RECONSTRUCTION I: RULE OPACITY

Topics & Goals

- Syntactic opacity, reconstruction and Duke of York derivations
- A hybrid theory of reconstruction (semantic reconstruction and copy theory)
- Constraining the system and consequences for the grammar
- Accounting for scope rigid vs. scope flexible languges

1. OPACITY AND RECONSTRUCTION

Opacity: Information can be packaged and manipulated by ordered sets of operations. Opacity effects arise if the output forms either hide the effects or the contexts of an operation (Kiparsky 1968, 1971; McCarthy 2007; Brody 1995; Mascaro 2012; Williams 1974; i.a.):

(1) a. *Overapplication* (a.k.a. *counter-bleeding*; see caveat in Baković 2011)
Principle applies even though context is not visible any more in surface form.
b. *Underapplication* (*counter-feeding*; ibid.)
Principle should have applied according to surface form, but it didn't.

(2) A rule is *opaque* "if the fact that it applied [underapplication/counter-feeding] or the context that it determines [overapplication/counter-bleeding] are not visible in the surface form"
(McCarthy 2008: 270)

"Rule" in (2) could be an acceptance condition in finite state transition network for inputs that meet requirement X (X ∈ {principle of Binding Theory, c-command condition for pronominal variables,...}:

(3)

	a. *Feeding*	b. *Bleeding*	c. *Counter-feeding*	d. *Counter-bleeding*
①	A → B	A → B	B → B if X	A → A if X
②	B → B if X	A → A if X	A → B	A → B

Reversing order of ① and ② would result in *Feeding* *Bleeding*
Opacity

Opacity comes in at least two flavors: opacity that involves two operations, and more complex interactions. The prototypical case of syntactic two-step syntactic opacity is *reconstruction*.

1.1. INTRA-COMPONENTAL TWO-STEP OPACITY: SYNTACTIC RECONSTRUCTION

Principle A/C reconstruction is a manifestation of overapplication and counter-bleeding (Chomsky 1981):

(4) a. [Which book about ***himself***$_1$]$_2$ did ***he***$_1$ like t_2 best?
b. *[Which picture of ***John***$_1$]$_2$ did ***he***$_1$ like t_2 best?

① Evaluation of Principle A/C
② Movement destroys the context for Principle A/C. Reversing the order would have bled Principle A/ Principle C violation (⇨ counter-bleeding).

Theory of *syntactic reconstruction* (SynR) captures correlations among binding, coreference and movement. SynR has three components:

- Copy Theory to model overapplication
- A theory of countercyclic (Whole Sale) Late Merge to model underapplication
- A theory for interpreting copies (Trace Conversion)

Copy Theory (Chomsky 1995). lower movement copies provide a device for capturing overapplication ((5)).

(5) *Overapplication resolved by Copy Theory*
a. Which picture of each other$_1$ did ***they$_1$*** like <which picture of ***each other$_1$*** > best?
b. *Which picture of John$_1$ did ***he$_1$*** like <which book of ***John$_1$***> best?

Copies create problems for contexts of *anti-reconstruction* (6), though, where Principle C underapplies.

(6) *Anti-reconstruction as underapplication: Principle C obviation with adjuncts*
a. Which seat next to ***John$_1$*** did ***he$_1$*** try to keep a reservation for?
b. Which seat next to John$_1$ did ***he$_1$*** try to keep a reservation for <which seat next to ***John$_1$***>

Late Merge. Underapplication is resolved by delaying lexical insertion of the offending expression. *Late Merge* (LM; McCawley 1968; Lebeaux 1988) results in counter-feeding relation between Merge and Move:

(7) *Underapplication resolved by Late Merge*
a. Which seat did he$_1$ try to keep a reservation for <which seat> (Move DP)
b. Which seat <u>next to ***John$_1$***</u> did ***he$_1$*** try to keep a reservation for <which seat> (LM of PP)

① Movement
② Merge *next to John*. Reverse order would have fed Principle C effect (⇨ counter-feeding).

With Ā-movement, LM needs to be restricted to adjuncts ((5)b above, repeated (8)a). A-movement does not reconstruct for Principle C ((8)b), indicating that in raising contexts, LM can also affect restrictor arguments of DPs.

(8) *A-movement: Principle C obviation with arguments restricted to A-movement*
a. *Which picture of John$_1$ did ***he$_1$*** like <which book of ***John$_1$***> best?
b. Every picture of ***John$_1$*** seems to *him$_1$* to be great.

Puzzle: How to account for fact that only A-movement bleeds Principle C?

Wholesale Late Merge (Takahashi 2007). Principle C obviation in (9) follows from two assumptions that (i) determiners move on their own ((15)a); and (ii) restrictors are added by *Whole Sale Late Merge* (WLM).

(9) *Underapplication resolved by Late Merge*
Every picture of ***John$_1$*** seems to *him$_1$* to be great.
a. Every$_2$ seems to him$_1$ <every$_2$> to be great (Move determiner)
b. [Every <u>picture of ***John$_1$***</u>]$_2$ seems to ***him$_1$*** <every$_2$> to be great (WLM of restrictor)

Takahahi (2007) suggests an upper bound condition on WLM.

(10) *Case Constraint on WLM* (adopted from Takahashi 2007)
A restrictor argument R can be merged with a determiner D only if
R is within the c-command domain of its Case-assigning head.

(11) *Cyclic Merge of common noun observes (10) but triggers disjoint reference effect*
*Which picture of ***John$_2$*** does ***he$_2$*** like best?
a. [$_{vP}$ v°$_{AKK}$ [$_{VP}$ like best which picture of ***John$_2$***]]
b. does [$_{TP}$ ***he$_2$*** [$_{vP}$ v°$_{AKK}$ [$_{VP}$ like best which picture of ***John$_2$***]]

(12) *Countercyclic Merge of common noun violates (10) (and would bleed Principle C)*
*Which picture of ***John$_2$*** does ***he$_2$*** like best?
a. [$_{vP}$ v°$_{AKK}$ [$_{VP}$ like best which]]
b. [$_{CP}$ which <u>picture of ***John$_2$***</u> does [$_{TP}$ ***he$_2$*** [$_{vP}$ v°$_{AKK}$ [$_{VP}$ like best <which>]]]]

Trace Conversion. Lower movement copies are interpreted by trace conversion (whether higher copies are always interpreted is up to debate; Safir 2004).

(13) *Trace Conversion* (Sauerland 1998, 2004; Fox 2002; Takahashi 2007)
a. Variable Insertion: (Det) $(\text{Pred})_n \rightarrow$ (Det) [(Pred) $\lambda x.x = n$]
b. Determiner Replacement: (Det) [(Pred) $\lambda x.x = n$] → the [(Pred) $\lambda x.x = n$]

(14) Which picture of each other_1 did they_1 like best?
a. [Which picture of each other_1] λ_2 did they_1 like best <which picture of e.o._1>$_2$
b. ... <which [picture of e.o._1 ***λx.x = 2***]> (Variable Insertion)
c. ... ***<the*** [picture of e.o._1 $\lambda x.x = 2$]> (Determiner Replacement)
d. $[\![$<the picture of e.o. $\lambda x.x = 2$>$]\!]^g$ =
e. $[\![\text{the}]\!]^g$ $(\lambda z.[\![\text{picture of e.o.}_1]\!]^g(z) \wedge \lambda x.x = 2(z))$ = (FA and Predicate Modification)
f. $[\![\text{the}]\!]^g$ $(\lambda z.[\![\text{picture of e.o.}_1]\!]^g(z) \wedge z = 2)$ (β-conversion)
g. $[\![\lambda_2$ (did) they_1 like best <the [picture of e.o._1 $\lambda x.x = 2$]>$]\!]^g$ =
h. $\lambda x_2.[\![\text{they}_1$ like best <the [picture of e.o._1 $\lambda x.x = 2$]>$]\!]^{g[2 \rightarrow x2]}$ = (Abstraction)
i. $\lambda x_2.[\![\text{like best}]\!]^g$ $([\![\text{the}]\!]^g([\![\text{picture of e.o.}_1$ $\lambda x.x = 2]\!]^{g[2 \rightarrow x2]}))([\![\text{they}_1]\!]^g)$ =
j. $\lambda x_2.\text{they}_1$ like best $([\![\text{the}]\!]^g$ $(\lambda y.[\![\text{picture of e.o.}_1]\!]^g(y) \wedge \lambda x.x = [\![2]\!]^{g[2 \rightarrow x2]}(y))$ = (PM)
k. $\lambda x_2.\text{they}_1$ like best $([\![\text{the}]\!]^g$ $(\lambda y.\text{picture of e.o.}_1(y) \wedge y = [\![2]\!]^{g[2 \rightarrow x2]}))$ = (Lexion, FA)
l. $\lambda x.\text{they}_1$ like best $\iota z.\text{picture of e.o.}_1(z) \wedge z = x$ = (Lexicon, FA)
m. [Which picture of e.o._1] $(\lambda x.\text{they}_1$ like best $\iota z.\text{picture of e.o.}_1(z) \wedge z = x)$ =
n. $\{\lambda p.\exists x[\text{book}(x) \wedge p = \lambda w.\text{they}_1$ like best in w $\iota z.\text{picture of e.o.}_1(z) \wedge z = x]\}$ ≡ (Question
$\{\lambda w.\text{they}_1$ liked best in w $\iota z.\text{picture of e.o.}_1(z) \wedge z = x|\text{picture}(x)\}$ semantics)

"Which is the x such that they like the unique x which is a picture of each other."

