

Topic, scrambling, and aktionsart

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The systematic ambiguity of certain German verbs like *lesen* 'read' in the present perfect w.r.t. the perfective/imperfective-distinction may be resolved by means of prosody or scrambling. This paper has two purposes. In the first part, I argue that both word order and prosody are influenced by the syntactic features [Topic] and [Focus]. In fact, scrambling is analysed as a last-resort-mechanism to derive a well-formed prosodic structure. In the second part it is shown how a very general pragmatic felicity condition for the interpretation of focus accounts for the different aspectual interpretations.

1. Preliminary remarks

It is a frequently recognized fact that the surface position of direct objects in German influences interpretation. This is easily shown in the case of indefinite objects.

- (1) a. Peter liest oft Bücher
 Peter reads often books
 'Peter often reads a book'
- b. Peter liest Bücher oft
 Peter reads books often
 'As for books, Peter reads them many times'
- (2) a. Peter hat oft ein Buch gelesen
 Peter has often a book read
 'Peter often read a book'
- b. Peter hat ein Buch oft gelesen
 Peter has a book often read (past participle)
 'Peter read a (certain) book many times'

The object DP *Bücher* ('books') in (1a) is interpreted existentially (There are some books such that ...), while the same DP in (1b) gets a generic reading (For nearly every book, if Peter reads it, he reads it many times). Many authors (cf. Büring (1993), Diesing (1992), de Hoop (1992), Kratzer (1989), Meinunger (1993) among others) assume that there is a direct link between the

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different syntactic positions and the respective interpretations of the objects. Usually the position of the adverb *oft* ('often') is taken to be fixed. Whatever this position may be (AdjVP, AdjInfl, ...), it marks the VP-boundary. As syntactic structure of (1) and (2) we therefore have

- (3) a. Peter oft [_{VP} Bücher liest]
 Peter often books reads
 b. Peter Bücher_i oft [_{VP} t_i liest]
 Peter books often reads
- (4) a. Peter oft [_{VP} ein Buch gelesen hat]
 Peter often a book read has
 b. Peter ein Buch_i oft [_{VP} t_i gelesen hat]
 Peter a book often read has

For simplicity, I reconstruct the verb to its clause-final base position, since V2-effects do not matter for our purpose here. In the (a)-examples, the object is in its VP-internal base position and gets an unspecific existential reading. This reading is usually called the 'weak' reading. In the (b)-examples, the object is scrambled to some VP-external position. The generic reading of (3b) and the specific reading of (4b) are subsumed under the notion of a 'strong' reading. It is unclear how the notion of 'strongness' of a DP can be defined in semantic terms. In Diesings theory, the strong DP corresponds to the restrictive clause of some operator. Therefore it should be presuppositional. Meinunger proposes 'referentiality' and Büring 'familiarity' (in a Heimian sense) as *tertium comparationis*. The mentioned authors agree that the strong and the weak readings are immediately a property of the VP-internal and -external position respectively, though technical details vary.

In this paper, I want to show that the mentioned proposals both undergenerate and fail to predict certain semantic/pragmatic contrasts correlated to object scrambling. To avoid these shortcomings, I propose that there is no such direct link between syntax and semantics like Diesings's Mapping Hypothesis but scrambling is rather an epiphenomenal consequence of more fundamental information structure phenomena.

2. The problem

If it is correct that the VP-internal object position is connected to an existential interpretation and the VP-external position to a strong (i.e. presuppositional or familiar or referential) reading, we expect that definite objects scramble obligatorily, since they fit into the definition of strongness in each version. At the first glance, this prediction seems to be confirmed by the facts.

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- (5) a. ??Peter hat oft das Buch gelesen
Peter has often the book read
b. Peter hat das Buch oft gelesen
Peter has the book often read
'Peter often read the book'

(5a), with the definite object *das Buch* ('the book') in base position, sounds rather odd if the sentence is uttered out of the blue. The unmarked word order is (5b), where the object is scrambled. The only way to make (5a) grammatical is to put a narrow focus on the unscrambled object.

