DM meets DRT. Syntax and Semantics of German *ung*-nominalisation

Workshop on Theoretical Morphology 4

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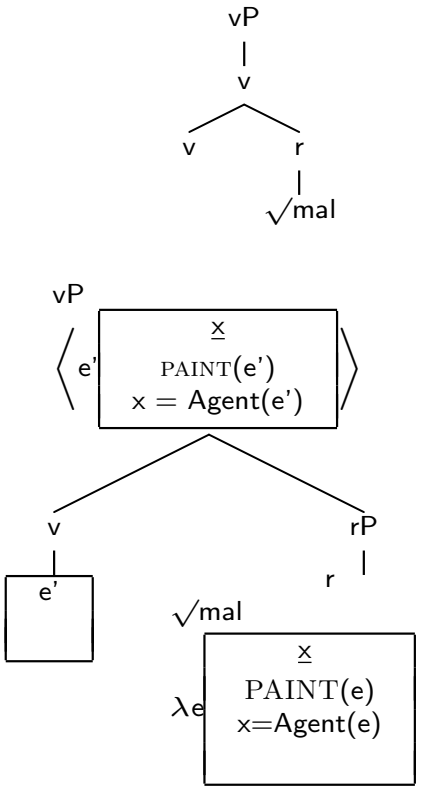
June 20^{th}, 2007

Research objectives of the project B4 of SFB-372

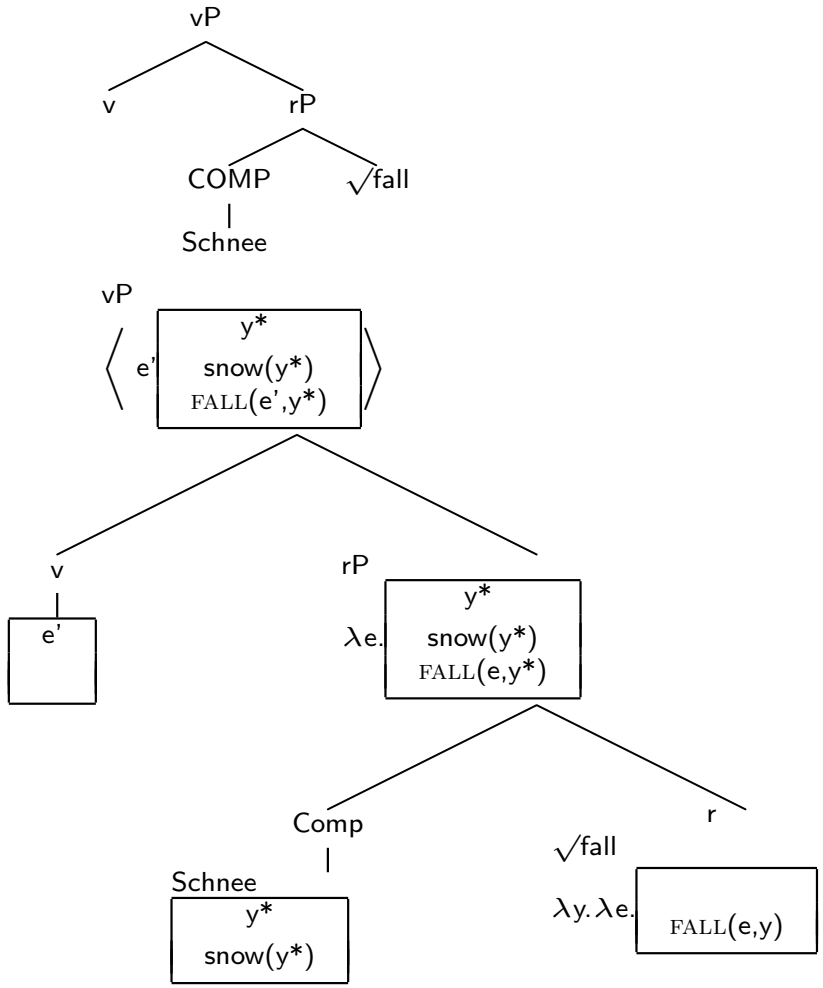
- A theory of word-formation and interpretation in context
  - word formation is inspired by principles of the research program 'Distributed Morphology'(DM). Verbs and derived nominals are constructed from 'roots'
  - we assign a semantics to the roots
  - constructions are assigned a compositional semantics, determined by their syntactic trees.
- (i) When is *ung*-nominalisation possible?
- (ii) What are the possible meanings of -*ung*-nouns?

negative core example: roots denoting event types

er malte (und malte) (*Malung)
he painted (and painted)



Schnee fiel (*Fallung)
snow fell



syntactic constraints on the formation of *ung*-nouns

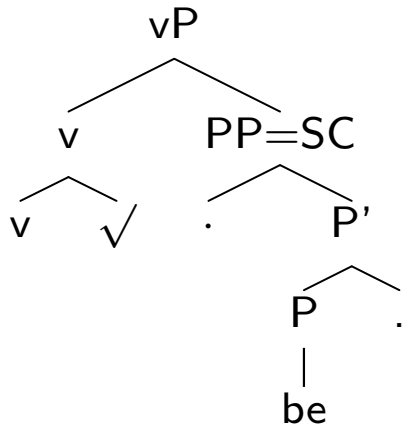
Core-transitive verbs [Levin:1999], [Kratzer:2005]

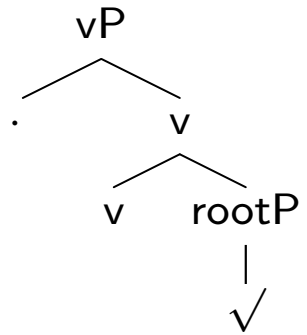
-*ung*-noun	no -*ung*-noun
den Tisch säubern , reinigen	den Tisch putzen, wischen
`the table clean`	`the table wipe`
* den Tisch sauber reinigen	den Tisch sauber wischen

eine Tür mit Blumen bemalen
`a door with flowers PREF-paint`

Blumen (auf eine Tür) malen
`number (onto a door) paint`

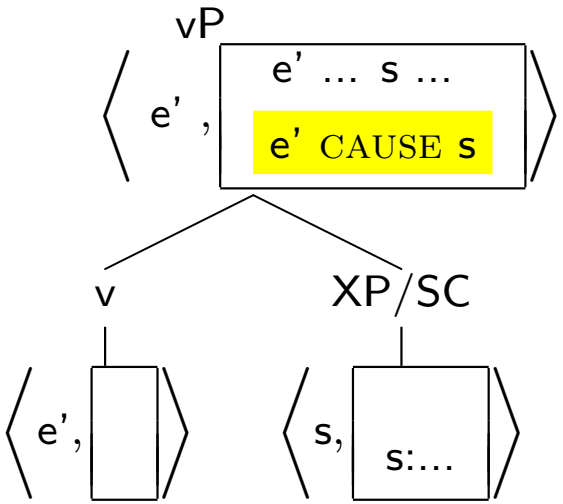
[Marantz:2005] bi-eventive syntactic structure