(15) *Trace conversion with A-movement (Takahashi 2006)*

Every picture of $\textit{John}_1$ seems to $\textit{him}_1$ to be great.
a. LF: [Every picture of John_1]$_2$ seems to him_1 ***<every$_2$>*** to be great
b. Trace conversion: [Every picture of John_1]$_2$ seems to him_1 ***[the λx.x = 2]*** to be great

1.2. Opacity across components: Semantic Reconstruction

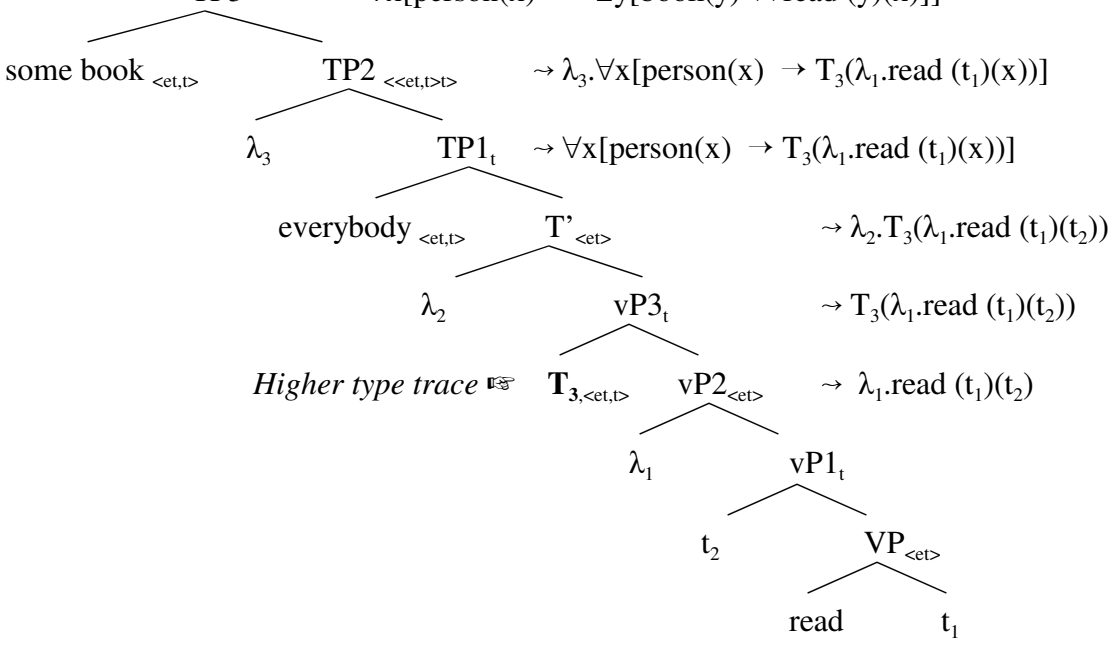
Semantic Reconstruction (Cresti 1995; Rullmann 1995; von Stechow 1991): reconstruction is delayed to the semantic component. The binder of the moved category α abstracts over a trace of the same type as α.

(16) *Semantic Reconstruction (SemR)*
In context [α λ_1 [...T_1 ...]], α is β-converted into T_1, where T_1 is a variable of the same type as α.

The scope of a moved expression α is determined by the lowest higher type trace that α binds. (17) exemplifies SemR with the inverse scope reading of the object. (Suppose (17) is the gloss of the corresponding string in a scrambling languages like Greek, German, Japanese or Korean):

(17) a. Some book_3, everybody read T_3.
weil [irgendein Buch]$_3$ jeder$_2$ T_3 gelesen hat [German]
since some book everybody read some book"

(17) b. $\lambda_3.\forall x[person(x) \rightarrow \boldsymbol{T_3}(\lambda_1.read\ (t_1)(x))]\ (\boldsymbol{\lambda Q.\exists y[book(y)\ \wedge Q(y)]}) =$
$= \forall x[person(x) \rightarrow \lambda Q.\exists y[book(y) \wedge \boldsymbol{Q}(y)]\ (\boldsymbol{\lambda_1.read\ (t_1)(x)})] =$
$= \forall x[person(x) \rightarrow \exists y[book(y) \wedge read\ (y)(x)]]$



1.3. THREE-STEP OPACITY: DUKE OF YORK DERIVATIONS

Duke of York derivations (Pullum 1976). A feeding step is followed by an independent rule (e.g. movement) and a step that obliterates the changes effected by the first step.

(18) *Duke of York (DoY) derivation*

① A → B (Feeds context for R)
② B R: X → Y/{B}__{B} (Independent rule R applies in context B)
③ B → A (Counter-feeding: effects of Step 1 are undone ⇨ opacity)

Together with a device for underapplication across components such as post-syntactic *Late Insertion* (Distributed Morphology), the combination of SynR, SemR and WLM yield the *Square of Opacity:*

(19)

		Overapplication	*Underapplication*
a.	*intra-componental*	SynR (Copy Theory)	(Whole Sale) Late Merge
b.	*cross-componental*	SemR (higher type traces)	Late Insertion (DM)

(20) ***Claims***

a. The grammar includes both SynR and SemR (***Hybrid Theory of Reconstruction***; Lechner 1996, 1998; Wurmbrand 2010; Truswell 2015; Keine and Poole 2017; *contra* Romero 1998; Fox 1999; Ruys 2015, i.a.)

b. DoY opacity indicates that grammar is ***derivational*** in two respects:
   (i) inside components (*contra* representationalism; Brody 1995; Haider 1993; Koster 1986)
   (ii) across components (*contra* parallel architecture; Bach 1976, Jackendoff 2002).

c. It is possible to give an ***algorithmic account of scope and binding reconstruction*** for scope flexible (English) and scope rigid languages (German).

(21) *Outline*

- Evidence for Duke of York derivations in syntax (DoY I)
- Hybrid theory of reconstruction (SynR ***and*** SemR)
  - Challenges for hybrid theory: Trapping effects
  - Containing overgeneration 1: Extensional traces and antecedents (***ETA***; DoY II)
  - Containing overgeneration 2: a locality condition (***CEC***)
- Accounting for the CEC: the DS-LF architecture
- Further consequences of the ETA
- A calculus for scope and (anti-)reconstruction
  - Modifying the conditons on WLM: accounting for binding and scope (DoY III)
  - Synthesis: Cross-linguistic typology of scope and the hybrid theory of reconstruction

2. A SYNTACTIC DUKE OF YORK DERIVATION

Beck (1996): quantifiers induce barriers for operations that connect *wh-in-situ* phrases with their scope positions (intervener **bold**, nodes to undergo covert movement *italics*).

(22) a. Sie fragte, was wer wann verstanden hat
She asked what who when understood has
"She asked who understood what when"
b. *Sie fragte, was **niemand** *wann* verstanden hat
She asked, what nobody when understood has
"*She asked what nobody understood when"

Sauerland and Heck (2003; S&H): interveners also include degree particles such as *genau*/'exactly':

(23) a. *?Sie fragte, wer gestern **genau** *wann* angekommen ist (adapted from
She asked who yesterday exactly when arrived is Sauerland and Heck 2003)
b. Sie fragte, wer gestern *wann* **genau** angekommen ist
She asked who yesterday when exactly arrived is
"She asked who arrived yesterday and when exactly"

(24) a. *Sie fragte, wer gestern **genau** mit *wem* gesprochen hat
She asked who yesterday exactly with whom spoken has
b. *?Sie fragte, wer gestern mit **genau** *wem* gesprochen hat
She asked who yesterday with exactly whom spoken has
c. (?)Sie fragte, wer gestern mit *wem* **genau** gesprochen hat
She asked who yesterday with whom exactly spoken has
"She asked who spoke yesterday with whom exactly"

S&H notice that intervention effects are also attested with pied-piping and relative clauses:

(25) a. Maria sprach [$_{PP}$ über **genau** zwei Freunde]
Mary talked about exactly two friends
b. die Freunde, [$_{PP}$ über *die*] Maria sprach
the friends, about who Mary talked
☞ c. *die Freunde, [$_{PP}$ über **genau** *die*] Maria sprach
the friends, about exactly who Mary talked
"the friends (exactly) who Mary talked about"

This supports, S&H conclude, the silent relative pronoun movement analysis of von Stechow (1996):

(26) a. LF: the friends [*who* λ_3 Mary talked [$_{PP}$ about t_3]]
b. LF: the friends [*who* λ_3 Mary talked [$_{PP}$ **exactly** about t_3]] (Intervention effect)

(27) demonstrates that negative QPs are also interveners for pronoun movement:

(27) a. eine Frau, mit dem Bruder von *der* er nicht verheiratet sein will
a woman with the brother of pron he not married be want
"a woman the brother of whom he does not to be married with"
b. *eine Frau, mit **keinem** Bruder von *der* er verheiratet sein will
a woman with no brother of pron he married be want
"*a woman no brother of whom he wants to be married with"

Observation: In constellation (28), intervention effect is bled by movement. Still, the moved CP behaves as if being in its base position. losinstantiates a Duke of York derivation:

(28) Das ist etwas [[$_{CP2}$ [$_{PP}$ über *das*$_3$]$_4$ ***auch nur*** mit einem ***seiner***$_1$ Freunde t_4 zu sprechen]$_2$
this is something about which even only with a single$_{NPI}$ his$_1$-GEN friends-GEN to speak
wohl **keiner**$_1$ t_{CP2} wagen würde] (relative pronoun may cross lower intervener ***nobody***)
particle nobody dare would
"This is something OP_3 that nobody$_1$ would dare to talk about t_3 [to even a single one of his$_1$ friends]$_{NPI}$"

(29) *Das ist etwas [[$_{CP2}$ [$_{PP}$ über **genau** *das*$_3$]$_4$ ***auch nur*** mit einem ***seiner***$_1$ Freunde t_4 zu sprechen]$_2$
this is something about exactly which even only$_{NPI}$ with a single of his$_1$friends-GEN to speak
wohl **keiner**$_1$ t_{CP2} wagen würde] (relative pronoun movement blocked by ***exactly***)
particle nobody dare would

(30) *Properties of (28) to be accounted for*
a. Obligatory covert movement of *which*$_3$ out of topicalized CP_2 (②)
b. Intervention effect: relative pronoun must not cross *nobody* (see (22) and (27)).
c. *nobody* binds variable and licenses NPI inside CP_2 (***bold italics***) indicating reconstruction of CP_2

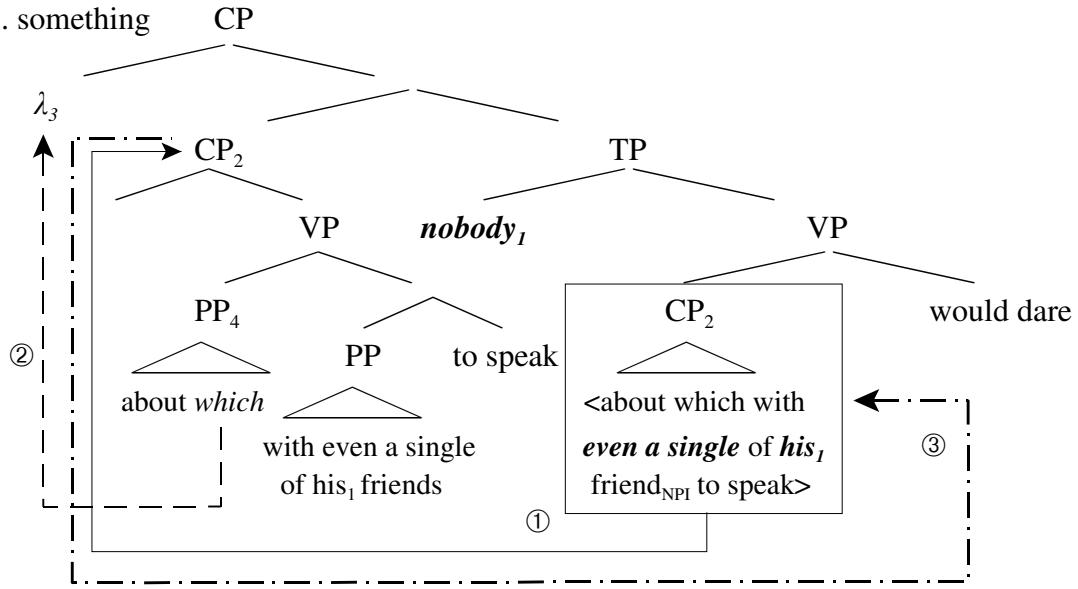
Option A. Representational theories (Koster 1986; Haider 1993, a.m.o.) fail to explain contrast (28) vs. (29). In both structures, *nobody* intervenes between pronoun inside lower copy of CP_2 and its binder λ_3.

Option B. Orthodox, monotone derivational analyses maintain that movement and binding operate on a single occurrence of a node. For (28), this can neither be the higher copy of CP_2 (because of (30)c) nor the lower one (because of (30)d; see (31)).

(31) a. Overt syntax: [[$_{CP2}$ which$_3$ his$_1$] [***nobody***$_1$ [[$_{CP2}$ which$_3$ his$_1$]]]
b. Reconstructed: *which [λ_3 [***nobody***$_1$ [[$_{CP2}$ t_3 his$_1$]]]

Option C. Movement of the CP_2 places relative pronoun in position *above* the intervener ('smuggling'; Collins 2005), followed by reconstruction for NPI-licensing & variable binding, resulting in a *Duke of York derivation ((33)).*

(32) *DoY Derivation of (28)*



(33) a. ① *(A → B):* *which* pied-pipes CP_2. Movement feeds (and counterbleeds) relative pronoun movement in Step 2 by obliterating context for intervention effect.

$[[_{CP2}$ which$_3$ his$_1]$ $[$***nobody$_1$*** $[[_{CP2}$ which$_3$ his$_1$ $]]]$

b. ② *(B):* Covert movement of relative pronoun *which* out of CP_2. Counterbleeding relation with reconstruction in Step 3.

which $[\lambda_3$ $[[_{CP2}$ t_3 his$_1]$ $[$***nobody$_1$*** $[[_{CP2}$ which$_3$ his$_1$ $]]]]$
(covert movement of *which*)

c. ③ *(B → A):* Reconstruction of CP_2 feeds pronominal variable binding (*his$_1$*) and NPI-licensing (*even a single*), but reintroduces context for intervention effect

which $[\lambda_3$ $[[_{CP2}$ t_3 his$_1]$ $[$***nobody$_1$*** $[[_{CP2}$ t_3 his$_1$ $]]]]$

➜ A Duke of York argument for derivations (*feeding/counterbleeding - counterbleeding*)

Puzzle I: How is the information that the higher occurrence of CP_2 contains a bound variable passed on to the lower copy of CP_2 (assuming that reconstruction does not consist in lowering).

The problem is not isolated, it affects all remnant movement analyses in which categories are extracted out of moved nodes (Müller 1998; Collins 2005; Abels 2007, i.a.).

(34) a. John$_3$ $[_{VP}$ t_3 seems$]_2$ to Mary t_2 to be nice (Collins 2005)
b. LF: John$_3$ $[_{VP}$ ~~t_3 seems~~$]_2$ to Mary $[_{VP}$ t_3 seems$]_2$ to be nice (How is lower t_3 bound?)

Response: (i) resumption (Guilliot 2007); (ii) alternative semantic analysis of intervention effects (Beck 2006, 2012; Abels and Martí 2011; Mayr 2012; Tomioka 2007):

(35) a. Intervention effects are the result of illicit embeddings of operators inducing focus alternatives.
b. Focus is surface phenomenon, so only surface syntax is sensitive to intervention effects.

Covert relative pronoun movement out of lower CP_2 can be delayed to LF and (28) ceases to be a DoY.

Problem: Alternative semantics is not defined for relative clauses. Hence, (28) seems to be a DoY after all.

Puzzle II: Why are DoY-derivations so rare? Why, for example, can QR in (36) not target the higher VP, producing unattested object wide scope (Barss 1986)?

(36) ... and [$_{vP}$ teach every student]$_1$, noone will t_1 ($\neg\exists \succ \forall$ / $*\forall \succ \neg\exists$)
a. every student$_2$ [$_{vP}$ teach t_1], noone will t
b. every student$_2$, noone will [$_{vP}$ teach t_1] (DoY derivation of $\forall \succ \neg\exists$)]

Response: The impression is misleading, DoYs also come under the guise of SemR and WLM (see below).

Conclusion: There are manifestations of syntactic DoY derivations ➜ the system employs derivations.

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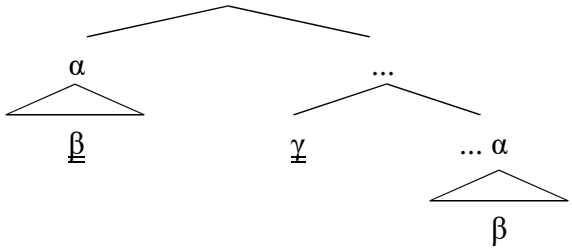
3. SEMANTIC RECONSTRUCTION (DOY II)

(37) ***Hybrid Theory of Reconstruction***
The grammar includes both SynR and SemR (Lechner 1996, 1998, to appear; Wurmbrand 2010; Wurmbrand and Bobaljik 2012; Truswell 2015; Keine 2017; i.a.).

(38) *Structure of arguments for Hybrid Theory*
(Scope order $\beta \succ \alpha$ by SemR)



(39) a. β (anaphor, pronominal variable, NPI,...) is licensed only if c-commanded by γ.
b. Licensing relation between γ and β is syntactic (evaluated at LF).
c. β is evaluated above γ at LF. This indicates absence of SynR.
d. γ takes scope over α. This property is diagnostic of SemR.

