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TYPOLOGICAL VARIATION IN PHRASAL COMPARATIVES

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1. INTRO: PHRASAL COMPARATIVES AND PARASITIC SCOPE

Comparatives express an asymmetric ordering between two degrees:

(1) a. John is even more corrupt than he is alleged to be.
 b. "The degree of John's corruptness exceeds the degree of John's alleged corruptness."
 c. John is even $\overbrace{\text{more}}^{\textit{degree head}}$ $\underbrace{\text{corrupt}}_{\textit{gradable property}}$ $[_{\textit{than}\text{-XP}}$ $\overbrace{\text{than he is alleged to be <}\underbrace{\text{d-corrupt}}_{\textit{Comparative Deletion}}\text{>}}^{\textit{standard of comparison (degree clause)}}]$

In PHRASAL COMPARATIVES (PCs), the standard marker *than* precedes a single, nominal DP:

(2) a. John is taller $[_{\textit{than}\text{-XP}}$ than Bill is]. (clausal comparative)
 b. John is taller $[_{\textit{than}\text{-XP}}$ than Bill]. (phrasal comparative)

(3) a. ***Reduction Analysis*** (RA; Bresnan 1973; Lechner 1999, 2004; Merchant 2009; i.a.)
 PCs are the result of syntactic ellipsis operations (Gapping, Stripping, etc...).
 b. ***Direct Analysis*** (DA; Hankamer 1973; Napoli 1980; Hoeksema 1983; Kennedy 1999; i.a.)
 The phrasal standard of comparison is supplied by a base generated PP.

Diagnostics which have been used to adjudicate between RA and DA include case matching, anaphor licensing, extraction, disjoint reference effects, single remnant condition, scope w.r.t. intensional operators and Russell sentences (s. survey in Lechner, to appear).

<u>Typology of PCs</u> (Beck et al. 2004, 2009; Pancheva 2007; Kennedy 2009; Merchant 2009; Hofstetter 2009; Shimoyama 2012; Sudo 2014; Wunderlich 2001; i.a.):

(4) a. *RA-languages* (English, German): all PCs are derived by reduction.
 b. *DA-languages* (Urdu-Hindi, Turkish, Korean): all PCs are base generated.
 c. *RA/DA-languages* (Russian, Polish, Serbo-Croation, Greek, Hungarian) employ both strategies of PC-formation, distinguished by shape of standard marker.
 d. *[?]DA-only languages* (Japanese, Mandarin) lack clausal comparatives; apparently clausal comparatives have been argued to be concealed amount/free relative clauses.

<u>Movement:</u> Movement creates derived one-place predicates (Heim & Kratzer 1998, i.a.):

(5) a. She read every book$_{<<e,t>,t>}$
 b. LF: every book$_{<<e,t>,t>}$ $[_{<e,t>}$ λ_1 she read t_1]

<u>Parasitic Scope:</u> If a moved constituent α combines with a two-place relation, α lands inbetween a previously raised item β and its λ-binder, resulting in a configuration of PARASITIC SCOPE (Sternefeld 1997; Beck and Sauerland 2000; Barker 2007; Lechner 2007, 2012; i.a.):

(6) a. LF: $[\boldsymbol{\beta}$ $[_{<e,t>}$ $\boldsymbol{\lambda_\beta}$ ..... $\mathbf{t_\beta}$ .... α....]] (move β)
 b. LF: [β $[\boldsymbol{\alpha_{<<e,<e,t>>,\sigma>>}}$ $[_{<e,<e,t>>}$ $\boldsymbol{\lambda_\alpha}$ $[_{<e,t>}$ λ_β ..... t_β .... $\mathbf{t_\alpha}$ ...]]]] ('tuck in' α)

Claim I: Base generated PCs (henceforth also DA-PCs) are subject to the same conditions governing the formation of Parasitic Scope.

Claim II: Parasitic Scope falls out from general laws regulating the order and landing site of multiple movements. These laws surface in the distribution of reflexives, i.a.

Claim III: The size of ellipsis in PCs is co-determined by semantic parallelism.

Outline

- Interpreting comparatives
- A syntactic restriction on PCs in Slavic (Pancheva 2009) and German (Lechner 1997)
- Analysis in terms of derived 2-place predicate formation (*Parasitic Scope*)
  - Reflexives and Parasitic Scope
  - Application to PCs: evidence for DA
- Two additional conditions on PCs
  - Hankamer's puzzle: evidence for semantic parallelism
  - Temporal underspecification of PCs: evidence for RA ☞ a new puzzle/impasse

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2. COMPARATIVE SEMANTICS

2.1. CLAUSAL ANALYSIS OF PCS

Generalized Quantifier analysis of comparatives (Gawron 1995; Heim 2000; Hackl 2001; i.a.). The standard denotes a derived degree predicate (empty operator movement; Chomsky 1976):

