A Theory of Relative Clause Attachment

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Outline

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Construal

(1) a. **A man** who was wearing a hat arrived yesterday.
b. **A man** arrived yesterday who was wearing a hat.

(2) a. I gave **every book** which I had read to my sister.
b. I gave **every book** to my sister which I had read.

Obligatory RC

Certain determiners (e.g. *derjenige/diejenige/dasjenige*) require the presence of a RC (Alexiadou et al. 2000)

(3) **diejenige (Frau)** *(die dort steht)
the+that woman who there stands
'the very woman who is standing there'

(4) Ich habe **diejenige (Frau)** bewundert, *(die dort steht).
I have the+that woman admired who there stands.
'I've admired the very woman who is standing there.'

Extraposed RC marks wide scope

Williams' Generalization:
When an adjunct β is extraposed from a "source DP" α, the scope of α is at least as high as the attachment site of β (the extraposition site).
(Williams 1974, Fox&Nissenbaum 1999, Fox 2002)

(5) a. *I looked for **anything** very intensely that will/would help me with my thesis.
b. I looked for **something** very intensely that will (likely) help me with my thesis.

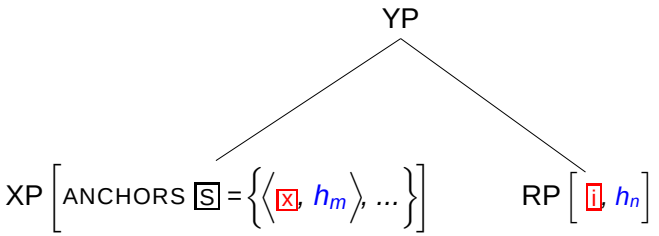
(6) Pat looked for **a secretary** very intensely that would proofread her manuscript.
$\exists >$ *look for* **look for* $> \exists$

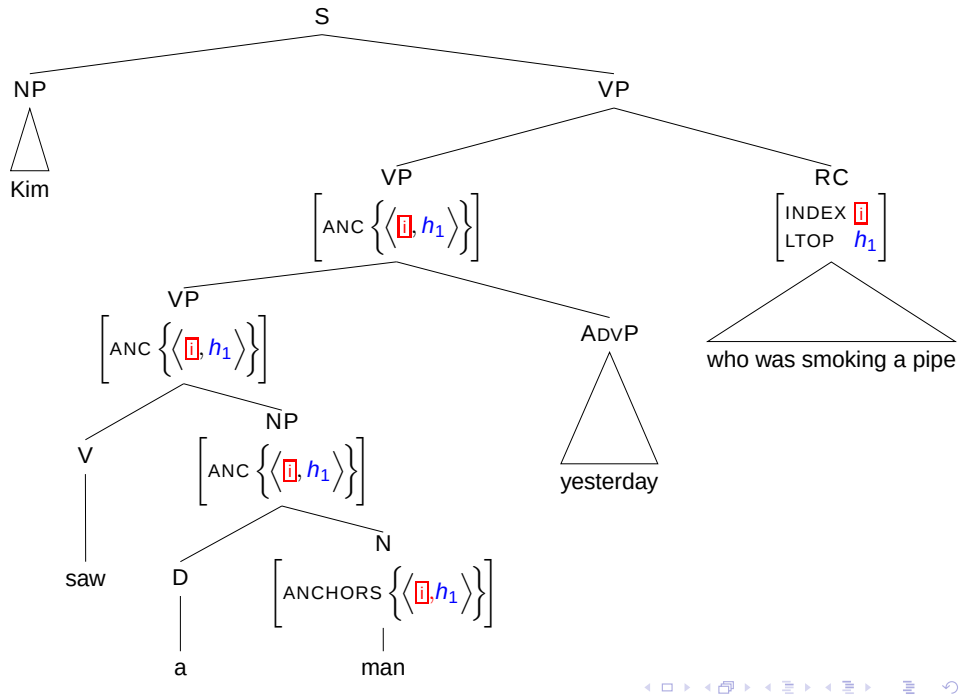
Outline

Generalized Modification (Kiss 2005)

- "A relative clause can be realized in a syntactic position which allows access to a suitable antecedent of the relative pronoun."
- Nouns introduce ANCHORS
(pair of index + local top handle: $< \boxed{i}, h_n >$)
- Anchors percolate up the tree
- Index + handle identification

(7)





Problems with Kiss' Generalized Modification

- Does not capture the phenomenon of determiners with obligatory RCs (*derjenige/diejenige/dasjenige*)
- Does not account for RCs with elliptical NPs
- Does not account for the scope effects

Outline

Revised steps

- Determiner (rather than the noun) introduces the anchor
  - obligatorily for determiners like *derjenige/diejenige/dasjenige*
  - optionally for "normal" determiners like *the/a*, *der/ein*
- Anchors optionally cancelled when "picked up" by a RC
- At root node, all anchors must have been used
- Noun-ellipsis-schema for elliptical NPs
- Framework of L(exical) R(esource) S(emantics) to account for scope effects

Outline

L(exical) R(esource) S(emantics) (Richter&Sailer 2004)

CONTENT: aspects relevant for local semantic phenomena (e.g. linking, selection)

(8) Appropriateness conditions of the sort *content*:

$$\textit{content}: \begin{bmatrix} \text{INDEX} & \textit{extended-index} \\ \text{MAIN} & \textit{term} \end{bmatrix}$$

(9) Appropriateness conditions of the sort *extended-index*:

$$\textit{extended-index}: \begin{bmatrix} \text{VAR} & \textit{term} \\ \text{PHI} & \textit{index} \end{bmatrix}$$

MAIN: main semantic predicate contributed by a word

(10) Sketch of the lexical entry of *book*:

$$\begin{bmatrix} \textit{word} \\ \text{PHON} \langle \textit{book} \rangle \\ \text{SS|LOC|CONT} \begin{bmatrix} \text{INDEX} & \begin{bmatrix} \text{VAR} & x \\ \text{PHI} & \begin{bmatrix} \text{PERS} & \textit{3rd} \\ \text{NUM} & \textit{sg} \\ \text{GEN} & \textit{neut} \end{bmatrix} \end{bmatrix} \\ \text{MAIN} & \textit{book}' \end{bmatrix} \end{bmatrix}$$

Outline

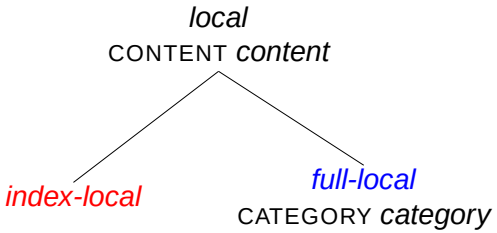
The anchor

(11) ANCHORS as nonlocal feature:

$$\begin{bmatrix} \text{SYNSEM}|\text{NONLOC} \begin{bmatrix} \text{INHERITED} & \begin{bmatrix} \text{SLASH} & \textit{set(local)} \\ \text{ANC(HORS)} & \textit{set(local)} \end{bmatrix} \\ \text{TO-BIND} & \begin{bmatrix} \text{SLASH} & \textit{set(local)} \\ \text{ANC(HORS)} & \textit{set(local)} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

- Adopting Crysmann's (to appear) proposal (adapted to LRS)
- A single feature ANCHORS (Crsymann's EX) to model both, RC extraposition and complement clause extraposition
- Value of ANCHORS (*set(local)*) split into two types to account for the differences:

(12)



How the anchor is introduced

The determiner as functor which selects the NP
(Van Eynde 1998, 2006)

(13) *hd-functor-phr* ⇒

$$\begin{bmatrix} \text{DAGHTERS} & \left\langle \left[\text{SYNSEM}|\text{LOC}|\text{CAT}|\text{HEAD}|\text{SELECT } \boxed{1} \right], \boxed{2} \right\rangle \\ \text{HEAD-DTR} & \boxed{2} \left[\text{SYNSEM } \boxed{1} \textit{ synsem} \right] \end{bmatrix}$$

The determiner introduces the anchor.

