Focus structure, movement to spec-Foc and syntactic processing

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Abstract

The paper elaborates on some aspects of the theory developed in Breul 2004. Three questions are addressed: What are the reasons for assuming that utterances like *I ordered a COKE* display a different type of focus structure than utterances like *A COKE I ordered*? Why is movement of an object or subject complement to spec-Foc in English distinctly more exceptional than of a subject? Why is movement of an object or subject complement to spec-Foc in English distinctly more exceptional than of an object or subject? Why is movement of an object or subject complement to spec-Foc in English distinctly more exceptional than of an object or subject complement in German? The last two questions are dealt with in terms of syntactic processing.

1 Introduction

The present paper highlights and elaborates on some aspects of the theory developed in Breul 2004, according to which the checking of $[\pm foc]$ features in the specifier position of FocP is crucially involved in the syntactic manifestation of two of the three types of focus structure as conceived of by Lambrecht (1994).^{*} Within this theory, what is commonly known as fronting (preposing, 'topicalisation') is overt and visible movement of a non-subject to spec-Foc for the purpose of $[\pm foc]$ feature checking.¹ Subjects, however, may also move to spec-Foc, this movement being invisible in languages like English and German. The aspects singled out for elaboration in the present paper are to do with the following three questions: First, what are the reasons for assuming that sentences like that in (1a) display a different type of focus structure than sentences like that in (1b)? (Here and in the following small capitals signal the word that carries the primary sentence accent.)

- (1) a. I ordered a COKE.
 - b. A COKE I ordered.

Second, why is it that the movement of an object or of a subject complement to spec-Foc in English is distinctly more exceptional ('marked') than that of a subject? Third, why is it that the movement of an object or of a subject complement to spec-Foc in English is distinctly more exceptional ('marked') than that of an object or subject complement in German? The last two questions are addressed in terms of syntactic processing. It will actually turn out that the issues raised by the first question on the one hand and by the second and third on the other hand are related. These questions will be discussed in sections 4-6 after having sketched the basic focus-structural, syntactic and semantic assumptions of the theory in sections 2-3.

2 Focus structure

Lambrecht (1994) distinguishes three types of focus structure, which he calls predicate focus, argument focus and sentence focus. These types are exemplified by the B-utterances in (2) below (see Lambrecht 1994: 223). A sentence with predicate focus structure corresponds to what other authors call a categorical sentence; a sentence with sentence focus structure corresponds to what other authors call a thetic sentence; and 'identificational sentence' is an

alternative term suggested by Lambrecht for a sentence with argument focus structure. I will use the terms 'categorical', 'identificational' and 'thetic'.

- (2) a. predicate focus = categorical
 - A: What happened to your car?
 - B: My car/It broke DOWN.
 - b. argument focus = identificational
 - A: I heard your motorcycle broke down?
 - B: My CAR broke down.
 - c. sentence focus = thetic
 - A: What happened?
 - B: My CAR broke down.

The phonological realisation – including intonation – of a thetic sentence is always identical to a potential phonological realisation of either a corresponding categorical or identificational sentence. While the phonological realisation of the thetic (2cB) is identical to the identificational (2bB), the realisation of the thetic *Marcel proved COMPLETENESS* in (3b) is identical to that of the corresponding categorical utterance in (3aB) (see Steedman 2000: 657).

- (3) a. A: What do you know about Marcel?
 - B: Marcel proved COMPLETENESS.
 - b. Guess what? Marcel proved COMPLETENESS.

It is true, thetic sentences like *Marcel proved completeness* in (3b) are often uttered with a secondary pitch accent within the subject. But, according to Steedman and other authors, this is not compulsory. As Steedman (2000: 657, fn. 8) points out in connection with (3a, b):

In this and all examples in the article such "backgrounded" elements of the sentence appear without any tonal marking. Such material may include stresses or "secondary" pitch accents, which on occasion phoneticians notate as H^* , and so on. Secondary accents are distinct from the primary accents that convey focus and contrast [...] – see Selkirk 1984 and Ladd 1996 for further discussion. The crucial point is that [(3a, b)] can be uttered with the *same* intonation.

The A-utterances in (2) evoke contexts in which the respective type of focus structure for the respective B-utterance is appropriate. Generally, contexts can only be said to suggest a certain type of focus structure for an utterance but not to require it. For example, although (2aA), uttered on perceiving that B's usual mode of transportation has changed, can be said to suggest a reply with categorical focus structure and with B's car as topic (as in (2aB)), a dialogue such as in (4) is also conceivable.

- (4) A: What happened to your car?
 - B: My HUSBAND uses it now.

The presuppositional structure of (4B) with identificational focus structure (associated with the relevance presupposition 'x uses B's car now') will have to be pragmatically accommodated by the addressee, and some additional pragmatic inferencing will easily lead to the result that this utterance constitutes a felicitous reply to (4A). The ease with which identificational focus structure can be pragmatically accommodated in this case is due to the specific properties of the utterance on other levels, notably its semantic properties and those of information structure apart from focus structure (such as the information-structurally

