When roots license and when they respect semantico-syntactic structure in verbs

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Roots. Word formation from the perspective of "core lexical elements".
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  (b) *property* denoting roots and $\sqrt{}$full (full), $\sqrt{}$leer (empty), $\sqrt{}$schließ (close)
  (c) *sortal* roots: material objects, e.g. $\sqrt{}$deck (cover), $\sqrt{}$lad (load); spatial regions, e.g. $\sqrt{}$ort (location) configurations; e.g.$\sqrt{}$stapel pile; laws, e.g. $\sqrt{}$regel (rule), etc..

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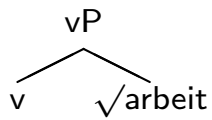
- A restricted set of roots, with appropriate encyclopaedic properties, may MERGE with the functional verbal head **directly** [Embick(2004)], leading to the syntactic and semantic structures of unergative and non-core-transitive verbs, [Levin(1999)], [Marantz(2005)].

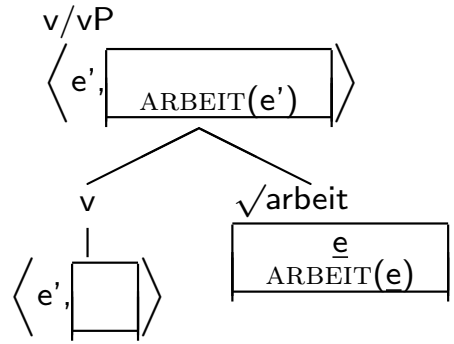
simple eventive roots, unergative verbs

arbeit(en)
(to work)

*Arbeitung

(i)





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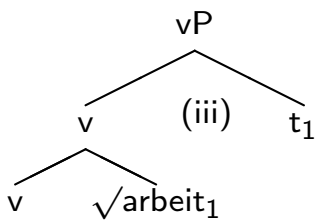

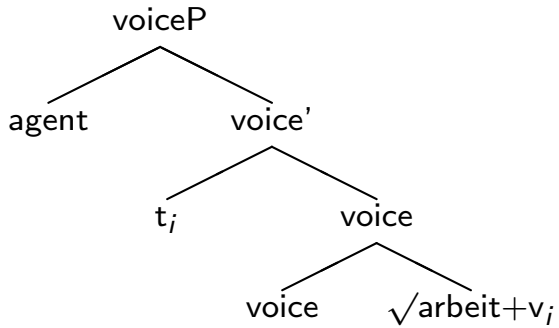

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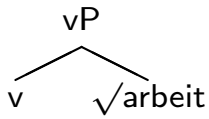

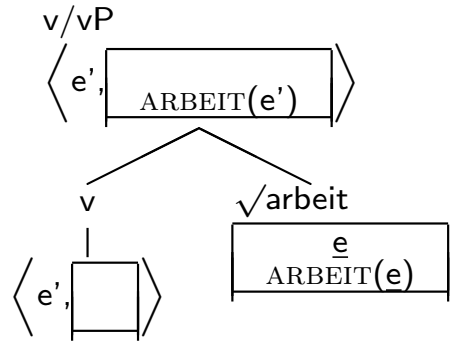

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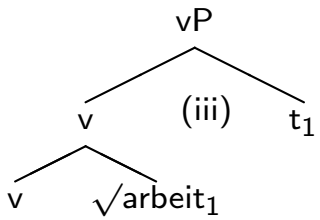
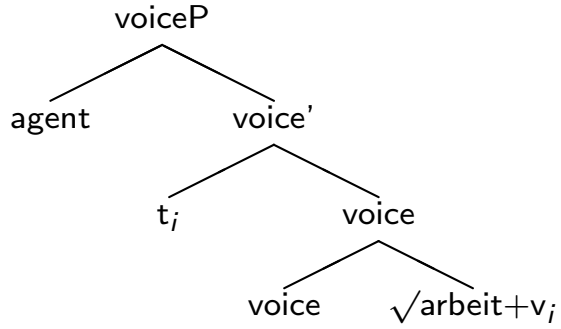




Morpho-phonological form via MOVE

HEAD MOVEMENT CONSTRAINT

- [Baker(1988)]
  An X^0 can only move into an Y^0 which properly governs it

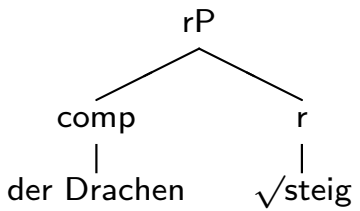
Interpretation via MERGE
(i) v introduces a binding condition for the referential argument e'
(ii) e' is a process
the root's event predicate applies to e': e' is substituted for e.
(iii) vP external subject
[Kratzer(1996)]

relational eventive root, unaccusative verbs

der Drachen steig(en) **die Steigung des Drachens*

the kite move upwards

(i)



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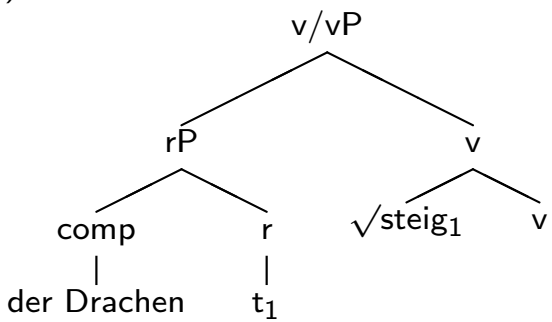