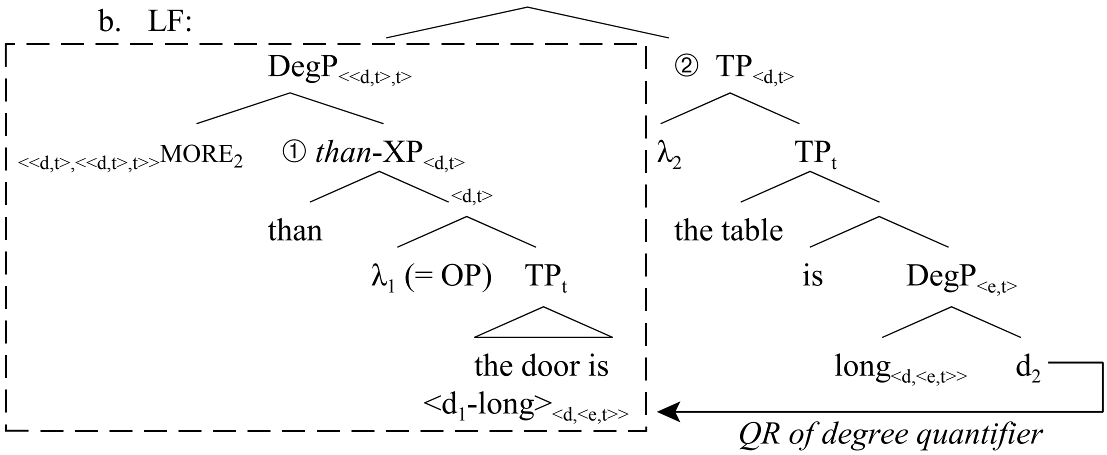
(7) *2-place version of* MORE
$[\![\textbf{MORE}_2]\!] \quad = \quad \lambda D_{<d,t>}\lambda D'_{<d,t>}.\max(D') > \max(D)$ [Heim 2000]

(8) max $=_{def}$ $\lambda D.\iota d[D(d) \wedge \forall d'[D(d') \rightarrow d' \leq d]]$ [shorthand: '$\lambda D\iota d[D(d)]$']

Sample derivation:

(9) a. The table is longer than the door is <d-long>.

b. LF:



c. $[\![\text{MORE}_2]\!]$ ($[\![$**(than) λ_1 the door is d_1-long**$]\!]_{①}$) ($[\![$**λ_2 the table is d_2-long**$]\!]_{②}$) =

d. ιd[the table is d-long] > ιd[the door is d-long]

Two types of PCs: MEASURE PHRASES denote sets of degrees (Schwarzschild 2006). Thus, the degree quantifier analysis treats PCs with EXPLICIT standards (*than 6 feet*) as base generated:

(10) a. John is taller than 6 feet.
b. LF: [[MORE$_2$ [$_{<d,t>}$ 6 feet]] [λ_2 John is d_2-tall]]

PCs with IMPLICIT standard, exemplified by the attributive PC (11), are elliptical:

(11) a. Sue read a better poem than Ann.
b. LF: [[MORE $_2$ [than λ_1 Ann <read a d_1-good poem>]] [λ_2 Sue wrote a d_2-good poem]]

2.2. DIRECT ANALYSIS OF PCS

On the Direct Analysis, *than* precedes as single REMNANT. MORE$_3$ denotes a 3-place relation. (type polymorphism; Heim 1985; Kennedy 1999; Reinhart 1991; Bhatt & Takahashi 2011):

(12) *3-place version of MORE* [Bhatt & Takahashi 2011]
$[\![\textbf{MORE}_3]\!] \quad = \quad \lambda x \lambda A_{<d,<e,t>>} \lambda y.\max(\lambda d.A(d)(y)) > \max(\lambda d.A(d)(x))$

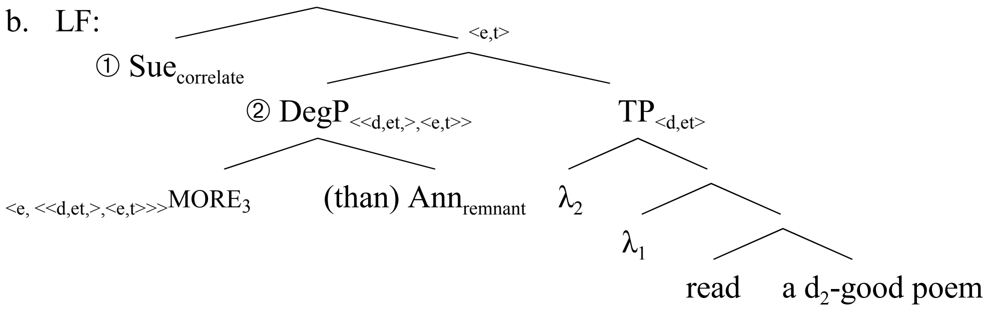
Surface, *in-situ* analysis for predicate comparatives:

(13) a. Sam is taller than $\text{Bill}_{\text{remnant}}$
b. $[\![\textbf{MORE}_3]\!]$ ($[\![$**Bill**$]\!]$) ($[\![$**tall**$]\!]$) ($[\![$**Sam**$]\!]$) =
c. ιd[Sam is d-tall] > ιd[Bill is d-tall]