3.1. EVIDENCE FOR A HYBRID THEORY OF RECONSTRUCTION

3.1.1. Short scrambling

Condition A. Scope reconstruction does not entail binding reconstruction. (40)b admits narrow scope reading but anaphor does not reconstruct (Lechner 1996, 1998; individual observations due to Frey 1993):

(40) a. weil wir$_1$ [einigen Kollegen$_3$]$_{IO}$ [alle Freunde von *einander*$_{1/3}$]$_{DO}$ vorstellen wollten
since we some colleagues$_{DAT}$ all friends$_{ACC}$ of each other introduce wanted
"since we wanted to introduce to some colleagues all friends of each other"
($\exists \succ \forall$ / $*\forall \succ \exists$)

b. weil ***wir$_1$*** [einige Freunde von ***einander$_{I/*3}$***]$_2$ ***allen Kollegen$_3$*** t_2/T_2 vorstellen wollten
since we some friends$_{ACC}$ of each other all colleagues$_{DAT}$ introduce wanted
"since we wanted to introduce some friends of each other to every colleague"
($\exists \succ \forall$ / $\forall \succ \exists$)

c. *weil ich$_1$ [einige Freunde von *einander*$_{1/3}$]$_2$ *allen$_3$* t_2 vorstellen wollte
since I some friends of each other to all introduce wanted
"since I wanted to introduced some friends of each other to everybody" (no SynR; see §5)

Analysis: Scope diminishment in (40)b follows verification of Principle A. QP$_1$ binds generalized quantifier type trace (T_1), resulting in inverse scope by SemR ((41)b):

(41) a. Principle A: ***we*$_1$...**[some friends of ***each other*$_{1/*3}$**]$_2$ $\underline{\underline{\lambda}}_2$ to *every colleague*$_3$ $\underline{\underline{T}}_{2,\,<et,t>}$ introduced
b. SemR: ***we*$_1$...** to *every colleague*$_3$ [some friends of ***each other*$_{1/*3}$**] introduced ($\forall \succ \exists$)

➜ Short scrambling can be undone by SemR, but not by SynR. (For semantics see (65) and §5.5.)

SynR precedes SemR. In (42), the anaphor reconstructs *inside* the relative clause (indicating that it is not a logophor). The reflexive cannot be restored to a position below the object it has crossed over, though.

(42) a. weil ich [zwei [Porträts von ***sich*$_{1/*3}$**]$_4$ die ***Martin*$_1$** gemalt hatte t_4]$_2$ ***jedem*$_3$** t_2/T_2 zeigen wollte
since I two portraits of himself that Martin painted had everybody show wanted
"since I wanted to show two portraits of himself$_{1/*2}$ that Martin$_1$ had painted to everybody$_2$"
($\exists_2 \succ \forall$ / $\underline{\underline{\forall \succ \exists_2}}$)

b. ... [two [portraits of ***himself***] that ***Martin*$_1$** had painted <[portraits of ***himself*$_1$**]>]$_2$
showed everyone$_3$ T_2 (head raising inside relative clause and SemR in main clause)

Weak Crossover. Short ccrambled DOs do not reconstruct for variable binding ((43)b) but for scope ((43)c; individual observations due to Frey 1993; see also Haider 1993):

(43) Man beschuldigte die Staatsanwaltschaft$_3$ ...
one accused the District Attorney's office
a. [***jedem Angeklagten*$]_2$** [nur einen ***seiner*$_2$** Anwälte] vorgestellt zu haben
each-DAT defendant only one his-GEN lawyers introduce to have
"The DA's office was accused of having introduced each defendant$_2$ to only one of his$_2$ lawyers"
b. ??[nur einen ***seiner*$_2$** Anwälte]$_1$ [***jedem Angeklagten*$]_2$** t_1 vorgestellt zu haben
only one his-GEN lawyers each-DAT defendant introduce to have
"The DAO was accused of having introduced only one of *his*$_2$ lawyers to each defendant$_2$"
☞ c. [nur einen ***ihrer*$_3$** Anwälte]$_1$ [***jedem Angeklagten*$]_2$** T_1 vorgestellt zu haben ($\exists \succ \forall$ / $\underline{\underline{\forall \succ \exists}}$)
only one his-GEN lawyers each-DAT defendant introduce to have
"The DAO$_3$ was accused of having introduced only one of *its*$_3$ lawyers to each defendant"

3.1.2. Weak vs. strong indefinites

DPs that escape the ∃-closure operator by overt movement lose unselectively bound/existential reading (Diesing 1992; Kratzer 1988/95). Scrambled objects are interpreted presuppositionally/'strong':

(44) a. weil er **ja wohl** *ein Buch*$_1$ gelesen hat — object existential/'weak'/cardinal
since he indeed a book read has — (Heim/Kamp/Lewis indefinite)
"since he has indeed read a book"
b. weil er *ein Buch*$_1$ **ja wohl** ∃ t_1 gelesen hat — object 'strong'/presuppositional
since he a book indeed read has — (Generalized Quantifier interpretation)
"since he has indeed read a book"

Scrambled indefinites admit narrow scope but retain 'strong' interpretation (*modulo* raising - falling focus):

(45) a. weil *ja wohl* ***jeder*$_2$** ***ein Buch*$_1$** gelesen hat ($\forall \succ \exists_{strong}$/$\forall \succ \exists_{weak}$)
since indeed everybody a book read has
"since everybody has indeed read a book"
☞ b. weil [***EIn Buch*$]_1$** *ja wohl* ***fast jeder*** T_1 gelesen hat ($\underline{\underline{\forall \succ \exists_{strong}}}$/*$\forall \succ \exists_{weak}$)
since a book indeed everybody read has
"since almost everybody has indeed read some book"

➜ Short scrambling can be undone by SemR, but not by SynR (and ∃-closure is marked at LF)

3.1.3. Principle C and scope in Hindi (Keine 2017)

Long scrambling (out of finite clauses) in Hindi obligatorily reconstructs for calculation of Binding Theory Condition A ((46); see on Scope Trapping I below) and scope ((47)), but not for Condition C ((47)):

(46) *[***raam aur prataap***]-ko$_1$ [***ek-duusre-kii$_1$*** bahinõ-ne] socaa [$_{CP}$ ki sangiitaa-ne t$_1$ maaraa]
Ram and Pratap -ACC each other's sisters-ERG thought that Sangita-ERG hit
'*Each other$_1$'s sisters thought that Sangita had hit [Ram and Pratap]$_1$ (Keine 2017: (4))

(47) [har kitaab jo ***raam-ko$_1$*** pasand hai]$_2$ ***us-ne$_1$*** kisii lakii-se kahaa (∃ ≻ ∀ / *∀ ≻ ∃)
every book REL Ram-DAT like is 3SG-ERG some girl-INSTR said
[$_{CP}$ ki miinaa-ne kal t$_2$ bec dii]]
that Mina-ERG yesterday sell give (Keine 2017: (43))
'Every book that Ram$_1$ likes, he$_1$ told some girl that Mind sold yesterday.'

➜ Long scrambling does not reconstruct in syntax but only by (obligatory) SemR.

Conclusion: The grammar includes two mechanisms of reconstruction, as expressed by the Hybrid Theory.

3.2. SCOPE TRAPPING

Scope Trapping phenomena indicate that SynR and SemR systematically co-vary. This finding has been taken as evidence for a pure SynR approach (Fox 1999; Lebeaux 1991, 1995, 2009; Romero 1998; Ruys 2015)

(48) *Trapping I: Scope reconstruction ⇔ reconstruction for Binding Theory* (Fox 1999)
a. ***One soldier$_1$*** seems to Napoleon [t$_1$ to be likely to die in ***every battle***]. (#∃ ≻ ∀ / ∀ ≻ ∃)
b. #***One soldier$_1$*** seems to ***himself$_1$*** [t$_1$ to be likely to die in ***every battle***]. (#∃ ≻ ∀ / *∀ ≻ ∃)

(49) *Trapping II: Scope reconstruction ⇔ reconstruction for variable binding*
[Each colleague of ***his$_2$***]$_1$ seemed to ***some composer$_2$*** t$_1$ to be underrated (∃ ≻ ∀ / *∀ ≻ ∃)

In (50), the name can be construed coreferentially with the pronoun only if the subject is interpreted transparent/*de re* (i.e. the speaker considers the subject denotation to consist of nudes of Marilyn):

(50) *Trapping III: de dicto ⇔ reconstruction for Binding Theory* (Romero 1997: 363)
A nude of ***Marilyn$_1$*** seems to ***her$_1$*** to be a good emblem of the exhibit. (∃ ≻ *seem* / **seem* ≻ ∃)

3.3. CONTAINING OVERGENERATION

Hybrid theory and Trapping I. Trapping I falls out from the assumption that anaphors are/include individual variables, which can't be bound by the λ-binder of a higher type trace (this will be made explicit once the semantics of anaphors is in place; see handouts on reflexivization).

(51) a. *[α$_1$ [***λ$_{1,<et,t>}$*** ... [***anaphor$_1$*** ... [...T$_{1,<et,t>}$ ...]]]] (α scopes *below* pronoun)
b. [α$_1$ [λ$_{1,<et,t>}$ ... [...T$_{1,<et,t>}$ [***λ$_{2,e}$*** ... [t$_{2,e}$ [***anaphor$_1$*** ...]]]]]] (α scopes *above* pronoun

Hybrid theory and Trapping II. unproblematic since scope diminishment by SemR comes too late for *his$_2$* to be captured by *some composer$_2$* (variables can't be accidentally bound; for alternative view see Sternefeld 2011, i.a.).