relevant fact that the speaker of (4B) uses the pronoun it to refer to her car, whereby she acknowledges that her car is an entity whose representation is active in her and her interlocutor's minds at the time of the communicative exchange; on the activation status of discourse entities see Lambrecht 1994: passim). On the other hand, it seems to be much more difficult to pragmatically accommodate the presuppositional structure of (2bB) (My CAR broke down) in the context of (4A) in the given situation. However, even this does not seem to be impossible. For example, we could interpret (2bB) in this case as conveying that B was trying to remember which of her vehicles broke down when she was addressed with (4A) and that this utterance of (4A) caused her to suddenly realise that it was her car. The artificiality and marginality of this interpretation and thus the effort employed in pragmatic inferencing in order to come up with it at all is due to the specific interplay of the semantic, focus structural and other informational structural properties of (2bB). Thus, the fact that My car broke DOWN (and not My CAR broke down) would be a much more plausible reply to the context question (4A) might lead the addressee to believe that the utterance is due to an intonational slip of the tongue rather than to a meaning that is complicated to pragmatically recover. That is, the degree to which the properties of the focus structure of a sentence are considered to be compatible with what the properties of the context suggest is, all other things being equal, inversely related to the effort employed in the pragmatic inferential process that leads to an interpretation.² (If the process does not lead to an interpretation at all, the focus structure will be considered inappropriate in the given context.) However, there is no direct (or entailment) relation between focus structure properties on the one hand and context properties on the other hand independent of pragmatic inferencing. Consequently, focus structure can be argued to be a component of sentence grammar structurally independent of properties of the context. The ways in which focus structure properties and context properties appear to be interdependent are due to principles of pragmatic inferencing which mediate between them.³

3 The FocP-hypothesis

The basic idea of the way in which the categorical, identificational and thetic types of focus structure are syntactically encoded is as follows: Categorical and identificational root clauses are characterised by the presence of a FocP, which is topmost and left-specified in many languages, including English and German, i.e. the languages which I will be concentrating on here. (The question of whether there are still higher functional projections above FocP, such as CP or ForceP (see Radford 2004, especially ch. 9 and the references given there), is irrelevant for the purposes of the present paper.) In a categorical sentence a [–foc]-featured topic phrase moves to spec-Foc. In an identificational sentence a [+foc]-featured identificational focus phrase moves to spec-Foc.⁴ Thetic sentences do not have a FocP. If a subject is topic or identificational focus phrase, it moves invisibly from spec-Agr_S to spec-Foc. This is illustrated in (5).





This approach provides a solution for the problem of the apparent optionality of fronting in languages like English which arises in theories that assume the projection of a FocP only in those cases where fronting is visible (as in Rizzi 1997 and work based on these in this respect, such as e.g. Grewendorf 2002: *passim*, Radford 2004: ch. 9). It is well known that fronting shows syntactic characteristics essentially identical to those of what has traditionally been analysed as *wh*-XP movement to spec-C and is thus clearly a core syntactic operation (rather than a 'stylistic' one). In the minimalist program optional movement in the core syntax is ruled out.⁵

The movement of topic and identificational focus phrases to spec-Foc is due to a feature checking requirement, that is, to the fact that a matching checking partner is located in the head of FocP. I conceive of all the functional phrases in the domain of a clause, that is, all the functional phrases above vP/VP to be projected from the main and/or auxiliary verb. Syntactic features may be such that they do or do not pied-pipe the phonological form of the head or phrase of which they are components. This accounts for the distinction between what has traditionally been called overt and covert movement. For example, in both English and German the [\pm foc] feature on a topic or identificational focus phrase pied-pipes the phonological form of the phrase into spec-Foc. By contrast, the phonological form of the finite verb, which is the carrier of the corresponding [\pm foc] head-feature is pied-piped into the Foc-head position in German root clauses, but is not pied-piped there in English. This accounts for the 'verb second' property of German root clauses, given that in thetic sentences the finite verb is in the head position of the Agr_sP and the clause initial phrase in spec-Agr_s.

The distinction of the three types of focus structure in terms of type-logical, truthfunctional semantics may be sketched with respect to the examples in (2) above as follows: In the categorical sentence (2aB) there is a referential phrase of semantic type e, *my car/it*, which serves as argument to the semantic function *broke down*, which is of type <e,t>. In the identificational sentence (2bB) there is a phrase of the quantificational semantic type <<e,t>,t>, *my car*, which is a semantic function that takes the expression *broke down* as argument.⁶ In the thetic sentence (2cB) the semantic type of *my car* is indeterminate between e and <<e,t>,t> and thus the direction of functional application for the semantic combination of *my car* and *broke down* is equally indeterminate.

So far I have spoken of 'a [\pm foc] feature' in the Foc-head and 'a [\pm foc] feature' in the phrase which moves to spec-Foc. More precisely, there are sets involved of purely syntactic, i.e. uninterpretable, and semantic, i.e. interpretable, [\pm foc] features. In particular, it is a semantic [–foc] feature which determines the referential semantic type e for the topic phrase in spec-Foc; it is a semantic [+foc] feature which determines a quantificational semantic type

for the identificational focus phrase in spec-Foc. In thetic sentences, where $[\pm foc]$ features are missing, there is no such determination of semantic types.

Languages may differ along several parameters with respect to the manifestation of the three types of focus structure. The following list of parameters can be interpreted as establishing a framework for empirical studies of the manner in which and/or the degree to which the languages of the world exhibit the characteristics implied by the FocP-hypothesis.

Ist parameter: The [\pm foc] features, those on the verbal head and those on the topic or identificational focus phrase, may or may not have morphological reflexes. The various cross-linguistic topic and focus markers that have been discussed in the literature may be investigated with respect to whether they can be analysed as manifesting such morphological reflexes. See e.g. Siewierska's (1998: 484) remark on "special pragmatic particles such as topic or focus particles which in subject-first languages often accompany fronting of the object (e.g. in Hausa, Efik, Yoruba, Sentani, Chavante) and in verb-first languages the fronting of both the subject and object (e.g. in Nandi, Yapese, Ixil)".⁷

2nd parameter: The phonological form of the carriers of the $[\pm foc]$ features may or may not be pied-piped into the Foc-head or spec-Foc position respectively. That is, the movement induced by the $[\pm foc]$ features may or may not be overt. This means, even if there are neither topic or focus markers nor topic or identificational focus related movements in a language, we may still assume that there is a syntactically represented distinction between types of focus structure. It may turn out that a complete lack of surface indicators to focus structure in terms of morphology and constituent order is compensated for by intonational devices. (This parametrical difference between languages must not be confused with optionality of overt and covert movement within a language, against which, as far as English is concerned, I will argue in section 4).