(14) Lexical entry of determiner with obligatory RC

$$\begin{bmatrix} \text{PHON} \langle \textit{diejenige} \rangle \\ \text{SS} \begin{bmatrix} \text{LOC}|\text{CAT}|\text{HEAD} & \begin{bmatrix} \textit{determiner} \\ \text{SELECT} \left[\text{LOC}|\text{CONT } \boxed{1} \right] \end{bmatrix} \\ \text{NONLOC}|\text{INH}|\text{ANCHORS} & \left\{ \begin{bmatrix} \textit{index-local} \\ \text{CONT } \boxed{1} \end{bmatrix} \right\} \end{bmatrix} \end{bmatrix}$$

(15) Lexical entry of “normal” determiner (with optional RC)

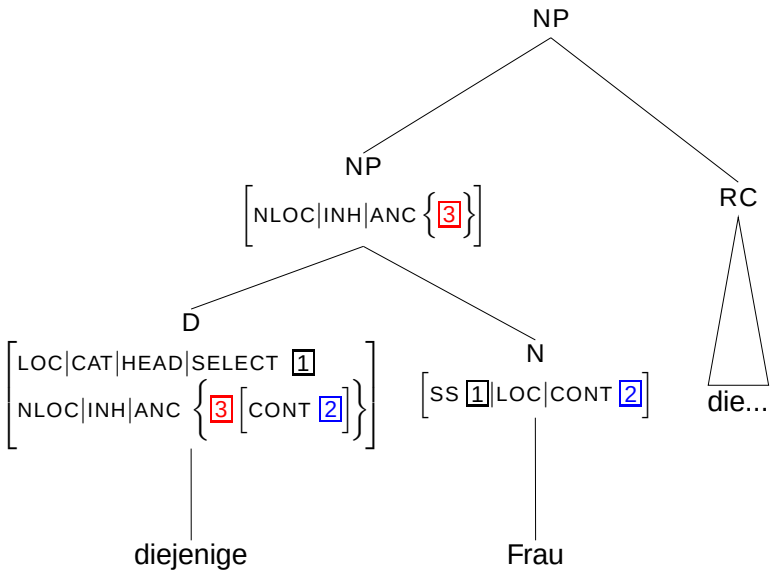
$$\begin{bmatrix} \text{PHON} \langle \textit{the} \rangle \\ \text{SS} \begin{bmatrix} \text{LOC|CAT|HEAD} \begin{bmatrix} \textit{determiner} \\ \text{SELECT}[\text{LOC|CONT } \boxed{1}] \end{bmatrix} \\ \text{NONLOC|INH|ANCHORS} \left\{ \left(\begin{bmatrix} \textit{index-local} \\ \text{CONT } \boxed{1} \end{bmatrix} \right) \right\} \end{bmatrix} \end{bmatrix}$$

How the anchor percolates

(16) **The Nonlocal Feature Principle**
(Pollard & Sag 1994, Kiss 2005, Crysmann (to appear))

In a headed phrase, for each nonlocal feature F = SLASH, QUE, REL, or ANCHORS, the value of SYNSEM|NONLOCAL|INHERITED|F is the set difference of the union of the values on all the daughters and the value of SYNSEM|NONLOCAL|TO-BIND|F on the HEAD-DAUGHTER.

(17)



Special case: no (overt) noun

(18) diejenige (Frau) die dort steht
the+that woman who there stands
‘the very woman who is standing there’

Constraint on *noun-ellipsis-functor* (adopted from Branco&Costa 2006)

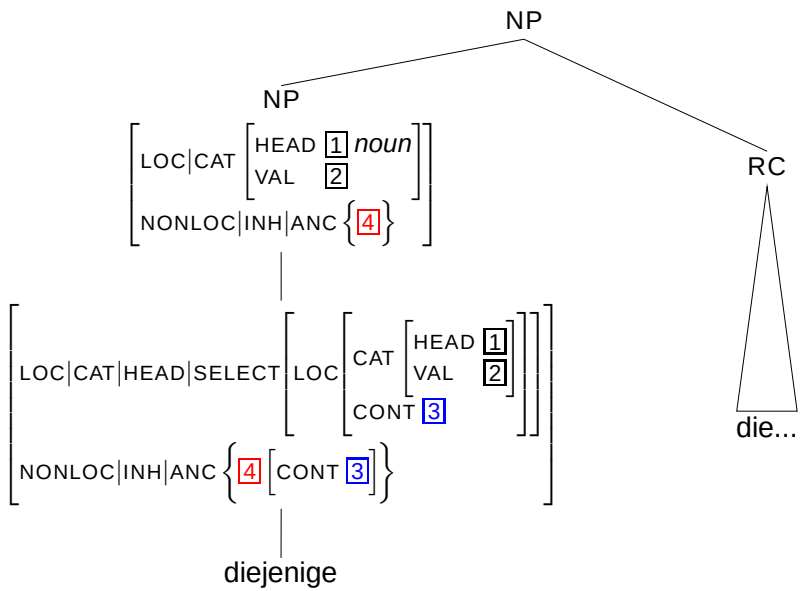
(19) *noun-ellipsis-functor* ⇒

$$\left[\begin{array}{l} \text{SS}|\text{LOC}|\text{CAT}\left[\begin{array}{ll}\text{HEAD} & \boxed{1}\,\textit{noun}\\ \text{VAL} & \boxed{2}\end{array}\right] \\ \text{DTRS}\left\langle\left[\text{SELECT}\left[\text{LOC}|\text{CAT}\left[\begin{array}{ll}\text{HEAD} & \boxed{1}\\ \text{VAL} & \boxed{2}\end{array}\right]\right]\right]\right\rangle \end{array}\right]$$

(20) *noun-ellipsis-functor* ⇒

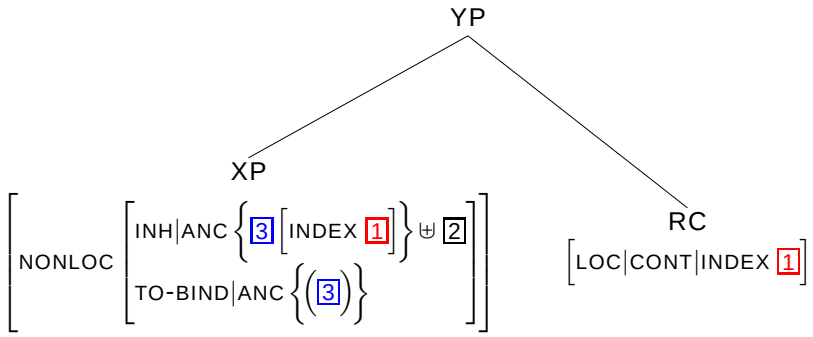
$$\left[\begin{array}{l} \text{SS}\left[\begin{array}{l}\text{LOC}|\text{CAT}\left[\begin{array}{ll}\text{HEAD} & \boxed{1}\,\textit{noun}\\ \text{VAL} & \boxed{2}\end{array}\right]\\ \text{NONLOC}|\text{INH}|\text{ANC}\ \boxed{3}\end{array}\right] \\ \text{DTRS}\left\langle\left[\begin{array}{l}\text{SELECT}\left[\text{LOC}|\text{CAT}\left[\begin{array}{ll}\text{HEAD} & \boxed{1}\\ \text{VAL} & \boxed{2}\end{array}\right]\right]\\ \text{NONLOC}|\text{INH}|\text{ANC}\ \boxed{3}\end{array}\right]\right\rangle \end{array}\right]$$

