

# Effects of indefinite pronouns and traces on verb stress in German

Hubert Truckenbrodt

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## Introduction

Kratzer and Selkirk (2007) develop an innovative account of phrasal stress in terms of phases (see Chomsky 2008). In developing the account with German examples, they notice an interesting difference concerning the indirect effect of indefinite pronouns as opposed to traces on whether stress is assigned to a following verb. This effect is further explored in this paper, along with some related issues.

By way of background, notice first that in all-new-sentences, a nonpronominal subject and a non-pronominal object both receive phrasal stress as in (1). (I indicate stress by underlining. The last stress is strengthened to the strongest of the clause, which I indicate by double underlining.) The absence of stress on the final verb is in some sense tied to the presence of the preceding stressed direct object (see Gussenhoven 1983, Krifka 1984, Selkirk 1984 and much later literature). If the verb is preceded by an adjunct as in (2) the final verb is stressed.

- (1) [What happened while I was gone?]

Ein Mann hat ein Buch gekauft.  
a man has a book bought  
'A man has bought a book.'

- (2) [What are you laughing about?]

Ein Mann hat während einer Vorstellung geschlafen.  
a man has during a show slept  
'A man has slept during a show.'

There is a sense, then, in which a direct object exempts the following verb from being stressed. Can the subject of a transitive verb likewise exempt the final verb from being stressed, across a pronoun or across the trace of a direct object? Kratzer and Selkirk (2007) show that this is not possible across an intervening indefinite object pronoun as in (3). Interestingly, they also show that, when the direct object is given and scrambled as in (4), the subject does exempt the final verb from requiring stress. Their examples show the stress-patterns of all-new sentences, except where otherwise noticed (as with the given constituent in (4)).

- (3) Ich hab gehört, dass Maria was gekauft hat.

H have heard that Maria something bought has  
'I have heard that Maria has bought something.'

- (4) Ich weiss, dass dieses Haus<sub>G</sub> Mafiosi besitzen.

I know that this house Mafiosi own  
'I know that Mafiosi own this house.'

In this paper, further cases of this contrast are introduced, the contrast is extended to configurations with an indirect and a direct object, and a related case from Kratzer and Selkirk

(2007) involving PPs without phrasal stress is addressed. The data is introduced in section 1. In Section 2 I review the account of Kratzer and Selkirk (2007) and offer an extension for the cases involving indirect and direct object. In Section 3 I discuss an account in the theory in terms of Stress-XP (Truckenbrodt 2007), though the case of the stressless PPs will remain open. I will not seek a choice between the two accounts, and will conclude by addressing the relation of the two accounts in Section 4.

## 1. Stress patterns with indefinite and definite pronouns

### 1.1. Indirect object + direct object + verb

The perspective discussed here is that the syntax plays a role in the assignment of phrasal prosodic structure and phrasal stress that can be stated independently of the deaccenting role of givenness (Ladd 1983, Féry and Samek-Lodovici 2006, Selkirk 2006) and independently of the role of focus (Jackendoff 1972, refined in Truckenbrodt 1995:Ch.4, Rooth 1996). Context questions are employed to ensure that a sentence, or the relevant part of it, consists of new elements inside of a larger focus.

Again some background first: A stressed new indefinite (i.e. unscrambled) direct object makes a following verb stressless obligatorily, as in (5).

- (5) [What did she do?]
- a. # Sie hat ein Buch gekauft.
  - b. Sie hat ein Buch gekauft.  
she has a book bought  
'She has bought a book.'

Now, an indirect object and a direct object both carry phrasal stress. Here the stressed direct object has the effect that the verb need not carry phrasal stress:

- (6) [What did she do?]
- Sie hat einem Kind ein Buch vorgelesen.  
she has a.DAT child a book read  
'She has read a book to a child.'

In (7) the direct object is replaced with an indefinite pronoun. Can the indirect object exempt the final verb from carrying phrasal stress in this case? As shown, stress on the verb as in (7a) is obligatory in such a configuration. (7b) is not a possible stress pattern in this case, unless the verb 'vorgelesen' is contextually given.

- (7) [What did she do?]
- a. Sie hat einem Kind (*et*)was vorgelesen.
  - b. # Sie hat einem Kind (*et*)was vorgelesen.  
she has a.DAT child something read  
'She has read something to a child.'

In (8) the direct object is realized by a definite object pronoun. This is fronted within the middle field of the clause obligatorily. As shown in (8), the stress facts change in the case considered here. Both stress patterns are now possible. Importantly, the stressless verb in (8b) is allowed, while it is disallowed in (7b).

- (8) [What did she do next with the book?]
- a. Sie hat *es* einem Kind vorgelesen.
  - b. Sie hat *es* einem Kind vorgelesen.  
she has it a.DAT child read  
'She has read it to a child.'

The same two stress-patterns are found when the direct object is not expressed, as in (9).

- (9) [What did she do?]
- a. Sie hat einem Kind vorgelesen.
  - b. Sie hat einem Kind vorgelesen.  
she has a.DAT child read  
'She has read to a child.'

In sum, stress on the verb is possible in the absence of a stressed direct object; in addition, a stressless verb is possible so long as the position of the direct object is phonetically empty; an intervening indefinite pronoun blocks the possibility of the stressless verb.

## 1.2. Subject + direct object + verb

As reviewed initially in this paper, a subject and a following unscrambled direct object both receive phrasal stress, and a following verb remains unstressed. Another example is shown in (10). I employ an initial adverbial for reasons explained later in this paper.

- (10) [What happened on Tuesday?]
- Am Dienstag hat ein Kunde ein Buch geklaut.  
on Tuesday has a customer a book stolen  
'On Tuesday a customer has stolen a book.'

The observation of Kratzer and Selkirk (2007) concerning a direct object pronoun is reproduced in (11). The verb cannot be stressless as in (11b) when the subject is followed by an indefinite direct object pronoun. (It could be stressless only if it were contextually given.)

- (11) [What happened on Tuesday?]
- a. Am Dienstag hat ein Kunde *etwas* geklaut.
  - b. # Am Dienstag hat ein Kunde *etwas* geklaut.  
on Tuesday has a customer something stolen  
'On Tuesday a customer has stolen something.'

When the direct object is a personal pronoun that is moved to the left of the subject, as in (12), the stressless verb is possible, as in (12b). This is parallel to the example (4) of Kratzer and Selkirk (2007). Alternatively, stress on the verb is possible, as in (12a).

