of object preposing in the middle field. Keller and Weskott et al. assume that (2b) involves simple scrambling, i.e. the adjunction of the object to IP, but according to a widely accepted view of Frey (2004), there is also a topic position in the middle field preceding the subject and following the complementizer into which an object can be placed, as sketched in (3b), in addition to the scrambling option depicted in (3a).

(3) a. [complementizer [$_{IP}$ object [$_{IP}$ subject …]]]
b. [complementizer [$_{Topic\text{-}Phrase}$ object [$_{IP}$ subject …]]]

We cannot control whether participants of an experiment rate structures such as (2b) relative to (3a) or relative to (3b), but if topic movement to the prefield proceeds via the topic position in the middle field (as suggested by Frey 2005, and also by Fanselow 2002), we run into a problem: Since topic movement to Spec,CP is perfectly ok, the intermediate movement step to the topic position in the middle field should be fully acceptable, too, and we would expect that participants rate the well-formedness of (2b) relative to this perfect option for analysis, which they do not. This suggests that the topic position in the middle field is pragmatically more restricted than Spec,CP occupied by what is hold for topics. However, the reduced acceptability of object preposing in the middle field may also find a very different explanation. The preposing of an object in the middle field seems to yield structures with a *very high* processing difficulty, which may be responsible for the constant reduction of acceptability we find in these constellations.

Thirdly, the issue arises as to why focusing did not also license object movement to Spec,CP. Does that mean that object focus does not license object movement to Spec,CP? In his survey of focus movement in various languages, Drubig (2003) argues that focus preposing always presupposes that pragmatic licensing conditions in addition to the (narrow) focusing of the

moved phrase (exhaustivity, contrastivity, etc.) are fulfilled, a view also defended by Frey (2005) for German. Rather than assuming that focusing does not license movement in German, the absence of a focus context effect in the Weskott et al. experiment might also stem from the fact that the simple questions used there did not suffice to establish these additional pragmatic conditions for focus fronting.

A particular aspect of the design of the experimental stimuli might also have contributed to the absence of an effect of object focus. It involved the placement of a sentence adverb (*vielleicht*) in a position preceding the subject in the object focus condition, as illustrated in (4). In this position, the sentence adverb may affect the whole clause, but there is a second (and, perhaps, more likely) interpretation in which the subject is focus-bound by the sentence adverb. With this interpretation of the sentence adverb, there is a clash between the topical status of the subject (as triggered by the context question) and its status of being focus bound (due to the position of the sentence adverb), and this clash may have reduced or even eliminated any positive influence of the context on acceptability. We investigated this possibility in Experiment 1.

(4) Wen hat der Sportler besucht?
who.acc has the.nom sportsman visited?
Den Trainer hat vielleicht der Sportler besucht.
the.acc trainer has perhaps the.nom sportsman visited
'Who did the sportsman visit? Perhaps the sportsman visited the trainer.'

2.2 Experiment 1: Movement of a narrow focus object to Spec,CP

The first of the experiments investigating the pragmatic conditions for focus preposing in German was designed to assess the acceptability of focus preposing in structures without sentence adverbs.

2.2.1 Participants

36 students of the University of Potsdam participated in the experiment. By participating, they either fulfilled curricular requirements or got rewarded in one or another form (5 €, or participation in a lottery).

2.2.2 Method and design

The participants rated the acceptability of 96 minitexts (= sentence pairs) on a seven point scale, with 1 representing the lowest and 7 representing the highest degree of acceptability. They were instructed to take both the isolated well-formedness of the sentences and the degree of coherence between the two

members of the sentence pair into consideration. The extreme values of the scale were illustrated in the instruction section of the questionnaire. Value 7 was illustrated with a single pair of fully grammatical sentences forming a coherent text unit. Value 1 was illustrated by two sentence pairs. In one pair, the second sentence involved an agreement violation (while the minitext was pragmatically coherent), in the other pair, both sentences were grammatical, but totally unrelated.

The 96 sentence pairs belonged to six different empirical studies: the three experiments reported here and three studies unrelated to the identification of the conditions on object fronting. They were presented in a pseudorandomized order. For each of the experiments, the participants rated all experimental conditions. They saw 4 items per condition. The experiments reported here had 4 conditions each. For each experiment, a set of 4 x 4 = 16 sentence pair patterns generating the experimental items in the four conditions were constructed. Each of the 16 patterns was presented in all 4 experimental conditions, and each participant saw exactly one pair of each of the 16 patterns.

2.2.3 Materials

The sentence pairs in Exp. 1 consisted of an object wh-question and the pertinent answer. With one possible exception, the answer repeated the lexical material of the wh-question, but the wh-object was of course replaced by a full lexical DP. The subject of the answer could either be a pronoun, or a full repetition of the lexical material of the subject in the wh-question (Condition: +/- PRONOUN):

(5) Wen wollte die Krankenschwester wegen Rick verlassen?
who.acc wanted the.nom nurse because of Rick leave?
'Who did the nurse want to leave because of Rick?'

a. Die Krankenschwester wollte den Medizinstudenten wegen Rick verlassen.
the nurse wanted the.acc student of medicine because of Rick leave

b. Sie wollte den Medizinstudenten wegen Rick verlassen.
She wanted the.acc student of medicine because of Rick leave

c. Den Medizinstudenten wollte die Krankenschwester wegen Rick verlassen.

d. Den Medizinstudenten wollte sie wegen Rick verlassen.
'The nurse/she wanted to leave the student of medicine because of Rick.'