3rd parameter: Languages may vary with respect to the location of the FocP. That is, if present, FocP may not necessarily be the topmost functional phrase in a clause (see e.g. Kiss 1998a).

4th parameter: Instead of one FocP which is projected by either a [+foc] feature or a [– foc] feature there may be two distinct functional phrases, conveniently called FocP and TopP, then. The first of these is projected by [+foc], the second by [–foc]; [–foc] of a topic phrase is checked in spec-Top and [+foc] of an identificational focus phrase is checked in spec-Foc. Alternatively, if we allow for multiple specifiers (see e.g. Chomsky 1995: 432, 2000: 126), an identificational focus phrase may check its [+foc] in the first specifier of the Foc-head and a topic phrase may check its [–foc] in the second specifier of the Foc-head. For both these alternatives we will have to assume the existence of a fourth type of focus structure, a mixed categorical-identificational type, for then there is both a topic and an identificational focus phrase in a single sentence. Work by Kiss (e.g. 1994, 1998a) and Puskas (1997), for instance, suggests that Hungarian is a language that allows for the projection of distinct TopP and FocP and thus for the categorical-identificational type of focus structure.

5th parameter: If we do not assume a universally left-headed and left-specified phrase structure \dot{a} la Kayne (1994), there are a great number of theoretically possible locations for the head and specifier of the FocP relative to those of the other projections in addition to a number of locations provided for by the parameters 2 to 4.

All five parameters together allow for a cross-linguistically bewildering array of distributions for topic and identificational focus phrases. In actual languages, though, this array will be considerably restricted by principles which facilitate the acquisition of the language and by those architectural features of the grammar which have been shaped by processing principles of the kind to be mentioned later.⁸ On the other hand, languages do show a bewildering variety in expressing focus structure, and it may well be that all of the parameters just mentioned are actually exploited in one way or the other.

The syntactic integration of focus structure as just sketched is not subject to the points of criticism which have been leveled from a minimalist perspective against other analyses which make use of focus and topic features and the corresponding projections, especially in accounts of scrambling (recently e.g. Abraham and Molnárfy 2003, Fanselow 2003; see also Molnárfy 2003). My FocP-hypothesis as such is independent of scrambling theories; actually I do not believe that scrambling plays a role in expressing focus structure in terms of categorical, thetic and identificational sentences. Whereas the postulation of topic and focus features may be *ad hoc* in accounts of scrambling, it seems to me that the presence of morphologically manifest topic and focus markers, of agreement phenomena in connection with focus phrases and of focus and topic related intonational features in many languages across the world provide sufficient independent motivation for the assumption of such features also in languages which do not show them morphologically. Moreover, one of the motivations for my FocP-hypothesis is to account for fronting constructions within a broadly minimalist framework, in which it would be discordant to say that fronting is optional or stylistic, given that fronting shows clear characteristics of a core syntactic operation (see also fn. 5 and its context). Finally, even Fanselow, who is a critic of theories which assume topic or focus features in accounts of scrambling, seems sympathetic to the assumption that there are topic or focus positions at the left periphery of root clauses in languages such as Dutch and German (see Fanselow 2003: 195, 217, 223).

4 Identificational and informational focus

Consider the following example, where (6A) followed by (6Ba) is an authentic dialogue taken from Ward 1986/1988: 115, and where (6A) followed by (6Bb) would also constitute an appropriate exchange:

- (6) A: Have you finished it yet?
 - B: a. HALF of it I've read
 - b. I've read HALF of it

Does this mean that there is no difference in the nature of the focus expression half of it in (6Ba) as opposed to (6Bb)? What has so far been said about the FocP-hypothesis entails that only in the former is *half of it* an identificational focus phrase, and the sentence consequently of the identificational type, while the latter is of categorical type and, as hinted in footnote 4a, the focus phrase an informational one. However, if there are no contexts in which it makes a difference whether a focused object is fronted or not, then it will be difficult to make a convincing case for a difference in terms of identificational versus categorical focus structure and a concomitant distinction between identificational and informational focus phrase for such pairs as (6Ba) and (6Bb). To be sure, it is possible to argue that both (6Ba) and (6Bb) are identificational in the given context, with the identificational focus phrase having optionally moved to spec-Foc - if basic minimalist assumptions are suspended. However, while I consider it indeed a cross-linguistic option for a language to have the phonological form of an identificational focus phrase pied-piped by a moving [+foc] feature or not (overt versus covert movement; 2nd parameter mentioned in section 3), I would only reluctantly concede that there is an optionality for overt or covert movement of an identificational focus phrase within English (and German, for that matter). Let us consider this problem somewhat further.9

It has been shown by Ward (1986/1988) that what he calls focus preposing (my 'movement to spec-Foc of an identificational focus phrase which is not the subject') is

subject to discourse constraints that are different from those for the 'canonical' constituent order. Consider, for instance, the B-utterances in (7), which are adapted from Ward 1986/1988: 74 by indicating the carrier of the primary sentence accent and by adding the version with the 'canonical' constituent order. (Here and below '#' indicates a contextually inappropriate utterance, i.e. an utterance which is hard or impossible to pragmatically accommodate.)

- (7) a. A: Do you want to see a movie?B: i. I have to walk the DOG.ii. #The DOG I have to walk.
 - b. A: Why is it so noisy on the second floor?
 - B: i. They're listening to the TELEVISION.
 - ii. #The TELEVISION they're listening to.

