The Semantics of Head Movement (Bhatt & Keine 2014)

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1 Introduction

Outline:

- We will distinguish between two types of passive in German: the *local passive* and the *long passive*.
- In the local passive, the direct object of the verb is marked with accusative, in the long passive it is in the nominative.
- Bhatt & Keine (B&K) assume that local passives are embedded vPs, whereas long passives are embedded VPs.
- Furthermore, we will see that there is obligatory low scope of the embedding verb in long passives (but not in local passives).
- This semantic effect is assumed to come from cluster formation (head movement), which only takes place in long passives.

2 The passive

2.1 The local passive & long passive in German

Consider the active clause in (1):

(1) *Active*:

weil er **den** **Traktor** zu reparieren vergessen hat
because he the.ACC tractor to repair forgotten has

'because he forgot to repair the tractor'

We can passivize this structure in one of two ways:

- In (2-a), the passivized DP *the tractor* retains accusative case as in the active example in (1). This is the *local passive*.
- In (2-b), *the tractor* bears nominative case. This is the *long passive*.

(2) a. *Local passive*:
weil **den** **Traktor** zu reparieren vergessen wurde
because the.ACC tractor to repair forgotten was

b. *Long passive*:
weil **der** **Traktor** zu reparieren vergessen wurde
because the.NOM tractor to repair forgotten was
'because it was forgotten to repair the tractor'

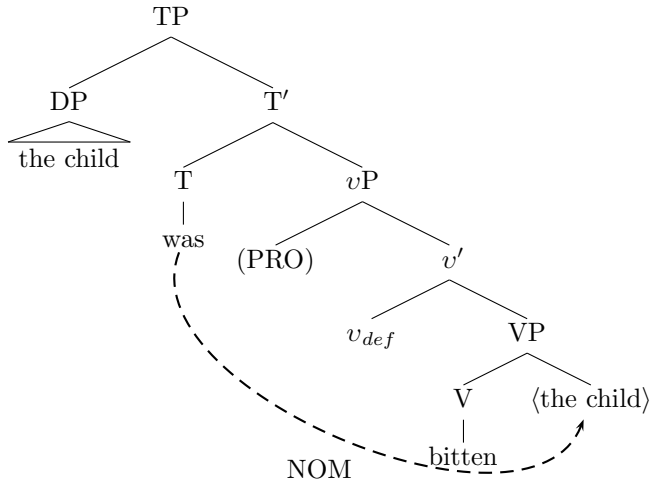
What is the structure of the passive?

(3) Typical characteristics of the passive:
- Suppression (non-realization) of external argument (*er* in (1)).
- 'Absorption' of the internal case (accusative).
- Theme argument realized in nominative case.

- v is 'defective'

This is illustrated by the following example:

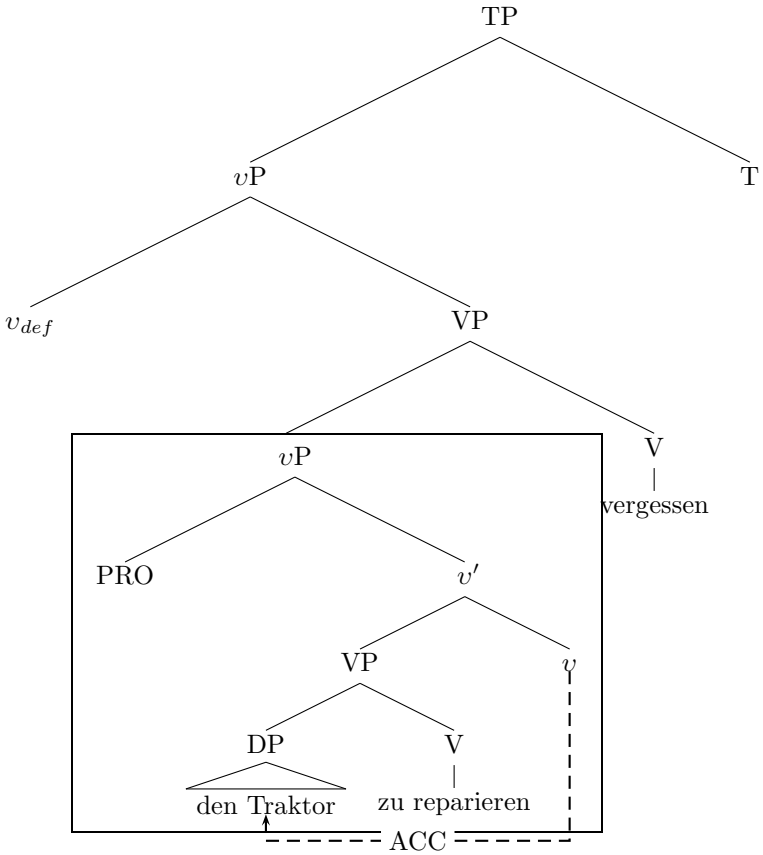
(4) The child was bitten.