(21)



How the anchor is “picked up” by the RC

(22) Generalized Modification (revised, preliminary)



Anchors only optionally bound in order to allow for multiple RCs:

(23) **A paper** just came out which you might be interested in which talks about extraposition. (Keller 1995:2)

Constraint on *clause*

(24) $\begin{bmatrix} \textit{clause} \\ \text{SS|STATUS } \textit{complete} \end{bmatrix} \Rightarrow \left[\text{SS|NONLOC|INH|ANCHORS } \{\}\right]$

(see Richter 1997)

- To ensure that obligatory anchors (*derjenige/diejenige/dasjenige*) are picked up by RC
- Right Roof Constraint

(25) a. * [That **a gun** went off] surprised noone which I had cleaned. (Ross 1967/1986:4)

b. * [Talking to **a student** is interesting] who is intelligent.

Outline

LRS (Richter&Sailer 2004)

(26) Appropriateness conditions:

a. *sign*: $\begin{bmatrix} \text{PHON} & \textit{phonology} \\ \text{SYNSEM} & \textit{synsem} \\ \text{LO(GICAL-)F(ORM)} & \textit{lrs} \end{bmatrix}$

b. *lrs*: $\begin{bmatrix} \text{EX(TERNAL-)CONT(ENT)} & \textit{m(eaningful) e(xpression)} \\ \text{IN(TERNAL-)CONT(ENT)} & \textit{m(eaningful) e(xpression)} \\ \text{PARTS} & \textit{list(me)} \end{bmatrix}$

LF:	aspects relevant for nonlocal semantics
EXCONT:	overall logical form of a phrase
INCONT:	scopally lowest element contributed by a word
PARTS:	collection of meaning contributions of the words

Lexical entries

(27) Pat:

$$\begin{bmatrix} \textit{word} \\ \text{PHON} \langle \textit{Pat} \rangle \\ \text{SS|LOC|CONT} \begin{bmatrix} \textit{content} \\ \text{INDEX} \begin{bmatrix} \text{VAR} & \boxed{2}\, p \\ \text{PHI} & \begin{bmatrix} \text{PER} & \textit{3rd} \\ \text{NUM} & \textit{sg} \end{bmatrix} \end{bmatrix} \\ \text{MAIN} \quad \boxed{2} \end{bmatrix} \\ \text{LF} \begin{bmatrix} \textit{lrs} \\ \text{EXCONT} \quad \textit{me} \\ \text{INCONT} \quad \boxed{2} \\ \text{PARTS} \quad \langle \boxed{2} \rangle \end{bmatrix} \end{bmatrix}$$

(28) hire:

$$\begin{bmatrix} \textit{word} \\ \text{PHON} \langle \textit{hire} \rangle \\ \text{SS|LOC} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} & \textit{verb} \\ \text{SUBCAT} & \left\langle \text{NP}\left[\text{INDEX VAR } x\right], \text{NP}\left[\text{INDEX VAR } y\right] \right\rangle \end{bmatrix} \\ \text{CONT} \begin{bmatrix} \textit{content} \\ \text{INDEX} \left[\text{VAR } e\right] \\ \text{MAIN} \quad \boxed{1c}\, \text{hire}' \end{bmatrix} \end{bmatrix} \\ \text{LF} \begin{bmatrix} \textit{lrs} \\ \text{EXCONT} \quad \textit{me} \\ \text{INCONT} \quad \boxed{1}\text{hire}'(e,x,y) \\ \text{PARTS} \quad \langle e, x, y, \boxed{1}, \boxed{1a}\, \text{hire}'(e,y), \boxed{1b}\, \text{hire}'(e), \boxed{1c}, \exists e.\phi \rangle \end{bmatrix} \end{bmatrix}$$

& $\boxed{1c} \lhd \phi$

(29) a:

$$\begin{bmatrix} \textit{word} \\ \text{PHON} \langle \textit{a} \rangle \\ \text{SS|LOC|CONT} \begin{bmatrix} \textit{content} \\ \text{INDEX} \left[\text{VAR } y\right] \\ \text{MAIN} \quad \boxed{4} \end{bmatrix} \\ \text{LF} \begin{bmatrix} \textit{lrs} \\ \text{EXCONT} \quad \textit{me} \\ \text{INCONT} \quad \boxed{4}\, \exists y[\alpha \wedge \beta] \\ \text{PARTS} \quad \langle y, \boxed{4}, \boxed{4a}[\alpha \wedge \beta] \rangle \end{bmatrix} \end{bmatrix}$$

(30) secretary:

$$\begin{bmatrix} \textit{word} \\ \text{PHON} \langle \textit{secretary} \rangle \\ \text{SS|LOC|CONT} \begin{bmatrix} \textit{content} \\ \text{INDEX} \begin{bmatrix} \text{VAR} & y \\ \text{PHI} & \begin{bmatrix} \text{PER} & \textit{3rd} \\ \text{NUM} & \textit{sg} \end{bmatrix} \end{bmatrix} \\ \text{MAIN} \quad \boxed{3a}\, \text{secretary}' \end{bmatrix} \\ \text{LF} \begin{bmatrix} \textit{lrs} \\ \text{EXCONT} \quad \textit{me} \\ \text{INCONT} \quad \boxed{3}\, \text{secretary}'(y) \\ \text{PARTS} \quad \langle y, \boxed{3}, \boxed{3a}\, \text{secretary}' \rangle \end{bmatrix} \end{bmatrix}$$

Basic principles

(31) The EXCONT PRINCIPLE:

a. In every utterance, every subexpression of the EXCONT value of the utterance is an element of its PARTS list, and every element of the utterance's PARTS list is a subexpression of the EXCONT value.

b. ...

Semantics Principle, I

(32) In each *headed-phrase*,

a. the EXCONT value of the head and the mother are identical,

b. the INCONT value of the head and the mother are identical,

c. the PARTS value contains all and only the elements of the PARTS values of the daughters.

Semantics Principle, II

(33) In each *headed-phrase*, the following conditions hold:

a. If the non-head is a **quantifier**,
then its INCONT value is of the form $Qx[\alpha \circ \beta]$,
the INCONT value of the head is a component of α,
and the INCONT value of the non-head daughter is identical with the EXCONT value of the head daughter,

(34)

Every	man		
	$man'(x)$		
$\forall x$	$[\alpha$	$\rightarrow$	$\beta]$

Semantics Principle, II

(35) In each *headed-phrase*, the following conditions hold:

a. If the non-head is a **quantifier**,
then its INCONT value is of the form $Qx[\alpha \circ \beta]$,
the INCONT value of the head is a component of α,
and the INCONT value of the non-head daughter is identical with the EXCONT value of the head daughter,

b. If the non-head is a **quantified NP**
with an EXCONT value of the form $Qx[\alpha \circ \beta]$,
then the INCONT value of the head is a component of β.