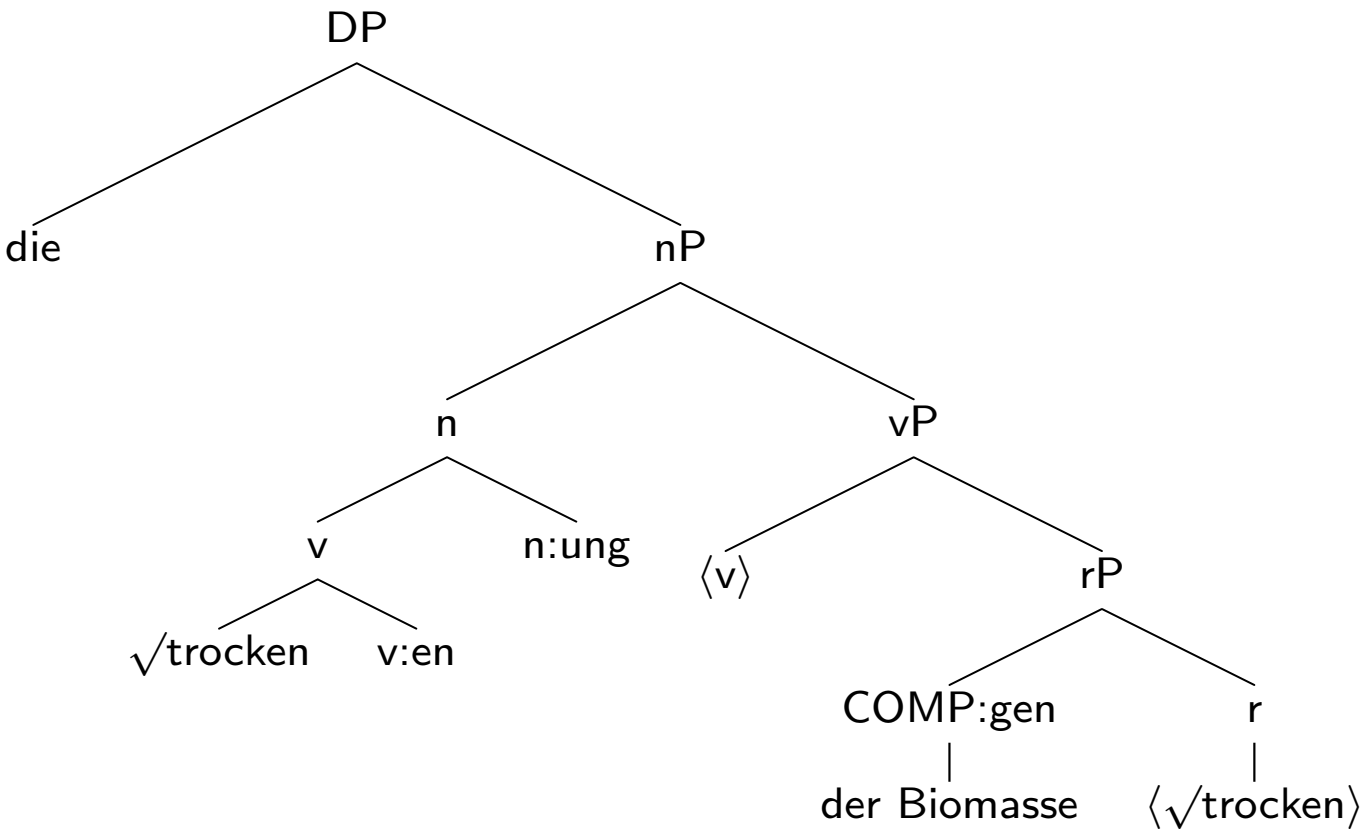
syntactic constraints on the formation of *ung*-nouns

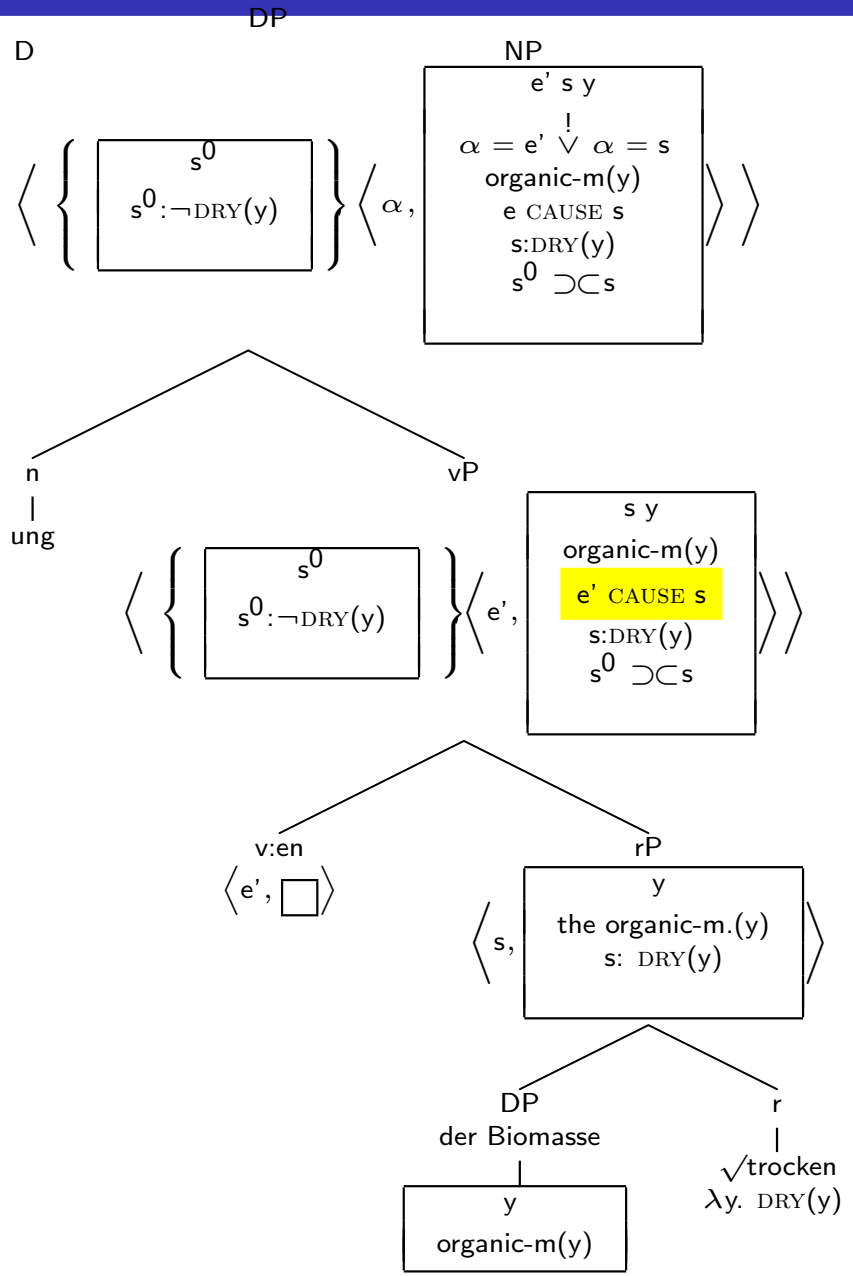
- *ung* is a 'deverbal' nominalisation operator, in the following sense:
  - *-ung* operates above vP and below voiceP
  - *-ung* requires as input a 'syntactically transparent' cause-result structure where the semantic representation of vP contains a condition of the form 'e' CAUSE s' and where this condition results from the combination of one daughter contributing e' and the other daughter contributing s.