- (6) Peter hat oft [_{+F} das **Buch**] gelesen (und manchmal die Zeitung)
Peter has often the book read (and sometimes the newspaper)
'Peter often read the **book** (and sometimes the newspaper)'

As it turns out, narrow focus on an object blocks scrambling¹. Büring therefore assumes covert focus-movement of the object to ensure that definite DPs cannot occur inside VP at LF.

But there is a more striking counterexample to the generalization that definites have to escape VP. Name-like definites like *die Bibel* ('the Bible') are admitted both in the VP-internal and the VP-external position.

- (7) a. Peter hat oft [_{+F} die Bibel gelesen], (aber selten [_{+F} gebetet])
Peter has often the Bible read, (but seldom prayed)
'Peter often read the Bible (but seldom prayed)'
b. Peter hat die Bibel_i oft [_{VP} t_i gelesen]
Peter has the Bible often read
'Peter read the Bible many times'

?? It is worth mentioning that even subjects of individual-level predicates are VP-internal if they are focused:

(i) Peter sagt, daß anscheinend [_{+F} FEUERWEHRMÄNNER] intelligent sind

**Peter says that apparently firemen intelligent are
'Peter says that apparently FIREMEN are intelligent'**

This indicates that - contrary to Kratzer's and Diesing's claim - subjects of individual-level predicates are basegenerated VP-internally but scramble obligatorily except they are in focus.

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In (7a), the definite object remains in its base position although unequivocally the whole VP is in focus, as the subsequent clause in brackets shows.

Both in (7a) and (7b), the interpretation of *die Bibel* ('the Bible') is 'strong' in any useful sense of the word, i.e. it refers to a certain object which must be in some sense **familiar**, since the DP is definite. But nevertheless, the sentences are not synonymous. In the first place, (7a), with the object *in situ*, is **imperfective**, at least in its preferred reading. It says that Peter often read **in** the Bible, no matter whether he read the whole book or only a few pages. (7b), where the object is scrambled, in contrast means that Peter read the Bible **through** many times. Besides this clear cut truth-conditional difference, there is some pragmatic contrast. To utter (7b) felicitously, 'the Bible' already has to be under debate. To put it another way round, the direct object is scrambled just if it is a **topic**. I suppose that this generalization extends to the cases mentioned in the previous section. The 'strongness' of an indefinite DP is just a consequence of its topichood.

The strategy of the remaining paper is as follows. In the next section a framework for the treatment of information structure is presented. In section four, I give a minimalist account for scrambling which is based on generalizations concerning prosody. Section five tries to explain the observed semantic/pragmatic contrasts.

3. Information structure

In the last section, I used the notions of 'topic' and 'focus'. Some researchers use these concepts as an immediate opposition. In the way this term is used here, such a binary distinction is not sufficient, as we will see. Take the next example.

- (8) (weil) [_{+Top} Peter] oft [_{+F} das Buch] gelesen hat.
(since) Peter often the book read has
'Peter often read the **book**'

If my analysis that scrambling indicates topichood is correct, the subject *Peter* is a topic in (8). As I argued above, the object *das Buch* is in narrow focus in this construction. But there is a lot of material which is neither topic nor focus, namely *oft* *gelesen hat*. As it turns out, topic and focus are not complementary but to some degree independent from each other. Nothing prevents us from calling the complement of the topic 'comment' and the complement of the focus 'background'.

Up to this point, we treated topic/comment and focus/background as orthogonal dichotomies. But this can't be the whole story.

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- (9) a. $[_{+Top} \text{John}] [_{+F} \text{has } [_{+F} \text{a } [_{+F} \text{famous } [_{+F} \text{father}]]]]]$
b. $*[_{+F} [_{+Top} \text{John}] \text{has a famous father}]$

(9) (with nuclear stress on *father*, as it is indicated by capital letters) is four-way ambiguous. The noun, the NP, the DP or Infl' may be in focus. This phenomenon is usually called 'focus projection'. But the focus cannot project to a constituent which includes the subject *John* which is a topic here. This observation is easily accounted for if we assume that focus assignment is restricted to the comment, such that the topic cannot be integrated into the focused constituent. In other words, we split the clause into topic and comment and the comment into focus and background. This leads us to a kind of tripartite structure, similar to Vallduví's (1992) link-focus-tail. But there are arguments that a focus-background distinction of the topic is possible too.