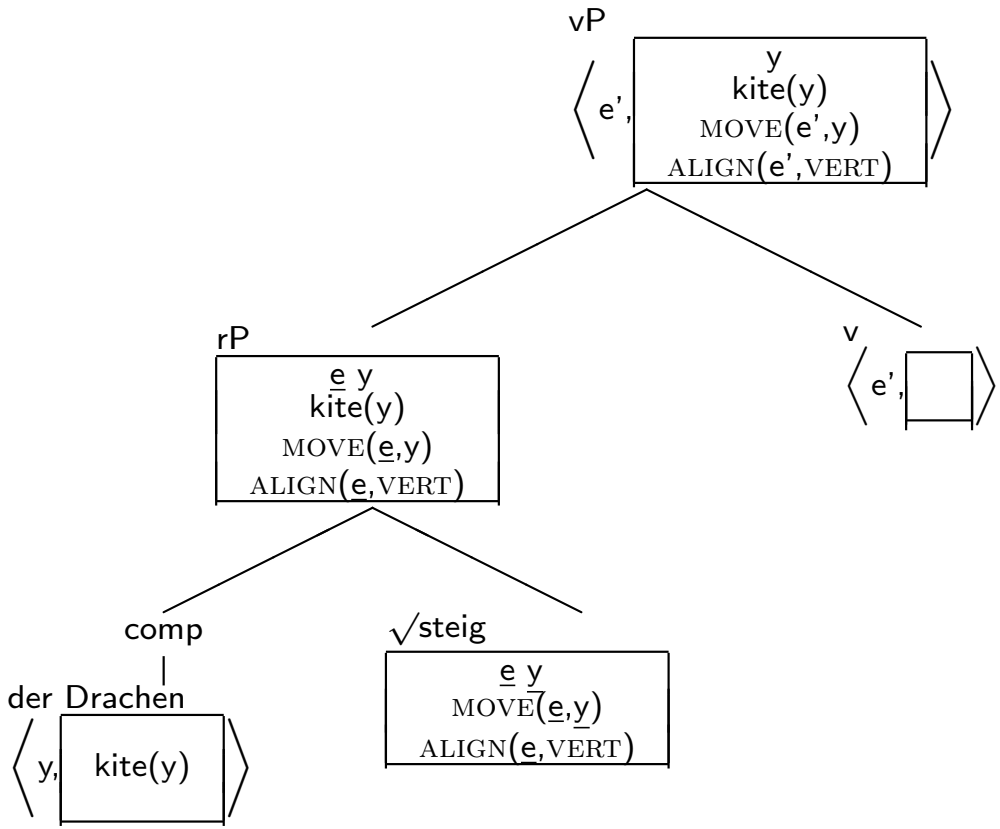

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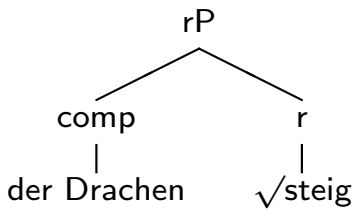

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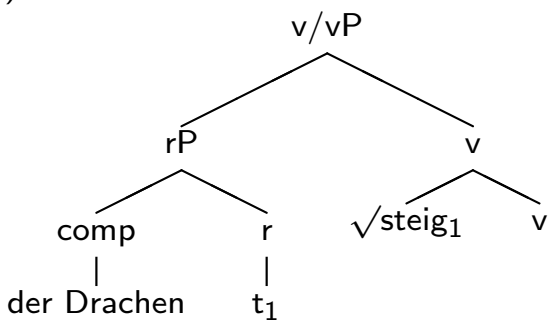

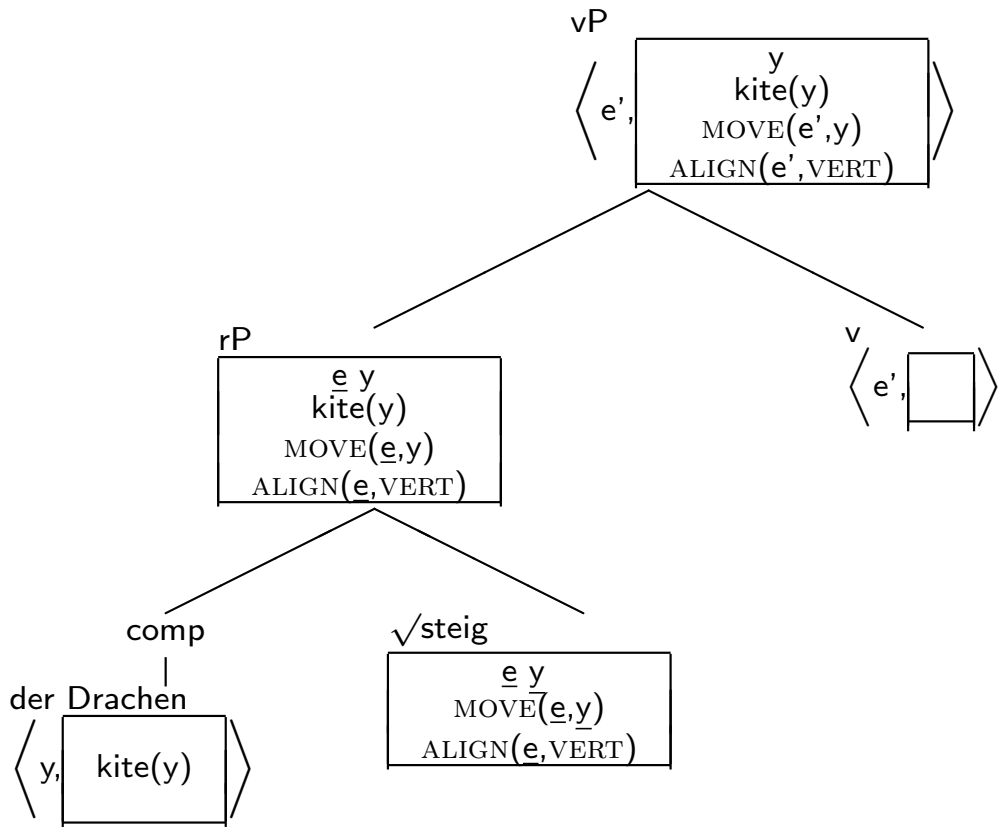

- MOVE head movement

MERGE

(i) the DP's referential argument y in comp is substituted for y in rP

(ii) the verbaliser's e' is substituted for e of rP.