In the answer, the object could either appear *in situ*, as in (5a,b), or it could be fronted to Spec,CP, as in (5c,d) (Condition: +/- OBJECT INITIAL).

2.2.4 Results

On the 7-point scale, object initial sentences such as (5c,d) got a mean rating of 6.14, and subject initial sentence got a mean rating of 6.19. Sentence with a pronominal subject got a rating score of 6.18, those with a lexical subject got a rating score of 6.16. None of these differences reached the level of significance, and there was no interaction between the factors.

2.2.5 Discussion

The absence of a significant difference in an experiment is always difficult to interpret. However, in the light of Experiments 2 and 3 carried out by the same participants on the same questionnaire, we are convinced that the result of Exp. 1 reflects the fact that focus movement of the object to Spec,CP yields full grammaticality (as evidenced by the absence of an acceptability difference to subject initial answers) when object focus is forced by a preceding wh-question, and when there are no interfering factors such as focus sensitive adverbs present in the sentence. The preposing of topics is therefore not privileged in German grammar: movement to Spec,CP is linked to different pragmatic and semantic conditions, and whenever one of these is fulfilled, non-subjects may appear in Spec,CP without any loss in acceptability.

At the same time, the pragmatic factor that licenses movement does not force it. After all, sentences with a moved focus and an *in situ* focus are equally acceptable, and topics need not be placed into Spec,CP either. Filling Spec,CP in declarative clauses is a purely formal operation that affects either the highest category in IP (usually the subject or a sentence adverb), or a topic, or a focus, and the choice between these options appears quite arbitrary from a syntactic point of view. Syntactically, this can be expressed along the following lines (see Fanselow 2002, among others): Comp possesses an EPP feature in German matrix clauses, which triggers the attraction of some element to Spec,CP. Movement is restricted by the Minimal Link Condition, however, which implies that only the element closest to Spec,CP that could move there can actually undergo displacement. If Comp imposes no restrictions on the nature of its specifier, this means that only the highest XP in IP is able to move to Spec,CP. If Comp requires that its specifier meet certain criteria (such as being a topic or focus, but see also below), then the highest element in the middle field meeting these criteria will be the one moved. For sentences such as the ones used in the experiments, the former option yields subject initial sentences, while objects can appear in the prefield if Comp is more selective concerning the features of its specifier. From a syntactic point of view, the choice between an unselective Comp and a Comp attracting selectively is entirely arbitrary. Whether it fulfils a pragmatic function is not clear – fronting might also apply just because the saliency of some topical or

focal objects implies that they are the first noun phrase formulated by the language production system.

In addition, we observe that the status of the subject (pronoun vs. lexical NP) plays no role for the acceptability of object fronting in the case of a narrowly focused object. This contrasts with the result of Experiment 3.

2.3 Experiment 2: (In-)Congruent question-answer pairs

In a sense, this experiment complements Exp.1, since it checks whether animacy plays a role for the acceptability of object fronting. On the one hand, animate noun phrases tend to appear earlier in German clauses than inanimate ones, so that a constraint such as animate NP > inanimate NP has been proposed by some, at least for the German middle field. On the other hand, the possible relevance of the animacy factor is also suggested by outcomes from recent experiments concerning superiority effects in German and Slavic languages. These show that inanimate wh-pronoun can easily cross animate wh-subjects (structures corresponding to 'what did who say'), while animate wh-objects preceding animate wh-subjects are marginally acceptable only (structures corresponding to 'who did who see'), cf. Meyer (2004), Featherston (2005), and Fanselow, Féry & Vogel (2006). It thus appears as if the dissimilarity in features would favour object fronting.

The identification of the role played by animacy was, however, not the main motivation of Exp. 2. Rather, by presenting incongruent question-answer pairs, we wanted to make sure whether the responses of our participants were sensitive to textual factors at all.

2.3.1 Participants and method

The method and participants of the second experiment were the same as in Exp 1, cf. sections 2.2.1-2.2.2.

2.3.2 Materials

The material used in Exp. 2 consisted of pairs of wh-questions and declarative sentences answering these questions. Just as in Exp. 1, all wh-questions asked for the object, but only half of the items used an animate wh-pronoun (*wen*, who). The other half of the wh-questions were formed with *was* 'what'. The examples in (6) exemplify the two types of wh-questions:

(6) a. Wen mag der Professor besonders?
who.acc likes the.nom professor particularly
'Who does the professor particularly like?'

b. Was mag der Professor besonders?
what likes the.nom professor particularly
'What does the professor particularly like?'

The answers followed the pattern of one condition of Exp. 1, insofar as they involved the lexical repetition of the question, with the exception of wh-object, which was replaced by a lexical animate or an inanimate NP. All answers were object initial. Answers could thus take the form exemplified in (7).

(7) a. Den serbischen Studenten mag der Professor besonders.
the.acc Serbian student likes the professor particularly
'The professor particularly likes the student from Serbia.'
b. Den serbischen Bohneneintopf mag der Professor besonders
the.acc Serbian beans pot likes the professor particularly
'What does the professor particularly like?'