- (12) [What happened to the new hammer?]
- a. Am Dienstag hat *ihm* ein Kunde geklaut.
  - b. Am Dienstag hat *ihm* ein Kunde geklaut.  
on Tuesday has it a customer stolen  
'On Tuesday a customer has stolen it.'

Kratzer and Selkirk (2007:122) observe for their example (4) that it does not allow the alternative stress-pattern with the verb stressed. I believe this may be because of the following reason. It seems to me that in the domain of optionality where the syntax does not determine the stress, subtle preferences arise due to expectability of the predicates involved. These may be more intricate than the givenness that we normally take into account. Thus, in (4) it may be that 'Mafiosi' and 'house' together make the verb 'own' in some sense expected. I seek to avoid this by using 'customer' and 'steal' in (12). Further examples to document the optionality are shown in (13) - (16).

- (13) [What do you know about Peter's trip?]
  - a. Überall haben *ihn Frauen verehrt.*
  - b. Überall haben *ihn Frauen* verehrt.  
everywhere have him women admired  
'Women admired him everywhere.'
  
- (14) [What did Peter see on his trip?]
  - a. Überall haben *Frauen jemand verehrt.*
  - b. # Überall haben *Frauen jemand* verehrt.  
everywhere have women someone admired  
'Women have admired someone everywhere.'
  
- (15) [What happened to the apparatus?]
  - a. In der Werkstadt haben *ihn Fachleute geölt.*
  - b. In der Werkstadt haben *ihn Fachleute* geölt.  
in the garage have it specialists oiled  
'Specialists have oiled it in the garage.'
  
- (16) [What happened in the afternoon?]
  - a. In der Werkstadt haben *Fachleute etwas geölt.*
  - b. # In der Werkstadt haben *Fachleute etwas* geölt.  
in the garage have specialists something oiled  
'Specialists have oiled something in the garage.'

As seen initially, then, a subject can exempt a following transitive verb from being stressed across the trace of the direct object, but not across an intervening indefinite pronoun. The patterns are parallel to those of indirect and direct obect.

### 1.3. Directional and locative PPs

Kratzer and Selkirk (2007:107f) discuss a pattern of stress from Uhmann (1991) and others that is unexpected for earlier accounts that assign phrasal stress to each verbal argument, including the account in terms of Stress-XP. When a direct object (or unaccusative subject) is followed by a directional or locative PP, the PP need not carry phrasal stress. (Agentive verbs seem to be excluded from this, as Kratzer and Selkirk 2007 show.) In (17), the PP 'an einen Freund' does not carry phrasal stress. Importantly, this pattern of stress is possible even if the PP is not contextually given.

- (17) ... dass ein Junge eine Geige an einen Freund schickte  
that a boy a violin to a friend sent  
'... that a boy sent a violin to a friend.'

Notice that this suggests that adjacency of the verb to the stressed object is not a general precondition for a stressless verb in German. Similar patterns of leftmost stress within the VP in Persian are reported in Kahnemuyipour (2004).

## **2. The account of the phase-based theory of phrasal stress by Kratzer and Selkirk (2007)**

## 2.1. CP and vP phases

Kratzer and Selkirk (2007) formulate a new theory of phrasal stress that postulates a connection to the phases of Chomsky (2008). In doing so, they build on suggestions of Kahnemuyipour (2004). They also integrate suggestions about topics by Jäger (2001). German plays a central role in the illustration of the theory.

According to Chomsky, vP and CP are phases, i.e. cyclic nodes on a cycle where each cyclic node undergoes a derivation that includes interpretation at LF and PF. Phases are divided into edges (specifier and head of the highest projection in the phase) and spellout domains (the complement of this highest projection of the phase). Only the spellout domain of a phase is processed at PF. Processing at PF is taken to result in structures that no longer allow syntactic movement. Elements that undergo syntactic movement out of the phase must therefore stand at the edge of the phase, outside of the spellout domain, to escape being spelled out as part of the phase. The starting point for Kratzer and Selkirk is that the spellout domain of CP is TP and the spellout domain of vP is VP.

Kahnemuyipour (2004) suggested that the highest constituent in a spellout domain receives phrasal stress. Kratzer and Selkirk (2007) modify this to a formulation in which the highest syntactic *phrase*, i.e. *XP*, in the spellout domain receives phrasal stress (and first forms a prosodic major phrase, an aspect that I do not address here).

- (18) Kratzer and Selkirk (2007)  
The highest phrase condition on prosodic spellout – stress-based version  
Assign phrase stress within the highest syntactic phrase within the spellout domain.

Consider the structure in (19) for a transitive German *dass*-clause. Kratzer and Selkirk analyze the subject as being in Spec,TP.



In the lower spellout domain VP, the direct object 'Gesetze' is the highest XP and receives phrasal stress by (18). In the higher spellout domain TP, the subject is the highest XP and receives phrasal stress by (18). Stress is thus correctly assigned to these two arguments.

An empirical strength of the proposal by Kratzer and Selkirk (2007) lies with its ability to generalize to the unexpected stress pattern involving the stressless PP discussed in the preceding section: The PP argument that follows the direct object need not receive phrasal stress. (20) illustrates how the account of Kratzer and Selkirk (2007) works. In the vP-phase, the direct object is the highest XP in the spellout domain VP, and thus receives phrasal stress. No other phrasal stress is assigned in this lower spellout domain, therefore the PP argument remains without phrasal stress.

- (20) [CP-PHASE-1 dass [TP-SPELLOUT-1 ein Junge<sub>k</sub>  
           [VP-PHASE-2 t<sub>k</sub> [VP-SPELLOUT-2 eine Geige an einen Freund schickte ]]]]  
       that              a boy    a violin to a friend sent

## 2.2. A topic phase

Kratzer and Selkirk (2007) adopt the suggestion of Jäger (2001) that sentences have to have a syntactically represented topic. In assessing stress-patterns in clauses that only consist of subject and verb, this is important: If the sentence takes the subject as its topic, subject and verb will both be stressed, though not because of independent demands of the syntax, but because of demands of the topic-requirement of the sentence. Following Jäger, one can avoid this with the help of an initial overt sentence topic. This disengages the subject from the topic-requirement and allows us to study the remaining effects of the syntactic structure on phrasal stress. Jäger also argues that the effect of stage- vs. individual-level predicates on argument position and interpretation (Diesing 1992, Kratzer 1995) is real but indirect, mediated by this topic requirement.