Attributive PCs involve PARASITIC SCOPE (Bhatt & Takahashi 2007, 2011; Kennedy 2009):

(14) *Parastic Scope derivation of attributive PCs*
a. Step 1: move the CORRELATE (*Sue*)
b. Step 2: attach binder index to sister node (Index Reanalysis; Heim & Kratzer 1998)
c. Step 3: move MORE$_3$ plus remnant (*Ann*) inbetween correlate and its binder index ('tucking in'; Richards 1997; see Nissenbaum 1998 on parasitic gaps)

(15) a. $\text{Sue}_{\text{correlate}}$ read a better poem than $\text{Ann}_{\text{remnant}}$.
b. LF:



c. $[\![\textbf{MORE}_3]\!]$ ($[\![$**(than) Ann**$]\!]$) ($[\![$**λ_2 λ_1 t_1 read a d_2-good poem**$]\!]$) ($[\![$**Sue**$]\!]_{①}$) =
d. ιd[Sue read a d-good poem] > ιd[Ann read a d-good poem]

Fragment of cross-linguistic distribution of MORE$_2$ vs. MORE$_3$ (for data, details amd discussion see Bhatt & Takahashi 2011; Merchant 2009; Lechner, to appear; i.a.):

(16)

	Ellipsis	*Principle C*	*Scope of QP*	*Multiple remnants*	***PCs are derived by***
English	✓ ⇒ RA	RA	RA	✓⇒ RA	RA
Hindi-Urdu	* ⇒ DA	DA	DA	* ⇒ DA	DA
Japanese	✓⇒ RA	DA	DA	✓ ⇒ RA	RA/DA
Greek	✓ ⇒ RA	[not tested]	[not tested]	$✓_{ap'oti}$ /$*_{apo}$	RA/DA

3. A RESTRICTION ON PHRASAL COMPARATIVES

Pancheva (2009) observes a curious syntactic restriction on PCs in Slavic:

(17) ***Subject Restriction***
"In the Slavic languages, a *more-NP* cannot be an underlying subject (an external argument) in phrasal comparatives." [Pancheva 2009: (1)]

(18) **SUB$_{[COMP]}$ - DO$_{correlate}$ (Polish)* [Pancheva 2006: (6)]
a. ??/*Więcej uczniów zwiedziło Czechy *od* Słowacji. (DA-PC)
more students visited Czech R. THAN$_1$ Slovakia$_{GEN}$
'More students visited the Czech Republic than Slovakia.
b. Marek zwiedził więcej miejsc *od* Anny. (DA-PC)
Marek visited more places THAN$_1$ Anna$_{GEN}$
'Marek visited more places than Anna.

Two types of PCs: Polish, like Russian and Serbo/Croation, distinguishes between two versions of PCs: base generated PCs ((18)a [= (19)a]/(18)b) and PCs derived by ellipsis ((19)b). Only base generated PCs are affected by the subject restriction:

(19) **SUB$_{[COMP]}$ - DO$_{correlate}$ (Polish)* [ibid. (7c)]
a. ??/*Więcej uczniów zwiedziło Czechy *od* Słowacji. (DA-PC)
more students visited Czech R. THAN$_1$ Slovakia$_{GEN}$
b. Więcej uczniów zwiedziło Czechy *niż* Słowacj. (RA-PC)
more students visited Czech R. THAN$_2$ Slovakia$_{ACC}$
'More students visited the Czech Republic than Slovakia.

Typology I: The Subject Restriction is (i) operative in Polish, Bulgarian, Serbo/Croatian, Slovenian, Greek and Hungarian but (ii) inactive/masked in Turkish, Korean, Japanese, Hindi, Dari and English.

(20) **SUB$_{[COMP]}$ - DO$_{correlate}$ (Bulgarian)* [ibid. (4)]
a. ??/*Pove turisti posetixa Sofia *ot* Varna. (DA-PC)
more tourists visited Sofia from Varna
'More tourists visited Sofia than Varna'.
b. Pove turisti posetixa Sofia *ot-kolkoto* Varna. (RA-PC)
more tourists visited Sofia from-how-many Varna
'More tourists visited Sofia than visited Varna'.

Typology II: Surprisingly, effects of the restriction are also attested in German, a language in which PCs have been hypothesized to be uniformly derived by ellipsis (RA-language):

(21) **SUB$_{[COMP]}$ - DO$_{correlate}$* [Lechner (1997)]
a. Die Maria$_{correlate}$ kennt bessere Komponisten$_{[COMP]}$ als der Peter
the Mary$_{NOM}$ knows better composers$_{ACC}$ than the Peter$_{NOM}$
'Mary knows better composers than Peter knows.'
b. *Bessere Komponisten$_{[COMP]}$ kennen die Maria$_{correlate}$ als den Peter.
better composers$_{NOM}$ know the Mary$_{ACC}$ than the Peter$_{ACC}$
'Better composers know Mary than know Peter.'