The experimental material was constructed such that the question-answer pair could be coherent (as combinations such as (6a-7a) and (6b-7b) are) or incoherent (as pairs such as (6a-7b) and (6b-7a) would be).

2.3.3 Results

Congruent questions answer-pairs got a mean rating of 6.19 (animate) and 6.08 (inanimate) on the 7-point scale. In the incongruent condition, the acceptability of pairs with an animate wh-word and inanimate answers was rated at 4.59 by the participants. The corresponding value for pairs involving what-questions with animate answers was 5.18.

In an ANOVA, the main effect of congruency was statistically significant ($F_1(1,35) = 29{,}91$, $p < .001$, $F_2(1,15) = 55{,}95$; $p < .001$). Congruent question-answer pairs were rated as more acceptable (6.14) than incongruent ones (4.89). There also was a main effect of wh-pronoun (*wen* 'who.acc' vs. *was* 'what') which was significant in the subject-analysis, though not in the item-analysis ($F_1(1,35) = 4{,}59$, $p < .05$, $F_2(1,15) = 1{,}26$; $p > .10$). Question-answer pairs containing the wh-pronoun *was* were rated as slightly better (5.63) than those which contained the animate *wen* (5.37). Furthermore, the interaction of the factors congruency and wh-pronoun was significant in the subject-analysis, $F_1(1,35) = 10{,}25$, $p < .01$, and marginally significant in the item-analysis, $F_2(1,15) = 3{,}70$; $p < .10$. While there was no significant difference for the two congruent conditions, the two incongruent conditions differed significantly. A comparison of the two types of incongruent pairs showed that the difference between them was significant in the subject analysis ($t_1(1,35) = 2.97$, $p < .01$) but the effect manifested itself as a trend only in the item analysis ($t_2(1,15) = 1.93$, $p = .07$).

2.3.4 Discussion

In the congruent condition, acceptability was high, and there was no effect of the animacy manipulation. Animate and inanimate objects in focus can be placed in front of subjects with equal ease. If there is a grammatical principle animate > inanimate for the middle field, it seems as if its effect are eliminated by the factor triggering placement into Spec,CP.

The difference between congruent and incongruent question-answer pairs in Exp. 2 shows that the participants were indeed sensitive to the degree of fit between questions and answers in the experimental material. They rated incongruent sentence pairs as worse than congruent sentence pairs. This makes it likely that the absence of significant differences in Exp. 1 and between animate and inanimate objects in the congruent condition was not caused by the participants not paying attention to the relation between the sentences in the texts.

Incongruent sentence pairs receive a worse rating than congruent sentence pairs. What-questions tolerate animate answering terms more than who-questions accept inanimate responses. Probably, this reflects that 'what' is both syntactically and semantically the default wh-pronoun, as such unspecified for animacy. That it is not used for humans is due to an Elsewhere-effect, triggered whenever *wen* 'who.acc', which is inherently [+human], is applicable. The featural conflict between *wen* and an inanimate answer is thus stronger than the one in a *was*-animate pair.

3 Triggers for object-initiality

3.1 Subpart-of-focus movement

That object fronting to Spec,CP is licensed by the pragmatically defined features 'topic' and 'focus' (or variants thereof) seems rather undisputed in the literature on German. The experiments reported by Weskott et al. 2004 and Experiments 1 and 2 indeed show that phrases that are in focus or that are topicalized can be placed into clause initial position in German. Bearing one of these features thus is *sufficient* for being moved, but the claim that these features are also decisive from a formal-syntactic point of view presupposes that being a topic/a focus is also a *necessary* condition for the wellformedness of an object initial clause. This, however, is not borne out, as many (Büring 1997, Gärtner 1996, Krifka 1994) have noted. When a verb phrase is in focus, the object can nevertheless be fronted. (8a) asks for a predicate, yet (8b) is a well-formed answer to it, in spite of the fact that the moved category is not VP, but a subconstituent of VP.

(8) a. Was hast du gestern gemacht?
what have you yesterday done
b. Ein Buch habe ich gelesen.
a book have I read
'What did you do yesterday? I read a book.'

What at first glance may seem to constitute a small riddle concerning the placement of elements into the German prefield turns out to be fundamental property of movement in focus contexts in quite a number of languages. Observations similar to (8) have been made for Hungarian by Kenesei (1998), and Lenertová & Junghanns (2007) discuss corresponding data for Czech in quite some detail. Fanselow & Lenertová (2006) identify the phenomenon in (8) (which they call subpart-of-focus fronting) in a large number of languages. Furthermore, they show that subpart-of-focus fronting is not confined to the extraction of a direct object out of a VP. What all instances of subpart-of-focus fronting have in common is that the leftmost accented phrase is moved to clause initial position. Therefore, Fanselow & Lenertová (2006) argue that focus movement is not due to the attraction of a focus feature, rather, what is attracted is an accented category.