Kratzer and Selkirk (2007:113) show that when this is taken into account, it becomes apparent that unergative verbs in German show an all-new stress pattern in which the subject is stressed and the verb stressless. Two additional examples are shown in (21).

- (21) a. Im Wohnzimmer hat ein Besucher telefoniert.  
in\_the livingroom has a visitor telephoned  
'A visitor has telephoned in the livingroom.'  
b. In der Küche haben einige Männer gearbeitet.  
in the kitchen have some men worked  
'Some men have worked in the kitchen.'

In the absence of reasons to contrast the verb or to take the subject as in some way given, a stress-pattern in which the verb is also stressed is dispreferred in such sentences.

Kratzer and Selkirk (2007) postulate a topic phrase TopP between CP and TP. They suggest that the TopP is itself a phase. In this way both the topic and the following subject in examples like (21) receive phrasal stress. This is shown in (22), the embedded clause equivalent of (21a). The topic 'im Wohnzimmer' in Spec,TopP receives phrasal stress as the highest XP of the TopP spellout domain of the CP phase. The subject 'ein Besucher' in Spec,TP receives phrasal stress as the highest XP of the TP spellout domain of the TopP phase.

- (22) dass im Wohnzimmer ein Besucher telefoniert hat  
[CP-PHASE-1 [TopP-SPELLOUT-1 ]]  
[TopP-PHASE-2 ] [TP-SPELLOUT-2 ]  
that in\_the livingroom a visitor telephoned has

## 2.3. Verb stress and verb position

On the VP phase, the VP cannot itself be designated as the XP in which stress needs to be located, since this would not direct the stress to any constituent inside of the VP, such as the direct object in (19). So the stress-receiving element is defined in (18) as the highest XP *inside of* the spellout domain. In a spellout domain VP, this is the highest XP inside of VP. In (19), for example, this is the direct object.

By consequence, (18) will never direct stress to the verb. A natural amendment to (18) is then the condition in (23) from Kratzer and Selkirk (2007:110). It requires a prosodic major phrase, and thus ultimately phrasal stress, inside of a spellout domain. Thus, if there is no highest XP to be stressed by (18) inside of the spellout domain, stress is assigned to some element in the spellout domain, which is then the verb.

- (23) The Elsewhere Condition on prosodic spellout  
A spellout domain with eligible material must contain a major phrase.

Crucial for the issue of whether the verb is stressed by the Elsewhere Condition is then the position of the verb. If it remains within VP, it receives stress by (23) when VP is a spellout domain. Kratzer and Selkirk assume that the verb (or verb cluster) can also undergo head-movement and raises to v, the head of vP. There it is outside of the spellout domain VP and will end up without phrasal stress.

In the suggestion of Kratzer and Selkirk, the presence of the indefinite pronoun vs. trace intervening between the subject and the verb has a crucial effect on the position of the verb. As shown in (24), the verb does not raise to v in the presence of the the indefinite pronoun 'was'. The pronoun rejects stress for independent reasons. The verbs are therefore the target of the Elsewhere Condition (23) and receive phrasal stress in this manner.

- (24) [CP-PHASE-1 dass [TP-SPELLOUT-1 Maria<sub>k</sub> [vP-PHASE-2 t<sub>k</sub> [VP-SPELLOUT-2 *was gekauft hat*]]]]]  
that Maria something bought has

In the absence of an overt pronoun, on the other hand, the verbs are assumed to raise to v and the Elsewhere Condition does not apply on the lowest cycle, as in (25). The verb will not be stressed in the head position of vP: The next larger spellout domain is TP, the spellout domain of TopP. The highest XP in the TP is the subject, so that the Elsewhere Condition does not end up stressing the raised verb.

- (25) dass dieses Haus<sub>G</sub> Mafiosi besitzen.  
[CP-PH-1 [TopP-SP-1 ]]  
[TopP-PH-2 [TP-SP-2 ]]  
[<sub>vP-PH-3</sub> t<sub>k</sub> [VP-SP-3 t<sub>i</sub> ] besitzen<sub>i</sub> ]]  
that this house Mafiosi own

Kratzer and Selkirk suggest that raising is motivated by prosodic spellout economy. Where the moving verb would leave behind an phonetically empty spellout domain, as in (25), this spellout domain can ultimately be 'skipped'. This economical advantage motivates and thus forces raising of the verb in their account. In (24), the presence of the indefinite pronoun prevents this advantage: Even if the verb raised, the spellout domain would still contain the overt pronoun, and thus could not be 'skipped' in this manner. Therefore, raising of the verb would not be motivated and is not allowed.

As was seen, the position taken in the current paper is that the stress pattern in (25) alternates with an optional variant in which the verb is stressed. One way of looking at this optionality is that raising of the verb is possible but optional in this case. Where the verb does not move, the Elsewhere Condition assigns stress to it in the spellout domain VP. I leave open the details of integrating this with Kratzer and Selkirk's account.

## 2.4. Extension to ditransitive verbs

The extension to ditransitive verbs offered here assumes a verbal domain that is further structured into VP shells (Larson 1988, see Ramchand 2008 for recent suggestions). It further builds on the suggestion by Kratzer and Selkirk (2007:123) that there are multiple topic projections in the German clause, including one between between subject and object positions. If I understand correctly, the suggestion is that the targets of scrambling may more

generally be identified with TopPs (scrambling applying only to elements with topic properties, such as given DPs or indefinites with presuppositional readings).

The extension requires a separate layer of the VP shell for the indirect object, as well as a topic projection on top of the VP of the direct object, the latter briefly introduced by Kratzer and Selkirk (2007:123). The objects are taken to be in the specifiers of these VP projections, as in (26).

- (26) ... [<sub>vP-PH-1</sub> t [VP<sub>1-SP-1</sub> einem Kind [<sub>TopP-PH-2</sub> [VP<sub>2-SP-2</sub> ein Buch vorgelesen]]]]  
a.DAT child a book read

In this fashion, the indirect object IO receives stress as the highest XP in the spellout domain VP<sub>1</sub> of the phase vP. The direct object receives phrasal stress as the highest XP in the spellout domain VP<sub>2</sub> of the lower TopP phase.

Consider then the case with the indirect object pronoun 'etwas' in (27). The pronoun prevents the verb from raising: It would not leave an empty VP spellout domain behind. The verb is consequently stressed by the Elsewhere Condition on the lower TopP phrase with the spellout domain VP<sub>2</sub>.