What is the structure of the local/long passive?
B&K assume that verbs selecting a *zu*-infinitive can embed either a VP or vP. In local passives (with accusative object), *forget* embeds a a vP, whereas in long passives (with nominative object) a VP is embedded.

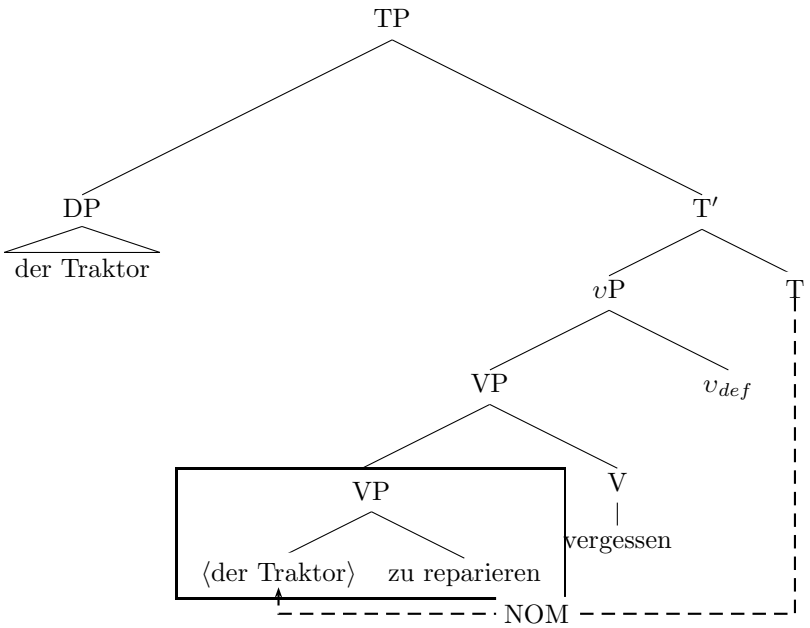
(5) *Local passive*:

weil **den** **Traktor** zu reparieren vergessen wurde
because the.ACC tractor to repair forgotten was



(6) *Long passive*:

weil **der** **Traktor** zu reparieren vergessen wurde
because the.NOM tractor to repair forgotten was

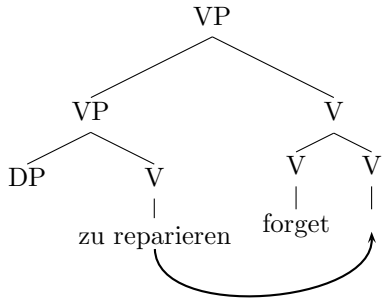


- In local passives (5), the presence of a (lower, non-defective) υ-head ensures that accusative is assigned to the object. (NB: Not ECM!)
- In long passives (6), the υ-head in the passive clause is defective and does not assign accusative. *Der Traktor* receives case long-distance from T.

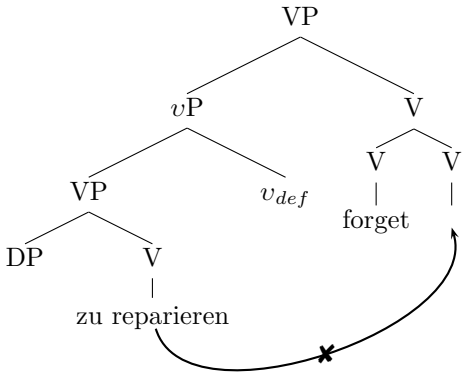
2.2 Verb Incorporation

- B&K argue that Verb Incorporation (VI) only takes place in long passives (those where *forget* takes a VP complement).
- This will play an important role in explaining the scope data discussed in the following section.