(52) a. [Each colleague of ***his$_2$***] λ$_1$ seemed to ***some composer$_2$*** T$_1$ to be underrated (∀ ≻ ∃)
b. SemR: seemed to ***some composer$_2$*** [each colleague of ***his$_2$***] to be underrated

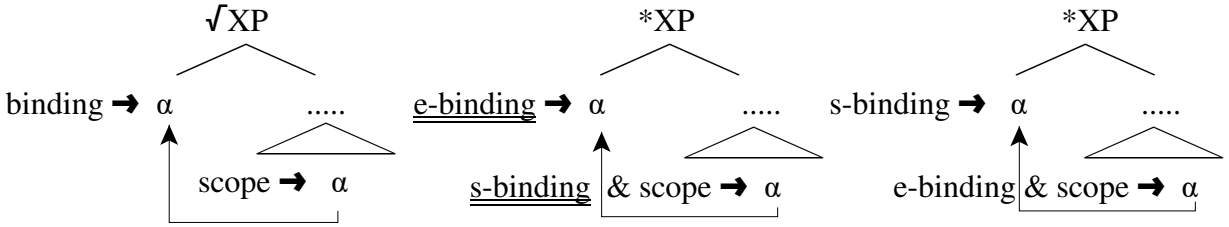
Hybrid theory and Trapping III

(53) *Reconstruction of nominal quantifiers affects*:
- a. Quantifier scope
- b. e-binding (Binding Theory, pronominal variable binding, ...): involves entities of type e
- c. s-binding (referential opacity): binding of covert situation/world object language variables

The three properties of (53) are neither monolithic nor do they combine freely (Romero 1998; Sharvit 1998; Lechner 2007, to appear), but follow (54) (see also discussion in Ruys 2015, 477ff and fn. 27).

(54) ***s/e - Conjecture***
Reconstruction for s-binding ⇔ Reconstruction for e-binding
- a. *s-binding reconstruction* (*de dicto*) ⇒ *e-binding reconstruction*
  If a dislocated DP is construed *de dicto* it reconstruct for the evaluation of Binding Theory, etc...
- b. *e-binding reconstruction* ⇒ *s-binding reconstruction* (*de dicto*)
  If a dislocated DP reconstructs for Binding Theory it admits opaque *de dicto* construal only.

(55) a. *Evidence for SemR/SynR* b. *s/e - Conjecture, (54)a* c. *s/e - Conjecture, (54)b*



New evidence for (54)a (s-binding reconstruction ⇒ e-binding reconstruction). In a variant of Russell's *yacht*-sentences, consistency tracks *de dicto* readings of raising subjects.

(56) [John's height]$_1$ seemed to us [t_1 to exceed his actual height].
- a. It seemed to us that ***[John's height]***$_{\textbf{\textit{de dicto}}}$ exceed *his actual height*$_{de\ re}$. (consistent *de dicto*)
- b. ***[John's height]***$_{\textbf{\textit{de re}}}$ seemed to us to exceed *his actual height*$_{de\ re}$. (contradictory *de re*)
  "We obtained the following impression: John is taller than he is."

(57) documents that (54)a is valid. In (57)a, *John* can be construed coreferentially with *him* only on the contradictory *de re* reading of the subject containing *John*. This follows on the assumption that consistent the *de dicto* construal is contingent upon subject reconstruction below *seem* ((58)b):

(57) a. [***John$_2$'s*** height] seemed to ***him$_2$*** to exceed his actual height.
(*consistent *de dicto* /✓contradictory *de re*)
- b. [***His$_2$*** height] seemed to ***him$_2$*** to exceed his actual height.
(✓consistent *de dicto* /✓contradictory *de re*)

(58) *Consistent* de dicto *reading of (57)a: Condition C violation*
- a. *[***John$_2$'s*** height]$_{\text{de dicto}}$ seemed to ***him$_2$*** to exceed his actual height$_{\text{de re}}$
  "It seemed to John that John is taller than he actually is."
- b. *λs_0 [seemed [$\underline{\underline{\lambda s_1}}$ to ***him$_2$*** [***John$_2$'s*** height-in-$\underline{\underline{s_1}}$] to exceed his height-in-$\underline{\underline{s_0}}$]]

(59) *Contradictory* de re *reading of (57)a: no Condition C effect*
- a. [***John$_2$'s*** height]$_{\text{de re}}$ seemed to ***him$_2$*** to exceed his actual height$_{\text{de re}}$
  "John obtained the following impression: I am taller than I am."
- b. $\underline{\underline{\lambda s_0}}$ [[***John$_2$'s*** height-in-$\underline{\underline{s_0}}$] [seemed [$\lambda s_1$ to ***him$_2$*** to exceed his height-in-$\underline{\underline{s_0}}$]]]

➜ s-binding reconstruction entails e-binding reconstruction

Further evidence for (54)a from wh-movement. (60) admits coreferential reading only if the relative clause inside the narrow scope degree predicate *n-many* is construed *de re* w.r.t. *hope* (Sharvit 1998):

(60) How [[many students] who hate ***Anton$_2$***] did ***he$_2$*** hope will buy him$_2$ a beer? (**de dicto*/✓*de re*)

a. *Narrow scope *n-many*, opaque *de dicto*:
"For what number n: in all of Anton's bouletic alternatives s in s_0, there are n-many students who hate Anton in s which will buy him a beer in s."

b. Narrow scope *n-many*, transparent *de re*:
"For what number n: in all of Anton's bouletic alternatives s in s_0, there are n-many students who hate Anton in s_0 that will buy him a beer in s."

➜ s-binding reconstruction entails e-binding reconstruction

Evidence for (54)b (e-binding reconstruction ⇒ s-binding reconstruction). Binding requirement on reciprocal renders contradictory interpretation unavailable.

(61) [***Each others$_2$'s*** height] seemed to ***the boys$_2$*** to exceed their actual height.
(consistent *de dicto*/*contradictory *de re*)

a. *de dicto*: "It seemed to each boy that the others are taller than they actually are."
b. *de re*: "Each boy had the following impression: the other boys are taller than they are."

A representations in which the s-variable of the reconstructed subject is bound across *seem* is missing:

(62) *λs_0 [seemed-in-s_0 [to *the boys$_2$* [λs_1 [*each others$_2$*'s height-in-s_0] to exceed-in-s_1 their height-in-s_0]]]

➜ e-binding reconstruction entails e-binding reconstruction

(63) ***Generalization:*** s-binding reconstruction ⇔ e-binding reconstruction

3.4. Deriving the left-to-right direction of the s/e-conjecture

Clause (54)a of s/e-conjecture falls out of an independent condition on the logical type of traces and QPs:

(64) ***Extensional Traces and Antecedents (ETA)***[1] (Lechner 2007, 2009; Keine and Poole 2017)
The denotation of quantificational DPs and their traces do not include situation variables.

Possible types for traces and copies include <et,t> but not e.g. <<e,st>,t>, <<e,st>,st>> or <s,<et,t>>.

NB1: Limiting ETA to "quantificational DPs" is necessary to admit property denoting indefinites of type <e,st>, e.g. in the object position of intensional transitive verbs.

NB2: The assumption that generalized quantifiers are extensional is standard (Peters and Westerståhl 2006).

A corollary of the ETA. T lacks an argument slot for situations. Hence, s-variables inside a fronted restrictor (see (65)b) cannot be bound by lower operators (λ_1) subsequent to SemR, but have to be captured by the higher binder (λ_0) instead ((65)a). Hence, SemR generates narrow scope *de re* readings only, blocking narrow scope *de dicto* readings with wide binding scope (see also Heim and von Fintel 2005; Lechner 2007).

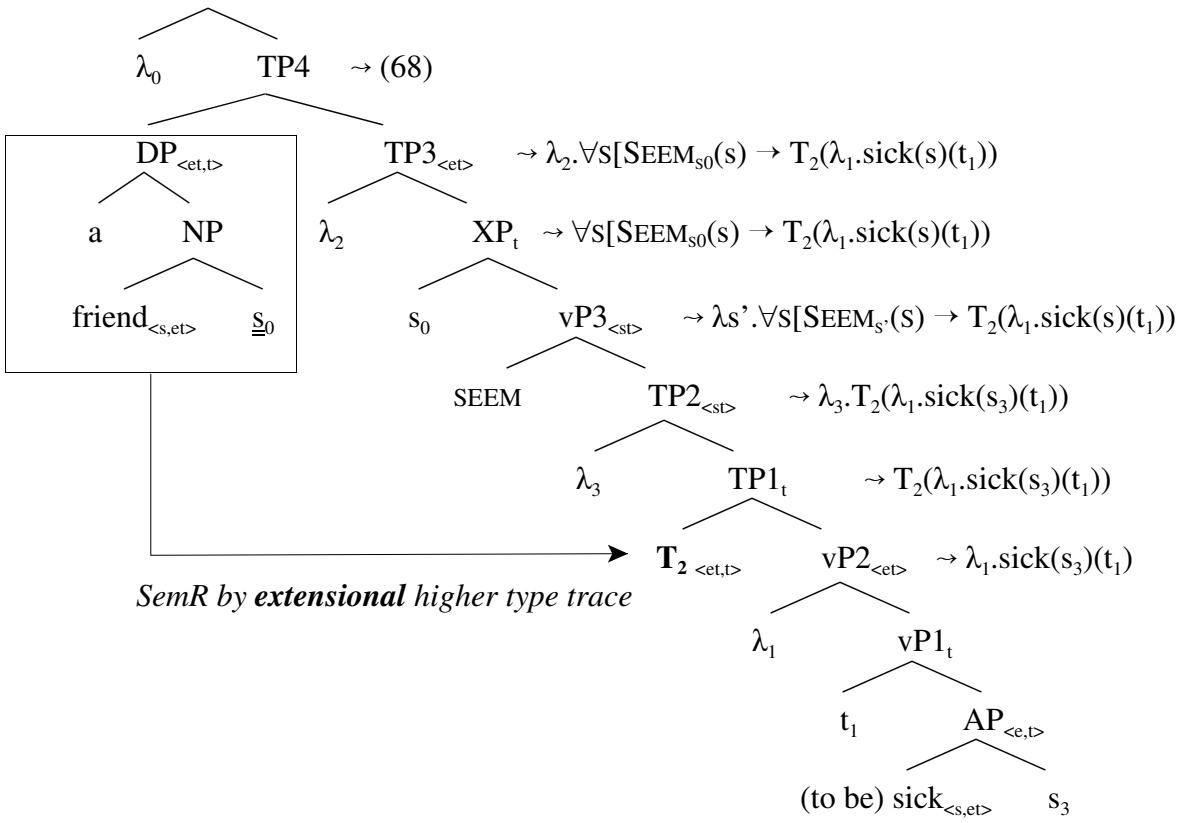
(65) *ETA: narrow scope transparent* de re *readings* (**de dicto*/✓*de re*)