- (10) $[_{+Top} \text{The } [_{+F} \text{oldest}] \text{ sister}] \text{ married the } [_{+F} \text{youngest}] \text{ brother}$

This is exactly Krifka's (1992) proposal: We have an optional splitting into topic and comment. These parts are both split into focus and background. Krifka leaves the question whether focus assignment is optional or not open. I suppose focus assignment is obligatory, since it is easier to formulate the stress assignment rules under that assumption. If the whole focus domain (topic and comment respectively) is in focus and the background is empty, we have so-called 'neutral stress'.

Information structure has consequences both in semantics and in phonology. In the minimalist framework (which I adopt here), there is no connection between LF and PF besides syntax. Therefore information structure has to be represented there. I assume that there are two syntactic features, [+Topic] and [+Focus], which are freely assigned in the syntax. 'Comment' and 'background' are purely descriptive terms for the material in the relevant domain which is not dominated by the respective feature.

It is reasonable to assume that the conditions on the nesting of topic and focus are LF-conditions. Other than Krifka, I assume that there may be more than one topic per clause. To be more technically, we have the following LF-conditions:

- I At least one constituent per clause bears the feature [+Topic]
- II Every [+Topic]-constituent contains one [+Focus]
- III One [+Focus] is contained in VP
- IV [+Focus] must not dominate [+Focus] except there is a CP-node in between.

The third clause presupposes the quite reasonable assumption that the VP is identical to the comment at least in German. This is, so I suspect, the rational behind Diesing's Mapping hypothesis.

4. The syntax/phonology interface

Before answering the question why topics have to scramble in German, we have to characterize the target position of that movement. In the minimalist framework, we have to assume two object positions anyway: the VP-internal base position and SpecAgrO. Hence the minimal assumption is that scrambling is just early movement to the latter position. As an immediate consequence of that assumption, scrambling must be motivated by an PF-condition, since movement to SpecAgrO is obligatory at LF. This results in the structures (11) for (7):

- (11) a. Peter hat [_{VP} die Bibel gelesen] (imperfective reading)
Peter has the Bible read
'Peter read the Bible'
- b. Peter hat [_{AgrOP} die Bibel_i AgrO [_{VP} t_i gelesen]] (perfective reading)
Peter has the Bible read
'Peter read the Bible'

I leave the adverb out here since it only indicates the position of the object. The syntactic structure is correlated to a certain prosodic phrasing.

- (12) a. H*+L
Peter hat [ϕ die **B**ibel gelesen] (imperfective reading)
- b. L+H* H*+L
Peter hat [ϕ die **B**ibel] [ϕ geles**e**n] (perfective reading)

The brackets indicate phonological phrase boundaries and the bold typed syllables the location of pitch accents. The contour of the accents is indicated in the line above; the nuclear accent is always a falling one (H*+L in Pierrehumbert's (1980) notational convention), while the prenuclear accent in (12b) is realized as a rise. As a descriptive generalization, one might say that both the VP and the material in SpecAgrO form a phonological phrase by its own. This is straightforwardly captured by the following rules, which are thought to be part of the 'spell-out' operation:

Phonological Phrasing:

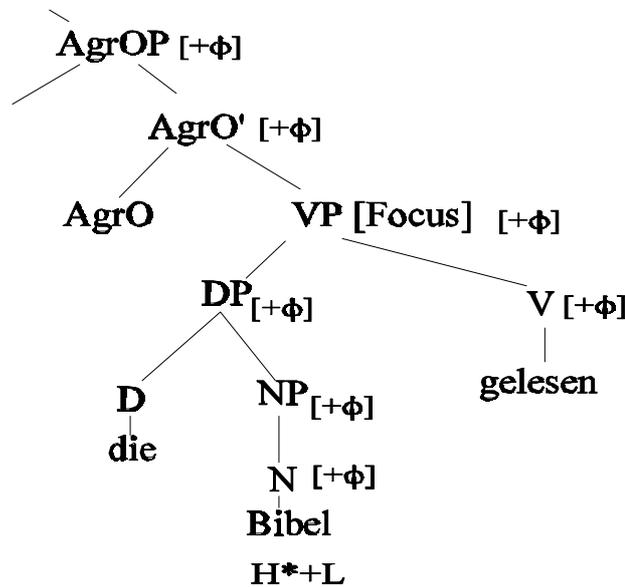
I Every V°, N°, A° receives the feature [+ ϕ].