According to Ward (1986/1988) – but in the terminology of Birner and Ward (1998) – the preposings are inappropriate in the given contexts for the following reason: Preposing requires a "salient linking relation" (e.g. Birner and Ward 1998: 33) between the denotatum of the preposed constituent and another denotatum evoked in the prior discourse; no such relation can be established for the denotata of *the dog* in (7a) and *the television* in (7b). Unfortunately, contrasts like those displayed in (7) do not entail that *the dog* and *the television* respectively are different kinds of focus phrases in the 'canonical' versions as opposed to the preposing versions. Actually, in Ward's (1986/1988) and Birner and Ward's (1998) explanatory framework, it is the preposing that makes the difference in cases like the B-utterances in (7), with no implications for the nature of the focus phrases as such.

However, the explanation given by Ward (1986/1988) and Birner and Ward (1998) is not the only possible one. It may alternatively be argued that it is precisely the fact that the appropriate B-utterances in (7) are categorical which makes them appropriate and that it is the fact that the inappropriate B-utterances are identificational which makes them inappropriate. Indeed, the relevance presupposition 'I have to walk x' associated with *The DOG I have to walk* does not appear to be relevant at all in the context of (7aA); the assumption that there is something which the speaker has to walk is not an issue at all in this context. The analogical point can be made about *The TELEVISION they're listening to* in the context of (7bA): The assumption that the referents of *they* are listening to something is not an issue at all in the context of the question *Why is it so noisy on the second floor*?.¹⁰

Moreover, there is at least one class of cases where a preposing construction cannot be substituted for by its 'canonical' counterpart. Consider the following (where *nobody* is not to be interpreted as a name):

- (8) A: Who does Paul like? / Who does nobody like?
 - B: a. NOBODY Paul likes. / NOBODY nobody likes.
 - b. Paul likes NOBODY. / #Nobody likes NOBODY.

If it was only the (non-)preposing as such which is responsible for the (in)felicity of a 'canonical' sentence as compared to its preposing counterpart, then it would be hard to account for the fact that the substitution of *Paul* by *nobody* in the 'canonical' (8Bb) renders the sentence infelicitous in identical contexts.¹¹ By contrast, it seems that the semantic implications of the FocP-hypothesis sketched above provide an explanation for these data: The sentence *Nobody likes NOBODY* can only be thetic since *nobody* is a quantificational (non-referential, non type e) phrase that cannot function as a topic phrase. A thetic sentence, however, is inappropriate in the given context. By contrast, *Paul* being potentially referential

(of type e) and thus eligible for constituting a topic phrase, *Paul likes NOBODY* can be taken to be categorical. This categorical sentence *is* appropriate in the given context, just like its identificational counterpart (8Ba). If this explanation is correct, then, within the present theory, *Paul* occupies spec-Foc (with Foc being [-foc]-featured) in (8Bb), and the accented *NOBODY* cannot be the same kind of focus phrase (identificational) in (8Bb) as in (8Ba). For if they were, then its [+foc] would target spec-Foc just as [-foc] of *Paul* would in the first sentence of (8Bb); the derivation would crash, i.e. *Paul likes NOBODY* would be ungrammatical, contrary to fact. These considerations render it sufficiently plausible that preposing sentences and their 'canonical' counterparts as in (6)-(8) are indeed different in their type of focus structure and consequently different with respect to the nature of their focus phrases.¹²

5 The exceptionality ('markedness') of object fronting in English

Under the FocP-hypothesis as conceived of here there is nothing derivationally special about English sentences which show fronting. The canonical constituent order is the one we get in thetic sentences and in categorical or identificational sentences where the subject is topic or identificational focus phrase and moves to spec-Foc. What is commonly known as fronting (or preposing or, rather infelicitously, 'topicalisation') is the movement to spec-Foc of a topic or identificational focus phrase that is not the subject. This is exemplified in (9) and (10), where the corresponding German sentences are given as well.

- (9) a. [IP Peter likes BEANS] (thetic)
 - a'. [IP Peter mag BOHNEN] (thetic)
 - b. [FocP Peter_i [IP t_i likes BEANS]] (categorical)
 - b'. [FocP Peteri magi [IP ti ti BOHNEN]] (categorical)
 - c. [FocP PETER_i [IP t_i likes beans]] (identificational)
 - c'. [FocP PETER_i mag_i [IP t_i t_i Bohnen]] (identificational)
- (10) a. $[FocP Beans_i [IP Peter LIKES t_i]]$ (categorical)
 - a'. [FocP Bohnen_j MAG_i [IP Peter $t_i t_j$]] (categorical)
 - b. [FocP BEANS_i [IP Peter likes t_i]] (identificational)
 - b'. [FocP BOHNEN_i mag_i [IP Peter t_i t_i]] (identificational)

This theory raises the following questions which will be dealt with in the sequel: First, why is it that the movement of an object or of a subject complement to spec-Foc in English is distinctly more exceptional ('marked') than that of a subject, although there is no difference in terms of syntactic licensing? Second, why is it that the movement of an object or of a subject complement to spec-Foc in English is distinctly more exceptional ('marked') than that of a subject complement of an object or of a subject complement to spec-Foc in English is distinctly more exceptional ('marked') than that of an object or subject complement in German, although there is no difference in terms of syntactic licensing?¹³

The exceptional character of object and subject complement fronting in English is reflected in a paper by Plag and Zimmermann (1998: 220), for instance. They asked 16 native speakers of English whether they considered the sentences in (11) acceptable, allowing for the answers 'yes', 'no' and 'I don't know'. The sentences, which were presented without context, got the scores given in brackets on a scale from 1.0 to 3.0 where 1.0 means 'was accepted by every test person' and 3.0 means 'was rejected by every test person'.¹⁴ It may be noted that no native speaker opted for the 'I don't know' answer (see Plag and Zimmermann 1998: 216).

- (11) a. This world-famous book I read. (2.5)
 - b. Her last boy friend I haven't met. (2.0)
 - c. The most recent paper we haven't discussed yet. (1.6)
 - d. John F. Kennedy his name was. (2.6)

I assume, of course, that such results do not raise doubts about the grammaticality of object and subject complement fronting but are to be accounted for by factors independent of grammar.