(7) Incorporation with VP complements:



(8) No incorporation with υ complements:



I will go into the exact proposal of why VI happens in section 5. For now bear the following in mind:

- V-to-V movement (incorporation) in 'long passives' (with nominative).
- no incorporation in 'local passives' (with accusative).

3 Scope in passives

QUESTION: What is (wide) scope?

(9) A boy loves every girl.
  a. 'There is a boy such that he loves every girl' ($\exists > \forall$)

b. 'For every girl, there is a (possibly different) boy who loves her.' ($\forall > \exists$)

(10) John forgot to check every room.

a. 'John forgot to check every room (he checked all but one)' (forget > $\forall$)
b. 'For every room, John forgot to check it (John didn't check any rooms)' ($\forall$ > forget)

Scope in passives: Consider the relative scope in passives:

(11) *Active*:

weil er alle Traktoren zu reparieren vergessen hat
because he all tractors.ACC to repair forgotten has

'because he forgot to repair all the tractors' (forget > $\forall$, $\forall$ > forget)

(12) *Local passive*:

weil alle Traktoren zu reparieren vergessen **wurde**
because all tractors.ACC to repair forgotten was

'because it was forgotten to repair all the tractors.' (forget > $\forall$)

(13) *Long passive*:

weil alle Traktoren zu reparieren vergessen **wurden**
because all tractors.NOM to repair forgotten were

'because it was forgotten to repair all the tractors.' (*forget > $\forall$, $\forall$ > forget)

IMPORTANT PATTERN:

- Local passives (12) has wide scope of *forget*.
- Long passives (13) only allow for wide scope of the quantifier.
- *forget* must take scope **below** the embedded quantifier (cf. the structure of the long passive).

The same pattern (obligatory low scope in long passives) can be found with a number of other scope-bearing items:

(14) **Adjuncts:**

a. *Local passive:*
weil in jedem Zimmer Äpfel zu essen vergessen wurde
because in every room apples.ACC to eat forgotten was
(forget > $\forall$)

b. *Long passive:*
weil in jedem Zimmer Äpfel zu essen vergessen wurden
because in every room apples.NOM to eat forgotten were
'because it was forgotten to eat apples in every room' (*forget > $\forall$, $\forall$ > forget)

(15) **Event-modifying adverbs:**

a. *Local passive:*
weil dreimal den Aufsatz einzureichen vergessen wurde
because three.times the essay.ACC to.submit forgotten was
(three.times(submit), three.times(forgot))

b. *Long passive:*
weil dreimal der Aufsatz (dreimal) einzureichen vergessen wurde
because three.times the essay.NOM to.submit forgotten was
'because it was forgotten to submit the essay three times' (*three.times(submit), three.times(forgot))

(16) **Universal quantifiers**

a. *Local passive:*
weil den Fritz allen Studenten vorzustellen vergessen wurde
because the Fritz.ACC all students to.introduce forgotten was
'because it was only forgotten to repair one single tractor' (forget > $\forall$)

b. *Long passive:*

weil der Fritz allen Studenten vorzustellen vergessen wurde
because the Fritz.NOM all students to.introduce forgotten was
'because it was only forgotten to repair one single tractor' (*forget > ∀, ∀ > forget)

4 The Semantics of Head Movement

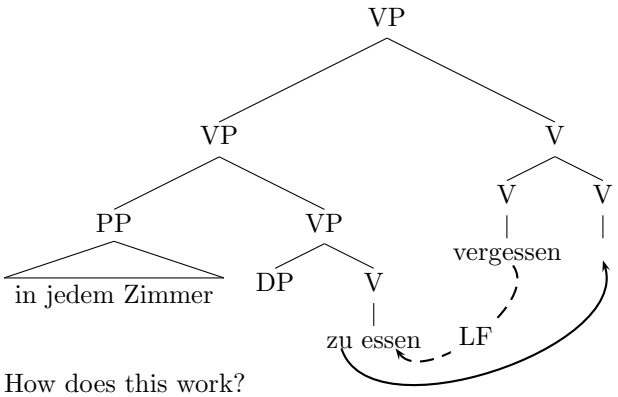
So we made the following observations:

- Obligatory wide scope of embedded elements in long passives.
- Assumed incorporation (V-to-V movement) in long passives.