The prosodic re-interpretation of focus movement allows us to understand why meaningless material can be fronted in focus contexts as well (see Fanselow & Lenertová 2006 for details). Moreover, it can correctly specify the locality restrictions on subpart-of-focus movement. Recall that the Minimal Link Condition implies that only the closest element that fulfils the requirements for being placed into Spec,CP can actually move there. If fronting in a focus context is triggered by a focus feature, and if there are multiple foci in a sentence, we would expect that only the highest element in focus can move to Spec,CP. Given that elements in focus are stressed, the prosodic theory also predicts that only the higher of two focus phrases may move to Spec,CP when an accented phrase is moved. In a constellation with multiple foci, the two approaches make an identical prediction. For a single-focus context, the pragmatic view only predicts that the category that is focused can be fronted, but it has little to say about the constraint on subpart-of-focus movement. For the prosodic theory, the situation is different. The theory predicts that the highest accented phrase in the focus domain can move. The accented XP that moves cannot cross a further accented YP, irrespective of whether YP is part of the focus or not.

If this line of reasoning is correct, subpart-of-focus movement should by no means constitute a marked phenomenon. The question-answer pair (8a-b) should, ceteris paribus, have exactly the same grammatical status as the pair (8c-b), in which the fronted accented phrase happens to be the narrow focus.

(8)	c.	Was	hast	Du	gelesen?
		what	have	you	read

On the other hand, the acceptability of subpart-of-focus movement should be affected by the locality constraints based on accentuation. The following two experiments were designed in order to test these and further predictions for German (Exp. 3) and Czech (Exp. 4).

3.2 Experiment 3: Subpart-of-focus movement in German

The first aim of the experiment was to find out whether there is a difference in the acceptability of an object-initial declarative depending on whether the question preceding it focused the VP or the direct object. As suggested above, no such a difference is expected in an account that is not based on the checking of a focus feature.

The second question addressed by Exp. 3 relates directly to the difference between pragmatic and prosodic views (cf. 3.1) concerning the restrictions on object fronting in a focus context. The prosodic account predicts that accented objects cannot be fronted to Spec,CP when the whole IP rather than the VP is in focus. The subject should block this movement due to intervention, unless the subject is deaccented when it is given – as in case of VP-focus. Experiment 3 therefore tested whether there is an acceptability difference between object initial sentences that answer questions asking for a predicate and a proposition, respectively. Moreover, if the prosodic status of an intervening category really matters for the status of object movement, wide focus sentence with a pronominal subject should also be more acceptable than sentences with a lexical subject.

3.2.1 Participants and method

As already mentioned, Exp 3 appeared on the same questionnaire as Exp 1 and 2, therefore, the method and participants were the same, cf. sections 2.2.1-2.

3.2.2 Material

As in the previously described experiments, the material consisted of question-answer pairs appearing in four different conditions. With one exception, conditions differed only in terms of the question, while the answer always consisted of an object initial sentence of the form illustrated in (9):

(9)	a.	Das	Fahrrad	hat	er	repariert.
		the	bicycle	has	he	repaired

b. Das Fahrrad hat der Nachbar repariert.
the bicycle has the neighbour repaired
'He/the neighbour fixed the bicycle.'

In three of the four conditions, the subject was a 1st or 3rd person singular pronoun. In the remaining condition, the pronoun was replaced by a lexical NP. Some of these NPs appeared in the plural, in order to make the sentence more natural.

The three answers with a pronominal subject were preceded by questions inducing focus on the object-DP, the VP and the IP, respectively, as illustrated in (10):

(10) a. Was hat er gestern vormittag repariert? (object focus)
what has he yesterday morning fixed
'What did he fix yesterday morning?'

b. Was hat er gestern vormittag gemacht? (VP focus)
what has he yesterday morning done
'What did he do yesterday morning?'

c. Warum hat er das Werkzeug genommen? (IP focus)
why has he the tools taken
'Why did he take the tools?'

Subjects of the question could be 2nd and 3rd person singular pronouns in the case of (10a,b). All object and VP focus questions began with the question word was 'what'. All IP focus questions were why-questions. In the case of IP-focus, the subject could be a pronoun as well, as in (10c), but other types of IP focus inducing questions such as 'why is the food not yet ready' or 'why are the trousers wet' were also used.

Answers with a non-pronominal subject constituted the fourth experimental condition. They were always preceded by a why-question inducing wide focus. The subject of such why-questions (like (10d)) was always non-identical with the subject of the answer.

(10) d. Warum liegt hier so viel Werkzeug?
why lies here so much tools
'Why are so many tools lying around here?'

The experimental items thus took one of the following four forms:

(11)

I	(10a) + (9a)	→ Narrow Object Focus
II	(10b) + (9a)	→ VP focus
III	(10c) + (9a)	→ IP focus, crossing of pronominal subject
IV	(10d) + (9b)	→ IP focus, crossing of non-pronominal subject

3.2.3 Results

Table 1 represents mean acceptability for the four conditions tested in the experiment:

Table 1

Narrow Object Focus (I)	6.34
VP Focus (II)	6.23
IP Focus, pronominal subject (III)	5.19
IP Focus, non-pronominal subj. (IV)	4.48

A t-test revealed that conditions I and II did not differ significantly ($t_1(1,35) = .99$, $p > .10$; $t_2(1,15) = .98$, $p > .10$). However, the difference between condition II and III ($t_1(1,35) = 5{,}62$, $p < .001$; $t_2(1,15) = 10{,}42$, $p < .001$), and the difference between condition III and IV ($t_1(1,35) = 4{,}94$, $p < .001$; $t_2(1,15) = 3{,}73$, $p < .01$) reached the level of significance.