property roots

Johnny Depp füllte die Kinokassen (mit Geld)
' J.D. filled the cinemas' tills (with money)'

die Füll**ung** der Kinokassen

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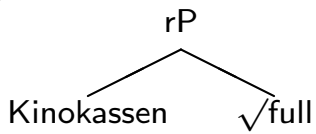

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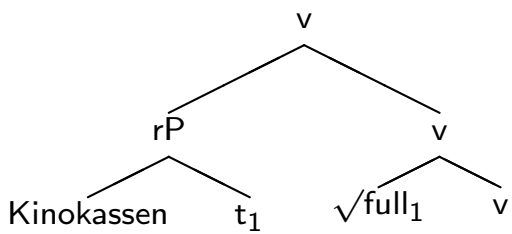

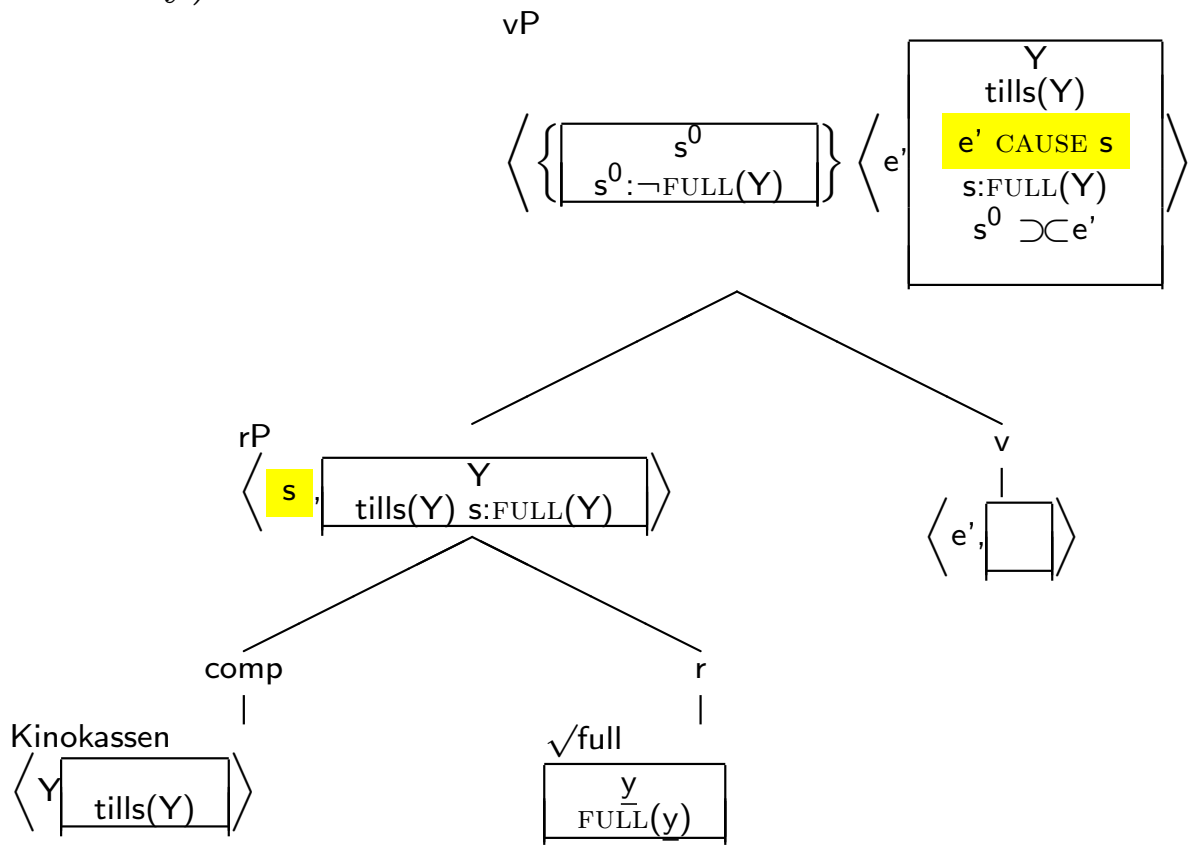

MOVE

MERGE: Introduce an eventuality s with the condition
' s:FULL(Y) '(s consists in Y being full).
Interpret MERGE as an (anti)-causative construction: 'e' CAUSE s'

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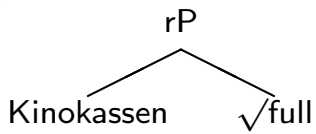

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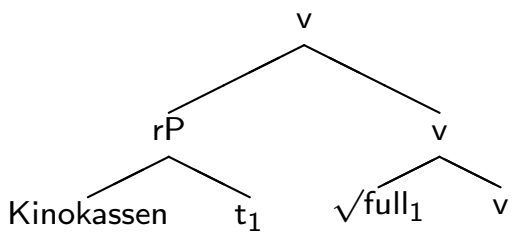