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- II If X is [+ ϕ], Y immediately dominates X and Y does not dominate segmental material except the material in X then Y is [+ ϕ].
- III If X is [+ ϕ] and Y Θ -marks or selects X, then every node exhaustively dominating [X,Y] or [Y,X] is [+ ϕ].
- IV Every [+ ϕ]-constituent not dominated by [+ ϕ] is a Phonological Phrase.

'[+ ϕ]' is a purely auxiliary feature here; it means something like 'is a potential phonological phrase'. The idea is simply that every lexical head together with its adjacent arguments and the functional heads it is selected by form a phonological phrase. This is very close to the notion of 'integration' in Jacobs (1992). Let us see how these rules work in our examples.

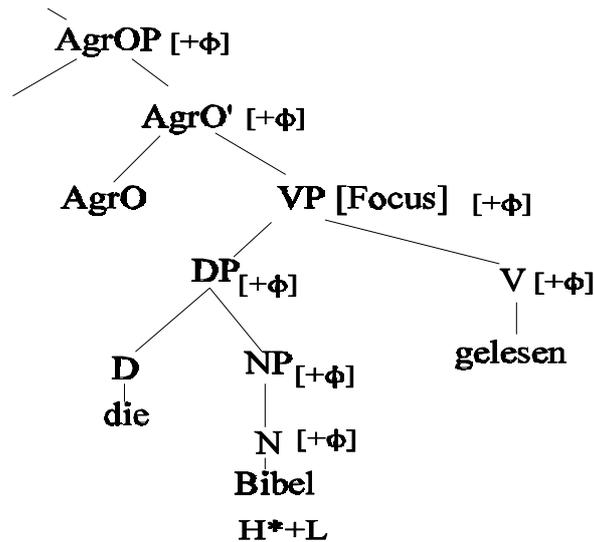
- (13) H*+L
 Peter hat [_H die **Bibel** gelesen] (imperfective reading)



According to rule I, [+ ϕ] is assigned to N (*Bibel*). It percolates to NP (rule II). D selects NP, therefore DP is [+ ϕ]. Since V Θ -marks DP, VP is [+ ϕ] too. In the same manner, the feature percolates further to AgrOP. The treatment of the auxiliary verb and the subject partially depends on the particular syntactic analysis of V2; since these questions do not matter for our purposes, I stop here. The crucial point is that the object and the verb are integrated into the same phonological domain. Now let us examine (12b).

- (14) L+H* H*+L
 Peter hat [_φ die **Bibel**] [_φ gelesen] (perfective reading)

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[+φ] percolates from N to DP in the same way as above. But since AgrO' neither Θ -marks nor selects DP, percolation to AgrOP is blocked. Hence DP forms a phonological phrase. Similarly, [+φ] percolates from V to VP and further to AgrO', but not to AgrOP. Hence AgrO' forms a second phonological phrase.

The next step is to fix the locations of the pitch accents. Taking up partially an idea from Cinque (1993), I assume the following rules:

Pitch Accent Assignment:

- I The most deeply embedded phonetically filled head dominated by [+Focus] receives a pitch accent.
- II The rightmost pitch accent in an intonational phrase is realized as H*+L, preceding pitch accents are realized as L*+H.

This gives us the observed prosodic structures for (13) and (14). In (13), the noun *Bibel* is the most deeply embedded head dominated by [+Focus] if N, NP, DP or VP are [+Focus]. This ambiguity is usually captured with the notion of 'focus projection'. In our setup, there is no necessity for such a percolation mechanism. In the rest of the paper, we will only be concerned with focus on the VP, as it is indicated in the diagram. In (14), we have two focus features and hence two pitch accents. V is the only head dominated by [+Focus] and gets the accent. Since it is the rightmost accent, it is realized as a fall. The accent of the second focus on the noun *Bibel* is, according to II, a rise.