3.2.4 Discussion

Just as in Exp.1 and Exp. 2, object initial sentences turned out to be highly acceptable when presented in a context inducing narrow object focus. The difference between a narrow focus on the object and a focus on the VP does not affect the acceptability of object fronting. This result is fully in line with the predictions of the prosodic theory of object fronting, because the direct object is, due to prosodic integration of the verb (cf. Jacobs 1999, among others), the highest and only accent bearing category in VP when VP is focused.

When we compare conditions I/II with condition IV, we also see the expected result. The question preceding the declarative triggers wide IP focus for the answering sentence. Within that IP, the subject, and not the object, is the highest accented category. The fronting of the object is as such thus NOT warranted under the prosodic theory of object fronting, and the huge acceptability difference for the two types of minitexts is predicted.

In the literature, one can sometimes find IP-focus sentence with fronted objects and non-pronominal subjects, and an informal survey among 26 native German linguists revealed that 4 speakers found such examples acceptable. As discussed in more detail in Fanselow & Lenertová (2006), we believe that this variation is due to different grades of readiness to de-accent subjects that are not given but can be inferred from the context (e.g., 'the police' can be inferred in a discussion of an alcohol control).

Condition III differs both from condition II and condition IV. In a wide focus context, object fronting is judged as better when the subject crossed over is pronominal. No such effect of the +/- pronominal status of the subject had

been visible in Exp. 1 with a narrow object focus. In most of the items, the pronominal subject of the answer had a given discourse status since it also figured as the subject of the question. A post hoc analysis revealed no difference between such items and those in which the subject of the answer had not been pre-mentioned in the why-question.

One factor that distinguishes condition III from the first two conditions is that in the former the question shared the syntactic structure of the answer (both sentence were object-initial) while the why-question of condition III was not object-initial on obvious grounds. In this respect, condition III also contrasts with the object initial narrow focus sentences of Exp. 1 and 2, where we find close to ceiling acceptability for exactly those items in which the question and the answer are structurally parallel. We can thus speculate that a priming effect is involved in the best sentence pairs, the absence of which could then be made responsible for the decline in acceptability between condition II and condition III. Weskott (2002) investigated reading times for object initial sentences in context, and found that contextual fit alone does not eliminate the reading time disadvantage of object-initial structures as compared to subject initial ones. This reading time disadvantage turned out to disappear only under the additional condition of the structural priming of the target sentence by the preceding structure. If the same factors apply to reading times and acceptability judgments, the pattern in Exp. 3 could be understood. If that line of reasoning is correct, one would, however, have to explain why the absence of a priming relation did not negatively affect object initial topicalization in the Weskott et al. (2004) study, where questions such as *wer hat den Spieler gesehen* 'who has seen the player' licensed object topicalization in an answer such as *Den Spieler hat vielleicht der Trainer gesehen* 'the.acc player has perhaps the.nom trainer seen'. We have to leave this issue open.

3.3 Experiment 4: Subpart-of-focus movement in Czech

This questionnaire study tested the predictions of the prosodic account of subpart-of-focus movement, as discussed in 3.1, on Czech data.

Two issues addressed by the experiment are parallel to Exp. 3 on German. The first one relates to the difference between object initial declaratives in VP- and IP-focus contexts. In line with the predictions of the prosodic account, we do not expect much difference in the judgments for the two cases of fronting. The second question concerns the locality restrictions on object fronting in maximally focused sentences, which can be well tested with subject interveners. Czech is a pro-drop language and the prosodic account predicts sentences with null subjects and one internal argument to be fully compatible with fronting of the argument carrying the nuclear accent, even if the context imposes maximal (IP) focus on them. However, the same prediction concerns

overt subjects that do not require an accent per default, as it is in case of indefinite pronouns (remember that indefinite pronouns in an object position are immune to nuclear accent, cf., e.g., Ladd 1996:ch5). Full subjects in maximal focus, on the other hand, receive an accent obligatorily and thus are predicted to block fronting of a lower accented argument. Therefore, judgments of sentences with fronted objects carrying nuclear accent should differ depending on the type of the intervening subject ($H_{SUBJECT}$): sentences with covert or indefinite pronominal subjects are expected to receive clearly better judgments than parallel sentences with full subjects.

In addition, the experiment addressed two issues concerning the formal syntactic analysis of subpart-of-focus fronting (SFF). If we define the fronting as an A-bar movement, we predict that long distance dependencies are possible and the movement is island-sensitive. Czech generally allows non-wh extractions from weak islands (cf. Meyer 2004: 188-195). Thus we expect (H_{ISLAND}) SFF with weak islands to be as acceptable as simple sentences with SFF, in contrast to SFF with strong islands, which should be judged as very bad. Finally, as mentioned in section 3.1, the prosodic account is compatible with the possibility for information-structurally meaningless material – like parts of idioms – to undergo a SFF-like fronting. Our last hypothesis (H_{IDIOM}) is that utterances with fronted objects which are the prosodically most prominent parts of idioms will receive similar judgements as non-idiomatic utterances with fronted (prosodically most prominent) objects.

3.3.1 Participants

18 Czech native speakers voluntarily participated in the experiment, 11 of them were (non linguist) exchange students at the University of Leipzig.