positive core examples: verbs from property roots

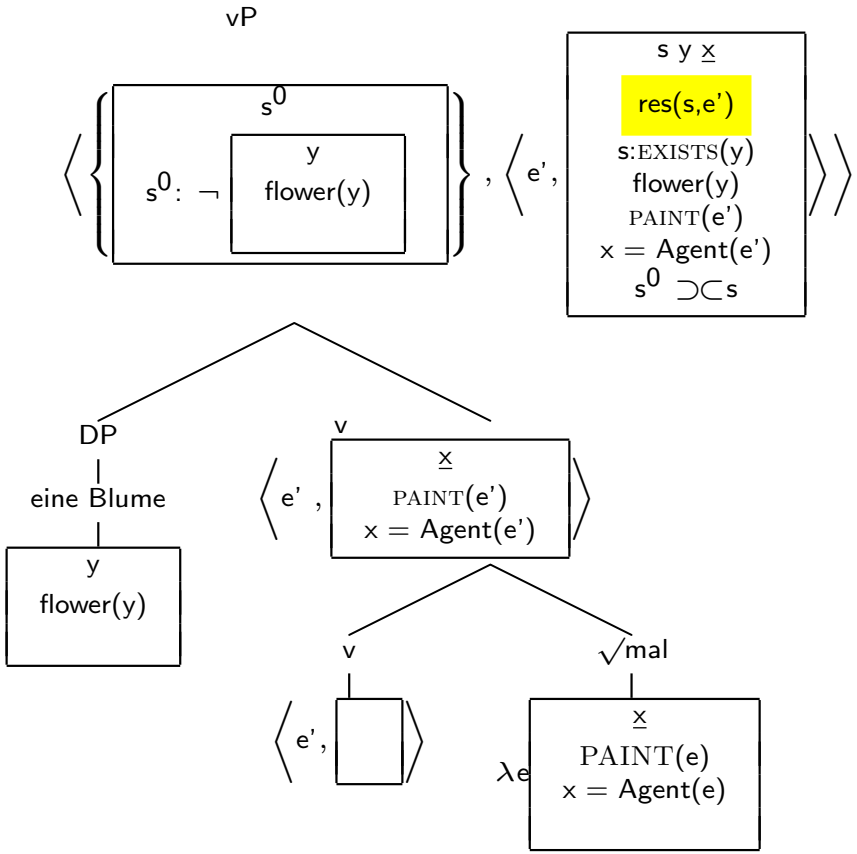
die Trocknung der Biomasse
`the drying of the organic-material`




DP
D
NP
e' s y
!
α = e' $\vee$ α = s
organic-m(y)
e CAUSE s
s:DRY(y)
s^0 $\supset\subset$ s
s^0
s^0:¬DRY(y)
α,
n
ung
vP
s y
organic-m(y)
e' CAUSE s
s:DRY(y)
s^0 $\supset\subset$ s
s^0
s^0:¬DRY(y)
e',
v:en
e',
rP
y
the organic-m.(y)
s: DRY(y)
s,
DP
der Biomasse
y
organic-m(y)
r
√trocken
λy. DRY(y)

non-core transitive verbs have no *ung*-nominal

(2) eine Blume malen
a flower paint

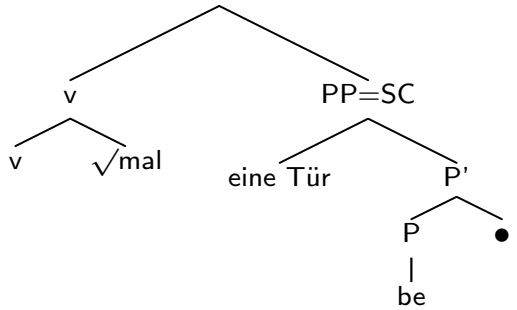


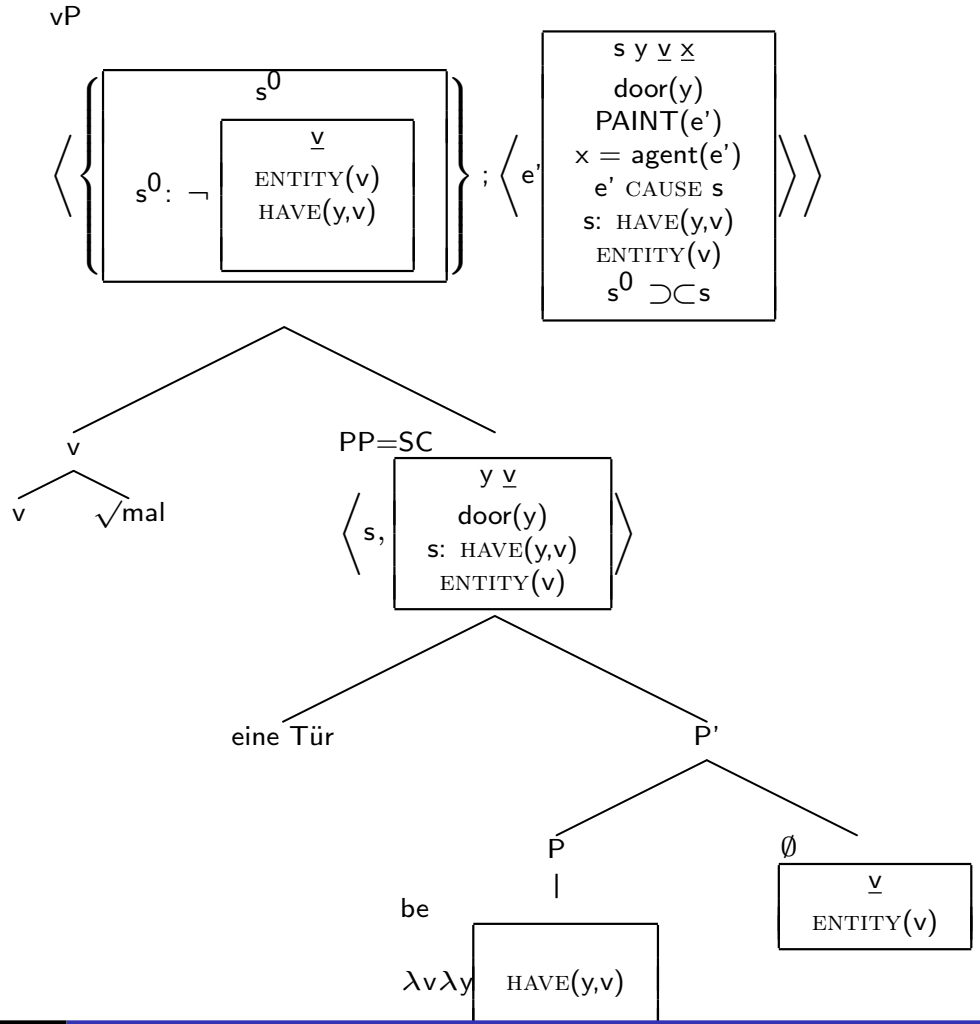
res(s,e') —— e' CAUSE s : the semantics of the vP does not suffy that an *ung*-nominalisation **die Malung einer Blume* is not possible.
But the verbal constructions are different in syntactic respects.