- (27) ... [<sub>vP-PH-1</sub> t [VP<sub>1-SP-1</sub> einem Kind [<sub>TopP-PH-1</sub> [VP<sub>2-SP-2</sub> *etwas* vorgelesen]]]]  
a.DAT child something read

With the direct object moved as in (28), the verb will also raise, leaving an empty spellout domain VP behind. The verb remains unstressed (the spellout domain it is in, TP, normally assigns stress to its highest XP, the subject). The indirect object is stressed, as in the preceding examples, as the highest XP in the spellout domain VP<sub>1</sub>.

- (28) ... *es<sub>k</sub>* [<sub>vP-PH-1</sub> t [VP<sub>1-SP-1</sub> einem Kind [<sub>TopP-PH-2</sub> [VP<sub>2-SP-2</sub> <sub>t<sub>k</sub></sub> <sub>t<sub>i</sub></sub>]]]] vorgelesen<sub>i</sub>]  
it a.DAT child read

The additional TopP above the direct object is argued for by Kratzer and Selkirk (2007) in a case with a simple transitive verb. It can also be motivated as a target of scrambling (see Müller 1999, Haider and Rosengren 2003 on scrambling). The verb 'eintauschen', 'trade' in (29) - (31) takes a direct object and a prepositional object and allows an optional benefactive dative argument. Direct object and PP object are bare plurals in (29) and (30). The context in these cases does not motivate an information structure asymmetry between them. In these cases, scrambling into a topic position is not motivated. The deviance of (30) shows that (29) is the underlying word order. In (31) the PP object is made into a potential topic in two ways. It is definite and it is given. In this case, scrambling as in (31) is possible. Crucially, scrambling here targets a position below the indirect object and above the direct object. This is the position for which a topic projection is postulated in (26).

- (29) [What did he do?]  
Er hat einem Kunden Nägel gegen Schrauben eingetauscht.  
he has a.DAT customer nails against screws traded  
'He has traded nails against screws for a customer.'

- (30) [What did he do?]  
?# Er hat einem Kunden gegen Schrauben Nägel eingetauscht.  
he has a.DAT customer against screws nails traded

- (31) [What did he trade against these screws?]  
 Er hat einem Kunden gegen diese Schrauben<sub>G</sub> Nägel eingetauscht.  
 he has a.DAT customer against these screws nails traded

Summing up, the extension of the stress patterns involving indefinite pronouns and traces to ditransitive verbs can be accommodated in the theory of Kratzer and Selkirk 2007 with plausible additional means: an additional layer in a VP shell representation, and a second topic phrase above the direct object.

### 3. Account in terms of Stress-XP

#### 3.1. Background on Stress-XP

Like so much in this area, Stress-XP builds on work by Lisa Selkirk. Stress-XP builds on the claim of the universal relevance of XPs to the syntax-phonology interface, elaborated in terms of Align-XP for Chi Mwi:ni in Selkirk (1986), for Shanghai Chinese in Selkirk and Shen 1990 (here the restriction on lexical XPs plays an important role) and for Japanese in Selkirk and Tateishi (1991). See also Selkirk (1995) for implementation of edge-alignment with XPs in Optimality Theory and for some consequences of it in English.

Stress-XP is from Truckenbrodt (1995). It was applied to German briefly in Samek-Lodovici (2005) and Truckenbrodt (2006, (2007) and in some more detail in Truckenbrodt and Darcy (2010). See Féry and Samek-Lodovici (2006) for application to English, Samek-Lodovici 2005 for application to Italian and a range of other languages.

The constraint is formulated as follows:

- (32) Stress-XP: Each lexical XP must contain a beat of phrasal stress.

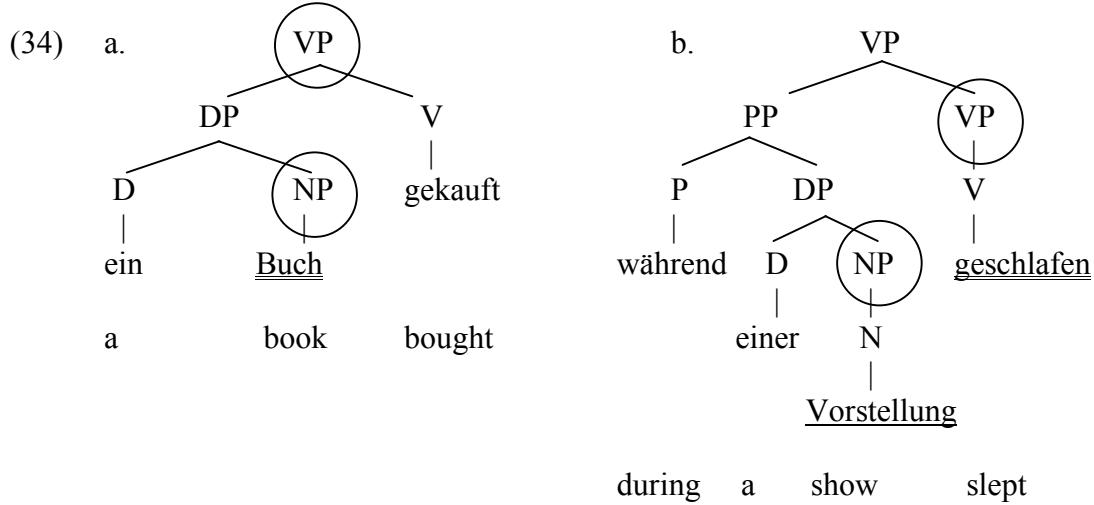
The effects of Stress-XP are to be assessed on the assumption that phrasal stress is assigned only where forced by this constraint. The assumption that the last phrasal stress thus assigned is strengthened to the strongest of the intonation phrase is shared with the account of Kratzer and Selkirk (2007).

In the Stress-XP account, each argument and each adjunct correctly receives phrasal stress because, and so long as, it includes a lexical XP. The lexical XP requires phrasal stress by Stress-XP. I take DP, PP, vP, TP, and CP to be functional projections that do not invoke Stress-XP. Stress-XP is invoked by the lexical projections NP and VP (as well as AP, not discussed here). DP argument often contains a lexical NP, and it is this NP that requires phrasal stress by Stress-XP. These NPs in the arguments are bracketed in (33). If each of them attracts phrasal stress, the correct beats of phrasal stress are derived here. An adjunct such as [während einer [<sub>NP</sub> Vorstellung]] in (2) likewise contains such a lexical XP, typically an NP as in this case, which correctly attracts stress by Stress-XP.