3.3.2 Method

The participants had to judge sentences in short dialogues on a six-point scale, 1 corresponding to the highest acceptability and 6 to the lowest one. The subjects were instructed to try to imagine the situation of each dialogue and judge how natural and acceptable the critical utterance printed in italics would be in this dialogue. There were 5 pseudorandomized versions of the questionnaire. The subjects could see all the dialogues during the whole task and thus make comparisons. The completion of the questionnaire took about 30 minutes.

3.3.3 Material and design

The material contained 26 dialogues (6 of them were based on authentic examples) which for most of the conditions consisted of person A's question,

person B's answer with the critical utterance, and person A's short reaction to the answer. All subjects judged all conditions. For each variable, the conditions had different lexicalisations of items and their numbers differed across the conditions. The overview of variables and conditions covered in the critical utterances is given in table 2 (with numbers of items in the brackets).

Table 2

variable	conditions (N - items)		
context	VP (2)	IP (6)	echo (2)
subject	null (5)	pron. (2)	full (4)
island	non-isl. (6)	weak (5)	strong (2)
± idiom	non-id. (4)	id. (2)	

In the conditions VP and IP of the factor CONTEXT, the question of person A induced a VP- or IP-focus on B's answer, as illustrated in (12) and (13), respectively. In the condition ECHO, person B requires a repetition of A's utterance, cf. (14). This is a typical context for emphatic fronting.[1] In our case, the 'echo'-answers can be analysed as elliptical embedded questions.

(12) A: Co jste tam tak dlouho dělali? 'What have you been doing there so long?'
B: *Auto jsme spravovali*. Zas se to nechtělo rozjet.
car aux.1.pl repaired.pl
'We have been fixing the car. It wouldn't start again.'
A: A to nemůžete zavolat? 'Well, you could have called…'

(13) A: Proč jste se ho tak držel? Vždyt' jste se sotva znali.
'Why did stick to him so much – you didn't know him that well.'
B: *Náladu mi dodával*.
mood.acc me.dat gave.sg.ms
'He was cheering me up.'
A: A to jste mu všechno věřil? 'And you believed him?'

(14) A: Koupils pivo? 'Did you buy beer?' B: Cože? 'What?'
A: *Pivo jestlis koupil!*
beer wheteher+aux.2.sg bought.sg.ms
'Whether you bought beer!'

For the remaining variables, the wh-question of person A always induces wide (IP-) focus on the utterances of person B. The factor SUBJECT relates to potential interveners for fronting of an element carrying nuclear accent in wide

[1] Note that the echo question *cože* 'what' obviously pertains to the whole previous utterance rather than only to the fronted object *pivo* 'beer', as evidenced, e.g., by an impossibility of apparent background deletion, cf. (i): (i) B: Cože? 'What?' A: #Pivo! 'Beer!'

focus contexts: covert subjects (condition NULL), indefinite pronouns (cond. PRON), and full subjects (cond. FULL). The latter two are illustrated in (15) and (16), respectively, while the former would be a parallel case to (13).

(15) A: Co se děje? 'What's up?'
B: *Janu* *někdo* *hledal*.
Jane.acc somebody.nom looked-for.sg.ms 'Somebody was looking for Jane.'
A: Já jí to řeknu, až se vrátí. 'I'll tell her, when she comes back.'

(16) A: Tak už jsem zase zpátky. Je něco nového? 'So, I'm here again. Anything new?'
B: Jo. *Janu* *ředitel* *hledal*.
yes Jane.acc boss.nom looked-for.sg.ms 'Yes. The boss was looking for Jane.'
A: Já jí to vyřídím. Co zas chtěl? 'I'll tell her. What did he want again?'

The factor ISLAND concerns the syntactic structure of utterances with fronted carrier of nuclear accent: simple structure (condition NON-ISL), and weak and strong island. Examples for the conditions WEAK and STRONG are given in (17) and (18), respectively.

(17) A: Co se tak rozčiluješ? 'Why are you so upset?'
B: Ále, *klíče nevím*, *kde jsem nechal*.
interj. keys not-know.1.sg where aux.1.sg left.sg.ms
'I don't know where I left my keys.'
A: Teda ty zas přijdeš pozdě… 'You'll be late again.'

(18) A: Co je s Petrem, proč tu není? 'And what about Peter - why is he not here?'
B: *Peníze přijde*, *až mu vrátíš*.
money come.3.sg.fut when him.dat return.2sg.fut
'He will come when you return him the money.'
A: On se urazil? 'Is he offended?'

The last tested factor concerns the lexical – idiomatic vs. non-idiomatic – content of the utterances with fronted carrier of main prominence. The example for the idiomatic condition ID is given in (19):

(19) A: Vy jste se zase pohádali? 'Did you quarrel again?'
B: *Boudu na mě ušil*!
hut.acc for me.acc stitched
'He cheated me!'
A: Že mu vždycky nalítneš. 'I wonder why you always let him lead you on.'

3.3.4 Results

Descriptive statistics, cf. table 3 and figure 1, show that in case of the variables with 3 conditions, one condition has a clearly higher or lower mean than the other two conditions. The means of the two similar conditions also differ, but the confidence intervals substantially overlap. The two IDIOM conditions show a strong overlap of the confidence intervals as well.