(36)

Every	man		snored
	$man'(x)$		$snore'(x)$
$\forall x$	$[\alpha$	$\rightarrow$	$\beta]$

Semantics Principle, III

(37) In a *head-adjunct-phrase*, the EXCONT value of the non-head is a component of the EXCONT value of the head, and

a. if the non-head is an **intersective modifier**, then its EXCONT value is of the form $\alpha \wedge \beta$ and the INCONT value of the head is a component of β.

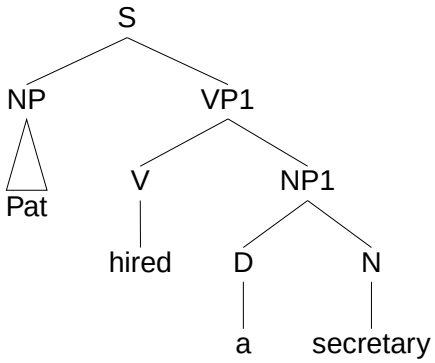
b. ...

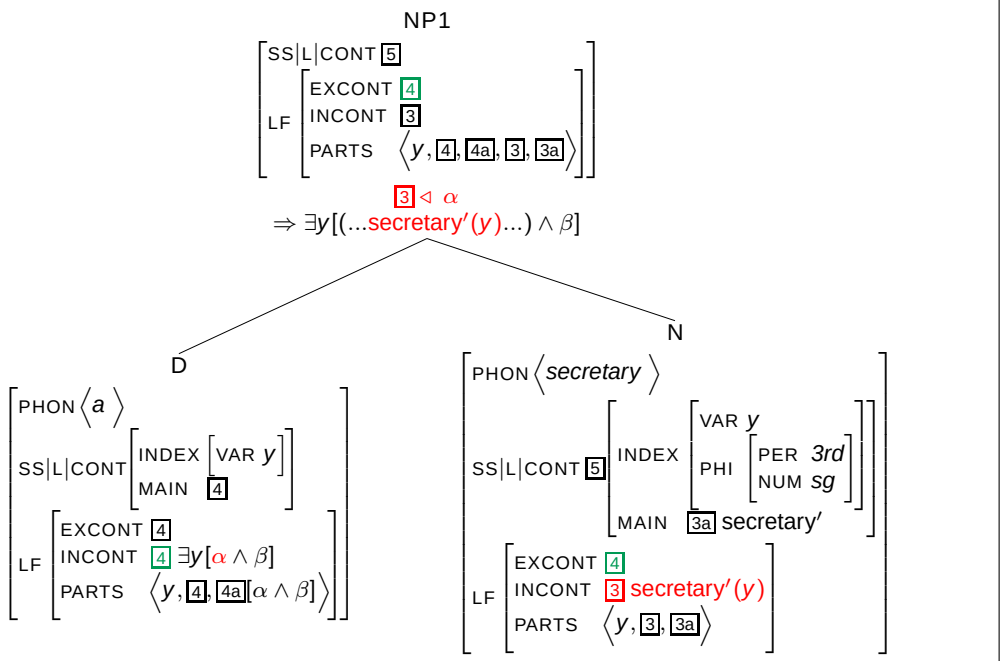
(38)

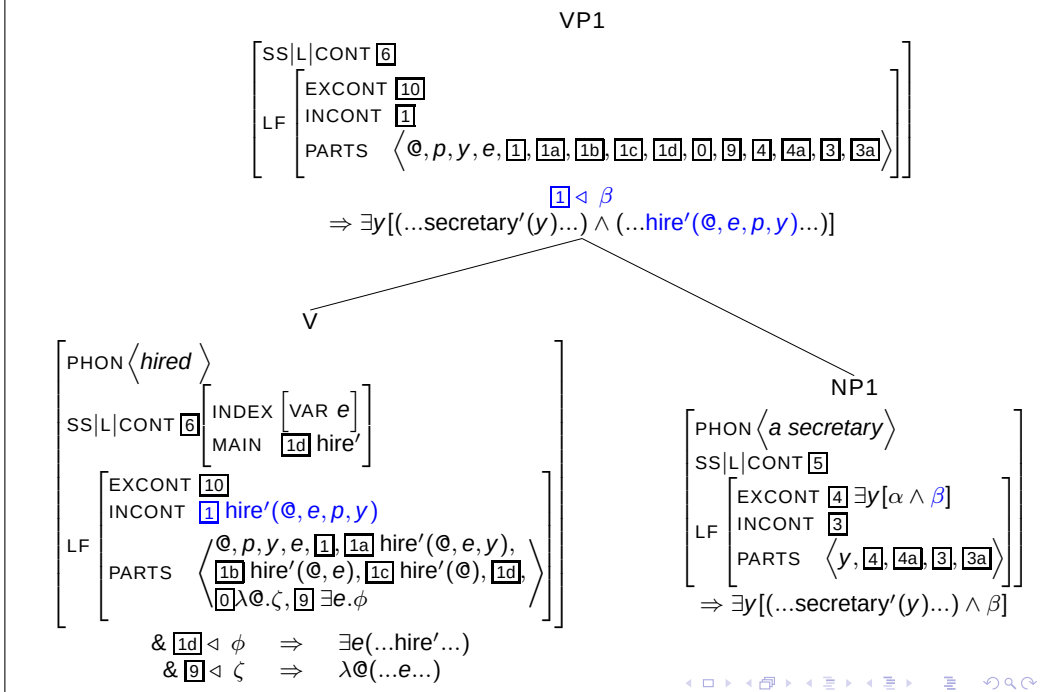
red	book
	book′(*x*)
[α	$\wedge$ β]

An example

(39) Pat hired a secretary.







S

$$\left[\begin{array}{l}\text{SS|L|CONT } \boxed{6} \\ \text{LF } \left[\begin{array}{l}\text{EXCONT } \boxed{10}\ \lambda@.\exists e \exists y[\text{secretary}'(y) \wedge \text{hire}'(@, e, p, y)] \\ \text{INCONT } \boxed{1} \\ \text{PARTS } \left\langle \boxed{2}, @, p, y, e, \boxed{1}, \boxed{1a}, \boxed{1b}, \boxed{1c}, \boxed{1d}, \boxed{0}, \boxed{9}, \boxed{4}, \boxed{4a}, \boxed{3}, \boxed{3a} \right\rangle\end{array}\right]\end{array}\right]$$

NP

$$\left[\begin{array}{l}\text{PHON } \langle \textit{Pat} \rangle \\ \text{SS|L|CONT } \left[\begin{array}{ll}\text{INDEX} & \left[\begin{array}{ll}\text{VAR } \boxed{2}\ p & \\ \text{PHI} & \left[\begin{array}{l}\text{PER } \textit{3rd} \\ \text{NUM } \textit{sg}\end{array}\right]\end{array}\right] \\ \text{MAIN} & \boxed{2}\end{array}\right] \\ \text{LF } \left[\begin{array}{l}\text{EXCONT } \textit{me} \\ \text{INCONT } \boxed{2} \\ \text{PARTS } \langle \boxed{2} \rangle\end{array}\right]\end{array}\right]$$

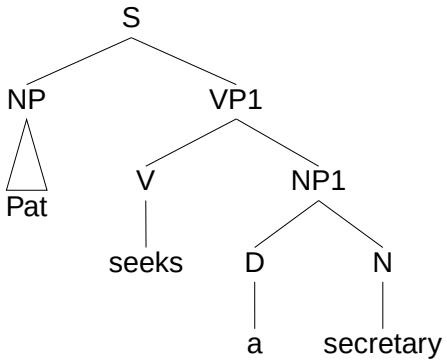
VP1

$$\left[\begin{array}{l}\text{PHON } \langle \textit{hired a secretary} \rangle \\ \text{SS|L|CONT } \boxed{6} \\ \text{LF } \left[\begin{array}{l}\text{EXCONT } \boxed{10} \\ \text{INCONT } \boxed{1} \\ \text{PARTS } \left\langle @, p, y, e, \boxed{1}, \boxed{1a}, \boxed{1b}, \boxed{1c}, \boxed{1d}, \boxed{0}, \boxed{9}, \boxed{4}, \boxed{4a}, \boxed{3}, \boxed{3a} \right\rangle\end{array}\right]\end{array}\right]$$

$\Rightarrow \exists y[(...\text{secretary}'(y)...) \wedge (...\text{hire}'(@, e, p, y)...)]$

An example with an intensional verb

(40) Pat seeks a secretary.