- (33) [<sub>NP</sub> Peter] hat einem [<sub>NP</sub> Kind] ein [<sub>NP</sub> Buch] vorgelesen.  
 Peter has a.DAT child a book read  
 'Peter has read a book to a child.'

The theory in terms of Stress-XP claims in its favor a conceptual edge over earlier theories like that of Gussenhoven (1983, 1992): The argument-adjunct distinction in stress-assignment is not written into the account. Instead, it is derived from standard assumptions about the different syntactic structure of arguments and of adjuncts with the help of the simple formulation in (32). This relates to the application of Stress-XP to the lexical projection VP. An argument, as in (34a), is genuinely inside of the projection of the verb, the VP. The NP in

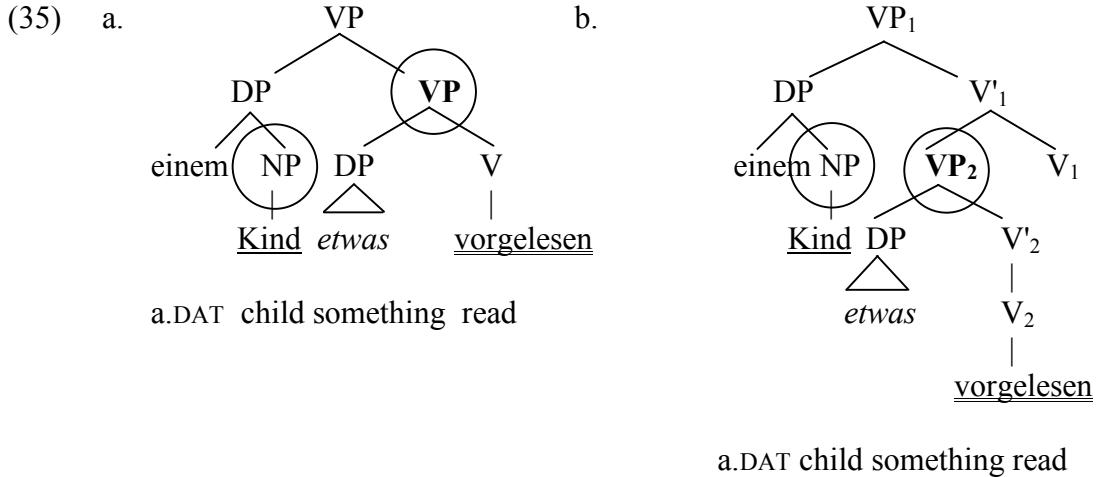
the argument needs to carry phrasal stress to satisfy Stress-XP. Given this phrasal stress on the argument, Stress-XP is also satisfied for the VP, since the stress on the argument is also stress inside of the VP. No additional stress is required on the verb following the argument. Matters are different for the adjunct, as shown in (34b). The adjunct to VP is not genuinely inside of VP. Instead, there is one segment of the VP, the lower one, which is a sister to the adjunct. For some purposes, including the assignment of thematic roles, this lower segment is decisive, i.e. the adjunct counts as being outside of VP. Truckenbrodt (1999) argued that the lower segment is also decisive for the syntax-prosody mapping. This is assumed here as well. With this, Stress-XP, applied to the VP in (34b), requires phrasal stress in this VP. Stress in this circled VP can only fall on the verb. Put differently, phrasal stress on the argument satisfies Stress-XP in (34a), where the following verb is only a head; in (34b), the verb following the adjunct is really a VP, and therefore requires phrasal stress by Stress-XP.



More generally, if a lexical XP is inside of another one (cf. the two circled lexical XPs in (34a)), no additional phrasal stress is required for the higher XP: A single instance of phrasal stress will satisfy Stress-XP for both projections. On the other hand, where two lexical XPs are disjoined and next to each other (cf. the two circles in (34b)), Stress-XP will of course require phrasal stress in each of them.

### 3.2. Pronouns and traces

The stress-pattern [...] IO pron<sub>DO</sub> V] in (7) suggests the presence of an internal VP as follows: [...] IO [VP pron<sub>DO</sub> V]]. This VP will correctly attract stress by Stress-XP, which cannot fall on the pronoun for independent reasons (nor on the IO, which is crucially outside of this VP) and thus falls on the verb. (35a) is a structure of this kind that is suggested for verbal arguments by Haider and Rosengren (2003): The lowest argument joins with the verb to form a VP, higher arguments occur in VP-adjoined positions. In this structure, the circled VP that comprises the direct object and the verb invokes Stress-XP and thus correctly derives stress on the verb. In this paper I mainly employ VP shell structures as in the discussion of Kratzer and Selkirk 2007 above. The VP shell structure in (35b), crucially with a separate VP for direct object and verb, derives the correct stress pattern. The lower VP<sub>2</sub> of the shell-structure (circled) here invokes Stress-XP and derives the stress on the verb.



The VP-shell structure employed here also correctly derives the stressless verb in (33) as shown in (36). The lexical XPs are bracketed here. Stress in the direct object noun 'Buch' is also stress in  $VP_2$  so that Stress-XP provides no reason to stress the final verb.

- (36) [Peter] hat [ $vp_1$  einem [Kind] [ $vp_2$  ein [Buch] vorgelesen]]]  
 Peter has a.DAT child a book read

Let us turn to the case involving the direct object trace in (8), where both stress-patterns [... IO t V] and [... IO t V] are allowed. The choice of the account turns on correctness of the Uniformity of Theta-assignment Hypothesis by Baker (1988:46):

- (37) *Uniformity of Theta-assignment Hypothesis (UTAH)*  
 Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.

If the UTAH is correct, it entails a fixed underlying order of the arguments for a given German verb. For example, the verb 'vorlesen' has an agent, a beneficent/experiencer and a theme argument. The UTAH requires that the underlying order of these is constant regardless of their surface order. German word-order in the Mittelfeld is fairly flexible. A standard analysis for this flexibility is to assume an underlying order (either the unmarked word order or an order inferred by other syntactic arguments) and to hold scrambling responsible for the flexibility. See, for example, Frey (1993) and Haider and Rosengren (2003). However, it has also been suggested by Bayer and Kornfilt (1994), Fanselow (2001, 2003), and others, that the assumption of a fixed underlying order be given up and that word order in the Mittelfeld is base-generated. This amounts to giving up the UTAH.