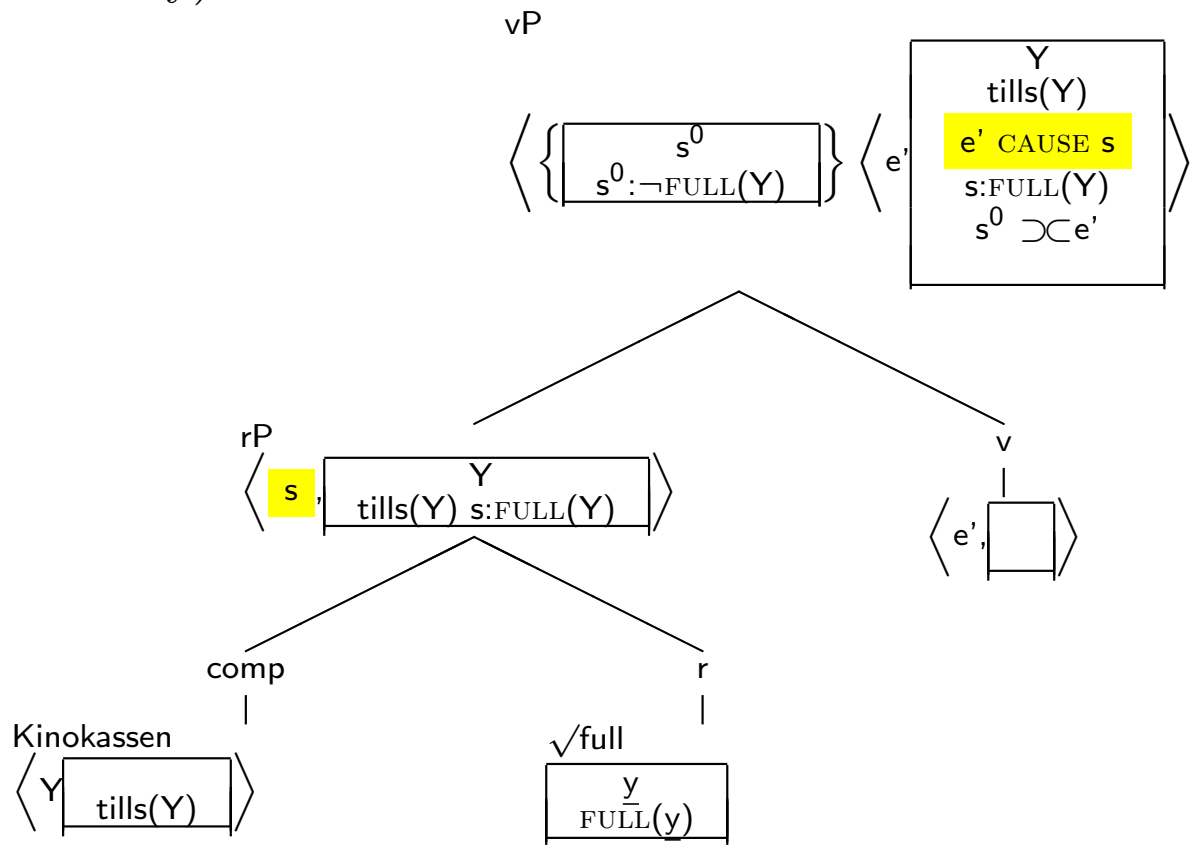

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Interpret MERGE as an (anti)-causative construction: 'e' CAUSE s'

- An (anti)-causative verbal construction is bi-eventive [Marantz(2005)], and per hypothesis, constructions which project causative relations are always bi-eventive.

sortal roots

Morpho-phonological form by MOVE.

den Kopf bedecken

'cover the head'

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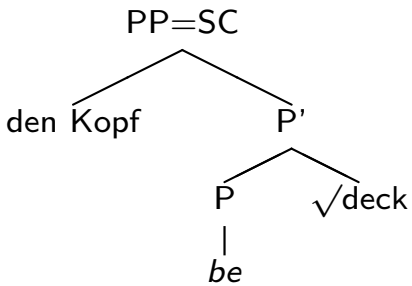

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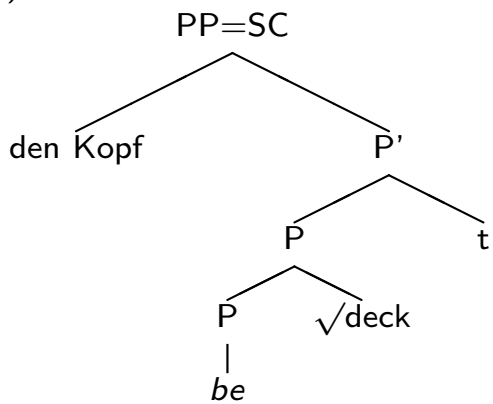

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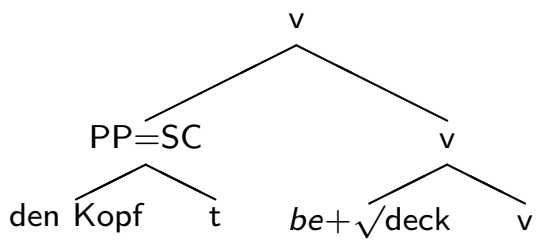