VP1

$$\left[\begin{array}{l}\text{LF } \left[\begin{array}{l}\text{EXCONT } \boxed{10} \\ \text{INCONT } \boxed{8} \\ \text{PARTS } \left\langle @, p, y, e, P, \boxed{1}, \boxed{1a}, \boxed{1b}, \boxed{1c}, \boxed{1d}, \boxed{0}, \boxed{7}, \boxed{7a}, \boxed{8}, \boxed{8a}, \boxed{9}, \boxed{4}, \boxed{4a}, \boxed{3}, \boxed{3a} \right\rangle\end{array}\right]\end{array}\right]$$

$\boxed{8} \lhd \beta$

$\Rightarrow \exists y[(...\text{secretary}'(y)...) \wedge (...P(@, y)...)]$

V

$$\left[\begin{array}{l}\text{PHON } \langle \textit{seeks} \rangle \\ \text{SS|L|CONT } \left[\text{MAIN } \boxed{1d}\ \text{seek}'\right] \\ \text{LF } \left[\begin{array}{l}\text{EXCONT } \boxed{10} \\ \text{INCONT } \boxed{8}\ P(@, y) \\ \text{PARTS } \left\langle \begin{array}{l} @, p, y, e, P, \boxed{1}\text{seek}'(@, e, p, \lambda@\lambda P.\epsilon), \\ \boxed{1a}\text{seek}'(@, e, \lambda@\lambda P.\epsilon), \boxed{1b}\text{seek}'(@, e), \\ \boxed{1c}\text{seek}'(@), \boxed{1d}, \boxed{0}\lambda@.\zeta, \boxed{7}\lambda@\lambda P.\epsilon, \\ \boxed{7a}\lambda P.\epsilon, \boxed{8}, \boxed{8a}P(@), \boxed{9}\ \exists e.\phi \end{array} \right\rangle\end{array}\right]\end{array}\right]$$

$\& \boxed{1d} \lhd \phi$

$\& \boxed{9} \lhd \zeta$

$\& \boxed{8} \lhd \epsilon \Rightarrow \lambda P(...P(@, y)...)$

NP1

$$\left[\begin{array}{l}\text{PHON } \langle \textit{a secretary} \rangle \\ \text{LF } \left[\begin{array}{l}\text{EXCONT } \boxed{4}\ \exists y[\alpha \wedge \beta] \\ \text{INCONT } \boxed{3} \\ \text{PARTS } \langle y, \boxed{4}, \boxed{4a}, \boxed{3}, \boxed{3a} \rangle\end{array}\right]\end{array}\right]$$

$\boxed{3} \lhd \alpha$

$\Rightarrow \exists y[(...\text{secretary}'(y)...) \wedge \beta]$

S

$$\left[\begin{array}{l}\text{LF } \left[\begin{array}{l}\text{EXCONT } \boxed{10} \\ \text{INCONT } \boxed{8} \\ \text{PARTS } \left\langle \begin{array}{l} \boxed{2}, @, p, y, e, P, \boxed{1}, \boxed{1a}, \boxed{1b}, \boxed{1c}, \boxed{1d}, \\ \boxed{0}, \boxed{7}, \boxed{7a}, \boxed{8}, \boxed{8a}, \boxed{9}, \boxed{4}, \boxed{4a}, \boxed{3}, \boxed{3a} \end{array} \right\rangle\end{array}\right]\end{array}\right]$$

(A) $\lambda@.\exists e[\text{seek}'(@, e, p, \lambda@\lambda P.\exists y[\text{secretary}'(y) \wedge P(@, y)])]$

(B) $\lambda@.\exists y[\text{secretary}'(y) \wedge \exists e[\text{seek}'(@, e, p, \lambda@\lambda P.P(@, y))]]$

NP

$$\left[\begin{array}{l}\text{PHON } \langle \textit{Pat} \rangle \\ \text{SS|L|CONT } \left[\begin{array}{ll}\text{INDEX} & \left[\begin{array}{ll}\text{VAR } \boxed{2}\ p & \\ \text{PHI} & \left[\begin{array}{l}\text{PER } \textit{3rd} \\ \text{NUM } \textit{sg}\end{array}\right]\end{array}\right] \\ \text{MAIN} & \boxed{2}\end{array}\right] \\ \text{LF } \left[\begin{array}{l}\text{EXCONT } \textit{me} \\ \text{INCONT } \boxed{2} \\ \text{PARTS } \langle \boxed{2} \rangle\end{array}\right]\end{array}\right]$$

VP1

$$\left[\begin{array}{l}\text{PHON } \langle \textit{seeks a secretary} \rangle \\ \text{LF } \left[\begin{array}{l}\text{EXCONT } \boxed{10} \\ \text{INCONT } \boxed{8} \\ \text{PARTS } \left\langle \begin{array}{l} @, p, y, e, P, \boxed{1}, \boxed{1a}, \boxed{1b}, \\ \boxed{1c}, \boxed{1d}, \boxed{0}, \boxed{7}, \boxed{7a}, \boxed{8}, \boxed{8a}, \boxed{9}, \\ \boxed{4}, \boxed{4a}, \boxed{3}, \boxed{3a} \end{array} \right\rangle\end{array}\right]\end{array}\right]$$

$\Rightarrow \exists y[(...\text{secretary}'(y)...) \wedge (...P(@, y)...)]$

The scope problem: RC marks scope

Williams' Generalization:
When an adjunct β is extraposed from a "source DP" α, the scope of α is at least as high as the attachment site of β (the extraposition site).
(Williams 1974, Fox&Nissenbaum 1999, Fox 2002)

(41) a. I looked for **something** very intensely that will (likely) help me with my thesis.

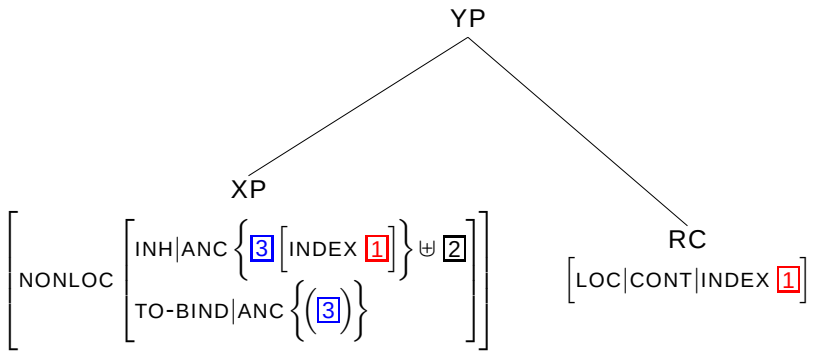
b. *I looked for **anything** very intensely that will/would help me with my thesis.