An account that allows different underlying orders to be base-generated can derive the two stress-patterns as shown in (38). 'Kind' is stressed as an NP in both a. and b. Where it is followed by the trace of the direct object in a lower VP, this lower VP attracts stress as in (38a), in parallel to (35a). The assumption of flexible underlying order also allows (38b), where the indirect object is base-generated in the lowest VP, thus exempting the following verb from being stressed.

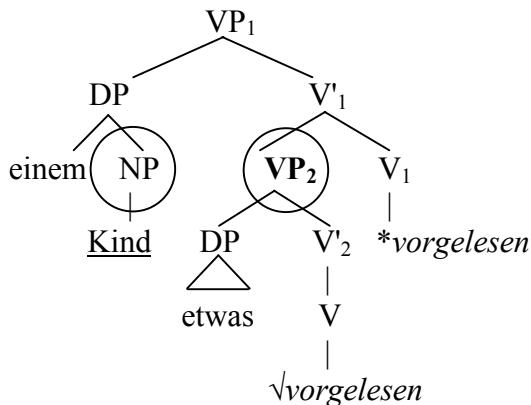
- (38) *Structures in an account that allows different underlying orders*

- a.  $es_i$  [VP einem Kind [VP  $t_i$  vorgelesen]].
- b.  $es_i$  [VP  $t_i$  [VP einem Kind vorgelesen]].  
 it a.DAT child read

In that account, the difference between the indefinite pronoun in situ in (7) and the dislocated definite pronoun in (22) is due to the fact that the dislocated pronoun need not originate in the lowest VP, while a pronoun in situ must be in the lowest VP due to its overt position.

Here I pursue an account that retains the spirit of the UTAH, as does Ramchand (2008). Following Kratzer and Selkirk (2007), I relate the difference between pronoun and trace to the position of the verb in its shell. As in Kratzer and Selkirk's account, a higher position of the verb is to be prohibited in the presence of the indefinite direct object pronoun, as shown in (39). Here the verb is to receive the phrasal stress assigned due to Stress-XP in VP<sub>2</sub>. If it were to stand in a higher position, there would be no incentive for stressing it. We are led to assume that raising is not an option in this case.

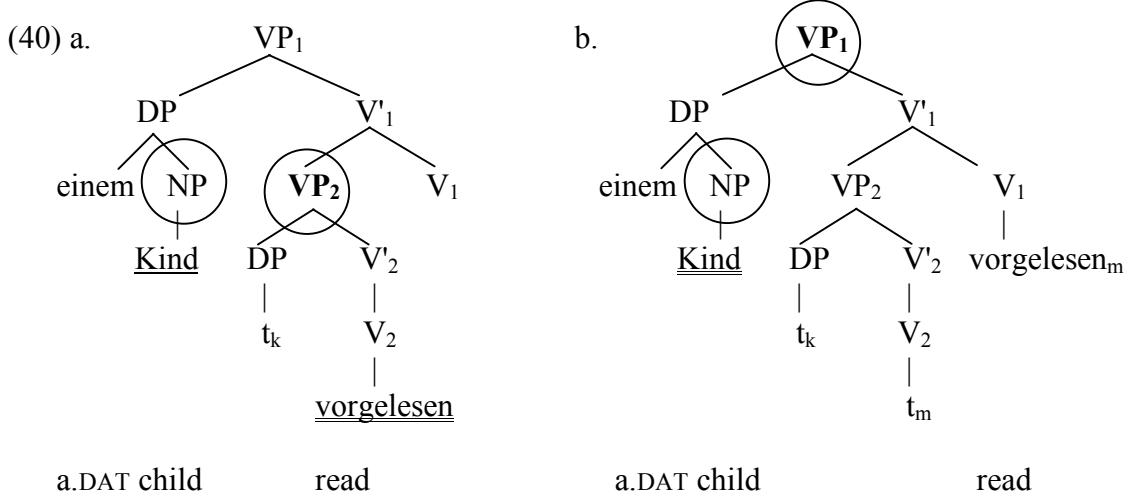
(39)



a.DAT child something read

I assume for concreteness that the verb always raises in its shell for theta-role assignment, and that its traces are copies of the verb. The question at issue is then which of these copies is spelled out.

In the case of the direct object trace in (8), one would ideally want to allow the structure (40a) with a low verb position as well as the structure (40b) with a higher verb position. In (40a), Stress-XP, applied to VP<sub>2</sub>, will lead to stress on the verb. In (40b), VP<sub>2</sub> is empty-headed and phonetically empty. By the Lexical Category Condition (LCC), a general provision formulated in Truckenbrodt (1999), lexical XPs invoke the phrasal mapping constraints but neither functionally headed XPs nor empty-headed XPs do. (The distinction between lexical and functional elements goes back to Selkirk and Shen 1990 and Selkirk 1995.) VP<sub>2</sub> in (40b) is empty-headed (and phonetically empty), and so does not invoke Stress-XP by this general provision. VP<sub>1</sub> is now overtly headed and so invokes Stress-XP. This is satisfied without stress on the verb, since VP<sub>1</sub> contains stress on the word 'Kind', which is independently required by the application of Stress-XP to this NP. This derives the stress-pattern with the stressless verb.



Why would low spellout be the only option in (39) and high spellout be allowed in (40)? The present account cannot invoke the economy considerations suggested by Kratzer and Selkirk (2007) for their account. A different possibility outlined here is a combination of the traditional headedness parameter in (41) with a weakened version of the Linear Correspondence Axiom (LCA) of Kayne (1994). The weakened LCA, here wLCA, orders only overt elements. Furthermore, adjuncts are ignored here. For the purposes at hand, the much-simplified version in (42) is sufficient.

(41) The VP is head-final in German.

(42) wLCA

For overt specifiers, overt heads and overt complements:  
A specifier of XP precedes X and any complement of X.  
A head precedes its complement.

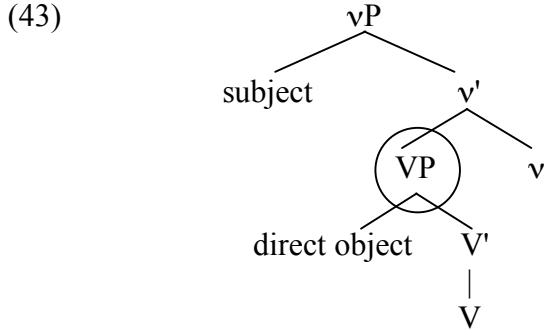
(39) is in accord with the wLCA so long as the verb does not raise in its shell: The indirect object, a specifier of VP<sub>1</sub>, precedes the complement VP<sub>2</sub> of V<sub>1</sub>. The direct object, in specifier position of VP<sub>2</sub>, precedes the head V<sub>2</sub>.