sortal roots

Interpretation by MERGE

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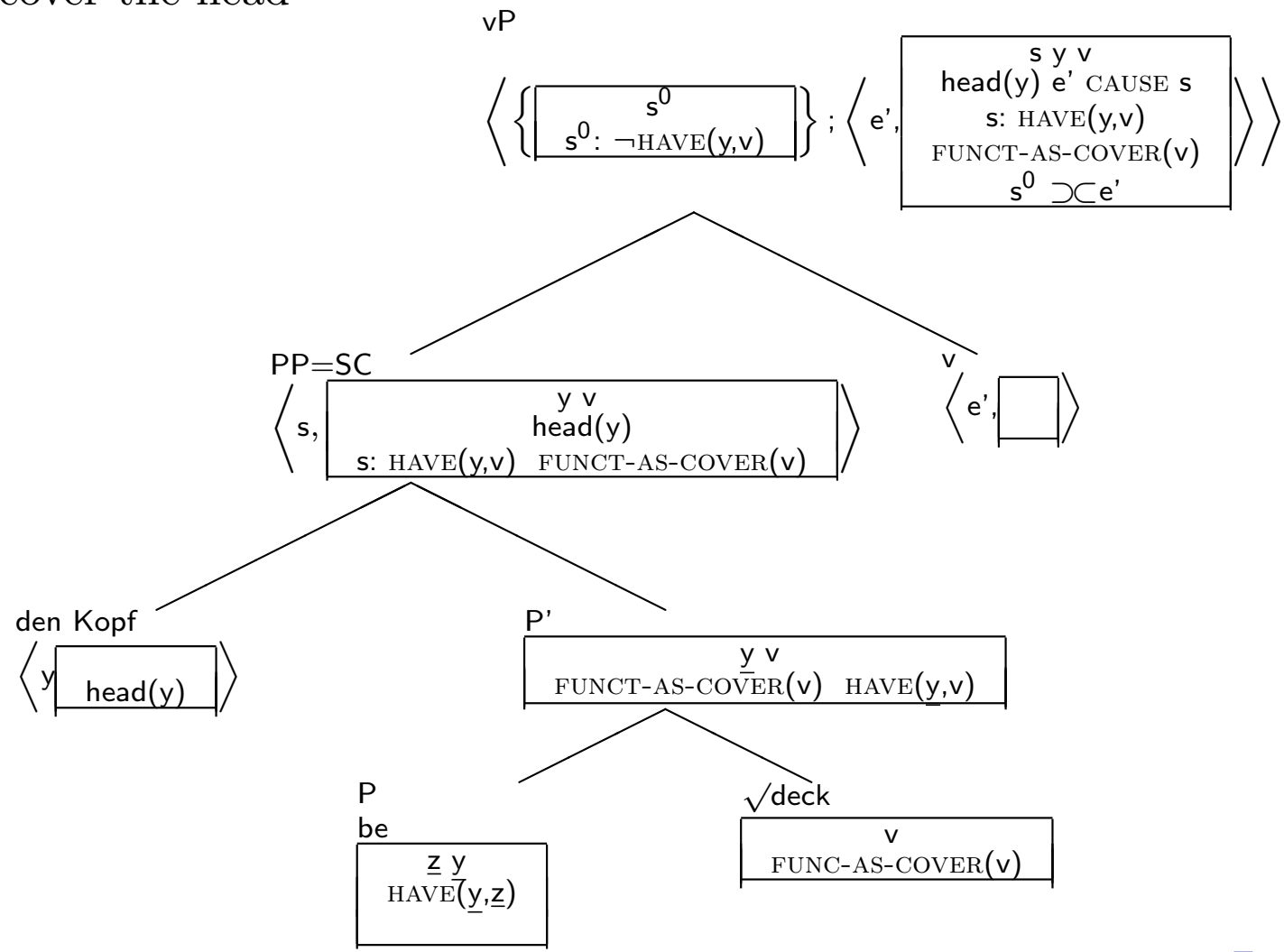
die Bedeck**ung** des Kopfes



intermediate summary

The examples above are instances of productive verb formation patterns.

Simple and relational eventive roots denote event-types to be predicated of an event introduced by v; (v-modification). This yields mono-eventive structures. No *-ung*-nouns.

Property-roots and prepositional heads license structure for internal arguments. They create argument slots to be filled in r(oot)Ps which they head and provide the basis for bi-eventive structures.

Sortal roots introduce arguments that must be related to some other argument in the verbal structure. Thus they typically fill argument slots created by prepositional heads.

direct MERGE with a property root, $\sqrt{}$full

bi-eventive

Johnny Depp füllte die Kinokassen (mit Geld) Füll**ung** der Kinokassen
'J.D. filled the cinemas' tills'

That what J.D. did caused the result state of the tills being full, which is an intrinsic part of the predication expressed by the bi-eventive structure. This causal relation takes many forms and need not be in the control of the agent.

Let's call this 'non-control CAUSE'.

mono-eventive

Johnny Depp füllte Geld in die Kinokassen * Füll**ung** des Geldes in die K.k.
'J.D. poured money into the cinemas' tills'

Surprise: J.D. has a bucket full of coins and small notes and pours them into tills.
The description provided by the mono-eventive structure does **not** entail that the tills are full. J.D can stop pouring at any point without thereby making the description invalid.

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- Result state conditions of bi-eventive descriptions are an intrinsic part of the description.
- Result state conditions of mono-eventive descriptions are inferred.

direct MERGE with a property root, $\sqrt{}$full

- mono-eventive verbal descriptions build on unergative syntactic structures

  die Kellnerin stellte zwei Gläser hin und fing an, den Tequila einzufüllen **und füllte, und füllte**. (Google)

  the waitress placed two glasses and started [filling [in(to)]] the tequila and poured and poured

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- In this construction $\sqrt{}$full does not license an argument slot.

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- In this construction $\sqrt{}$full does not license an argument slot.
- Still, it is the same root. So some kind of modification must have taken place. I will assume that this modification is a case of coercion. The coercion operation can be seen as one of 'zooming in'.

  Assume the following situation: The waitress intends a glass to become full of Tequila. She starts pouring Tequila into it and stops when the glass is full.

  The waitress filled a glass (with Tequila) truthfully describes the entire action. *The waitress filled and filled* truthfully describes any stretch of pouring, between when she starts and when she stops.

  Termination conditions may come from other sources, e.g. through adjunction of a quantized direct object phrase like *two deciliters of Tequila*.

direct MERGE with a property root, $\sqrt{}$full (full)

The semantics of mono-eventive *füllen* derives from that of bi-eventive *füllen*: Because of its structure, mono-eventive *füllen* describes (agent-controlled) activities.
The properties of these activities are those of the prototypical agentive instances of bi-eventive *füllen*. This entails that the activities instantiating mono-eventive *füllen* involve pouring by the agent of fluid or granulated material.

bi-eventive

dir. object y qualifying as FULL;
mit-phrase: stuff that y is 'full of'