How is the relation of pitch accents and phonological phrases? I take it to be governed by a very simple well-formedness condition:

- (15) **There is exactly one pitch accent in every phonological phrase.**

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There are two ways how these conditions can be violated. What happens if there is no focus in a ϕ -phrase? One example is the auxiliary verb in (14):

(16) $[\phi \textbf{Peter}] [\phi \textit{hat}] [\phi \textit{die} \textbf{Bibel}] [\phi \textit{gelesen}]$

Until now I only examined the behaviour of the object and the main verb, but according to the Phonological Phrasing Rules, the subject *Peter* and the auxiliary *hat* ('has') are ϕ -phrases too. The subject is a topic and therefore contains a focus feature, but the ϕ -phrase containing only the auxiliary violates (15). To avoid this consequence, I assume a rule applying after the computation of ϕ -phrases and pitch accents:

(17) **ϕ -phrases which do not contain a pitch accent are phonologically cliticized to the following ϕ -phrase.**

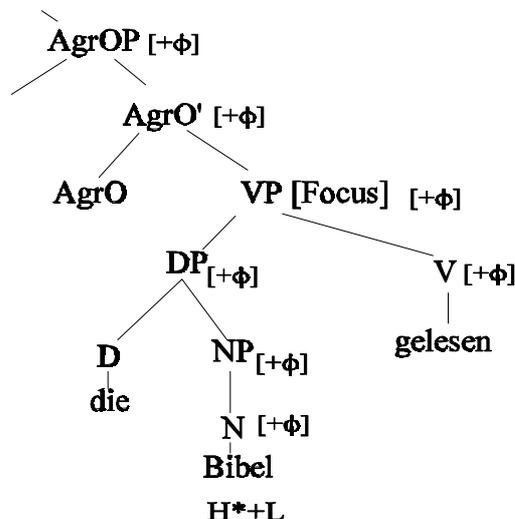
Applying this rule to (16) yields

(18) $[\phi \textbf{Peter}] [\phi \textit{hat} \textit{die} \textbf{Bibel}] [\phi \textit{gelesen}]$

which fulfils the requirement of (15).

On the other hand, two pitch accents may happen to end up in the same phonological phrase, which creates an violation of the principle in (15) as well. This is the case for instance if an object is a topic but stays *in situ*.

(19) *Peter hat (oft) $[\text{+Topic} \textit{die} \textbf{Bibel}] \textit{gelesen}$



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The noun *Bibel* ('Bible') is [+ ϕ]. This feature percolates to NP. NP is selected by D, hence DP is [+ ϕ]. The object DP is Θ -marked by the verb, therefore the feature percolates further to VP and to the Agr-projections. Crucially, the object and the verb belong to the same phonological phrase. The object contains a focus feature since it is a topic. But there is another focus in the same ϕ -phrase, since the conditions on a well-formed information structure require a VP-internal focus not dominated by topic. Its only possible location here is on the verb. Since a syntactic focus feature is always spelled out as a pitch accent, we have two accents in one phonological phrase.

There is no phonological mechanism to rescue that derivation. Hence a PF-crash results. According to the minimalist philosophy, if the cheapest derivation in a comparison set does not converge, the cheapest derivation remaining in the comparison set which does converge becomes grammatical. In German, overt movement to SpecAgrO is more expensive than covert movement since the relevant features are weak. But if a derivation with late movement crashes at PF, as in our example, and early movement results in a convergent derivation, Procrastinate is overwritten and overt movement, i.e. scrambling is legitimate.

There is one exception to the generalization that topic-objects always have to leave the VP to avoid a pitch accent clash. It is possible to assign the VP-internal comment-focus to the object itself.

- (20) a. Peter hat (oft) [_{VP} [_{+Top} [_{+F} das Buch]] gelesen] (spell-out)
 b. Peter hat [_{AgrOP} [_{+Top} [_{+F} das Buch_i]] AgrO [_{VP} [_{+F} t_i]
gelesen]] (LF)

'Peter read the **book**.'