a. LF: [λ_0 ... [[$_{DP}$ ...s_0/*s_3...]$_2$ ... [*seem* [λ_3 ... $T_{2,<et,t>}$ ...]]]]
b. After SemR: [λ_0 ... [.. [*seem* [λ_3 ... [$_{DP}$ ... s_0/*s_3 ...]$_2$]]]]

SemR by ETA. Fronted DP binds an extensional higher type trace (<et,t>).

(66) a. A friend seemed to be sick

b. CP → $\underline{\underline{\lambda_0}}.\forall s[\textsc{Seem}_{\underline{\underline{s_0}}}(s) \rightarrow \exists x[\underline{\underline{friend(s_0)}}(x) \wedge sick(s)(x)]]$



(67) $\textsc{Seem}_s$ $=_{Def}$ {s'|s' is compatible with the evidence available to the speaker in s}

(68) *Narrow scope* $\underline{\underline{de\ re}}$ *reading by SemR (evaluated at index* s_0*):*

a. ⟦TP4⟧ = $\lambda_2.\forall s[\textsc{Seem}_{\underline{\underline{s_0}}}(s) \rightarrow \boldsymbol{T_2}(\lambda_1.sick(s)(t_1))$ $(\boldsymbol{\lambda Q \exists x[friend(\underline{\underline{s_0}})(x) \wedge Q(x)]})$ =

b. = $\forall s[\textsc{Seem}_{\underline{\underline{s_0}}}(s) \rightarrow \lambda Q.\exists x[friend(\underline{\underline{s_0}})(x) \wedge \boldsymbol{Q}(x)]$ $(\boldsymbol{\lambda_1.sick(s)(t_1)})]$ =

c. = $\forall s[\textsc{Seem}_{\underline{\underline{s_0}}}(s) \rightarrow \exists x[friend(\underline{\underline{s_0}})(x) \wedge \lambda_1.sick(s)(\boldsymbol{t_1})(\boldsymbol{x})]]$ =

d. = $\forall s[\textsc{Seem}_{\underline{\underline{s_0}}}(s) \rightarrow \exists x[friend(\underline{\underline{s_0}})(x) \wedge sick(s)(x)]]$

➜ ETA ensures that SemR results in narrow scope transparent *de re* reading (Fodor's 3rd reading)

(69) ***Corollary of ETA*:** narrow scope *de dicto* readings can only be produced by Copy Theory. This entails (54)a.

(54)a *s-binding reconstruction* (de dicto) *entails e-binding reconstruction*
If a dislocated DP is construed *de dicto* it reconstruct for the evaluation of Binding Theory.

Problem: How come λ_0 ATB-binds all s-variables in (66)? Why could variables not be freely indexed?

(70) *$\forall s[\textsc{Seem}_{s_O}(s) \rightarrow \exists x[\underline{\underline{friend(s_{17})}}(x) \wedge sick(s)(x)]]$
"In worlds s accessible in s_0, it seems that an individual who is a friend in s_{17} is sick in s_0"

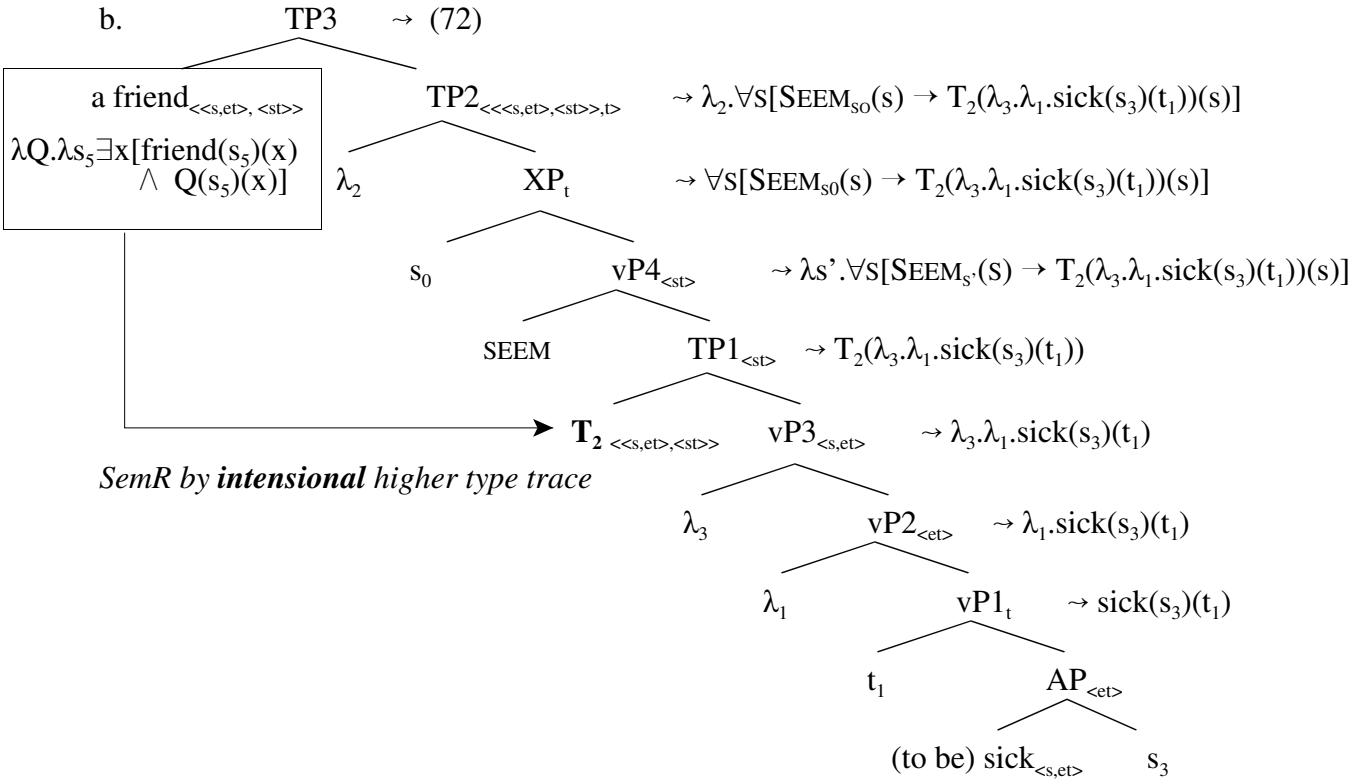
Response: The problem is more general, s-variables are subject to syntactic conditions (Percus 2000, Keshet 2011, i.a.).

NB: The order of arguments of the predicate reflects proclivities of the literature but is orthogonal for present purposes, it could also be <s,et>. In fact, it will be argued below that the order should be reversed.

SemR without ETA. Suppose, alternatively, that SemR would have access to 'intensional' higher type traces of type <<s,et>,<st>> or <<e,st>,st> or <s,<et,t>> (Cresti 1995; Rullman 1995).

(71) a. A friend seemed to be sick

b.