In order to empirically support my intuition-based guess that German analogues of sentences such as those in (11) would score much better, German translations or analogues of (11) with the direct object or subject complement in clause-initial position as given in (12) were submitted to 22 native speakers of German (students of English). The informants were asked to judge whether they considered the sentences grammatically acceptable or not, the options for answers being *ja* ('yes'), *nein* ('no') and *Ich weiß nicht* ('I don't know'), just as in Plag and Zimmermann's (1998) study. The scores on the same scale as used in their test are given in brackets.¹⁵

(12)	a.	Dieses weltberühmte Buch las ich. (1.1)
		this world-famous book read I
		'This world-famous book I read.'
	b.	Ihren letzten Freund habe ich nicht getroffen. (1.0)
		her last boy-friend have I not met
		'Her last boy friend I haven't met.'
	c.	Den neusten Aufsatz haben wir noch nicht gelesen. (1.1)
		the most-recent paper have we yet not read
		'The most recent paper we haven't read yet.'
	d.	Schneider war sein Name. (1.0)
		Schneider was his name
		'Schneider his name was.'

The results indicate that German translations / analogues of English sentences with fronted direct object or fronted subject complement are indeed generally judged better than their English counterparts under the condition of being presented out of context.¹⁶

6 A processing account

The answer that I would like to suggest to the two questions about the exceptionality of nonsubject movement to spec-Foc in English raised by my FocP-hypothesis is one in terms of processing along the lines of John Hawkins's performance theory of constituent order (e.g. 1990, 1992, 1994, 1998). Essentially, it is the verb second property of German and the lack of it in English on the one hand, and the morphological case contrast between these languages on the other hand that play the decisive roles here.

6.1 The principles of early immediate constituents (EIC) and dependent nodes later (DNL)

According to Hawkins, the constituent order actually used in linguistic performance in those cases where the grammar provides for options is determined most importantly by the processing principle of early immediate constituents (EIC). The basic idea underlying EIC is

that "words and constituents occur in the orders they do so that syntactic groupings and their immediate constituents (ICs) can be recognized (and produced) as rapidly and efficiently as possible in language performance." (Hawkins 1994: 57.) In English, sentences in which a non-subject is moved to spec-Foc fare principally worse in terms of EIC compared to the cases where there is subject movement to spec-Foc. In order to illustrate this, I will briefly present some key aspects of Hawkins's EIC theory and apply them to a simple example. The insight gained on the basis of this example will be shown to carry over to all relevant cases.

The central claim of EIC theory is as follows:

Early Immediate Constituents (EIC)

The human parser prefers linear orders that maximize the IC-to-non-IC (or IC-toword) ratios of Constituent Recognition Domains. Orders with the most optimal ratios will be preferred over their non-optimal counterparts in the unmarked case; orders with non-optimal ratios will be more or equally preferred in direct proportion to the magnitude of their ratios. [...]. (Hawkins 1998: 734.)

An IC-to-non-IC ratio, or its more easily calculable (but less fine grained) IC-to-word ratio alternative, is calculated over a constituent recognition domain, then, which is defined in the following way:

Constituent Recognition Domain (CRD)

The CRD for a phrasal mother node M consists of the set of terminal and nonterminal nodes that must be parsed in order to recognize M and all ICs of M, proceeding from the terminal node in the parse string that constructs the first IC on the left, to the terminal node that constructs the last IC on the right, and including all intervening terminal nodes and the non-terminal nodes that they construct. (Hawkins 1998: 733.)

Let us compare the IC-to-word ratios, also called EIC scores, of the sentences *I can give you a bran-muffin* and *A bran-muffin I can give you*, whose syntactic structures reduced to the relevant nodes are given in (13a, b).

- (13) a. [FocP I [Foc' can give you a bran-muffin]]
 - b. [FocP A bran-muffin [Foc' I can give you]]

Both sentences are FocPs with the ICs spec-Foc (*I* and *a bran muffin* respectively) and Foc'. We concentrate on the EIC scores for the FocP-nodes in these two sentences. What are their CRDs? In order to determine the terminal nodes that construct ICs, the following principle for mother node construction has to be taken into account.

Mother Node Construction (MNC)

In the left-to-right parsing of a sentence, if any word of syntactic category C uniquely determines a phrasal mother node M, in accordance with the PS rules of the grammar, then M is immediately constructed over C. (Hawkins 1998: 733.)

In generative syntax it is the phrasal head which "uniquely determines the phrasal mother node". Although it is not true for generative syntax that there is always a word heading a phrase – there being functional phrases headed by abstract heads – this does not seem to pose a problem for applying Hawkins's idea to syntactic structures from a more recent framework of generative grammar than the more traditional one used by Hawkins. For such functional projections are in any case extended projections of a lexical head (word). Thus, the word which uniquely determines the phrasal mother node in the case of a functional projection headed by an abstract functional head is the respective lexical head of which the functional projection is an extended projection. This is the pronoun I for the spec-Foc constituent and the auxiliary *can* for the Foc' constituent in (13a). It is the determiner *a* for the spec-Foc constituent and the auxiliary *can* for the Foc' constituent in (13b). That is, the CRD of the

FocP in (13a) in terms of words is the set $\{I, can\}$, whereas it is the set $\{a, bran-muffin, I, can\}$ in (13b). Consequently, the EIC scores for (13a) and (13b) are as given in (14).

(14) a. (13a): 2 ICs / 2 words = 100.0%b. (13b): 2 ICs / 4 words = 50.0%

With respect to EIC, then, (13a) is preferred over (13b). It is clear that the presence of an overt subject in spec-Agr_s always leads to a lower EIC score for the CRD of a FocP compared to the case where there is a trace in spec-Agr_s. For the number of ICs is always 2, and the numbers of words in the respective CRDs, i.e. the denominators in the fractions which give the respective EIC scores, always differ by at least 1, the variant with the overt subject in spec-Agr_s always having the larger figure.