The wLCA prohibits a higher spellout of the verb in this structure. If the verb were to be spelled out in the position of V<sub>1</sub>, it would be an overt head the follows its complement VP<sub>2</sub>, in violation of the wLCA. (It would have to follow the pronoun because of the headedness parameter (41).) Notice that only overt elements matter to the wLCA in (42). A phonetically empty verb V<sub>1</sub> is therefore not relevant to the wLCA.

Where the direct object position is occupied by a phonetically empty trace as in (40), spellout of the verb in the higher position in (40b) is not blocked by the wLCA. This is because only phonetically overt elements are ordered by the wLCA in (42). (40b) does not violate the wLCA, since VP<sub>2</sub>, the complement of V<sub>1</sub> is empty in this structure and thus not ordered by the wLCA. Among the overt elements, the indirect object in the specifier position of VP<sub>1</sub> precedes the head V<sub>1</sub>, as required. We may tentatively assume, then, that the spellout positions in (40a) and (40b) are both allowed, and that the optionality in stress-assignment in (8) is optionality between these two structures.

Let us then briefly turn to the syntactic cases involving a subject, a direct object and the verb. It was seen above that the stress-facts of this case (section 1.2.) are parallel to the cases involving an indirect object, a direct object and a verb (section 1.3.). The account employs the structure used throughout in which the direct object stands in the specifier of a separate VP as in (43). The account is parallel to the account of the objects in a ditransitive

structure above (here with the subject in place of the indirect object above). Raising of the verb needs to be constrained by the wLCA, in parallel to (39) and (40).



The projection hosting the subject is the functional vP. Notice that in the examples discussed here, the verb receives stress only in the application of Stress-XP to the lower (and always lexical) VP.

### 3.3. Stressless PPs

The stress-pattern with stressless locative and directional PPs presents what seems to be a serious problem for the account in terms of Stress-XP. As shown in (44), there is a lexical NP in the PP, and Stress-XP would predict phrasal stress on this NP. The surprise here is with the fact that the stressless PP is allowed even if the PP is new. (I concur with the assessment of Kratzer and Selkirk 2007 that stress on the PP is also a possibility.)

- (44) ... dass ein [Junge] eine [Geige] an einen [Freund] schickte  
       that a boy a violin to a friend sent  
       '... that a boy sent a violin to a friend.'

I agree with Kahnemuyipour (2004) and Kratzer and Selkirk (2007) that such stress-patterns motivate exploring new paths in this domain. Still, for me personally it is too early to give up Stress-XP as a contender in the discussion. I plan to explore in future work the possibility that we are facing a case of untypical syntax.

Hale and Keyser (2002:Ch.3) discuss similar constructions in English, shown in (45) on the left. They are interested in the verb formation process shown on the right.

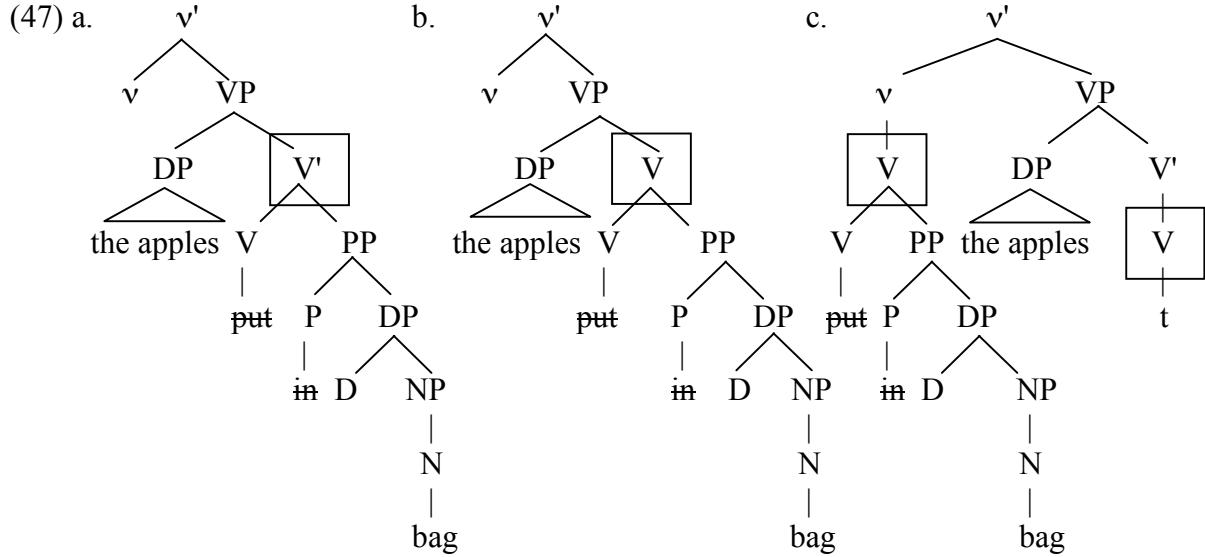
- |         |                                     |                            |
|---------|-------------------------------------|----------------------------|
| (45) a. | John put the wine in (a) bottle(s)  | John bottled the wine.     |
| b.      | John put the apples in (a) bag(s)   | John bagged the apples.    |
| c.      | Leecil put the calves in the corral | John corralled the calves. |

These verbs can include the concepts of the directional PP as shown. Hale and Keyser argue that more is involved than syntactic head movement (incorporation). First, they argue that head movement can proceed from the specifier of a complement to a higher head. Conflation does not allow this. In the cases in (45), this would result in inclusion of the theme in the verb: A construction like 'John put the apples in bags' would result in verb formation like \*'John appled in bags'. This does not occur. Second, this word formation process will sometimes allow the kind of complement originally incorporated into the verb:

- (46) John shelved the books on the windowsill.  
       John bagged the potatoes in a gunnysack.