(22) *Corollary*: German attributive comparatives are base generated. Hence, German is not a uniform RA language (contra Lechner 2004).

Empirical extension I: The condition is more general, it also excludes combinations of indirect object comparatives with accusative remnants, while exempting deep subjects (s.a. Pancheva):

(23) $*IO_{[COMP]}$ - $DO_{correlate}$
a. Maria hat dem $\text{Peter}_{\text{correlate}}$ bessere $\text{Komponisten}_{\text{[COMP]}}$ als dem Fritz vorgestellt.
Mary has the $\text{Peter}_{\text{DAT}}$ better $\text{composers}_{\text{ACC}}$ than the $\text{Fritz}_{\text{DAT}}$ introduced
'Mary introduced better composers to Peter than to Fritz.'
b. *Maria hat besseren $\text{Komponisten}_{\text{[COMP]}}$ den $\text{Peter}_{\text{correlate}}$ als den Fritz vorgestellt.
Mary has better $\text{composers}_{\text{DAT}}$ the $\text{Peter}_{\text{ACC}}$ than the $\text{Fritz}_{\text{ACC}}$ introduced
'Mary introduced Peter to better composers than $\text{Fritz}_{\text{ACC.}}$'
c. Maria hat ihn besseren $\text{Komponisten}_{\text{[COMP]}}$ vorgestellt als ich.
Mary has him_{ACC} better $\text{composers}_{\text{DAT}}$ introduced than I_{NOM}
'Mary introduced him to better composers than $\text{I}_{\text{NOM.}}$'

(24) ✓$SUB_{[COMP],\ passive/unaccusative}$ - $DO_{correlate}$
a. Ein besserer $\text{Vertrag}_{\text{[COMP]}}$ als der Maria wurde nur dem $\text{Peter}_{\text{correlate}}$ angeboten.
a better $\text{contract}_{\text{NOM}}$ than the Mary_{DAT} was only the $\text{Peter}_{\text{DAT}}$ offered
'Only Mary was offered a better contract than Peter.'
b. Ein schlimmerer $\text{Fehler}_{\text{[COMP]}}$ als mir ist dem $\text{Pete}_{\text{correlate}}$ unterlaufen.
a worse $\text{mistake}_{\text{NOM}}$ than me_{DAT} is the $\text{Peter}_{\text{DAT}}$ occurred
'A more serious mistake occurred to me than to Peter.'

Empirical extension II: In German - but not in Slavic - the prohibition on subject/dative PCs is abrogated with numerical amount comparatives. Descriptively, German abides by (26):

(25) ✓$SUB_{[COMP],\ amount}$ - $DO_{correlate}$
a. Leider mögen mehr $\text{Leute}_{\text{[COMP]}}$ $\text{Mozart}_{\text{correlate}}$ als Biber.
Unfortunately, like more $\text{people}_{\text{NOM}}$ $\text{Mozart}_{\text{ACC}}$ than $\text{Biber}_{\text{ACC}}$
'Unfortunately, more people like Mozart than Biber.'
b. Maria hat mehr $\text{Komponisten}_{\text{[COMP]}}$ den $\text{Peter}_{\text{correlate}}$ als den Fritz vorgestellt.
Mary has more $\text{composers}_{\text{DAT}}$ the $\text{Peter}_{\text{ACC}}$ than the $\text{Fritz}_{\text{ACC}}$ introduced
'Mary introduced Peter to more composers than $\text{Fritz}_{\text{ACC.}}$'

(26) ***Attributive Comparative Generalization*** (Lechner 1997)
In attributive degree comparatives, the correlate c-commands the comparative DP.

3.1. A SMALL CLAUSE ANALSIS

Pancheva (2006) argues that the subject restriction can neither be accomodated by DA nor RA:

Problem for RA:

- Clausal versions are well-formed ((20)b vs. (20)a). Moreover, there is no known reason that would block ellipsis. Hence, RA fails.

Problems for DA:

- Asymmetry cannot be attibuted to ban on extraposition of *than*-phrase, beause *in-situ* variants are also ill-formed (see Pancheva 2009 for details and data).
- DA would have to stipulate a ban on movement of *more-NPs* in subject position ((19)a vs. (18)b) (☞ the analysis to be presented proceeds more or less along these lines)

Pancheva's own account includes two components: an anti-locality condition and the CED.

3.1.1. Anti-Locality

Pancheva invokes the tension between the size of the *than*-phrase and Anti-Locality (Grohman 2003) to derive the subject restriction.

(27) a. PCs can be parsed as reduced small clauses (vPs; Heim 1985; Lechner 1999, 2004).
b. Operator movement inside the *than*-phrase is obligatory for semantic reasons.
c. In small clause PCs, OP-movement is too short to respect Anti-Locality.