(42) Pat looked for **a secretary** very intensely that would proofread her manuscript.

$\exists >$ *look for* **look for* $> \exists$

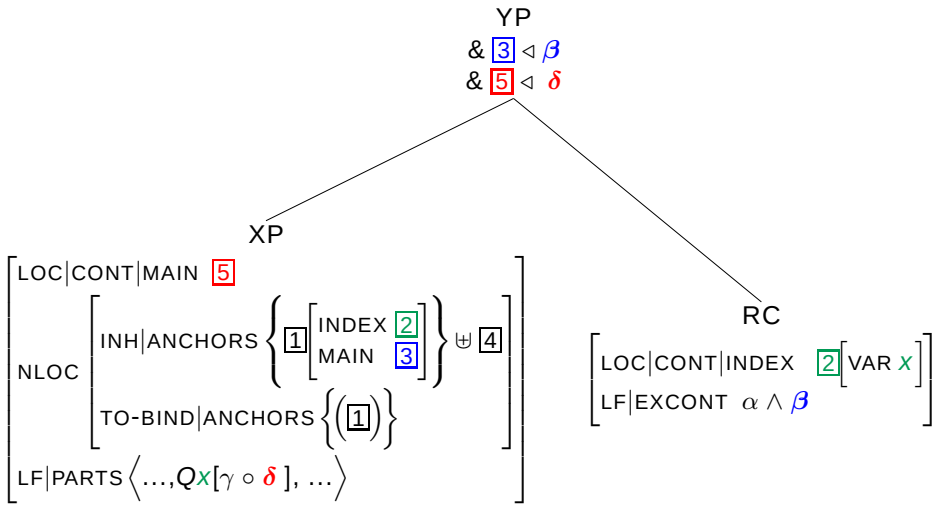
Generalized Modification (revised, preliminary)

(43)



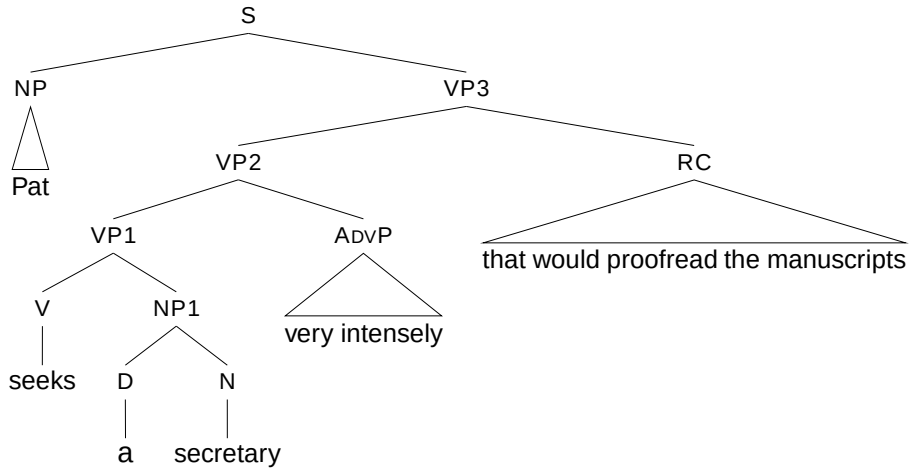
Generalized Modification (revised, final)

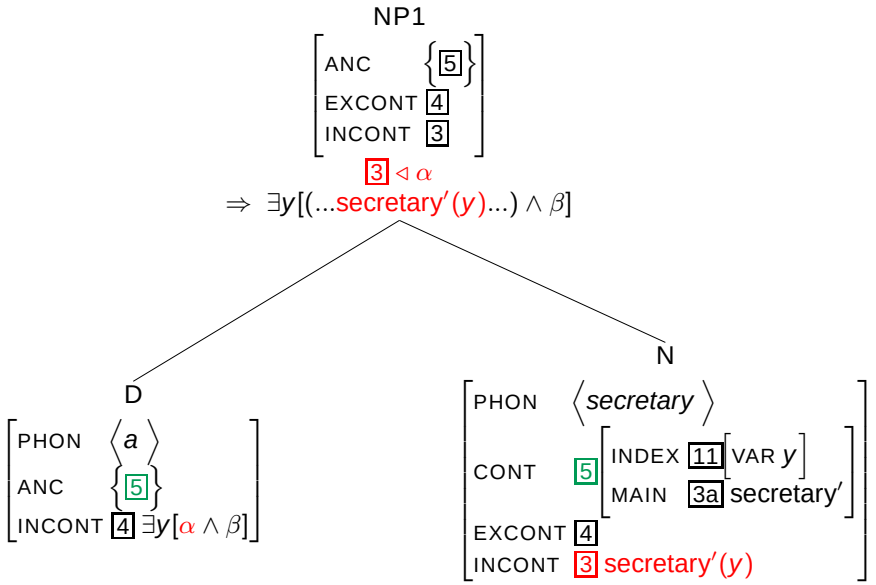
(44)