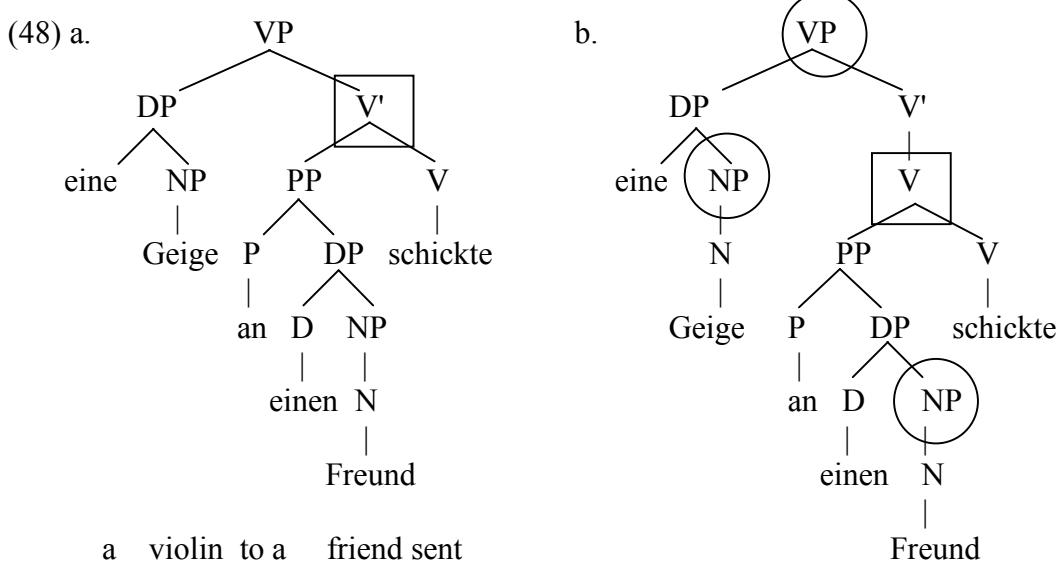
Hale and Keyser define a novel process of conflation with these properties. For them, the input to conflation is the structure  $[_{VP} V [_{PP} [\text{the apples}] (\text{in bag})]]$ , with conflation of '(in) bag' with the higher verb.

For the sake of exploration, let us tentatively redefine conflation in terms of the VP-shells employed in this paper. In these terms, conflation may be thought of along the lines of V' reanalysis in Larson (1988), namely as a process in which a V' is turned into a verbal head. (47) shows the derivation of 'bag the apples'. In step b. the original V' is turned into V by conflation. In step c., this newly formed head undergoes head movement in the shell.



The understanding of conflation as V' reanalysis would have the desired properties. First, the theme ('the apples' in (45)) does not participate in this word formation process, since it is in a specifier position outside of V'. Second, the observation in (46) finds a place. Assume that after the joining of V and PP to  $[_V V PP]$  conflation applies to give  $[_V V PP]$ . This newly formed head can now take a directional PP complement into its (to-be-created) V' projection. To be sure, conflation violates traditional assumptions about structure preservations: Phrases do not normally become parts of heads.

The parallel of interest for the German stress-facts is that in those cases in which English allows verb formation, i.e. somehow joining what is otherwise a phrase into a verbal head, German allows absence of stress. Assume that conflation applied to the relevant structure (48a) in German, deriving (48b).



In (48b), there would be a plausible reason for not stressing the PP. The demands of Stress-XP in the PP may be in conflict with demands on the boxed constituent V to be mapped to, or wrapped in, a prosodic word. Where this latter requirement would win out, the PP would end up stressless.

Some syntactic arguments for a particular closeness of this class of PPs to the verb in German can be found in Steinitz (1989) and Frey (1993). For the syntax of Persian, Kahnemuyipour (2004:95f) cites references for the syntactic analysis he adopts, and cites Karimi (2003), who presents arguments that point in the direction outlined here.

I leave all this to future work, merely noting here that a defense of Stress-XP may not be entirely hopeless in the face of the German stressless PPs and related facts in Persian.

#### 4. Phases vs. phrases: concluding remarks on the relation of the two accounts

Here I wish to highlight some elements in which the two accounts discussed differ, and some elements that they share.

Let us take a generalization from the SAAR of Gussenhoven (1992) as a starting point: Inside of a focus, non-given arguments and adjuncts receive accent (here: phrasal stress; Gussenhoven 1992:98ff treats stressless locative PPs as predicates).

Stress-XP takes this surface-generalization at face value, and maintains that it is the lexical XPs inside of the arguments and adjuncts that require this stress. Exceptions are the German stressless PPs and similar stress-patterns in Persian VPs described by Kahnemuyipour (2004), assuming standard syntactic analyses of these. Stress-XP extends to VPs without further ado: The verb is stressed if it constitutes a VP on its own (or together with a pronoun). It is not stressed if another lexical XP inside of the VP requires phrasal stress independently.

The account of Kratzer and Selkirk (2007) in terms of phases takes the observations of Kahnemuyipour (2004) and the German stressless PPs as one of their starting points. In some sense, matters are here shifted up in the tree, relative to earlier accounts including the Stress-XP account. For the typical argument and adjunct, stress-assignment is triggered with the constituent dominating them, a spellout domain of a phase, of which the argument or adjunct is the highest XP. This requires, in the end, a phase for each beat of phrasal stress in the sentence. This was shown for DP arguments in the text above. Adjuncts will similarly require additional phases. A plausible conception for additional phases of this kind lies with the suggestion of Kratzer and Selkirk (2007) that topic phrases introduce additional phases, where these topic phrases are identified with landing sites of scrambling.

The 'shift up in the tree' leads to the need for a separate statement concerning stress on the verbs, the Elsewhere Condition, which mirrors the effect of Stress-XP: The VP spellout domain requires phrasal stress. Seen from the point of view of Stress-XP, the resulting dichotomy in principles of stress-assignment may be seen as a price to pay for 'shifting up in the tree' of the stress-trigger of constituents other than the verb. However, if the phrasal account is on the right track, the Elsewhere Condition seems to be natural.

I have mainly explored how the effects of indefinite pronouns and traces of the direct object generalize from transitive sentences to ditransitive sentences. Kratzer and Selkirk (2007) suggested that the option of raising of the verb or verbs in the VP-shell correlates with the absence of an overt direct object pronoun. This proves to be fruitful in the extension of their account to ditransitive sentences. It also proves to be fruitful in an account of these patterns in terms of Stress-XP. I pointed out that a weakened version of Kayne's LCA may also be at play in restricting possible verb positions.

Lisa, I hope that there is something in this discussion that you enjoy thinking about. Much pleasure in the years ahead, with time for research!

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