*SemR by **intensional** higher type trace*

(72) *Narrow scope <u>de dicto</u> by SemR (evaluated at s_0)*

a. ⟦TP3⟧ = $\lambda_2.\forall s[\text{SEEM}_{s0}(s) \rightarrow \boldsymbol{T_2}(\lambda_3.\lambda_1.\text{sick}(s_3)(t_1))(\underline{\underline{s}})]$ $(\boldsymbol{\lambda Q \lambda s_5.\, \exists x[friend(s_5)(x) \wedge Q(s_5)(x)]})$ =

b. = $\forall s[\text{SEEM}_{s0}(s) \rightarrow \lambda Q \lambda s_5.\exists x[\text{friend}(s_5)(x) \wedge \boldsymbol{Q}(s_5)(x)]$ $(\boldsymbol{\lambda_3.\lambda_1.sick(s_3)(t_1)})$ (s)] =

c. = $\forall s[\text{SEEM}_{s0}(s) \rightarrow \lambda s_5.\exists x[\text{friend}(s_5)(x) \wedge \lambda_3.\lambda_1.\text{sick}(\boldsymbol{s_3})(t_1)(\boldsymbol{s_5})(x)](s)]$ =

d. = $\forall s[\text{SEEM}_{s0}(s) \rightarrow \lambda s_5.\exists x[\text{friend}(s_5)(x) \wedge \lambda_1.\text{sick}(s_5)(\boldsymbol{t_1})(\boldsymbol{x})](s)]$ =

e. = $\forall s[\text{SEEM}_{s0}(s) \rightarrow \lambda s_5.\exists x[\text{friend}(\underline{\underline{\boldsymbol{s_5}}})(x) \wedge \text{sick}(\boldsymbol{s_5})(x)](\underline{\underline{s}})]$ =

f. = $\forall \underline{\underline{s}}[\text{SEEM}_{s0}(s) \rightarrow \exists x[\text{friend}(\underline{\underline{s}})(x) \wedge \text{sick}(s)(x)]]$

➜ SemR with intensional traces fails to capture (54)a/Scope Trapping (von Fintel & Heim 2007)

SemR in conjunction with ETA is a Duke of York. On present views, SemR fixes s-variable binding in the surface position and restores scope at a later point of the derivation. This ETA version of SemR manifests a Duke of York derivation *across* two components - syntax and semantics.

(73) a. *Step 1*. A → B: Move DP in overt *syntax*
b. *Step 2*. B: Bind s-variable in higher copy
c. *Step 3*. B → A: Restore pre-movement scope of DP in *semantics*

SemR in conjunction with ETA is a Duke of York. On present views, SemR fixes s-variable binding in the surface position and restores scope at a later point of the derivation. The ETA version of SemR manifests a Duke of York derivation *across* two components (syntax and semantics).

(74) a. ① *(A → B)*: Move DP in overt *syntax*
b. ② *(B)*: Bind s-variable in higher copy
c. ③ *(B → A)*: Restore pre-movement scope of DP in *semantics*

Consequence: ETA-DoY presents an argument for serial architecture, in which the output of syntax feeds semantics, contra parallel architecture (categorial grammar; Bach 1976; Jackendoff 2002, a.o.).

SemR and variable binding (no progress on Puzzle I). SemR does not restore previously established variable binding relations. Hence, SemR does not provide a solution to variable binding problem noted for (28).

3.5. DERIVING THE RIGHT-TO-LEFT DIRECTION OF THE S/E-CONJECTURE

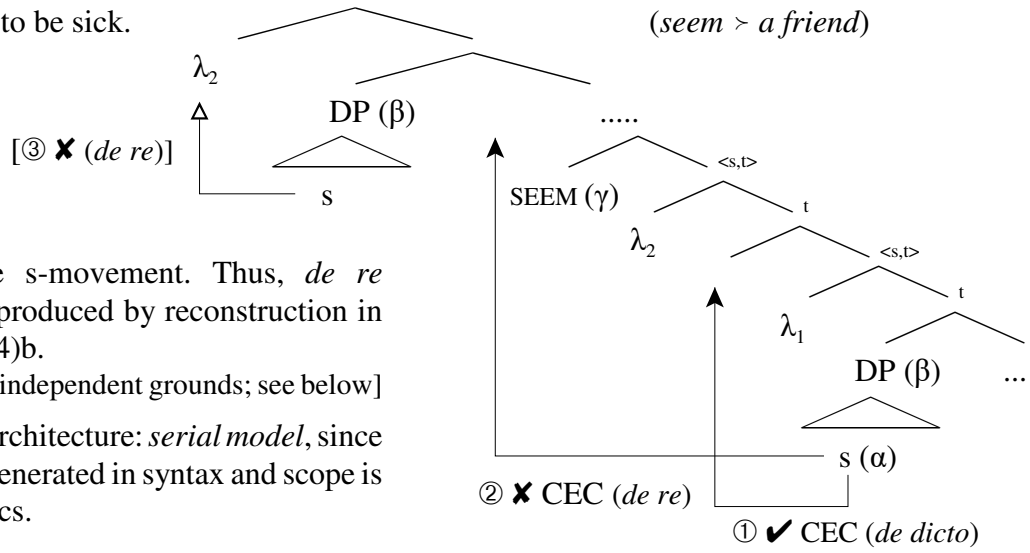
Clause (54)b of the s/e-conjecture is a consequence of a more general locality condition on silent movement.

(75) ***Condition** on **Extraction** out of **Copies** (**CEC**)*: Covert subextraction out of silent copies is local. For any α, β and γ: α cannot extend its scope over γ if
   a. β contains α and
   b. β moves across γ and
   c. β is interpreted below γ

(75) is a version of the Minimal Link Condition (Chomsky 1995) restricted to movement out of silent nodes. (CEC follows from a particular view of the syntax-semantics interface. More on that on another occasion.)

Applying the CEC. DP (β in (75) and (76)) moves across intensional operator (*seem,* γ) overtly, and contains situation variable (α). CEC entails that s cannot be bound long distance (option ②; λ_2 abstracts):

(76) *A friend* seemed to be sick. (*seem ≻ a friend*)



➜ CEC blocks wide s-movement. Thus, *de re* reading cannot be produced by reconstruction in syntax, deriving (54)b.
   [③ is excluded on independent grounds; see below]

➜ Consequences for architecture: *serial model*, since higher type traces generated in syntax and scope is restored in semantics.

(77)

	Summary: DP-Reconstruction			
	Reconstruction of α for			*Is the combination empirically attested? And if not: why?*
	Scope	*e-binding*	*s-binding*	
a.	–	+	+	no (SynR entails SemR)
b.	–	+	–	no (SynR entails SemR)
c.	–	–	+	no (cannot be produced)
☞ d.	+	–	+	no ((54)a; by ETA)
☞ e.	+	+	–	no ((54)b; by CEC (75))
☞ f.	+	–	–	yes, if α contains a bound category ((60))
☞ g.	+	–	–	no ((48)b; T's do not bind e-type expressions)

3.6. INDEPENDENT EVIDENCE FOR THE CEC

3.6.1. VP-Fronting

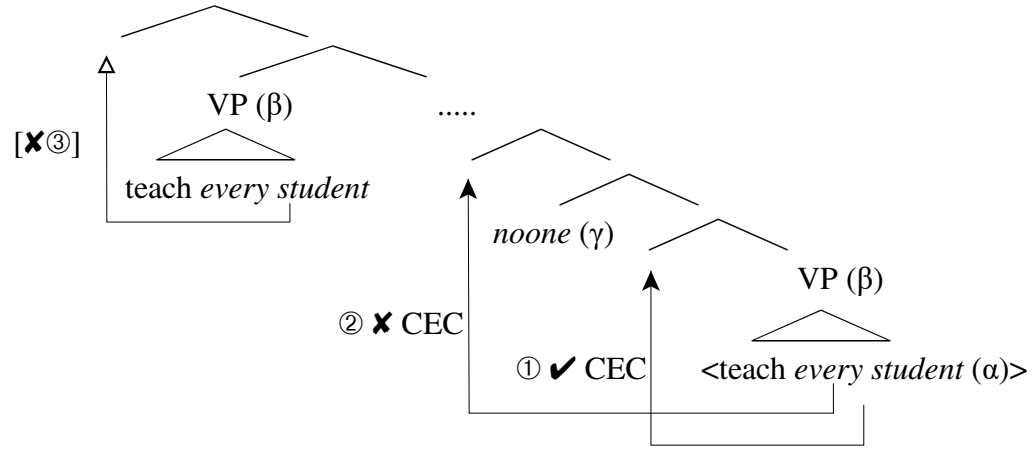
VP-topicalization as in (36), (78)b bleeds inverse scope readings (Barss 1986; Huang 1993).

(78) a. .... and [$_{vP}$ teach ***every student***$_{\alpha}$***]***$_{\beta}$***, noone***$_{\gamma}$ will t_{β} ($\neg\exists \succ \forall$ / $*\forall \succ \neg\exists$)
b. .... and noone$_{\gamma}$ will [$_{vP}$ teach every student$_{\alpha}$]$_{\beta}$ (subsequent to reconstruction of vP)

(79) David planned to give every handout to one of the students... (Sauerland 1998: 591)
a. ...and [$_{vP}$ give ***every handout***] David did to ***one of the students*** ($*\forall \succ \exists$ / $\exists \succ \forall$)
b. ...and David [$_{vP}$ give every handout$_{\alpha}$]$_{\beta}$ to one of the students$_{\gamma}$ (after reconstruction of vP)

No upward scope shift. VP-fronting falls under CEC. Overt movement of VP (β) across subject (γ) forces VP-internal α to be interpreted below the subject.

(80)



➜ CEC blocks *inverse scope* reading out of lower VP.