- *Das Zimmer mit Rauch füllen*
(to fill the room with smoke)
eine Gans mit Äpfeln füllen
(to fill the goose with apples)
einen Sack mit Äpfeln füllen
to fill a bag with apples

mono-eventive
goal-DP y may qualify as FULL
direct object: stuff that y is 'full of' & stuff that can be poured in a literal sense.
**Rauch in das Zimmer füllen*
(lit: fill smoke into a the room)
* *Äpfel in die Gans füllen*
(lit: fill apples into the goose)
$\sqrt{}$ *Äpfel in einen Sack füllen*
(lit: fill apples into a bag)

direct MERGE with a property root, $\sqrt{}$leer (empty)

- This additional restriction on direct objects is typical for verbal constructions built from property roots via direct MERGE.

etwas leeren (to empty s.th.)	*Leerung*	*etwas aus$_{prtc}$ leeren*, **Ausleerung*
bi-eventive dir. object y qualifying as EMPTY		**mono-eventive** dir. object y may qualify as EMPTY & y can be directly manipulated by an agent
das Glas (the glass) / *den Eimer* (the bucket) / *die Rohre* (the pipes) / *die Blase* (the bladder) *leeren* (*empty*)		*das Glas / den Eimer ausleeren* (to empty [out] the glass / the bucket) ** die Rohre / *die Blase ausleeren* (lit: to empty [out] the pipes / the bladder)

direct MERGE with a property root $\sqrt{}$schließ (close)

etw. schließen, *Schließung*
(to close s.th.)

etw. auf$_{prcl}$ schließen, *Aufschließung
(lit: to 'close" s.th. open)
etw. ab$_{prcl}$ schließen *Abschließung
(lit: to close s.th. so that is is inaccessible),
zu$_{prtcl}$ schließen, *Zuschließung
(lit: to close s.th. so that it is shut),

bi-eventive constructions with $\sqrt{}$schließ

admissible dir. obj.: those that denote entities that can be closed

den Kreis (the circle), *die Augen* (*the eyes*), *den Spalt* (the fissure) *schließen* (to close)

die Truhe (the chest), *die Tür* (the door), *schließen*

mono-eventive contructions building on direct MERGE with $\sqrt{}$schließ
admissible dir. obj.: those that denote entities that can be closed & can be directly manipulated into being closed
* *den Kreis/ *die Augen /*den Spalt
*aufschließen
*zuschließen
*abschließen
die Truhe (the chest), *die Tür* (the door), *aufschließen*, *abschließen*, *zuschließen*

direct MERGE and non-monotonicity

- What triggers coercion of the property root in direct MERGE?
  This is the requirement imposed by the v-head. The v-head introduces an eventuality which is a homogenous process. The property root can act as a predicate of this process if it is re-interpreted as the distinctive property (or set of properties) of the prototypical events described by the bi-eventive structure built from the root.

  The resulting predication of the process doesn't entail any culmination.

  The mono-eventive structures built using direct MERGE can often be extended to particle verb structures. Such particle verbs often have culminations: in these cases it is the particle which contributes the culmination.

direct MERGE and non-monotonicity

- What restricts coercion of the property root in direct MERGE?
  Surprise: The set of property roots that undergo coercion is restricted to inherently relational and universal properties.

  $\sqrt{}$full (full) (all parts of the argument have stuff in them);
  $\sqrt{}$leer (empty) (all parts of the argument have no stuff);
  $\sqrt{}$schließ (close) (all gaps/holes in the argument are blocked);
  Engl. $\sqrt{}$clean ([Levin(2009)]) (all parts of the argument are free from dirt;)

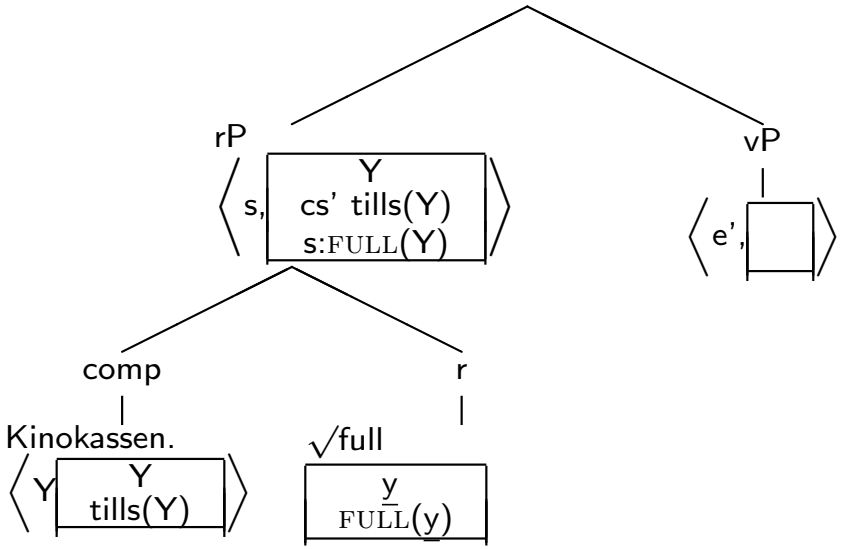
  Note: $\sqrt{}$offen (open) is **not** universal: some gaps/holes in the argument are not blocked.