The question is: How are these two related?

- The answer is that we are not really dealing with wide scope in long passives, but rather obligatory *low* scope of the embedding verb (e.g. *vergessen*).
- Syntactic head movement has the semantic effect of 'lowering' the interpretation of the entire verb complex to position of the lowest verb.

(17) weil in jedem Zimmer Äpfel zu essen vergessen wurden
because in every room apples.NOM to eat forgotten were
'because it was forgotten to eat apples in every room' (*forget > ∀, ∀ > forget)

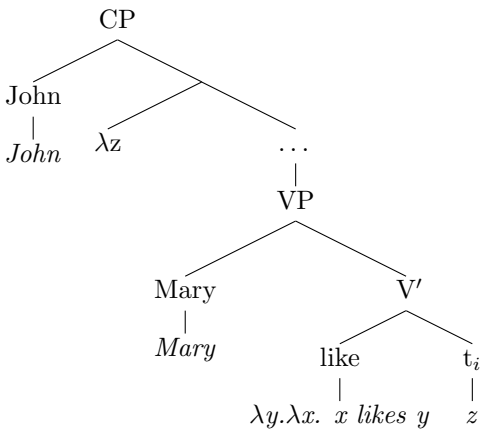


How does this work?

4.1 Interpreting moved items

- We need to consider how moved elements are interpreted.
- Let us assume we interpret structures using Functional Application (Heim & Kratzer 1998)
- Following Heim & Kratzer (1998), traces of moved elements are variable (e.g. x) and we adjoin a corresponding λx below the moved element.
- Consider the following example:

(18) (It's) John, Mary loves.

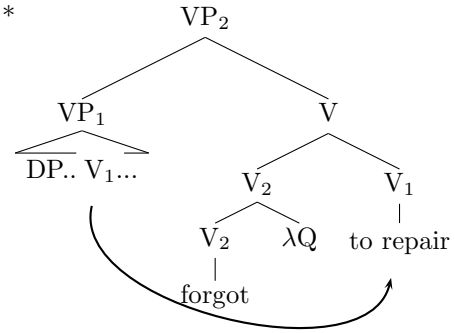


- The CP node is derived from λz[Mary loves z](John).
- This gives us the denotation *Mary loves John.*

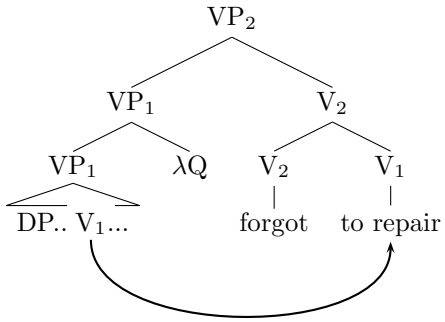
How does this work for incorporation?

- The first question is where the lambda operator goes.
- It cannot be directly below where the head is adjoined since this would not be interpretable (the operator would not c-command its trace) (19).
- Instead, the λQ must merged below the entire verbal complex (20).