Since the object trace in (20b) is a copy (according to Chomsky (1992)), nothing is wrong with the assumption that the obligatory VP-focus is assigned to this trace at LF. At the spell-out configuration (20a), the object DP bears the topic-focus and the comment-focus simultaneously. In this case, there is no need for an additional focus on the verb. Hence there is only one VP-internal focus and only one VP-internal pitch accent, hence there is no motivation for early movement to SpecAgrO. This mechanism gives us the prediction that narrow focus on an object blocks scrambling, no matter whether the object is a topic or not. Having sketched the phonological interpretation of information structure, I am now going to examine the semantic effects of topic and focus.

5. Semantics

5.1. Definite topics and definite comments

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I have stated above that definite objects have to scramble unless they are name-like in nature, like 'the Bible' in the example. To say it in terms of information structure, definite DPs have to be topics with the exception of name-like expressions. That is not entirely correct. Let us look again at the example (5a) (repeated here):

- (21) ??Peter hat (oft) [_{VP} das **Buch** gelesen]
 Peter has (often) the book read
 'Peter (often) read the **book**'

If the whole VP is in focus, this sentence sounds rather odd. But it may be felicitous if it is uttered in a situation where there is a unique entity the DP *das Buch* ('the book') may refer to. This can be ensured if the meaning of 'book' is shifted to 'the most important book', 'the Koran' or something like that. The important point here is that the requirement for definites to scramble (i.e. to be a topic) is not a matter of grammar or linguistic semantics in the narrow sense but it heavily depends on extralinguistic pragmatic information.

To decide under what conditions a definite has to scramble or not we have to have a closer look at the problem what it means for a DP to be a topic semantically. For reasons of space I can do this here only in a very informal way. I start with examining the meaning of definites which are not topics, like 'the Bible' in the previous examples and 'the book' above. As far as I can see, the Russelian treatment of the definite article is more or less correct here. 'The book' as part of the comment is felicitous in (21) just in case the existential and the uniqueness condition is met². I assume that this meaning of the definite determiner is the basic one, and it would be completely *ad hoc* to stipulate a crucially different meaning for definite topics. I think, what is going on here is that 'the N' always has the meaning 'there is one and only one N in the domain such that ...'. The difference between definites in different positions is just a difference of the quantificational domains. The domain for expressions occurring in the comment is just the universe of the model. Hence it does not come as a surprise that definite DPs with a NP-complement which denotes a singleton set under normal circumstances like 'the Bible', 'the sun', 'the pope', 'the president of the United States' etc. are completely felicitous as part of the comment. But usually, nouns have potentially infinite extensions and therefore the use of a 'normal' definite DP as part of the comment is highly marked.

The syntactic feature [+Topic], on the other hand, is semantically interpreted as a restriction of the quantificational domain to the set of entities 'salient' in the actual stage of conversation, whatever this means. So

?? The question whether these conditions are assertions or rather presuppositions does not matter here.

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(22) Peter read [_{+TOP} the book]

means roughly 'Peter read the one and only book salient in the context'.

It is worth mentioning that the domain the interpretation of topics is restricted to is not identical with the so-called 'universe of discourse' in the sense of Discourse Representation Theory or File Change Semantics.

(23) John went by air. { [_{+TOP} The airplane/*It] } was a jumbo jet.

Though it is possible to refer to the airplane John went by with a definite topic, one cannot do that with a pronoun. There is no 'old discourse referent' to be picked up by the pronoun. Maybe we need a notion of 'degrees of salience' or something like that. I don't want to pursue this question here any further.

5.2 Information structure and aktionsart

I have stated above that object scrambling also influences aspectual interpretation. I repeat the data here.

(24) a. Peter hat [_{VP} die **B**ibel gelesen]
b. Peter hat [_{+TOP} die **B**ibel] [_{VP} gelesen]
'Peter read the Bible'

(24a) is ambiguous between a imperfective reading ('Peter was reading in the Bible') and a perfective one ('Peter read the Bible through'). (24b) only allows the latter interpretation. Let us start analysing (24a). My claim is that both readings, though identical at the surface, exhibit different information structures. A rule of thumb to determine the topics of a sentence is to check to what questions the sentence may be an answer.

(25) a. Was hat Peter gestern gemacht?
'What did Peter do yesterday?'
b. Was für Qualifikationen hat Peter?
'What qualifications does Peter have?'