Note that the processing of the lower nodes than those of FocP and its ICs in (13a, b) and analogous sentence pairs does not play a role for EIC considerations. The internal structure of the direct object in both cases is the same; and so are the nodes projected by the other lexical heads.

What may play a disfavouring role for fronting constructions in addition to EIC is a processing principle called "*Dependent Nodes Later*" by Hawkins. Based on work by Primus (1995; see also 1999, 2001), it is discussed in Hawkins's 1998 article and presented as a supplement to EIC:

Dependent Nodes Later (DNL)

If a node Y is semantically and/or syntactically dependent on a node X, then the

human parser prefers to receive and parse X before Y. (Hawkins 1998: 761.)

An object is syntactically and semantically dependent on the main verb so that its coming before the main verb in fronting as opposed to coming after it in the canonical constituent order adds to the processing disadvantage entailed by EIC. The idea behind DNL as applied to the comparison between cases like (13a, b) is this: The direct object has to be kept in working memory before it can be structurally integrated by the main verb in the fronting construction whereas it can be immediately integrated by it, without burdening the working memory in the canonical construction. The burden to the working memory increases relative to the time that passes until the main verb is processed. That is, the longer the direct object and the subject, the higher the cost of keeping the direct object in working memory in fronting constructions.

Ultimately, both EIC and DNL conspire to keep the burden to the working memory in the parsing process optimally minimal. According to Hawkins 1998, it is not yet clear what the precise manner of interaction between them is. But what has been said so far seems sufficient to make the point that fronting does indeed entail a processing disadvantage over the canonical constituent order in English.

EIC and DNL considerations can also be applied to a comparison of fronting constructions and corresponding passive sentences. The passives always result in a better EIC score than a corresponding active sentence with non-subject fronting. Consider (15).

- (15) a. [FocP One mistake [Foc² was made by everyone]]
 - b. [FocP One mistake [Foc[,] everyone made]]

In this kind of pairs too an overt subject in spec-Agr_s in the b-alternative makes the CRD of FocP larger. Moreover, the fronting construction has two constituents, the subject and the object, coming before the verb on which they are dependent, whereas the passive version has only one, the subject, a fact which disfavours fronting over passive also in terms of DNL.

Thus, if there is no communicative reason for a text producer to front a non-subject or if there are no communicative and syntactic reasons which prevent the choice of a corresponding passive sentence instead of an active one with a fronted non-subject, then one of these alternatives is preferred over non-subject fronting. But note that we do have examples like (13b) and (15b), where the processing disadvantage is overridden by the communicative intention which requires a specific sentence, namely an active, identificational or categorical one, with the direct object as identificational focus or topic expression. See the attested passages in (16).

- (16) a. Customer: Can I get a bagel? Waitress: No, sorry. We're out of bagels. A bran-muffin I can give you. (from Ward 1985/1988: 109)
 - b. I made two minor mistakes. *One apparently everyone in the class made*. (from Ward 1985/1988: 6)

Note that examples like (16), where there is direct object movement to spec-Foc provide additional evidence for the view that the focus expressions in pairs like (17a, b) are indeed essentially different ones (cf. section 4 above).

- (17) a. I can give you a BRAN-MUFFIN
 - b. A BRAN-MUFFIN I can give you

The point is this: If there was no difference in the nature of the focus phrase *a BRAN-MUFFIN* in (17a) and (17b) respectively (and thus no difference in terms of categorical versus identificational focus structure), then there would be no explanation for why a fronting construction should be produced at all, as in (16), given that it is more difficult to process than the 'canonical' construction. I would consider (17a) a categorical sentence with I as topic expression and *a bran-muffin* as informational focus expression; (17b) on the other hand is an identificational sentence with *a bran-muffin* as identificational focus expression.

6.2 EIC and DNL differences for movement to spec-Foc between English and German

The verb-second property of German causes the construction of the FocP by its lexical head, i.e. the finite verb, immediately after the phrase in spec-Foc was processed. As pointed out by Hawkins (1994: 366), "[t]he second-position verb seems to be the crucial higher node constructor". The fact that, in contrast to English, there is no constituent intervening between the phrase in spec-Foc and the finite verb, causes the EIC scores of German sentences with non-subjects in spec-Foc to be always higher than those of corresponding English sentences, as shown in (18) (where EIC scores are given in parentheses).

(18)	a.	[FocP Chessplayers [Foc' he admired]]	(66.7%)
	a'.	[FocP Schachspieler [Foc' bewunderte er]]	(100.0%)
	b.	[FocP Her younger sister [Foc' they admired]]	(40.0%)
	b'.	[FocP Ihre jüngere Schwester [Foc' bewunderten sie]]	(50.0%)
	c.	[FocP Her sister [Foc' the boys admired]]	(40.0%)
	c'.	[FocP Ihre Schwester [Foc' bewunderten die Jungen]]	(66.6%)

Let us now have a look at the variations in EIC scores between German sentences which differ minimally as to whether the subject or an object has moved to spec-Foc. In these cases the variation depends on the length of the phrase in spec-Foc, but there is no systematic bias

in favour of the subject being in spec-Foc, as there is in English. If the subject and the object are of equal length, then there is no difference between the EIC scores for the respective minimally different sentences. If the object is longer, then the subject being in spec-Foc results in a higher EIC score; if the subject is longer, then the object being in spec-Foc results in a higher EIC score. This is illustrated in (19) (with EIC scores given in parentheses).