(19) *

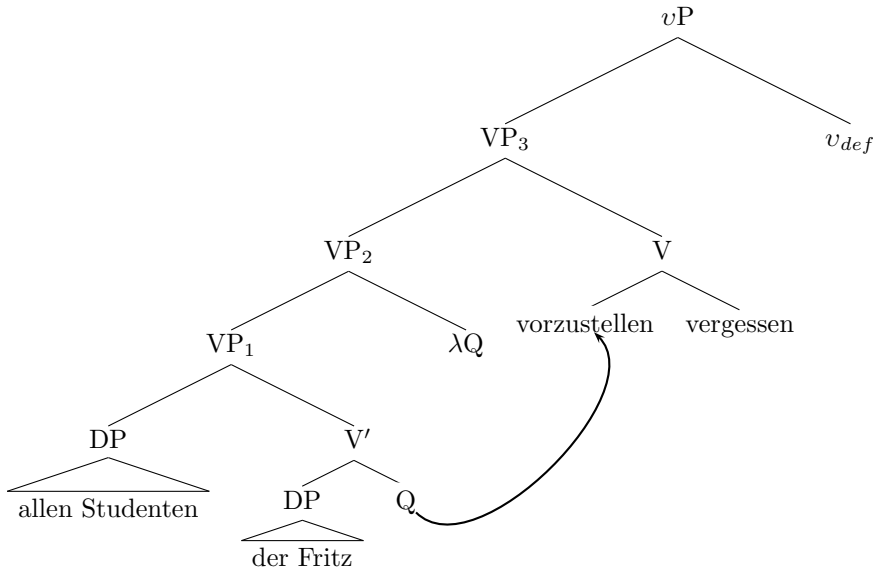


(20)



Let's take a real example:

(21) weil der Fritz allen Studenten vorzustellen vergessen wurde
because the Fritz.NOM all students.DAT to.introduce forgotten was
'because it was forgotten to introduce Fritz to all the students' (*forget > ∀, ∀ > forget)



(22) a. ⟦V'⟧ = ⟦Q⟧(⟦DP⟧)
b. = Q(Fritz)

(23) a. ⟦VP_1⟧ = ⟦allen Studenten⟧(⟦V'⟧)
b. = λR.∀x[student(x) → ∃e[R(x)(e)]](Q(Fritz))
c. = ∀x[student(x) → ∃e[Q(Fritz)(x)(e)]]

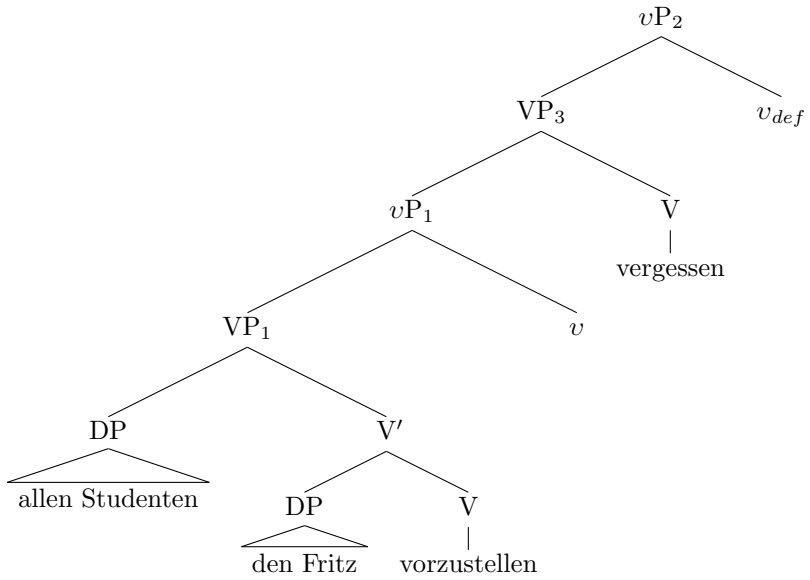
(24) ⟦VP_2⟧ = λQ.∀x[student(x) → ∃e[Q(Fritz)(x)(e)]]

(25) a. ⟦VP_3⟧ = ⟦VP_2⟧(⟦[$_V$ forget introduce]⟧)
b. = λQ.∀x[student(x) → ∃e[Q(Fritz)(x)(e)]](λx.λy.λe[forget(e) ∧ theme(e) = λe'[introduce(e') ∧ theme(e') = x ∧ goal(e') = y]])
c. = ∀x[student(x) → ∃e[[λx.λy.λe[forget(e) ∧ theme(e) = λe'[introduce(e') ∧ theme(e') = x ∧ goal(e') = y]]](Fritz)(x)(e)]]
d. = ∀x[student(x) → ∃e[forget(e) ∧ theme(e) = λe'[introduce(e') ∧ theme(e') = Fritz ∧ goal(e') = x]]]

- The important point here is that *vergessen* is interpreted below the universal quantifier.
- This comes from the fact that the entire verb cluster is interpreted at the base position of the verb.
- Wide scope is achieved by the quantified expression in in (24) taking Q (= ⟦forget+introduce⟧) as its argument.
- As long as incorporation always happens, then it is impossible for *vergessen* to take wide scope over anything in the VP.