be- prefix + action-denoting roots

eine Tür (mit Blumen) bemalen — Bemalung einer Tür (mit Blumen)

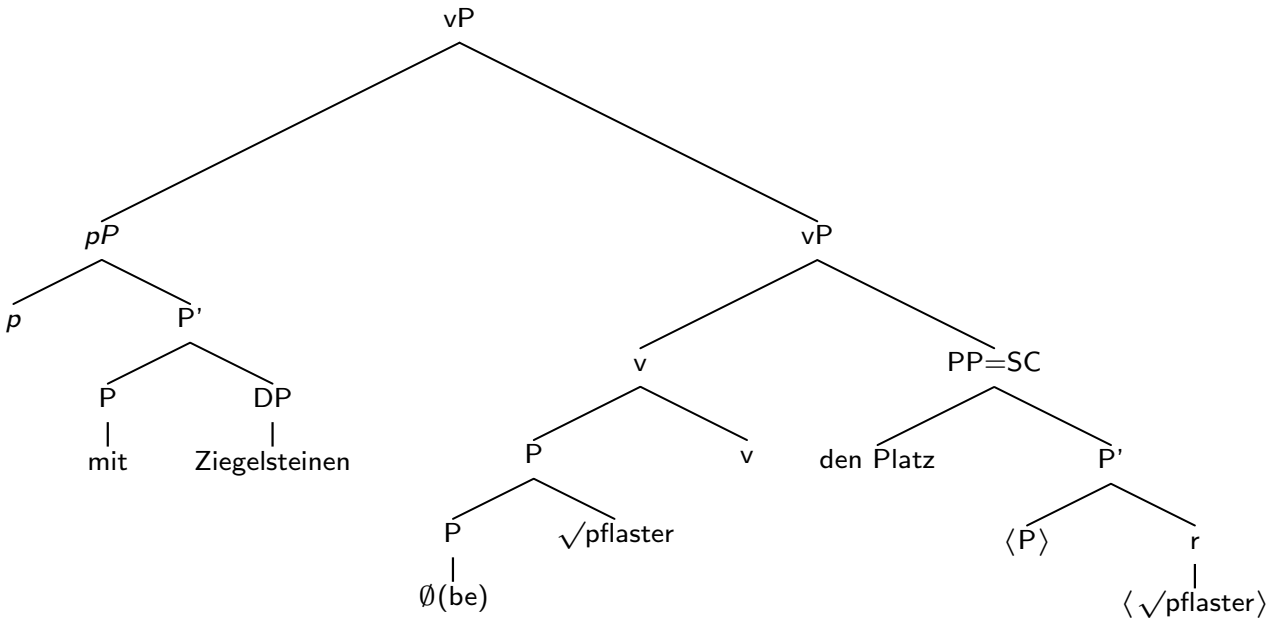
a door (with flowers) PREF-paint — PREF-paint-ung a door (with flowers