(28) *Movement of X from sister of B to sister of A*
<{X, A}, {X, B}>

(29) a. *Movement from complement of v to specifier of vP*
<{more-NP, vP}, {more-NP, v'}>
b. *Movement from specifier of vP to vP adjoined position*
*<{more-NP, vP}, {more-NP, vP}> (not a well-formed set theoretic expression)

This derives Anti-Locality from Bare Phrase Structure and accounts for the subject restriction:

(30) a. Marek visited more places than Anna.
b. ... than Anna$_2$ [**d-many places$_1$** [$_{vP}$ t$_2$ visited **✓t$_1$**]]

(31) a. *More students visited the Czech Republic than Slovakia (in Slavic)
b. ... than [Slovakia$_2$ [**d-many students$_1$** [$_{vP}$ **✘t$_1$** visited t$_2$]]] (violates Anti-Locality)

3.1.2. Typological variation - CED

Alternative for deriving subject PCs (speaker variation): movement of degree operator only.

(32) a. ??More students visited the Czech Republic than Slovakia
b. ... than [Slovakia$_2$ [OP λ_1 [$_{vP}$ **✓d$_1$ -many students$_1$** visited t$_2$]]] (✓Anti-Locality)

Degraded acceptability due to CED. CED effects correlate with position of subject (Lasnik and Park 2003: 651; Chomsky 2008; Haegeman et al. 2014; Jurka 2010 for experimental evidence).

(33) a. Which candidate were there [posters of] all over the town?
b. *Which candidate were [posters of] all over the town?

3.2. PROBLEMS FOR PANCHEVA'S ANALYSIS

3.2.1. Small clause analysis is incomplete

English displays reflexes of the subject restriction ((34)b). But the ill-formedness of (34)b cannot be attributed to the small clause analysis, since the standard small clause PC (34)c is impeccable:

(34) a. John read a different book than Mary
b. *A different student read the book than the newspaper (PC)
c. A different student than Mary read the book (small clause comparative)

3.2.2. Anti-locality condition is too weak

The raising PC (35)a is ill-formed in Bulgarian (Roumi Pancheva, pc). This comes unexpected, because movement observes Anti-Locality, as shown in (35)b.

(35) a. *More students are likely to visit the Czech Republic than Slovakia (in Bulgarian)
b. ... than [Slovakia$_2$ [**d-many students$_1$** <are likely to [$_{vP}$ **✓t$_1$** visit t$_2$>]]]

4. REFLEXIVIZATION AND PARASITIC SCOPE

Next:
- Synopsis of transparent analysis of *self.*
- Syntactic conditions on Parasitic Scope account for reflexivization and the subject restriction.
- Extension: Hankamer's puzzle and atemporal readings

4.1. AN LF-TRANSPARENT LEXICALIZED ANALYSIS OF REFLEXIVES [Lechner 2007, 2012]

(36) *Some puzzles for traditional Binding Theory*
  a. What is contribution of *self:* variable or reflexivizer (Reinhart & Reuland 1993)?
  b. Why do anaphors require antecedent?
  c. Why does the domain of reflexivization by and large match A-movement?
  d. Why is double reflexivazation not attested (**She showed herself to herself*)?

Categorial analyses of reflexives (Bach & Partee 1980; Keenan 1987/1989; Szabolcsi 1987/1989; i.a.):

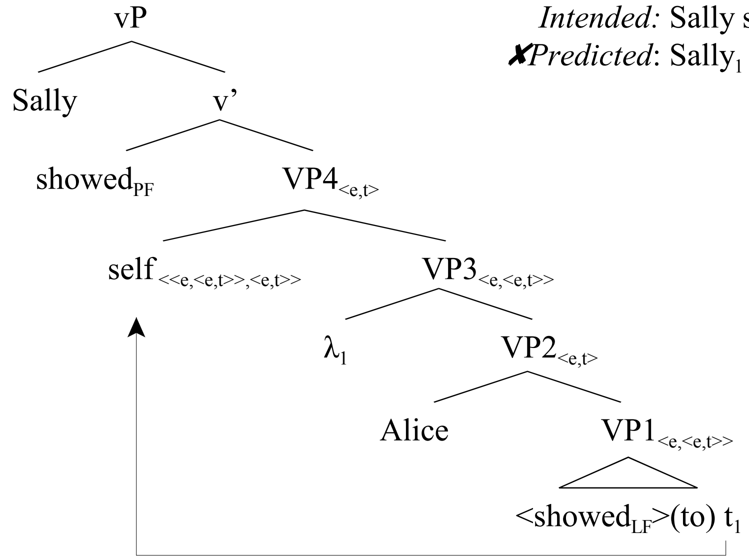
(37) $[\![\textbf{self}]\!] = \lambda R_{<e,<e,t>>}\lambda x[R(x)(x)]$ (reflexives *self* as arity reducer)

Analysis: emedding reflexivization function in an LF-transparent framework.