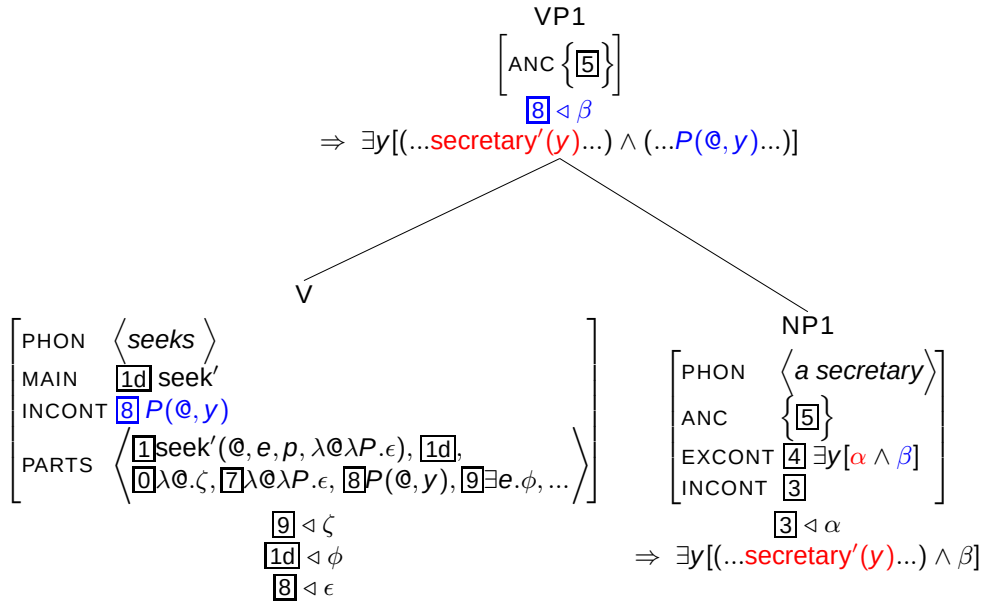


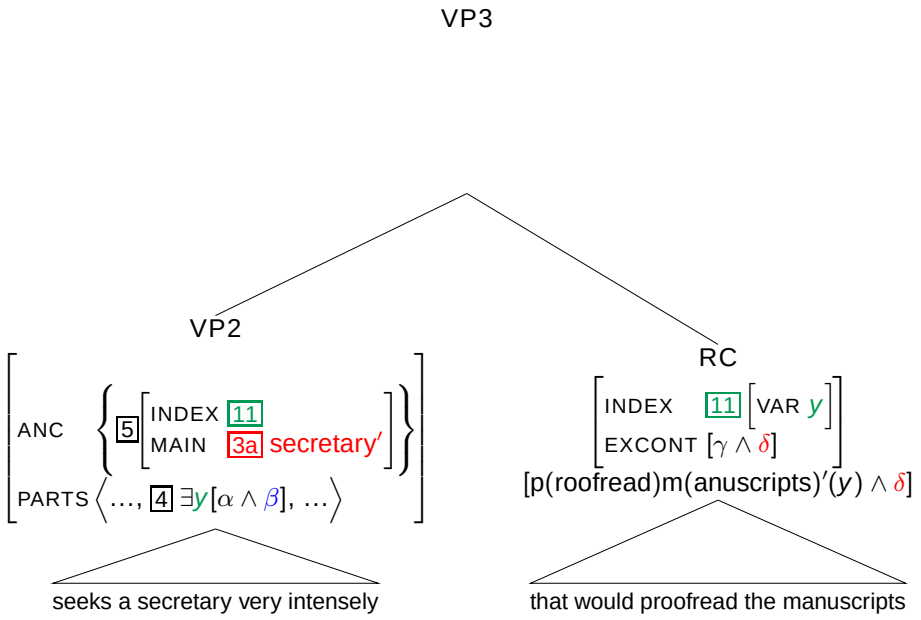
Example: Extraposed RC

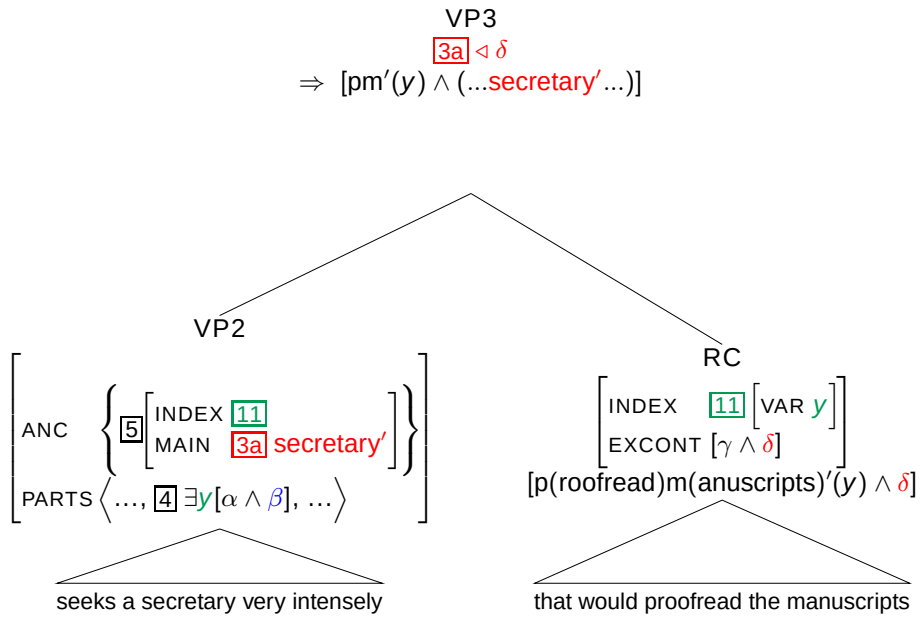
(45) Pat seeks a secretary very intensely that would proofread the manuscripts.

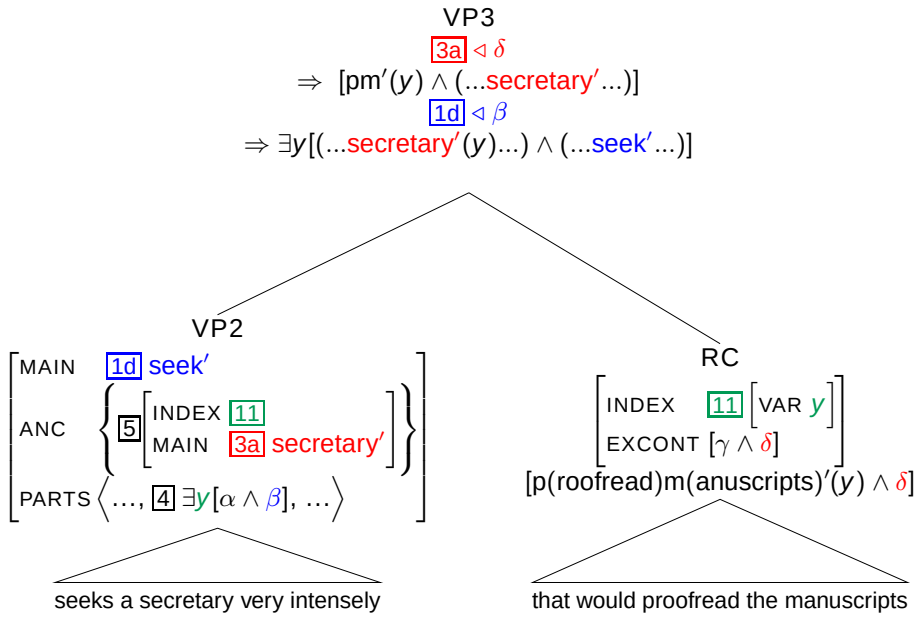


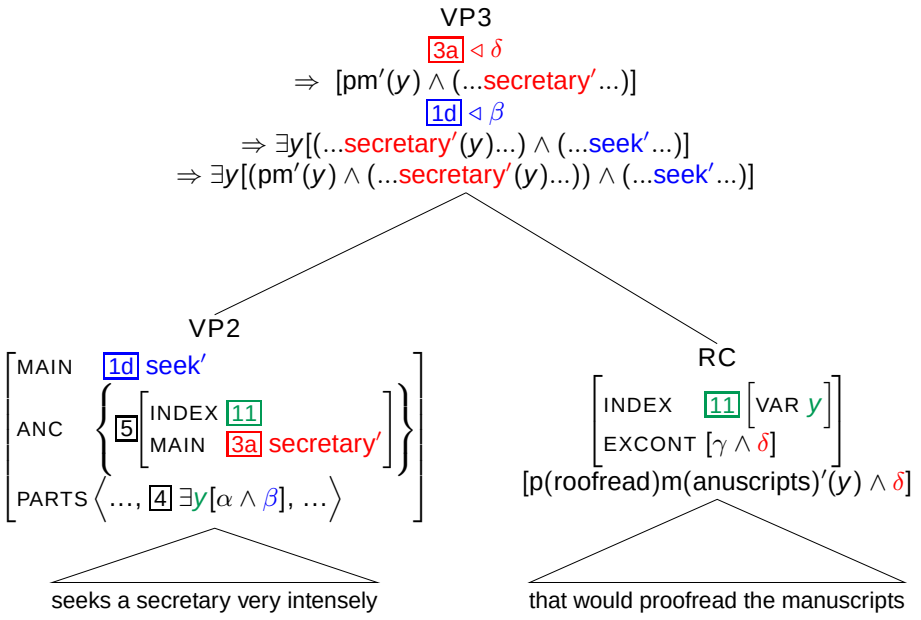

NP1
ANC {5}
EXCONT 4
INCONT 3
3 ◁ α
⇒ ∃y[(...secretary′(y)...) ∧ β]
D
PHON ⟨a⟩
ANC {5}
INCONT 4 ∃y[α ∧ β]
N
PHON ⟨secretary⟩
CONT 5 [INDEX 11 [VAR y]; MAIN 3a secretary′]
EXCONT 4
INCONT 3 secretary′(y)