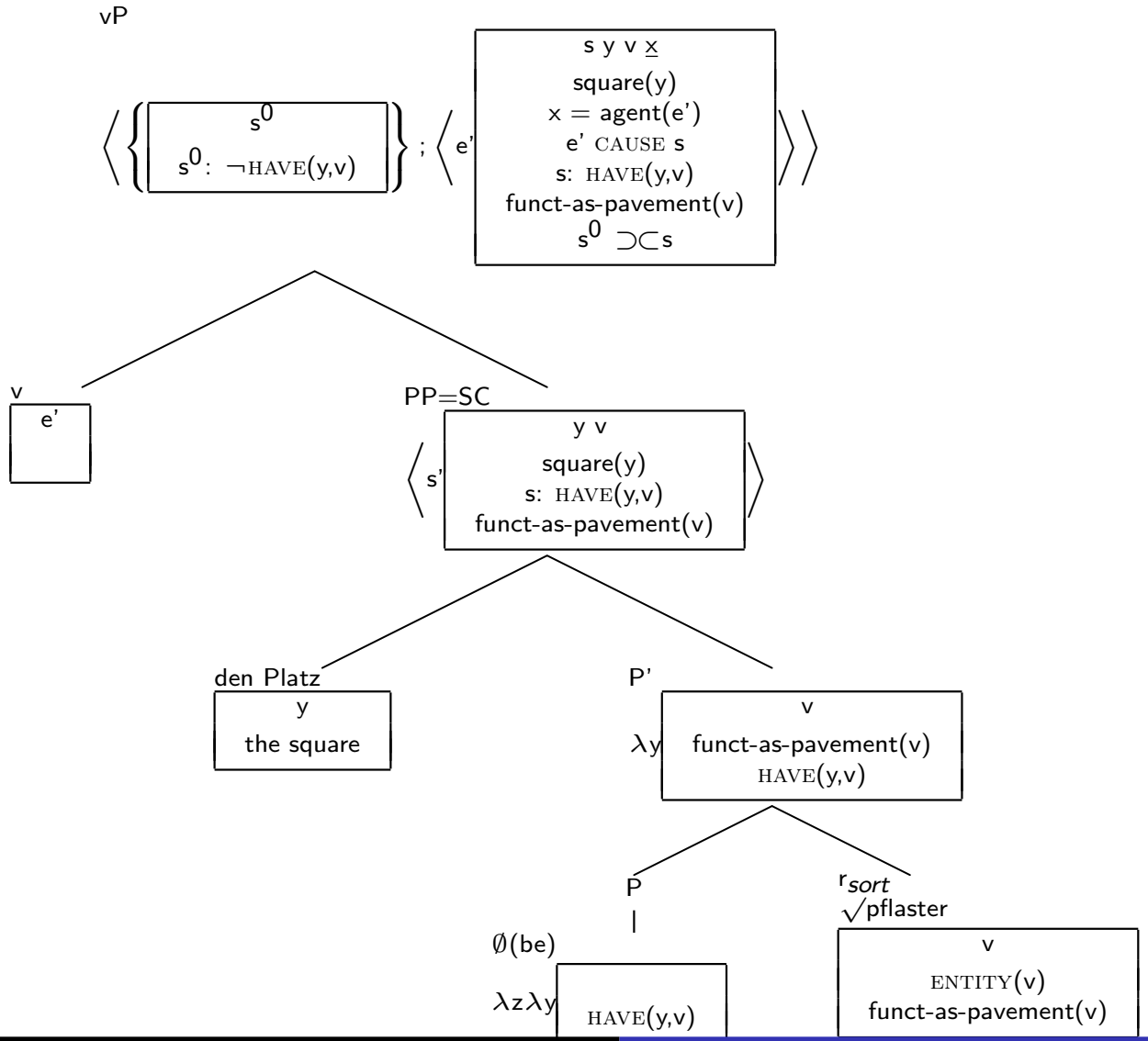


einen Platz (mit Ziegelst.)
`a square (with tiles)`
(be)pflastern
`pave`

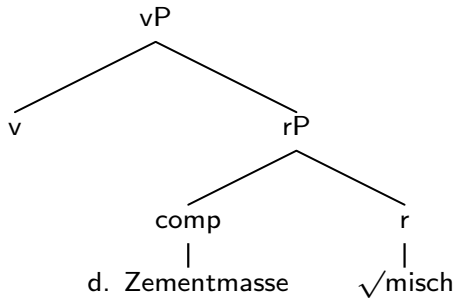
die (Be)Pflasterung des Platzes (mit Ziegelst.)
`the pavement of the square (with tiles)`



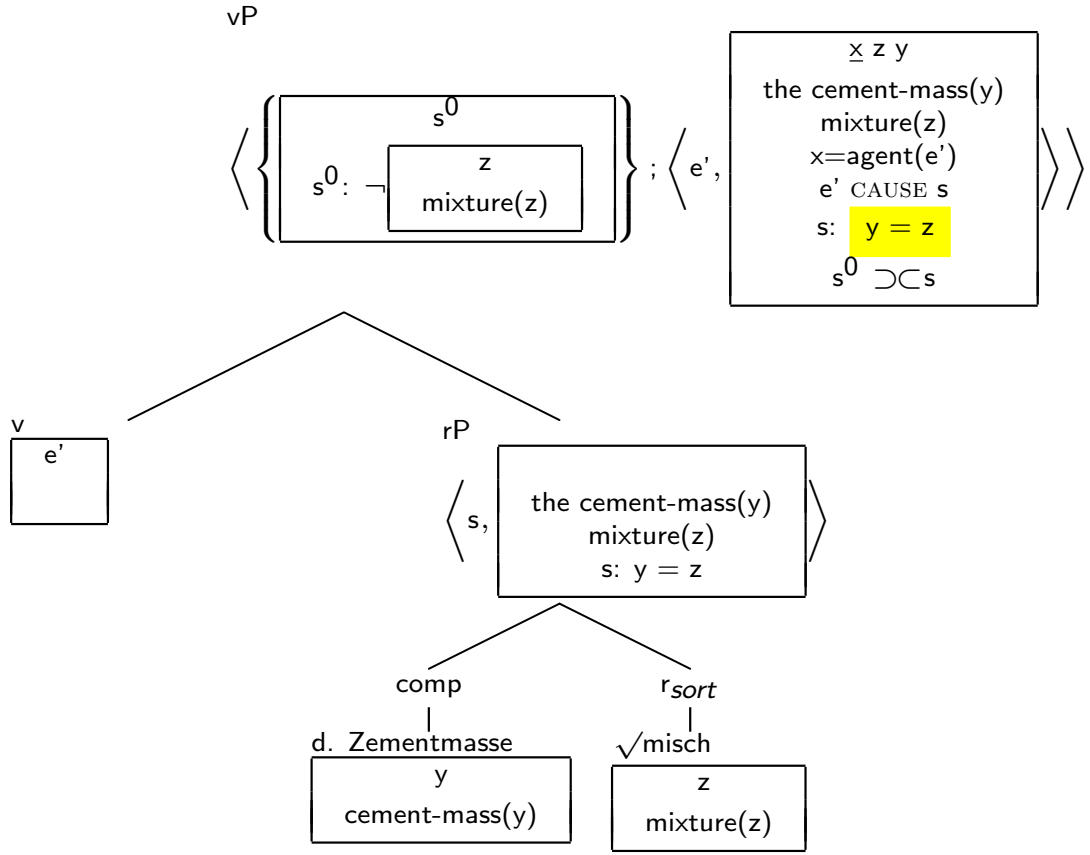
einen Platz	(be)pflastern	die (Be)Pflasterung	des Platzes
a	square pave	the pavement	of the square



die Zementmasse mischen
`the cement-mass mix`



die Mischung der Zementmasse
`the mix-ung of the cement-mass`



range of readings of *ung*-nouns and past participles

- the range of possible readings of *ung*-nouns and past participles are two sides of the same coin.

1	die	Biomasse	war	getrocknet
	the	organic-m.	be:aux:pst	dried

die	Trocknung	der	Biomasse	
the	drying	of	the	organic m.

2	die	Zementmasse	war	gemischt
	the	cement-mass	be:aux:pst	mixed

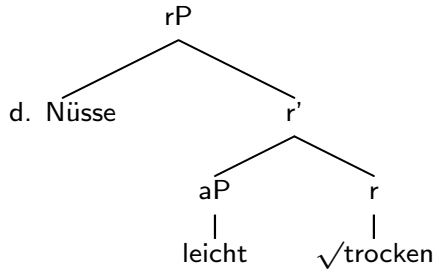
die	Mischung	der	Zementmasse	
the	mixing	of	the	cement-mass

3	der	Platz	war	gepflastert
	the	square	be:aux:pst	paved

die	Pflasterung	des	Platzes	
the	pavement	of	the	square

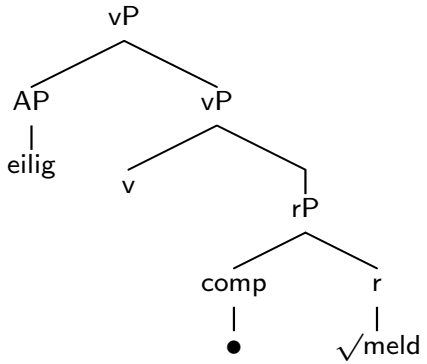
- An *ung*-noun has a target state reading if and only if the past particple of the corresponding verb has one.
- an *ung*-noun has an entity-reading if the corresponding verb is built from a sortal root