(19)	a.	[FocP Einige Schachspieler [Foc [,] verlieren schnell die Geduld]]	(66.7%)
		Some chess-players lose quickly the patience	
		'Some chess-players quickly lose their patience.'	
	b.	[FocP Die Geduld [Foc' verlieren einige Schachspieler schnell]]	(66.7%)
	с.	[FocP Wir [Foc' fürchten die Nacht nicht]]	(100.0%)
		We fear the night not	
		'We are not afraid of the night.'	
	d.	[FocP Die Nacht [Foc' fürchten wir nicht]]	(66.7%)
	e.	[FocP Der Chef [Foc' versteht nichts]]	(66.7%)
		The boss understands nothing	
		'The boss understands nothing.'	
	f.	[FocP Nichts [Foc' versteht der Chef]]	(100.0%)

Note that also in terms of DNL it does not make a difference in principle whether a subject or an object is in spec-Foc. If the main verb moves to second position, it is in any case one phrase, either the subject or the object, which comes before the verb on which it is syntactically and semantically dependent. If not the main verb but an auxiliary moves to second position, both the subject and object precede the main verb irrespective of which of them is in spec-Foc.

Thus, the significantly less exceptional character of object fronting in German compared to English can be accounted for in part by the completely symmetrical behaviour in terms of EIC and DNL of subjects and objects in minimally different sentences in German, which contrasts with the EIC and DNL bias in favour of fronted subjects in English.

6.3 Processing advantages due to case morphology

The contrast between English and German with respect to morphological case distinctions is potentially a second factor which contributes to the differences between these languages as regards movement to spec-Foc. The basic idea in this context is that "case marking is also a higher node constructor" (Hawkins 1994: 405). Following Hawkins in spirit and adapting his terminology to the grammatical framework in which my FocP-hypothesis is set, we can say that a DP in spec-Foc which is unambiguously morphologically accusative causes the parser to construct the FocP (if we disregard impersonal constructions of the somewhat archaic and marginal type *Den Jungen fror* (literally $*The_{ACC}$ boy_{ACC} froze, i.e. 'The boy was cold')). A nominative-accusative distinction allows the immediate identification of the grammatical role of the respective DP within the clause. In a sense, then, case morphology neutralises the negative effect in terms of DNL of having a syntactic dependent of the verb coming before it. In contrast to German, English non-pronominal DPs do not show morphological case distinctions. Consequently, "a subject in English is not recognizable as such until a finite V or Aux is encountered to which the initial NP can be attached" (Hawkins 1994: 362).

The processing advantage effected by the nominative-accusative distinction in nonpronominal DPs pre-empts the EIC advantage effected by the verb-second property in German. That is, EIC effects for the construction of the FocP play a role only in those cases where this function is not already performed by the case morphology of the DP in clauseinitial position. In German, case morphology rather than EIC is perhaps more often the factor involved in this respect.¹⁷ However, German case morphology is not distinctive throughout all nominal categories so that there remain cases in which EIC effects become operative. The non-pronominal DPs involved in examples (19a-d), for instance, look the same in the nominative and the accusative. Note also that EIC is needed in any case for considerations such as those in sub-section 6.1, where the processing of fronting is compared to that of canonical and passive constructions within English.

7 Summary

The main purpose of the present paper has been the discussion of three questions that are raised by the theory developed in Breul 2004, which is based on the FocP-hypothesis. The first question is to do with the status of the focus phrases in sentence pairs such as in (20) and the concomitant focus-structural status of such sentences as categorical or identificational.

- (20) a. I ordered a COKE.
 - b. A COKE I ordered.

It has been argued that sentences like (20a) are categorical with the subject being the topic phrase and the focus phrase being informational. Sentences like (20b) are identificational with the XP in spec-Foc being an identificational focus phrase. The second question addresses the exceptionality ('markedness') of non-subject movement to spec-Foc as opposed to subject movement to spec-Foc in English. The third question addresses the exceptionality of non-subject movement to spec-Foc in English as compared to German. These phenomena are accounted for in terms of the processing theory developed by John Hawkins. As it turns out, this explanatory approach yields an additional argument for the distinction between sentences like (20a) and (20b) in terms of focus structure type and the nature of focus expressions: If processing considerations favour subject movement over non-subject movement to spec-Foc in English, then the fact that sentences like (20b) do occur in performance can be accounted for by the semantic/pragmatic specificities associated with their focus structure as opposed to those of sentences like (20a).

Notes

- * I am grateful to Werner Abraham, Edward Göbbel, Katalin Kiss, Laszlo Molnárfy, Valéria Mólnar, Ellen Prince and Susanne Winkler for questions, comments and suggestions concerning various aspects of my paper as presented at the ISAG-workshop. I am also thankful to an anonymous reviewer, who raised several very important points with respect to my theoretical assumptions. Some of these points I will be able to react to in the present paper, the discussion of all of them would go beyond its scope and the limits set for it.
- ¹ Whereas the present approach is set within a generative framework along minimalist lines, Lambrecht's (1994) syntactic background is construction grammar.
- ² This way of formulating the relation is inspired by relevance theory (e.g. Sperber and Wilson 1986/1995, Wilson and Sperber 2004).
- ³ For Lambrecht too information structure, which comprises focus structure, belongs to sentence grammar. But his line of argumentation is different. See Lambrecht 1994: 6-13.
- ⁴ a) On the distinction between informational and identificational focus phrases see Kiss 1998a, 1998b, 2001.

b) I will use the term 'FocP' for the functional phrase headed by the functional head Foc. I will use the term 'identificational focus phrase' for the [+foc]-featured XP whose [+foc] is checked in spec-Foc.

c) The anonymous reviewer objects that "[i]f a feature such as [+F] signals an 'edgerelated' property (i.e. 'identificational focus'), which must be implemented by means of displacement, its polar opposite should mark the absence of this property, hence also the absence of a computational need for dislocation. [...] I think every topic has particular properties, which do not reduce to the absence of focussing properties." I fully agree with the second sentence in this quotation. But I do not think that my use of ' $[\pm foc]$ ' presupposes a theory of binary feature specification in which '[-foc]' cannot signal anything else than "absence of focussing properties". My use of ' $[\pm foc]$ ' is to be understood in a way similar to binary distinctive features in phonology, where [-sonorant], for instance, does not only imply absence of resonance, but also presence of turbulent noise. Actually, in Breul 2004: ch. 8 I associate [-foc] with a very specific semantic topic property, namely the determination of semantic type e for expressions whose lexically determined properties make them eligible for type e or higher, quantificational types. See also below.