  There are no particle verbs ending on *öffnen*.
  (In particular: **auföffnen* vs. *zuschließen*,*abschließen*).

semantics construction with direct MERGE

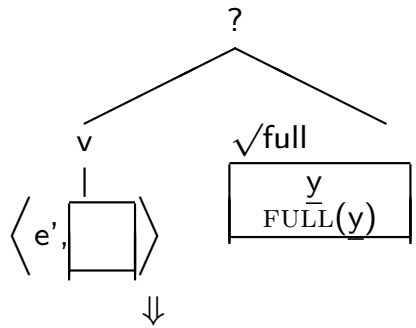
Recall: **bi-eventive** *füllen*

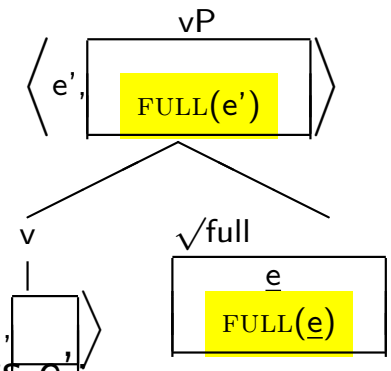
Kinokassen füllen (*Füllung d. K.k.*)



mono-eventive *füllen*

sie füllte und füllte

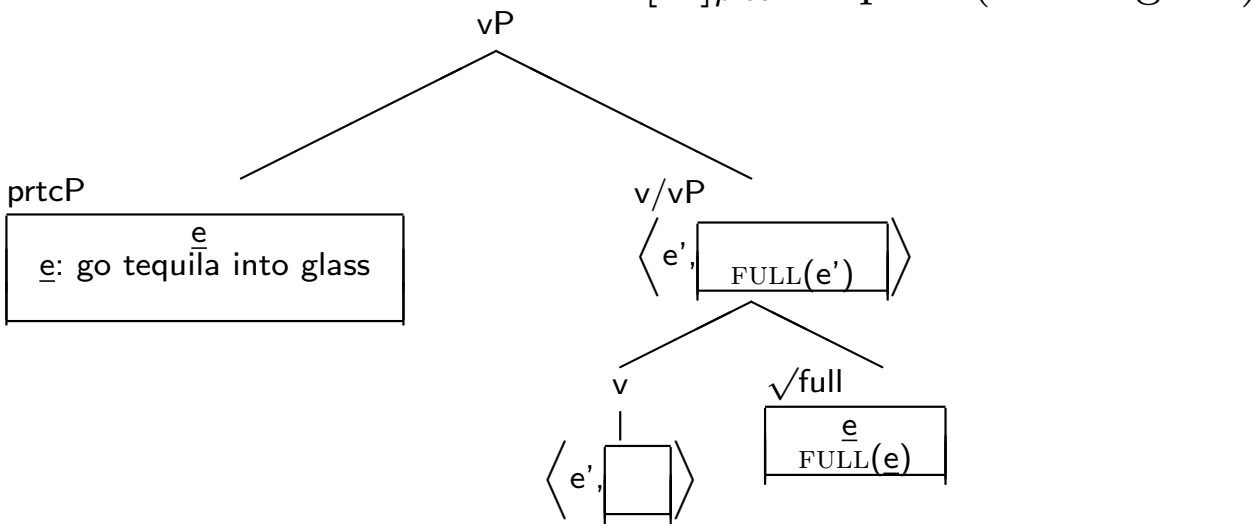




v requires specifying conditions for the process e',
the root √full cannot satisfy the requirement per se;
the root FULL can act as a predicate of e',if it is reinterpreted as "manner" in the way described above. (Note: The root's argument slot y is filtered out).

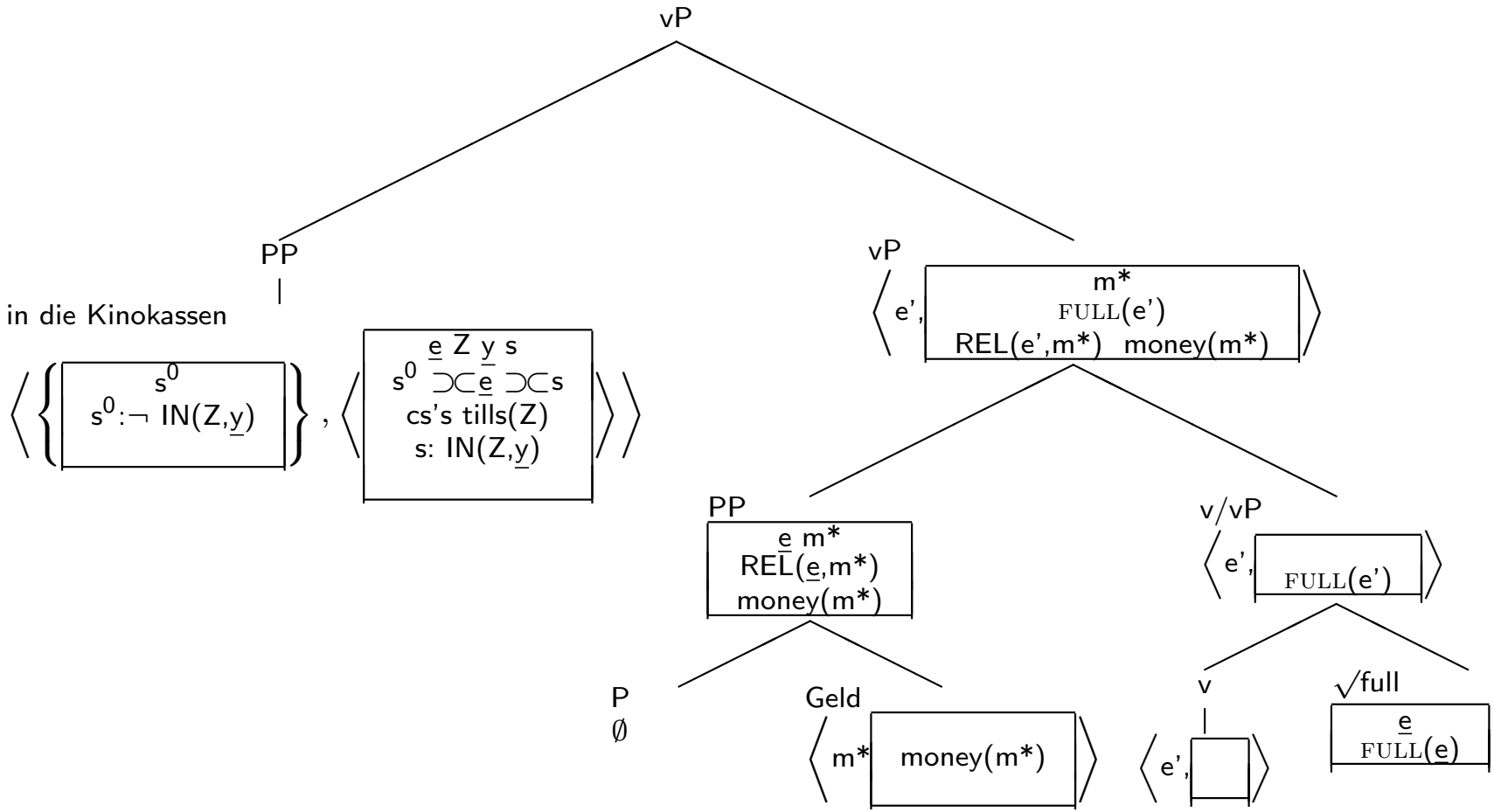
prtcP or direct object PP- adjuncts above directly merged $\sqrt{}$fill