1 nach einer leichten Trocknung der
`after a slight dry-ung of the nuts`
Nüsse



→ the nuts are slightly dry

2 uns erreichte eine eilige Meldung
`reached us a hurry-ADJ report`

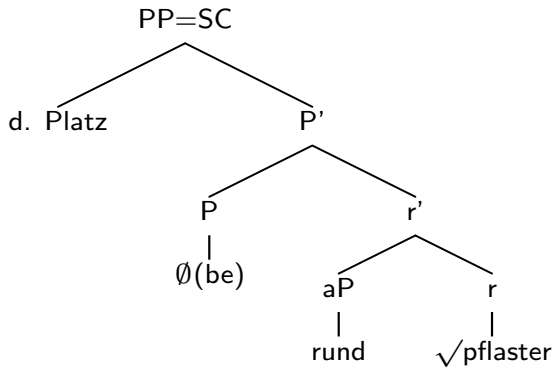


→ the reporting action was performed in a hurry

3 eine runde Pflasterung des Platzes
a round pavement of the square

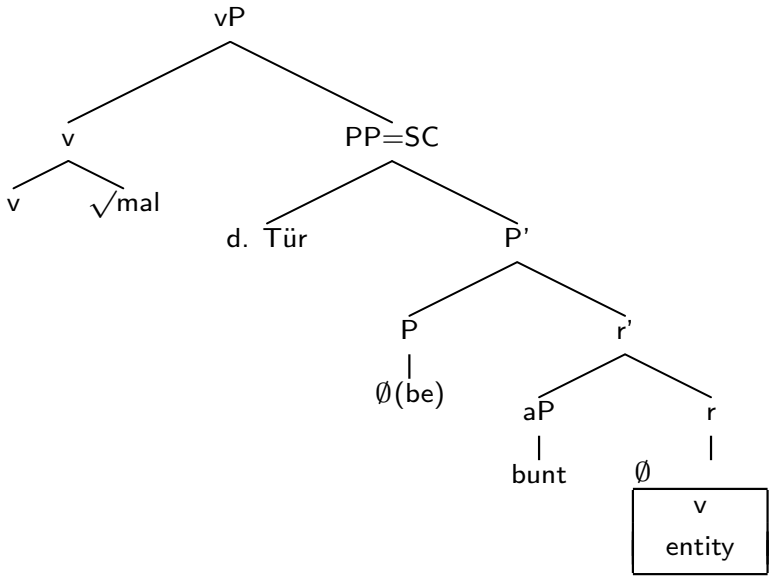
3 der (mit Ziegelsteinen) rund gepflasterte
the (with tiles) round pave-past-perf
Platz
square

→ the pavement is round, neither square nor tiles are



3 die (mit Blumen) bunt
the (with flowers) colorful
bemalte Tür
RREF-paint-PERF door

→ the decoration is colorful, not the flowers;



Is the root class decisive?

$\sqrt{}$trocken(dry), $\sqrt{}$sauber(clean), $\sqrt{}$weit(wide)	→	property of individuals	1 ev, ts
$\sqrt{}$land(land); $\sqrt{}$strand(strand); $\sqrt{}$schulter(shoulder)	→	location where the internal arguments is	4 ev, ts
$\sqrt{}$bild$_{sort}$(build), $\sqrt{}$misch$_{sort}$(mix), $\sqrt{}$samm$_{sort}$(collect), $\sqrt{}$meld$_{sort}$(report)	→	entity which is brought about by the event	2 ev, ent,
$\sqrt{}$pflaster$_{sort}$ (pavement), $\sqrt{}$würze$_{sort}$ (spice), $\sqrt{}$muster$_{sort}$ (pattern)	→	entity which the internal argument is made to have	3 ev,ts,ent

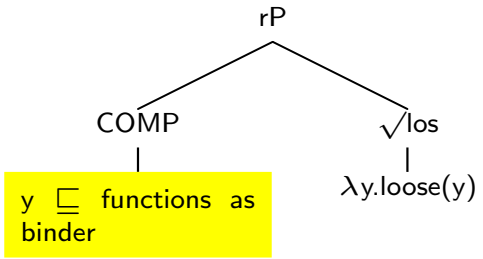
Expectation: the range of readings of *ung*-nouns and past participle depends on the class of the roots

Hypothesis:

Some roots can belong to more than one class at once; they adjust semantics accordingly.

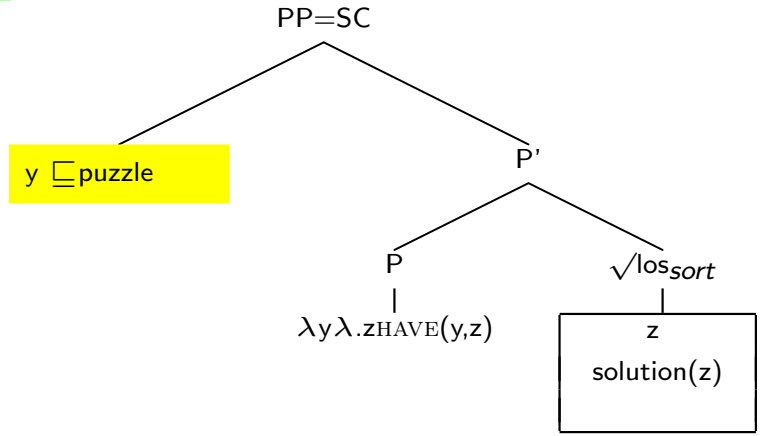
Roots switch semantics wrt. sortal restrictions

1



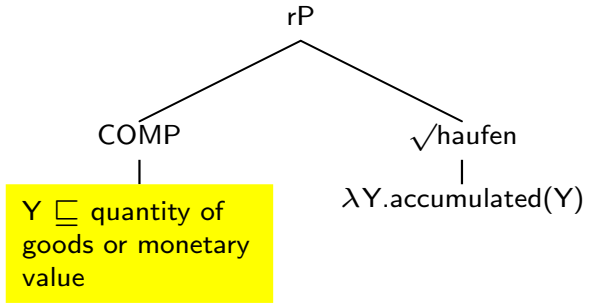
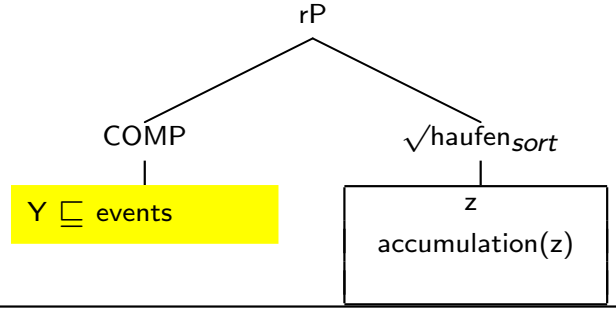
die Lösung der
the undoing of the
Schraube
screw