⁵ The realisation that optionality of fronting would pose an essential problem for the minimalist program was one motivating factor for the work that resulted in Breul 2004. The point is also hinted in Drubig 2003: 15, 17, and it causes Tappe (2000) to propose a version of minimalism enriched by optimality theoretic ideas.

⁶ a) To assume that the identificational focus phrase is a semantic function which takes a syntactic predicate as semantic argument is the type-semantic correlate of what Kiss (2004: 2) means when she characterises an identificational focus phrase as "a specificational element predicated of the rest of the sentence".

b) For reasons explained in Breul 2004: 245-246 I actually assume the type of *broke down* to be <e,e> and of *my car* in the identificational sentence to be <<e,e>,e>. These reasons will play no role in the present paper so that I may use the traditionally assumed types here in order to avoid unnecessary complications.

- ⁷ As concerns focus markers see also Drubig and Schaffar 2001, Drubig 2003 and the references given there.
- ⁸ On the plausibility of the idea that architectural features of grammar are shaped by processing principles as suggested by Hawkins (see below) see Newmeyer 1998: 128-129.
- ⁹ But see also Drubig 2003: 17-25 and the references given there.

- 10 With respect to my discussion of (6) and (7) the anonymous reviewer asks whether this means "that focus in situ is in principle open to more than one interpretation, while focus fronting reduces the interpretive options to just one, namely the identificational reading?" This is indeed one way of seeing it, a way which would have to be implemented within the framework of Breul 2004 by saying that [+foc] optionally does or does not pied-pipe the phonological form of the phrase that carries the feature into spec-Foc in English. The further observation made by the anonymous reviewer that "in languages where focus is visibly displaced and marked by a particle or such like, the 'identificational reading' seems generally to be absent where focus is in situ" could then be accommodated by assuming that the option of not pied-piping the phonological form is not given in these languages. However, there is still the alternative view that the difference between (6Ba) and (6Bb), for instance, is not one between [+foc] pied-piping or not pied-piping the associated phonological form, but between identificational focus ((6Ba): half of it is [+foc]-featured) and informational focus ((6Bb): *half of it* is not [+foc]-featured). The latter is the view taken in Breul 2004, where the semantic function of [+foc], determining a quantificational semantic type for the DP that carries it, is argued to remain without (perceptible) semantic effect in these cases. My discussion of (8) in the main text is supposed to provide a piece of evidence in support of this latter view. It remains to be seen if future work provides further evidence and arguments that allow a decision between the two views.
- ¹¹ The phenomenon exemplified by (8) holds analogically in German as well:
 - (i) A: Wen mag Paul? / Wen mag niemand? (translation of (8A))
 - B: a. NIEMANDEN mag Paul. / NIEMANDEN mag niemand. nobody-ACC likes Paul / nobody-ACC likes nobody-NOM 'NOBODY Paul likes.' / 'NOBODY nobody likes.'
 - b. Paul mag niemanden. / #Niemand mag NIEMANDEN. 'Paul likes NOBODY.' / 'Nobody likes NOBODY.'
- ¹² a) The argument based on (8) strikes the anonymous reviewer as circular. I fail to see why. (8Ba) and (8Bb) show an interesting contrast (which I have not yet seen pointed out and discussed in the literature); my theory provides an explanation for it. In no way is the phenomenon (i.e. the contrast) dependent on prior acceptance of the theory.
 b) In Vallduví's (1990/1992) theory the difference just discussed is related to a difference with respect to information packaging instructions. For example, by the utterance *She was KOREAN* the hearer is instructed to go to the mental address linked to the referent of *she* and to substitute *Korean* for the variable in the open proposition 'referent of *she* is *x*' listed under this address. By the utterance *KOREAN she was* the hearer is instructed to go to the mental address (see Vallduví 1990/1992: 133-136; see also Vallduví 1993: 24-25).
- ¹³ I do not want to pretend to be aware of a theory of markedness which covers exactly the kind of exceptionality ('markedness') that I feel to be relevant here. This is the reason for my equivocating on these notions here. However, the reader will have an intuitive grasp of the kind of exceptionality ('markedness') that I have in mind (and which will be made more explicit immediately).
- ¹⁴ Plag and Zimmermann actually submitted 57 test sentences to their informants, 24 items concerning inversion, 23 items concerning fronting and 10 distractors. Of the items concerning fronting they give numeric scores only for the sentences in (11). The individual results per item and test person are displayed in diagrams.
- ¹⁵ I actually submitted 21 test sentences to my informants, 12 of which German translations / analogues of items from the fronting set of the Plag and Zimmermann (1998) study, the

others distractors. The highest score among the 12 relevant items was 1.2 (for 2 items), which is still very close to 1.0 indicating complete acceptance.

- ¹⁶ It was suggested by Ellen Prince (in ISAG-workshop discussion) that the scores for the English sentences in (11) are probably due to the fact that they were presented out of context. I certainly agree. The point, however, is that their German counterparts get much better scores under the same condition of being presented out of context. This argument, however, was based only on my intuition at the time of the workshop discussion and was not yet supported by the informant test. I gratefully acknowledge that Ellen Prince's comment provided the motivation for carrying out this test.
- ¹⁷ I am grateful to Werner Abraham for having made me aware (in ISAG-workshop discussion) of the pre-emptiveness of case morphology *vis-à-vis* EIC.

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