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As an answer to (25a), besides the subject also the referential time should count as a topic of (24a). The imperfective reading results. Contrary, only the subject is a topic if the sentence is uttered as an answer to (25b). Here we have the perfective reading. In a semiformal

- (26)
- | | | |
|----|--|-----------|
| a. | $\exists x[x = \text{peter} \wedge$ | % Topic 1 |
| | $\exists t[t = t_r \wedge$ | % Topic 2 |
| | $\text{read}(x, \iota y(\text{bible}(y)), t)]$ | % Comment |
| b. | $\exists x[x = \text{peter} \wedge$ | % Topic |
| | $\text{read}(x, \iota y(\text{bible}(y)), t_r)]$ | % Comment |

where ' t_r ' is 'referential time'. (26a) represents the imperfective and (26b) the perfective reading. Remember that every topic contains a focus feature. What is the semantic impact of focus? Most researcher agree that focus generates a set of alternatives to the standard interpretation of the focused item (with the same logical type and sort). This set may act as argument for certain focus-sensitive operators. But what is the function of that alternative set if the focus happens to be free as in our example? I think the weakest assumption to be made about this is that there are nontrivial salient alternatives in the context of utterance. 'Nontrivial' here simply means that the proposition you get by replacing the interpretation of the focused item with the alternative results in a proposition which is neither inferable from the ordinary meaning of the sentence nor contradictory to it in the context of utterance. If we model the context of utterance as a proposition (the conjunction of the assumptions shared by the speaker and the hearer), we have:

- (27) A proposition p' is a nontrivial alternative to a proposition p in a context ct iff:
- $$ct \cap \|p\| \cap \|p'\| \neq \emptyset \neq ct \cap \|p\|$$

Alternatives to (26a) with respect to the focus on 'Topic 2' have the form:

- (28) $\exists x[x = \text{peter} \wedge \exists t[t = t_r' \wedge \text{read}(x, \iota y(\text{bible}(y)), t)]]$ (with $t_r \neq t_r'$)

According to (27), for (28) to be a nontrivial alternative to (26a) roughly means: Peter was reading the Bible at t_r and there are times t_r' different from t_r such that it is still open whether Peter read the Bible at t_r' or not. If t_r would refer to the entire interval of time it took Peter to read the Bible from Genesis to Apocalypses, there would be no alternative time remaining to fulfill this condition. Hence only the imperfective reading is in accordance with the information-structural requirements. No such requirements are to be fulfilled in (26b) where the referential time is part of the comment. Therefore the sentence is interpreted in its most informative variant, i.e. perfective.

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Why is an interpretation parallel to (25a)/(26a) excluded if the object is a topic too?

(29) $\exists x[x = \text{peter} \wedge$ % Topic 1
 $\exists t[t = t_r \quad \wedge$ % Topic 2
 $\exists !y[\text{bible}(y)] \wedge$ % Topic 3
 $\text{read}(x, y, t)]$ % Comment

As far as I can see, the reason is a purely pragmatic one again. Since the comment always contains a focus, there have to be salient nontrivial alternatives. The comment here only contains the 'bare' predicate 'read', and it is simply very difficult to accommodate a context where there are salient process predicates different from 'read' which could be attributed to the triple <Peter, the Bible, referential time> equally well. But it is possible to trigger the imperfective reading with an appropriate question like 'Did Peter read the Bible or did he learn it by heart yesterday?'. On the other hand, if the referential time is not a topic, the comment is the state predicate 'having read', which is attributed to the pair <Peter, the Bible>, and there is no difficulty to imagine an alternative relation between Peter and the Bible.

To conclude, I tried to show that previous approaches to object scrambling in German make wrong predictions according to the distribution of definite objects and fail to predict certain semantic/pragmatic effects of object-scrambling concerning the interpretation of definites and *aktionsart*. Besides this the approaches suffer from their ignoring phonology. Instead, I proposed a minimalist account to scrambling which explains this type of movement as a consequence of the interaction of information structure and a phonological well-formedness condition. In the last section, I argued that these claims about information structure form a reasonable basis to explain the observed semantic phenomena.

6. Acknowledgements

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7. Literature

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