3

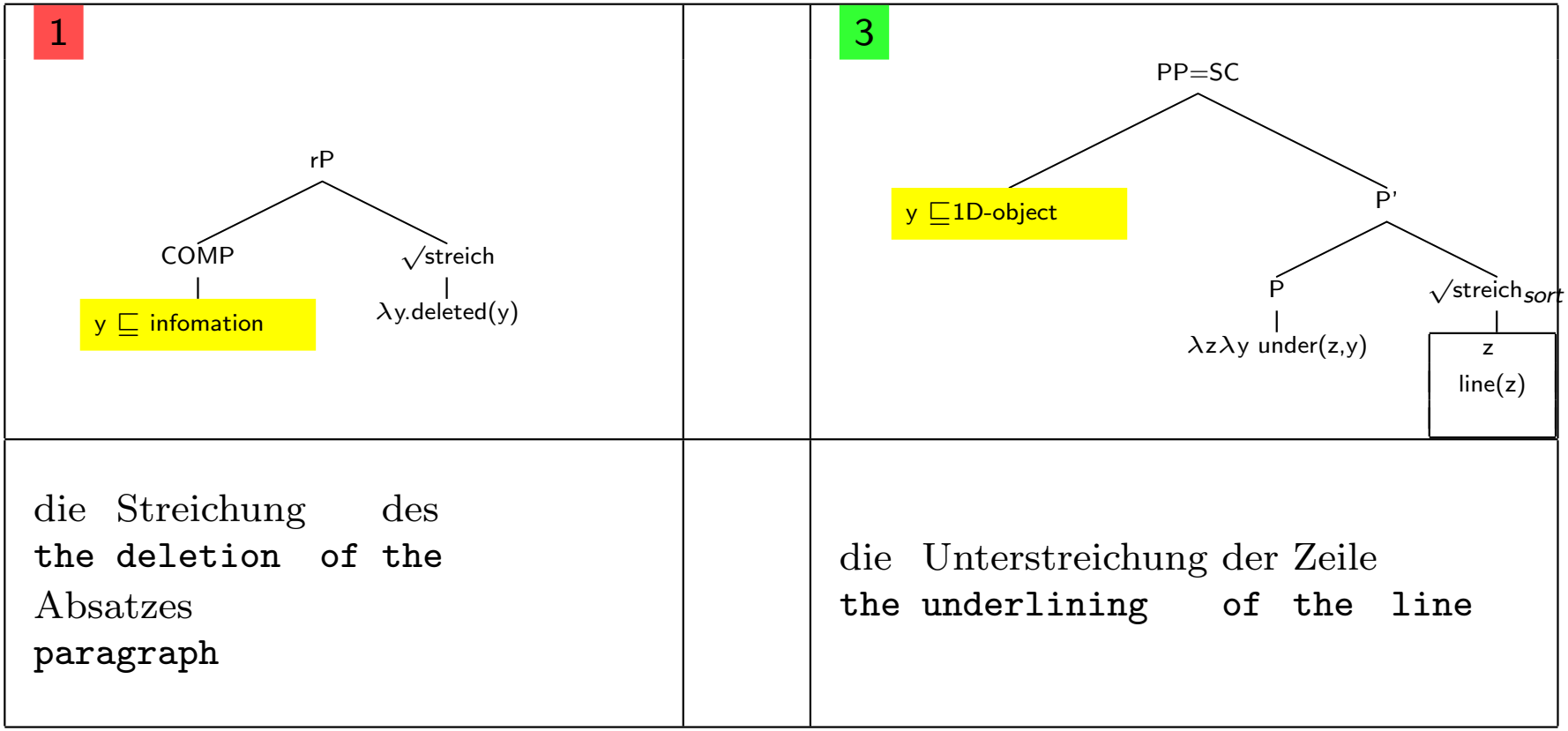


die Lösung des Rätsels
the solution of the puzzle

Roots switch semantics wrt. sortal restrictions

1	2	3
		
die Häufung der Vorräte the accumulation of stocks	die Häufung der Unfälle the accumulation of the accidents	
die wieder gehäuften Vorräte (restit.)	die Unfälle häufen sich wieder (repet.)	

Roots switch semantics wrt. sortal restrictions

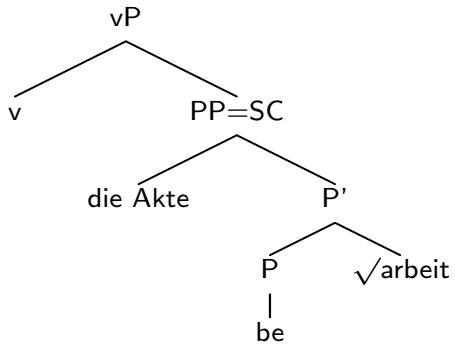


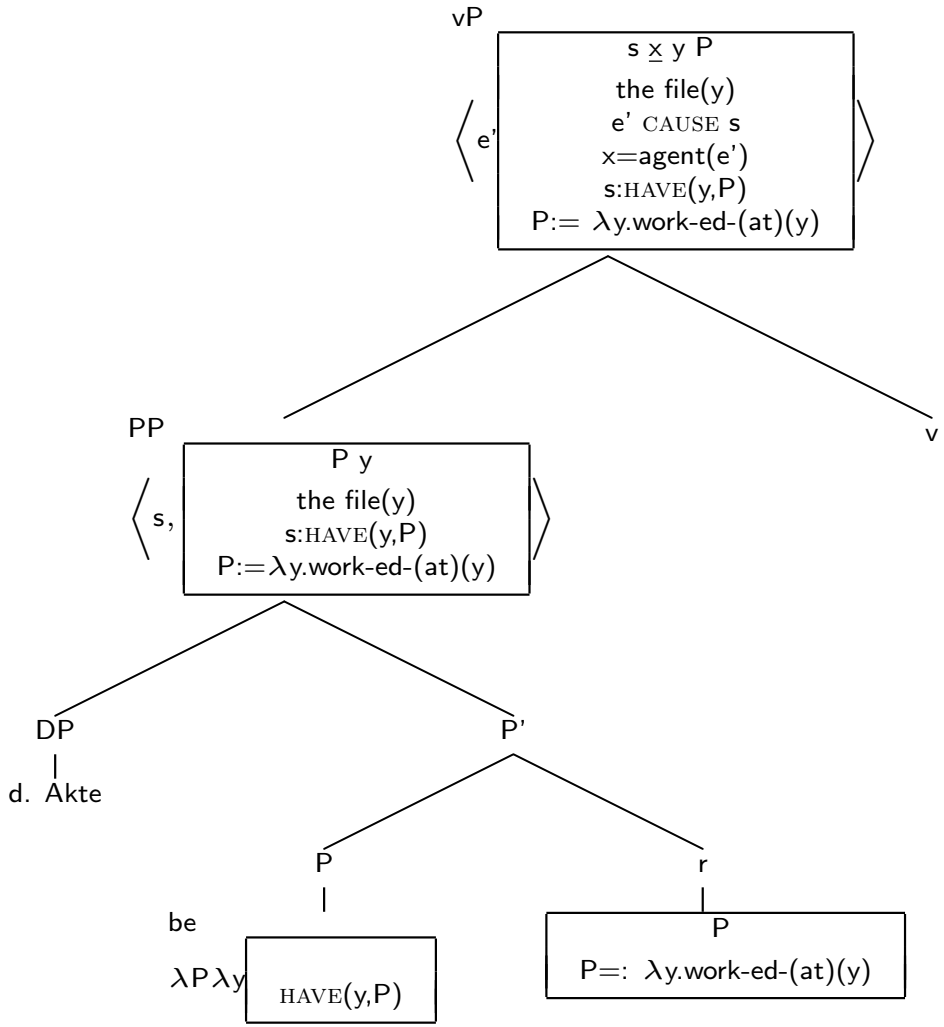
die Streichung des the deletion of the Absatzes paragraph		die Unterstreichung der Zeile the underlining of the line

die Wand streichen , durch die Gegend streichen
the wall paint , through the area wander