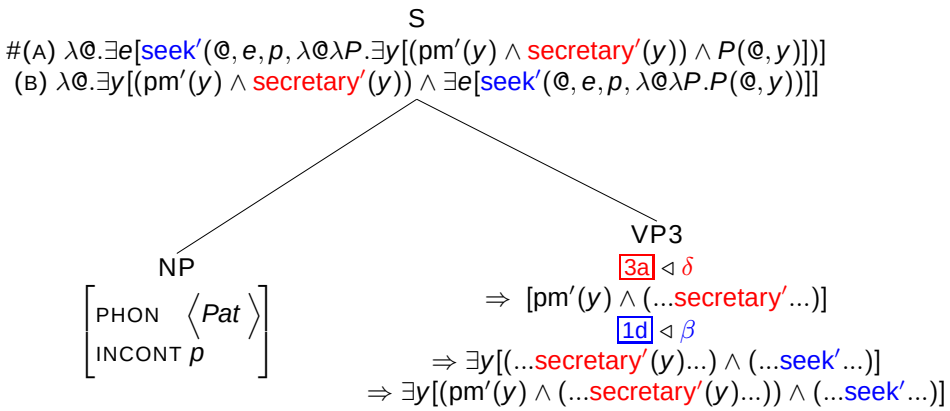

VP1
ANC {5}
8 ◁ β
⇒ ∃y[(...secretary′(y)...) ∧ (...P(@,y)...)]
V
PHON ⟨seeks⟩
MAIN 1d seek′
INCONT 8 P(@,y)
PARTS ⟨1 seek′(@,e,p,λ@λP.ϵ), 1d, 0 λ@.ζ, 7 λ@λP.ϵ, 8 P(@,y), 9 ∃e.ϕ, ...⟩
9 ◁ ζ
1d ◁ ϕ
8 ◁ ϵ
NP1
PHON ⟨a secretary⟩
ANC {5}
EXCONT 4 ∃y[α ∧ β]
INCONT 3
3 ◁ α
⇒ ∃y[(...secretary′(y)...) ∧ β]


VP3
VP2
ANC {5 [INDEX 11; MAIN 3a secretary′]}
PARTS ⟨..., 4 ∃y[α ∧ β], ...⟩
RC
INDEX 11 [VAR y]
EXCONT [γ ∧ δ]
[p(roofread)m(anuscripts)′(y) ∧ δ]
seeks a secretary very intensely
that would proofread the manuscripts


VP3
3a ◁ δ
⇒ [pm′(y) ∧ (...secretary′...)]
VP2
ANC {5 [INDEX 11; MAIN 3a secretary′]}
PARTS ⟨..., 4 ∃y[α ∧ β], ...⟩
RC
INDEX 11 [VAR y]
EXCONT [γ ∧ δ]
[p(roofread)m(anuscripts)′(y) ∧ δ]
seeks a secretary very intensely
that would proofread the manuscripts



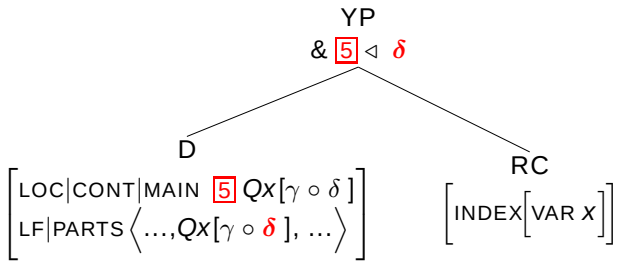




(46) * I saw [**a** [who was wearing a hat]] **man** yesterday.

- Ruled out by the constraint that the MAIN of the head daughter must be in the scope of the quantifier
- The MAIN of a determiner cannot be in its own scope.

(47)



Conclusion

- Generalized Modification, revised
- Obligatory RCs (*derjenige/diejenige/dasjenige*)
- Scope facts: RC marks scope

References I

Alexiadou, Artemis, Law, Paul, Meinunger, André & Wilder, Chris. 2000. Introduction. In *The Syntax of Relative Clauses* [Linguistics Today 32], Artemis Alexiadou, Paul Law, André Meinunger & Chris Wilder (eds), 1-51. Amsterdam: John Benjamins.

Branco, António & Costa, Francisco. 2006. Noun ellipsis without empty categories. In *Proceedings of the HPSG 2006 Conference*, Stefan Müller (ed). Stanford: CSLI.

Crysmann, Berthold. To appear. On the locality of complement clause and relative clause extraposition. In *Rightward Movement in a Comparative Perspective*, Gert Webelhuth, Manfred Sailer & Heike Walker (eds). Amsterdam: John Benjamins.

Fox, Danny. 2002. Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry* 33(1): 63-96.

Fox, Danny & Nissenbaum, Jon. 1999. Extraposition and scope: A case for overt QR. In *Proceedings of the 18th West Coast Conference on Formal Linguistics*, Sonya Bird, Andrew Carnie, Jason D. Haugen & Peter Norquest (eds), 132-144. Somerville, MA: Cascadilla Press.

Keller, Frank. 1994. *Extraposition in HPSG*. Verbmobil Report 30, IBM Germany, Institute for Logic and Linguistics, Heidelberg.

References II

Keller, Frank. 1995. Towards an account of extraposition in HPSG. *Proceedings of the 7th Conference of the European Chapter of the Association for Computational Linguistics*, 301-306. Student Session. Dublin.

Kiss Tibor. 2005. Semantic constraints on relative clause extraposition. *Natural Language and Linguistic Theory* 23(2): 281-334.

Müller, Stefan. 1999. *Deutsche Syntax deklarativ. Head-Driven Phrase Structure Grammar für das Deutsche* [Linguistische Arbeiten 394]. Tübingen: Max Niemeyer Verlag.

Pollard, Carl J. & Sag, Ivan A. 1994. *Head-Driven Phrase Structure Grammar.* Chicago: University of Chicago Press.

Richter, Frank. 1997. Die Satzstruktur des Deutschen und die Behandlung langer Abhängigkeiten in einer Linearisierungsgrammatik. Formale Grundlagen und Implementierung in einem HPSG-Fragment. In *Ein HPSG-Fragment des Deutschen, Teil 1: Theorie*. Arbeitspapiere des Sonderforschungsbereichs 340 “Sprachtheoretische Grundlagen der Computerlinguistik”, Bericht Nr. 95, 13-187. Universität Stuttgart, Universität Tübingen, IBM Deutschland.

References III

Richter, Frank & Sailer, Manfred. 2004. Basic concepts of lexical resource semantics. In *ESSLLI 2003 - Course Material I* [Collegium Logicum Vol. 5], Arnold Beckman & Norbert Preining (eds), 87-143. Kurt Gödel Society: Wien.

Van Eynde, Frank. 1998. The immediate dominance schemata of HPSG: A deconstruction and a reconstruction. In *Computational Linguistics in the Netherlands 1997. Selected Papers from the Eigth CLIN Meeting*, Peter-Arno Coppen, Hans van Halteren & Lisanne Teunissen, 119-133. Amsterdam: Rodopi.

Van Eynde, Frank. 2006. NP-internal agreement and the structure of the noun phrase. *Journal of Linguistics* 42: 139-186.

Williams, Edwin S. III. 1974. Rule Ordering in Syntax. PhD dissertation, University of Massachusetts at Amherst. Reproduced by the Indiana University Linguistics Club, August 1977.