(38) *Movement and binding index rule* (based on Heim and Kratzer 1998; Büring 2005)
For any $n \in \mathbb{N}$ and assignment g:
$[\![[n\ \alpha]]\!]^g = \lambda x_n.[\![\alpha]\!]^{g[n \rightarrow x_n]}$

(39) *1st attempt:* self-*movement*

a. *Intended:* Sally showed $Alice_1$ to $herself_1$
✘*Predicted*: $Sally_1$ showed Alice to $herself_1$



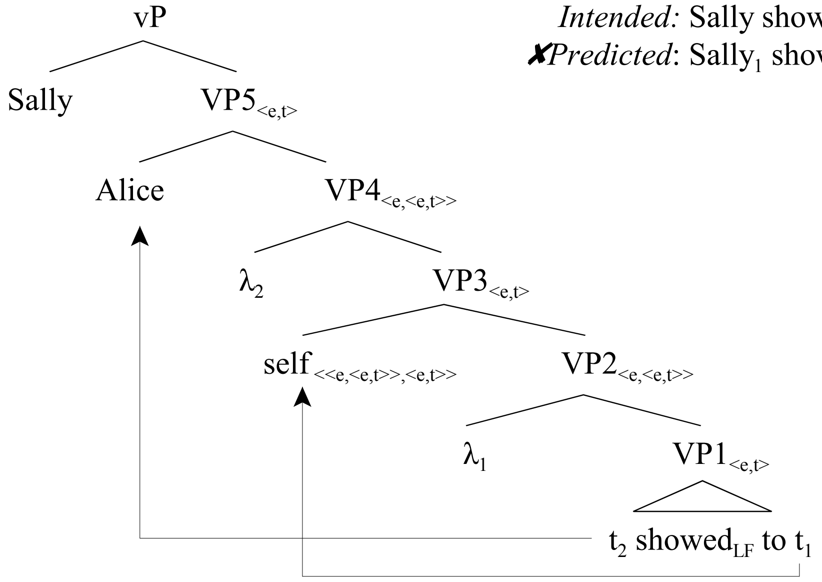
b.
	$[\![\text{show}]\!]$	=	$\lambda x \lambda y \lambda z[\text{show'}(x)(y)(z)]$
	$[\![\text{VP1}]\!]$	=	$\lambda y \lambda z[\text{show'}(t_1)(y)(z)]$
	$[\![\text{VP2}]\!]$	=	$\lambda z[\text{show'}(t_1)(\text{alice})(z)]$
☛	$[\![\text{VP3}]\!]$	=	$\lambda_1 \lambda z[\text{show'}\underline{(t_1)}(\text{alice})\underline{(z)}]$
	$[\![\text{VP4}]\!]$	=	$\lambda x[\text{show'}(x)(\text{alice})(x)]$
	$[\![\text{vP}]\!]$	=	show'(sally)(alice)(sally)

(40) *2nd attempt:* self-*movement and movement of antecedent*

a.

Intended: Sally showed Alice$_1$ to herself$_1$

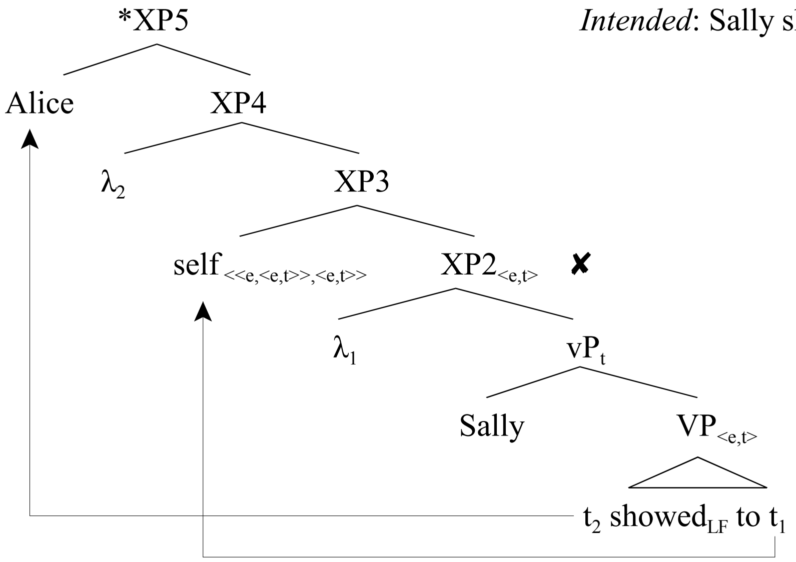
✘*Predicted*: Sally$_1$ showed Alice to herself$_1$



b.	⟦VP1⟧	=	$\lambda z[\text{show'}(t_1)(t_2)(z)]$
☛	⟦VP2⟧	=	$\lambda_1 \lambda z[\text{show'}(\underline{t_1})(t_2)(\underline{z})]$
	⟦VP3⟧	=	$\lambda x[\text{show'}(x)(t_2)(x)]$
	⟦VP4⟧	=	$\lambda_2\ \lambda x[\text{show'}(x)(t_2)(x)]$
	⟦VP5⟧	=	$\lambda x[\text{show'}(x)(\text{alice})(x)]$
	⟦vP⟧	=	show'(sally)(alice)(sally)