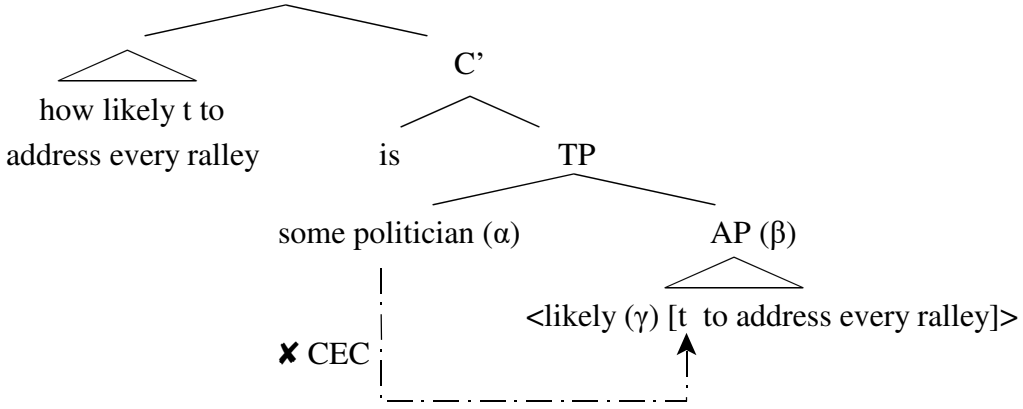
Speculation: ③ is a consequence of the requirement that s-variables of verbs be bound locally, as expressed by Percus' (2000) *Generalization X*:

(81) *Generalization X.* The situation pronoun that a verb selects for is coindexed with the closest λ.

On this view, s-variable binding is responsible for the generalization that it is always the lower copy of a predicate that is used for the computation of binding and scope. (We will explore an alternative next time).[2]

No downward scope shift. Predicate fronting demonstrates that CEC holds 'in both directions'. It is not only impossible to move out of a lower copy, but it is also impossible to lower/reconstruct the subject (*some politicians*) across an intervener (*likely*) into a moved predicate:[3]

(82) a. [How ***likely*** t to address every ralley] is ***some politician*** ($\exists \succ$ *likely* / $*$*likely* $\succ \exists$)
b.



3.6.2. Inverse Linking I (objects)

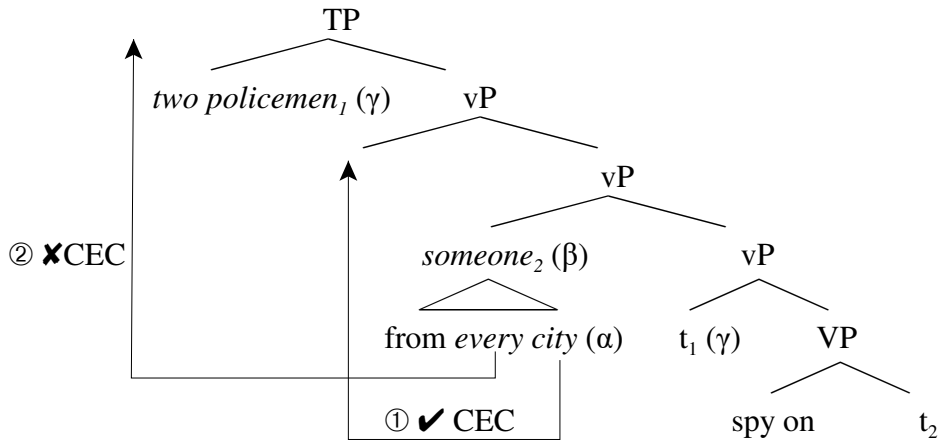
In (83), *every city*$_3$ is contained inside *someone*$_2$, but may take scope above its container (*Inverse Linking).*However, the subject must not scopally interfere between the inversely linked node *every city* and the container (83); Larson 1985; Heim and Kratzer 1998; Sauerland 2005; May and Bale 2005; Lechner 2009).

(83) [$_\gamma$ Two policemen] spy on [$_\beta$ someone from [$_\alpha$ every city]]

a. $2 \succ \underline{\underline{\forall \succ \exists}}$ (inverse linking, wide scope for subject)
b. $\underline{\underline{\forall \succ \exists}} \succ 2$ (inverse linking, narrow scope for subject)
c. *$\underline{\forall} \succ 2 \succ \underline{\exists}$ (inverse linking, intermediate scope for subject)

Inverse Linking provides a context where the containing node *someone from every city* (β) does not move overtly, but *covertly,* by type driven QR. Again, movement out of this silent copy must proceed locally:

(84) ***Two policemen*** spy on someone from ***every city***



➜ CEC blocks unattested intermediate reading for inversely linked object *every city*.

3.6.3. Inverse Linking II (subjects)

Prohibition on Inverse linking inside narrow scope subjects falls out from CEC if narrow scope subjects are interpreted by lowering, and not by QR of object above TP (Johnson and Tomioka 1997).

(85) A monument in every city impressed two friends of mine

a. $2 \succ \underline{\underline{\forall \succ \exists}}$ (inverse linking, wide scope for object)
b. $\underline{\underline{\forall \succ \exists}} \succ 2$ (inverse linking, narrow scope for object)
c. *$\underline{\forall} \succ 2 \succ \underline{\exists}$ (inverse linking, intermediate scope for object)

CEC prohibits the universal to move out of the lower subject copy across the object.

3.6.4 Head raising relatives

Context: Charlie Chaplin wrote two autobiographies. (examples modeled after Bhatt 2002)

(86) [the first$_{s0/s1}$ book about him$_7$] you said$_{s0}$ that Chaplin$_7$ wrote$_{s1}$

a. *High reading*: order of *saying* is relevant, not order of writing
(First you said that Chaplin wrote a book about Chaplin; then you said that Aleister Crowley wrote a book about himself; finally, you said that Chaplin wrote a book about himself)
b. *Low reading*: order of *writing* is relevant, not order of saying
(First, Chaplin wrote a book about butterflies; then Chaplin wrote a book about Chaplin; then a book about bats; then a second book about Chaplin)

(87) [the first$_{*s0/s1}$ book about himself$_7$] you said$_s$ that Chaplin$_7$ wrote$_{s1}$

a. *High reading: order of *saying* is relevant, not order of writing
b. Low reading: order of *writing* is relevant, not order of saying

(88) You said$_s$ that Chaplin$_1$ wrote the first$_s$ book about himself$_1$ in spring of 1964 (control)

➜ Absence of high reading (87)a, which involves non-local s-binding, follows from CEC

3.6.5 Comparative quantifiers

(89) *Heim-Kennedy Constraint*: A quantificational DP cannot intervene between a DegP and its trace.

(90) Everybody is less tall than John is

a. $\forall \succ$ *less*
everybody$_2$ is [$_{DegP}$ less than John is]$_1$ [t$_2$ t$_1$ tall]

b. **less* $\succ \forall$ (shortest person is shorter than John)
[$_{DegP}$ less than John is]$_1$ everybody$_2$ [t$_2$ t$_1$ tall]

In (90)b, movement of DegP out of an *overt* node violates locality, thus (90)b does not fall under the CEC. But here is a case that might match the profile of the CEC.

Takahashi (2007) on comparative quantifiers. Comparative quantifiers resist wide scope. This follows from assumption that subject lowers step-wise into its base position. As Takahashi notes, the first step of quantifier lowering in (92)c violates Heim-Kennedy constraint. (92)c is also excluded by the CEC.

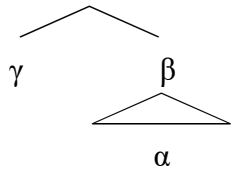
(91) Some student read more than three books. $\exists \succ$ *more than three*/**more than three* $\succ \exists$

(92) a. QR object: some student [[$_{DegP}$ -er than three many books]$_1$ [t$_1$ ...
b. Decompose: some student [[$_{DegP}$ -er than three] [[t$_2$ many books]$_1$ [t$_1$ ...
☛ c. Lower subject, step 1: [[$_{DegP}$ -er than three] some student [[t$_2$ many books]$_1$ [t$_1$...
d. Lower subject, step 2: [[$_{DegP}$ -er than three] [[t$_2$ many books]$_1$ some student [t$_1$...

Summary CEC. There is a common frame for some at first sight unrelated generalizations, among them those schematized in (94).

(93) *Condition on Extraction out of Copies* (*CEC*): Subextraction out of silent copies is local.

(94)



	Inverse Linking	*Predicate fronting*	*DP-reconstruction*
β:	object QP (container)	reconstructed VP	reconstructed DP
α:	inversely linked QP	object QP	intensional operator
γ:	subject QP	subject QP	s-variable inside DP

6. SUMMARY

(95)
- The grammar employs both individual and higher type traces (resulting in SemR), as expressed by the Hybrid Theory of Reconstruction
- SemR is restricted by conditions on possible types of DPs (ETA) and a locality constraint (CEC).
- The CEC is a corollary of a more general principle (Freezing Principle)
- Two different instantiations of Duke York derivations have been encountered so far
  - syntactic, intra-componental DoY (§2)
  - cross-componental DoY: SemR and s-variable binding
- Consequences for the model of the grammar:
  - Duke of York: grammar is *derivational*
  - SemR: grammar is *syntacto-centric*

Next:
- Deriving the CEC
- Empirical support for the ETA (and, as a consequence, the assumption that there are cross-componental DoYs)
- ETA is fundamental for analysis of scope rigidity.
- (Anti-)Reconstruction, scope rigidity and scope flexibility.

Notes

1. A related proposal is advanced in Keshet (2010): "Avoid reference to times/worlds in the lexical definitions, if possible". On syntactic position of s-variables see also Schäfer (2012).

2. Percus' (2000) Generalization X follows from the DS-LF model of §5 on the assumption that all predicates are merged late.

3. (82) is covered by (75), but not by (75). For an attempt at subsuming (82) under the CEC see Lechner (2011).

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