Table 3: Mean results for the conditions of the 4 variables

CONTEXT	mean	SUBJECT	mean	ISLAND	mean	IDIOM	mean
VP	2.06	NULL	2.41	NON-ISL	2.37	NON-ID	2.38
IP	2.53	PRON	2.25	WEAK	2.41	ID	2.69
ECHO	1.22	FULL	3.78	STRONG	5.64		

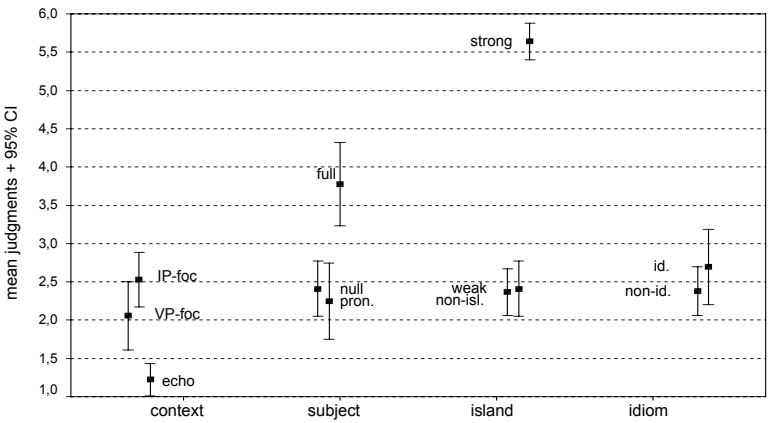

Figure 1: Mean judgments (with confidence intervals) for the 4 variables

The statistical analysis[2] of the variable CONTEXT, cf. table 4, revealed that the factor is significant across subjects. In pairwise comparisons, condition ECHO was found to significantly differ from conditions VP and IP. The item analysis could not support this result, as the significance level associated with the pair IP - ECHO is above the level corrected for multiple testing (3 tests, $\alpha = .0167$).

[2] In the subject analyses (related design), parametric tests could not be applied for the variable CONTEXT, as assumptions for normal distribution and homogeneity of variances were not met in all conditions. Non-parametric tests were also used in the analyses of items (independent design), as the variables had unequal numbers of scores in the conditions and the samples were small.

Table 4: Statistical results for the variable CONTEXT

	subject analysis	item analysis
CONTEXT	$\chi^2 = 21.3$; df = 2; p < .001	$\chi^2 = 5.4$; df = 2; p = .067 (n.s.)
VP - IP	$Z = -1.85$; p = .064 (n.s.)	$U = 4$; $Z = -1.04$; p = .3 (n.s.)
VP - ECHO	$Z = -2.78$; p < .01	$U = 0$; $Z = -1.63$; p = .1 (n.s.)
VP - ECHO	$Z = -3.73$; p < .001	$U = 0$; Z = -2.1; p = .036 (n.s.)

Analysis of variance for the variable SUBJECT revealed a significant effect both across subjects and across items, cf. table 5. The relevant pairs were also found to have significantly different means. The mean difference between the conditions NULL and FULL was 1.37 with the 95% CI between .73 and 2.01. The mean difference between the conditions PRON and FULL was 1.53 with the 95% CI between .99 and 2.06. In the item analysis, the significance level associated with the pair PRON - FULL is higher than the level corrected for multiple testing ($\alpha = .0167$). Pairwise comparison of the condition FULL with pooled data from PRON and NULL reveals a significant difference even in the item analysis.

Table 5: Statistical results for the variable SUBJECT

	subject analysis	item analysis
SUBJECT	$F(2,18) = 17.97$; p < .001	$\chi^2 = 7.26$; df = 2; p < .05
NULL - FULL*	$T = -4.52$; df = 17; p < .001	$U = 0$; $Z = -2.45$; p < .01
PRON - FULL*	$T = -6.02$; df = 17; p < .001	$U = 0$; $Z = -1.85$; p = .032 (n.s.)
NULL+PRON - FULL*		$U = 0$; $Z = -2.65$; p < .01

* one-sided probability level (directional hypothesis)

The subject analysis of the variable ISLAND showed significant results for this factor and the comparisons of the relevant pairs, cf. table 6. The condition STRONG had a mean difference of 3.27 from the condition NON-ISL and a mean difference of 3.23 from the condition WEAK, the 95% confidence limits being 2.89-3.65 and 2.83-3.63, respectively. The non-parametric factor analysis across items could not support the result, although pairwise comparisons show a significant difference in the former case and a level of significance only slightly higher than the corrected α (.025) in the latter case.

Table 6: Statistical results for the variable ISLAND

	subject analysis	item analysis
ISLAND	$F(2,18) = 195.5$; p < .001	$\chi^2 = 4.81$; df = 2; p = .9 (n.s.)
NON-ISL - STRONG*	$T = -18.3$; df = 17; p < .001	$U = 0$; Z = -2.05; p < .025
WEAK - STRONG*	$T = -17$; df = 17; p < .001	$U = 0$; Z = -1.94; p = .026 (n.s.)

*one sided probability level (directional hypothesis)

As expected from the descriptive statistics, there was no significant result for the conditions NON-ID and ID (subject analysis: $T = -1.44$; df = 17; p = .17; item analysis: $U = 2$; $Z = -.93$; p = .36). The mean difference was .31 with 95% CI between .15 and .78.