This is different with local passives (without incorporation):

(26) weil den Fritz allen Studenten vorzustellen vergessen wurde
because the Fritz.ACC all students.DAT to.introduce forgotten was
'because it was forgotten to introduce Fritz to all the students' (*forget > ∀, ∀ > forget)

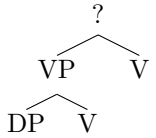


(27) a. ⟦VP⟧ = ⟦allen Studenten⟧(⟦V'⟧)
b. = λR.∀x[student(x) → ∃e[R(x)(e)]](λx.λe.introduce(e) ∧ theme(e, Fritz) ∧ goal(e, x))
c. = ∀x[student(x) → ∃e[introduce(e) ∧ theme(e, Fritz) ∧ goal(e, x)]]

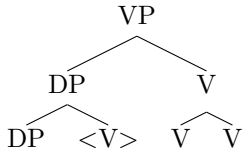
(28) a. ⟦VP$_3$⟧ = ⟦vergessen⟧(⟦υP$_1$⟧)
b. λP.λe [forget(e) ∧ theme(e) = P](∀x[student(x) → ∃e[introduce(e) ∧ theme(e, Fritz) ∧ goal(e, x)]])
c. λe [forget(e) ∧ theme(e) = ∀x. student(x) → ∃e[introduce(e) ∧ theme(e, Fritz) ∧ goal(e, x)]]]

5 Why does Verb Incorporation happen?

- B&K argue that incorporation takes place to resolve a labelling problem.
- Following Chomsky (2013), it is assumed the structures need to be *asymmetric* in order to be labelled.
- B&K assume that labelling follows the highest projection of fseq (... υ > V ...).
- Problems arise with structures where a V embeds another element of category V (VP) (i.e. long passives):

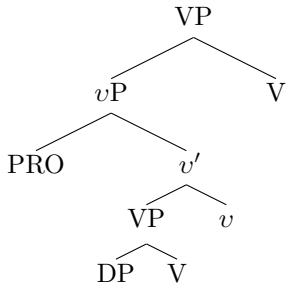
(29)


- In order to resolve this one can either move the VP or incorporate the lower V into the higher one.
- Upon doing so, the lower VP is relabelled as DP and the higher VP can be labelled as VP:

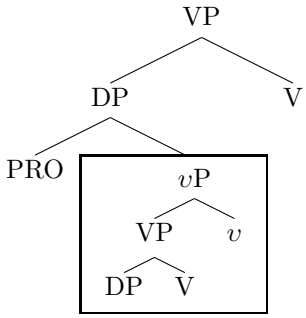
(30)


- For verbs which embed vPs (as in local passives), there is no need for verb incorporation.
- B & K assume that the entire vP is transferred as a phase.
- For this reason, the vP is relabelled as DP and no labelling problem arises:

(31)



(32)



6 Some issues

- How do we get wide scope with local passives?
- Why does the phase head transfer its X' projection?
- Does this approach work for head movement? It is possible that this mechanism does not work for V-to-T movement, for example:

(33) [$_{\text{CP}}$ weil [$_{\text{TP}}$ Hans [$_{\text{VP}}$ das Lied singt] singt]]
because Hans the song sings
'because Hans sings the song'

$[\![\text{sing}+v]\!] = \lambda x.\lambda e[\text{sing}(e) \wedge \text{agent}(e, x) \wedge \text{theme}(e, \text{Lied})]$
$[\![\text{T}]\!] = \lambda P.\exists e[P(e)]$

- The function composition of T+V would be: $\exists e[\lambda x.\lambda e[\text{sing}(e) \wedge \text{agent}(e, x) \wedge \text{theme}(e, \text{Lied})](e)]$, which cannot combine with the meaning of vP (or anything for that matter).
- Recall examples where HM extends scope rather forces low scope:

(34) a. Why didn't anyone come?
b. *Why did anyone not come?