5 die Akte war bearbeitet
`the file be:aux:pst PREF-work-PERF`

Be-arbeitung-ung der Akte
`PREF-work-ung of the file`



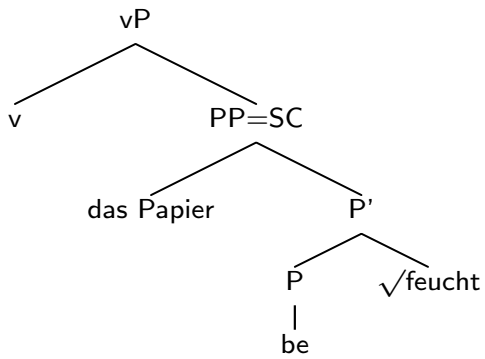


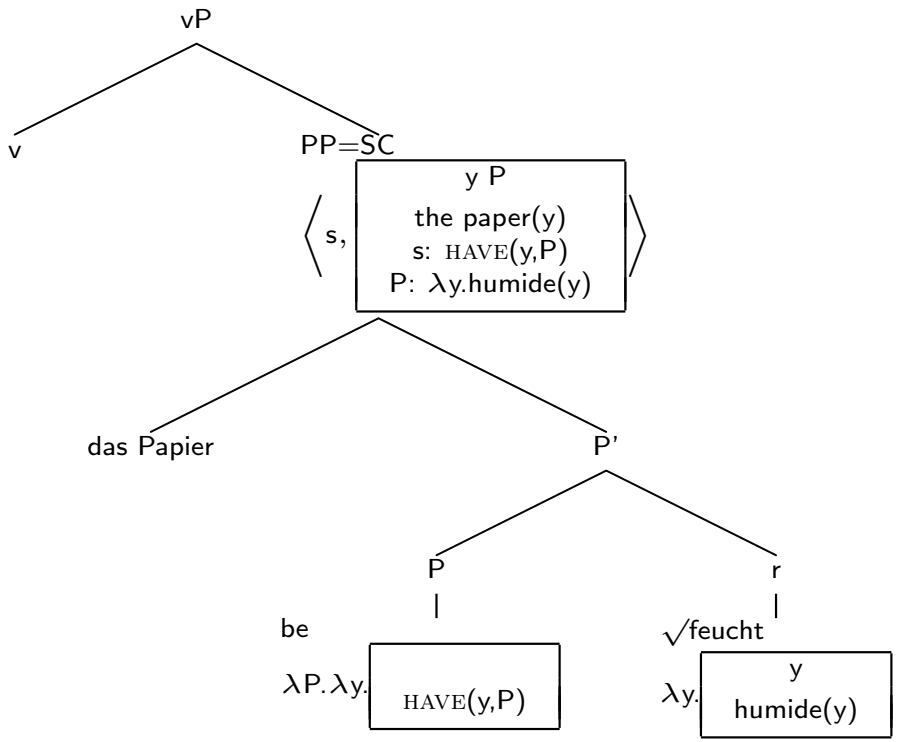
die Akte in drei Tagen bearbeiten
the file in three days PREF-work

Interlude: *be-* select properties 1 ev,ts

1	das	Papier	war	befeuchtet
	`the`	`paper`	`be:aux:pst`	`PRE-humide-PERF`

Befeuchtung des Papiers
`PREF-humide-ung of the paper`



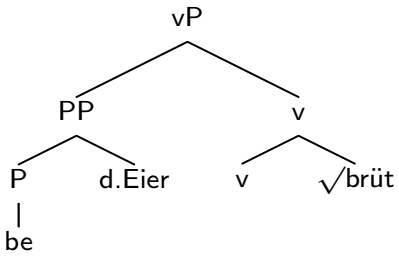


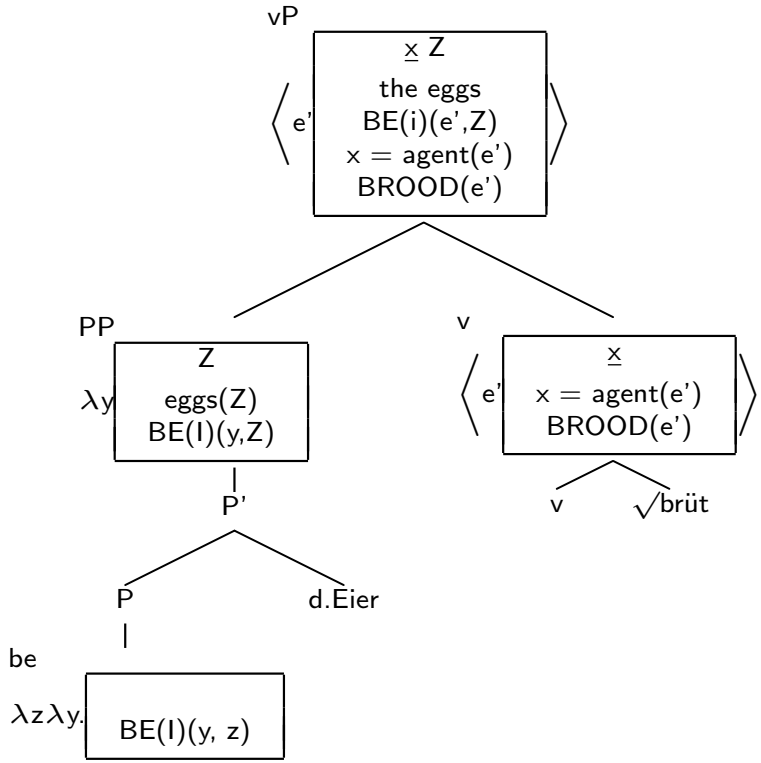
die bebrüteten Eier
the PRED-brood-PERF eggs

* die Bebrüt-ung der Eier
the PREF-brood-ung of the eggs

von Bienen beflogene Pflanzen
by bees PREF-flieg-PERF plants

* die Befliegung der Pflanzen
the PREF-fly-ung of the plants





die Eier drei Tage lang bebrüten
the eggs for three days PREF-brood
die Pflanzen drei Tage lang befliegen

#die Eier in drei Tagen bebrüten
the eggs in three days PREF-brood
die Pflanzen in drei Tagen befliegen

Conclusion

- syntactico-semantic constraints on the formation of -*ung*-nominals
- compositional semantics for verbs and *ung*-nouns determined by their roots and structures
- structural ambiguity of verbs and *ung*-nouns as determined by different types of roots
- predictions of the meaning ranges of *ung*-nouns from their root based structure

Questions on the agenda:

- constraints on class switching of the roots
- the role of prefixes and particles in complex constructions
- the role of ontological classes of entity introducing roots

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