3.3.5 Discussion

The conditions of the variable CONTEXTS were all judged as highly acceptable and the results for the conditions VP and IP do not contradict our predictions: the mean judgments of the two cases do not differ substantially.[3] However, in the subject analysis, condition ECHO showed significantly better results, i.e. lower scores, and a ceiling effect. Importantly, we cannot say that the condition ECHO differs from the VP and IP conditions in terms of the informational status of the fronted element: in all three cases, the fronted object is not a narrow focus of the utterance and the fronting is optional and can be interpreted as some sort of a subpart-of-focus fronting. On the other hand, the motivation for fronting clearly differs between the ECHO condition and the VP+IP conditions: not much context is needed to motivate the emphatic fronting in the ECHO condition, as a repetition seems to evoke emphasis, which in turn licenses fronting of the most prominent element. It might be the case that the subjects do not identify the reasons for emphatic fronting in the VP and IP conditions as easily as in the ECHO condition, which leads to better scores for the ECHO condition. Crucially, it is not the information-structural character of the context that makes the difference, but the contextual character of emphasis.

With respect to the factor SUBJECT, we see the expected significant difference between the conditions FULL and NULL/PRON: the utterances with full subjects received worse, that is higher, scores. However, they did not receive as 'bad' scores as the condition STRONG with the violation of strong island. In contrast to a strong-island violation, which is unacceptable in any context, the items of the condition FULL would be acceptable in a context licensing deaccentuation of the subject. It seems that the participants did not decide for worse scores as the sentences only did not fit the context.

The results for the last two variables also confirmed our expectations: fronting of a nuclear accent carrier in maximal focus sentences allows long-distance dependencies and informationally meaningless entities can be fronted, provided they are accent carriers.

[3] Remember that we found a significant acceptability difference between VP- and IP-focus with fronted object carrying the nuclear accent in German, which could be interpreted as an influence of 'structural priming' (cf. 3.2.4). In Czech, the significance level of .064 achieved for the VP x IP comparison in the analysis across subjects suggests a similar tendency.

4 General discussion

Our first point of interest concerned the acceptability of object-focus fronting in general: in some previous experimental studies on word order in German, object-initial sentences were judged as less acceptable than subject-initial sentences. According to our hypothesis, 'null' context is not sufficient for licensing of object-focus fronting, whereas in proper contexts, the sentences with initial objects become equally acceptable as subject-initial sentences. The results of experiments 1 and 2 on German support full grammaticality of narrow object focus movement. We can thus conclude that the acceptability of non-subject initial sentences depends on certain contextually-based pragmatic conditions.

From the syntactic point of view, the filling of Spec,CP can be analysed as a purely formal operation which is subject to the Minimal Link Condition: Comp possesses an EPP feature triggering an attraction of some element to Spec,CP. Depending on additional restrictions on Comp, the closest available elements formally marked in accordance with the requirements of Comp are chosen. Under the assumption that fronted topics and foci are formally marked for an attraction by the selective Comp, non-subjects can occupy Spec,CP without a violation of the MLC. The additional restrictions correspond to contextual restrictions. Subjects, on the other hand, are fully acceptable in Spec,CP even in 'null' contexts. We assume that in such cases the Comp is unselective, i.e. without any further specification, and the subject is attracted by Comp as the closest available element in line with the MLC.

The second important issue of interest following from the discussion concerns the 'additional restrictions' on Comp. The results of experiments 3 and 4 not only support grammaticality of focus fronting, but also show that it is not limited to contexts imposing narrow focus on the object. For German, sentences with the initial object carrying nuclear accent appeared to be equally acceptable in contexts imposing VP-focus and narrow focus on the objects. For Czech, equal acceptability resulted for fronted objects with nuclear accent in contexts with VP- and IP-focus on the sentences. Moreover, fronting of information-structurally meaningless material like parts of idioms in an appropriate context was rated as equally acceptable as fronting of non-idiomatic material potentially available as information-structural units.

These results are in line with our hypothesis that there is no one-to-one mapping between the information-structural division focus/background and the material undergoing fronting. According to the prosody-based account, the common feature of the fronted material which is relevant for the syntax is accentuation rather than a +foc feature. This predicts that in structures with broad focus and more than one obligatorily accented element, fronting of the lower one will be blocked by the higher one due to the MLC. This was supported by the results for both German and Czech: in contexts imposing IP-

focus on the critical sentences, fronting of objects with nuclear accent across a full subject received worse judgements than fronting across pronominal subjects. Under the assumption that full subjects require an accent unless they are given (or belong to the class of functional words as it is in case of indefinite pronouns), the explanation follows from the Minimal Link Condition. On the other hand, even focus-marked (non-given) predicates in VP-focus do not obligatorily require an accent and thus do not block the fronting of an object with nuclear accent. This locality restriction cannot be captured if the formal marking relevant for the MLC is focus-marking rather than accentuation.

Still, we saw significant differences between certain types of contexts both in German (VP vs. IP) and Czech (echo vs. VP/IP). We conclude that this confirms the important role of the context for the fronting, but not the role of the information structural character of the context – as expected. Further experiments are necessary that control more precisely the subtle pragmatic factors other than information structure. Pragmatic factors like emphasis definitely require further testing if we want to properly describe licensing conditions for the subpart-of-focus fronting.

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