- *Tequila (in ein Glas) [ein]$_{prtcl}$ füllen*
  to fill [in]$_{prtcl}$ tequila (into a glass)



prtcP or direct object as PP adjuncts above directly merged √full

Johnny Depp füllte Geld in die Kinokassen
'J.D. poured money into cinemas' tills'



Intermediate summary

- The interpretation of direct MERGE of v with a property root respects the following requirements
  (i) e' is an intentional action.
  This is the only option left when vP is not bi-eventive, since the subject is not licensed by the complement of v.
  (ii) e' is atelic.
  (iii) Direct objects can arise only through adjunction to vP of a prepositional head or particle head. These direct objects must be related to the process introduced by v as participants of the prototypical events described by the bi-eventive structure.

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- In a configuration where the property root is the head of a r(oot)P the root licences argument structure (the argument slots it introduces into the structure). In mono-eventive structures the root only respects constraints. These are imposed as part of coercion from a property to a "manner" root.

More of the same: direct MERGE of v with sortal roots

In bi-eventive verbal structures of the 'load-alternation type' the same strengthening of selection restrictions can be observed:

- *den Kopf (mit einem Tuch) bedecken*, *Bedeckung des Kopfes*
  bi-eventive

  dir. obj.satisfies HAS COVER(y);
  DP in *mit*-phrase must be the cover of y as a result of e'

  ein Tuch über den Kopf decken
  mono-eventive
  dir. obj. functions as cover of the prepositional object after e' & must be a simple 2dimensional object before and during e'

- *den Boden mit einer Plane/ einem Teppich bedecken*
  (to cover the ground with a tarpauline /rug)

  eine Plane / einen Teppich über den Boden decken
  (lit: to cover a tarpauline)

  den Boden mit Wasser / mit Krümeln bedecken (to cover the ground with water / with crumbs)

  Wasser über den Boden decken*, (Krümel über den Boden decken*)

  die Hand mit Küssen bedecken
  (to cover the hand with kisses)

  * *Küsse über die Hand decken*

direct MERGE and event structure

bi-eventive	**mono-eventive**
dir. object satisfies HAS LOAD(y) DP in *mit*-phrase: satisfies 'FUNCTIONS AS LOAD'(v)	dir. obj. satisfies 'FUNCTIONS AS LOAD'(v) & can be manipulated directly
• *den Wagen mit Heu (be-)laden*, (to load the wagon with hay) (*die (Be)ladung des Wagens*)	*Heu auf den Wagen laden* (to load hay onto the wagon) (*die Ladung des Heus)
den Kondensator mit Spannung laden(to charge a condenser with voltage)	**Spannung in den Kondensator laden* (lit: to load voltage into the condenser)

This restriction indicates that the alternates on the right involve mono-eventive structures obtained via direct MERGE with a reinterpreted sortal root.

direct MERGE with sortal roots

What triggers coercion?
A sortal root can act as event predicate provided if it is coerced into one.
For instance, the analysis of *eine Plane über den Boden decken* (lit: to cover a tarpauline over the ground) involves coercing the sortal root $\sqrt{}$deck into denoting an event property that is shared by all prototypical activities leading to their having a cover.
A similar focus on prototypical events is involved in the anlysis of *graben* (to dig).
graben has a mono-eventive structure that can be obtained via coercion of a sortal root $\sqrt{}$grab to an event predicate. (This sortal root enters **as** sortal root into the prefix-verb *begraben* (*to bury s.o. or s.th.*) and *untergraben* (*to make a hole under s.th.*).
Similar effects can be observed for verbal constructions involving roots such as
$\sqrt{}$lad (load),
$\sqrt{}$deck (cover),
$\sqrt{}$pflaster (pavement),
$\sqrt{}$pflanz (plant).
Here too the restrictions governing the verbs in question can be explained as the basis of the coercion of the root into a prototypical process predicate.

direct MERGE with sortal roots

Verbs like *(ein Schiff) be-mannen* (to man a ship),
einen Soldaten besolden, (to pay a soldier),
jdm. (sich) kleiden (to dress),
do not show such restrictions, thus are presumably built as bi-eventive structures, into which the sortal roots $\sqrt{}$mann, $\sqrt{}$sold, $\sqrt{}$kleid enter **as** sortal roots (i.e. without v - modification).

Loose end: direct MERGE with relational eventive roots and non-monotonicity

I conjecture that *absteigen* (lit. 'rise down') is the result of a reinterpretation of the root $\sqrt{}$steig as a pure event predicate which has lost its argument slot for the internal subject. This reinterpretation involves the extraction of the manner-like properties of prototypical agentive instances of *steigen*, much as we saw in our analysis of mono-eventive *füllen* etc.

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  (ii) It is the semantics of the roots as it manifests itself in the coerced transition from property or sortal roots to event predicates that is responsible for these restrictions.

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- The syntactic structures built according to these principles allow for the systematic compositional construction of logically transparent semantic representations.

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