(41) *3rd attempt: movement above subject*

Intended: Sally showed Alice$_1$ to herself$_1$



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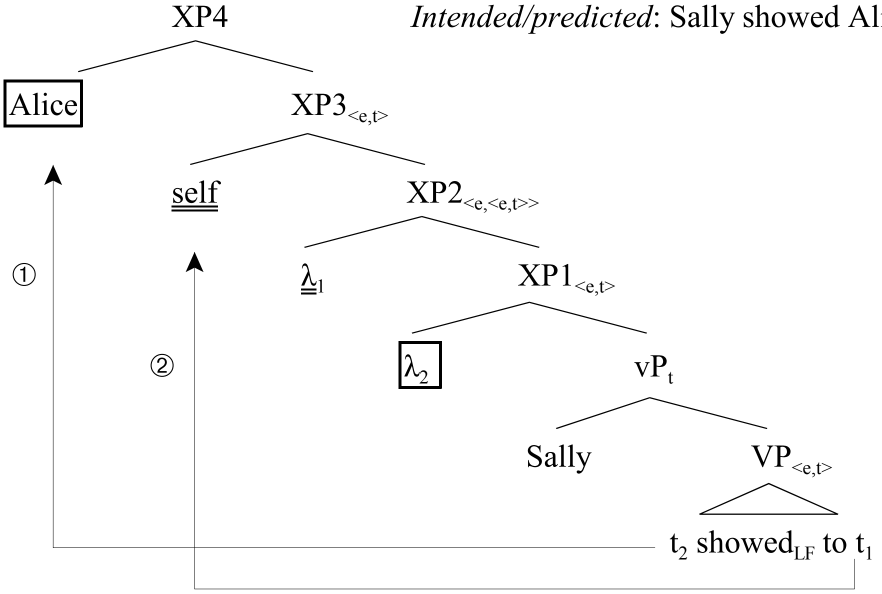
(42) *Successful derivation involves* ***Parasitic Scope***

a. *Intended/predicted*: Sally showed Alice$_1$ to herself$_1$



b.

⟦vP⟧	=	show'[(t$_1$)(t$_2$)(sally)]
⟦XP1⟧	=	λ_2[show'(t$_1$)(t$_2$)(sally)]
⟦XP2⟧	=	$\lambda_1\lambda_2$[show'(t$_1$)(t$_2$)(sally)]
⟦XP3⟧	=	λx[show'(x)(x)(sally)]
⟦XP4⟧	=	show'(alice)(alice)(sally)

Assumption (Lechner 2007, 2012): Parasitic scope is regulated by syntactic principles and is the result of counter-cyclic feature attraction by a single head ('tucking-in'; Richards 1997, 2001).

(43) *Syntactic requirement: move higher node first*

a. [A]naphor feature on functional head attracts antecedent and reflexive (cf. feature driven QR-analysis of Bruening 2001; features can be eliminated; see Lechner 2012).
b. Movement economy (Shortest) dictates order of movements and functionally determines landing site: higher node moves first, second movement tucks in.

(44) *Deriving Parasitic Scope by tucking-in ((42))*

Step 1 (move antecedent):	**Alice$_2$**		[X°$_{[A]}$	[Sally [t$_2$ showed to self]]]]
Step 2 (Index re-analysis):	**Alice**	[**λ_2**	[X°$_{[A]}$	[Sally [t$_2$ showed to self]]]]
Step 3 (*self*-movement):	Alice [**self$_1$**	[λ_2	[X°$_{[A]}$	[Sally [t$_2$ showed to t$_1$]]]]]]
Step 4 (Index re-analysis):	Alice [self [**λ_1** [**λ_2**		[X°$_{[A]}$	[Sally [t$_2$ showed to t$_1$]]]]]]

(45) *Semantic requirement: move antecedent first*

Step 2: [antecedent$_e$ [$_{<e,t>}$ λ_2 [... t$_2$ ... reflexive ...]]]]
Step 4: [antecedent$_e$ [reflexive$_{<<e,<e,t>>,<e,t>>}$ [$_{<e,<e,t>>}$ λ_1 [$_{<e,t>}$ λ_2 [... t$_2$ ... t$_1$ ...]]]]

(46) ***Corollary**:* C-command condition falls out from combination of (43) and (45).

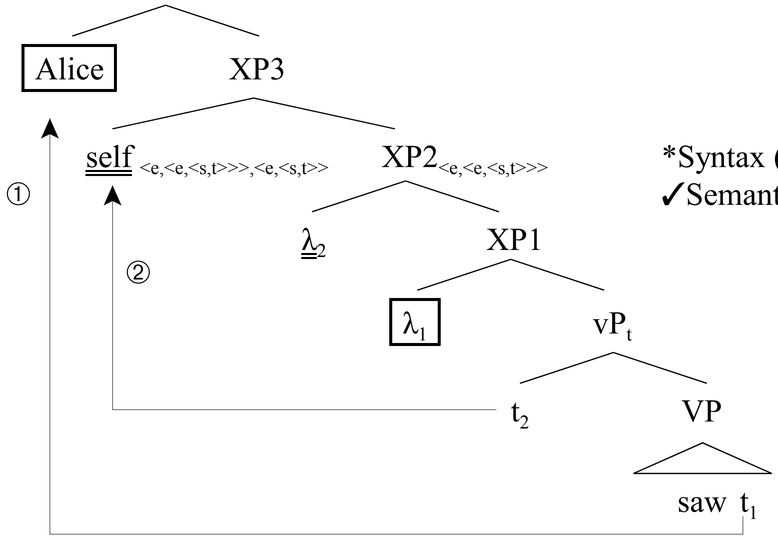
For expository convenience, it is helpful to switch to simpler transitive sentences, which also implicate anaphor movement once the event argument is factored in:

(47) ⟦**self**⟧ =λR$_{<e,<e,<s,t>>>}$λxλe[R(x)(x)(e)]

(48) *Sheself/herself saw Alice.

Move antecedent first: (49) violates syntactic requirement that higher nodes are attracted first.

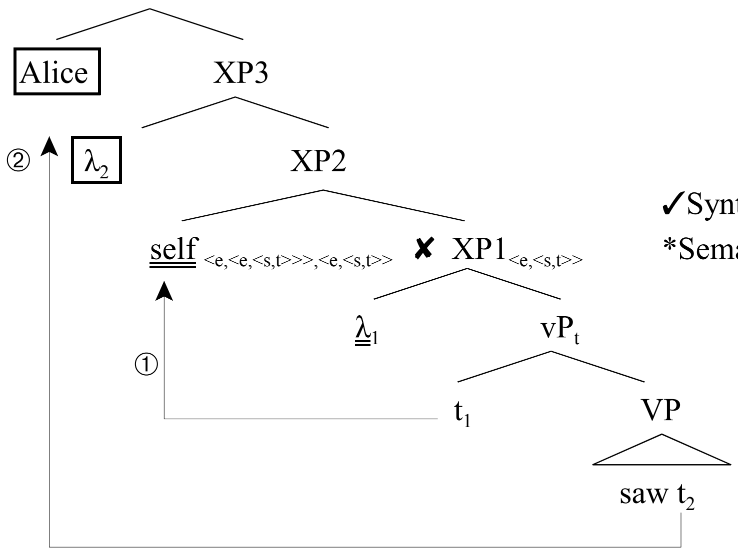
(49) **She/herself saw Alice*



*Syntax (violates Shortest)
✓Semantics

Move reflexive first: (50) is consistent with movement calculus, but result is not interpretable:

(50) **She/herself saw Alice*



✓Syntax
*Semantics (type mismatch)

(51) ***Parasitic Scope Generalization***
In environments where movement of α provides the semantic context for type driven movement of β, the base position of α c-commands the base position of β.

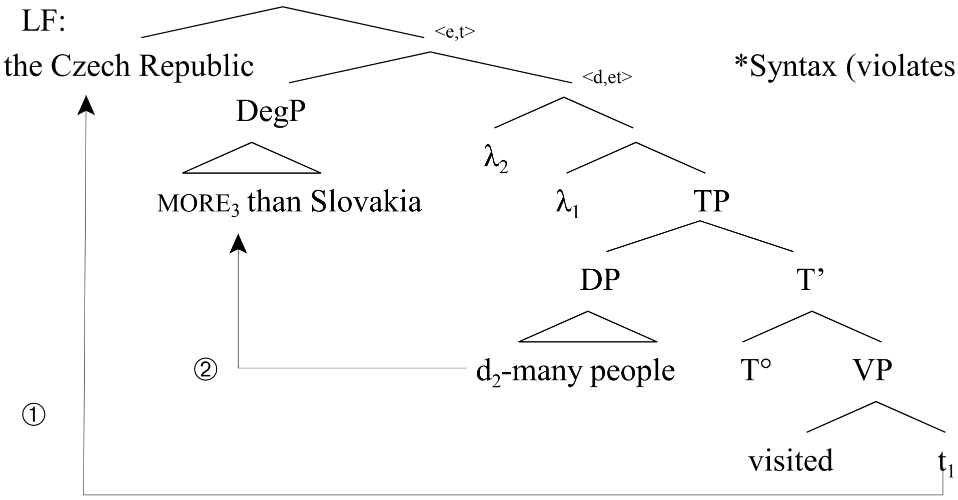
4.2. REVISITING THE SUBJECT RESTRICTION

In attributive PCs, the unit [MORE *than*-XP] tucks in below the correlate (see tree (52)b on top of next side). Thus, movement of the correlate must precede comparative movement. In subject comparatives, the comparative is *higher* than the correlate, in violation of the *Parasitic Scope Generalization* (51). Hence, (52)a is blocked for the same reason that (48) is.

NB: The account directly extends to ditransitives, unaccusatives and passive subjects. In all theses cases, the correlate needs to c-command the comparative, possibly after reconstruction.

(52) a. *More students visited the Czech Republic than Slovakia. [in Slavic]

b. LF: *Syntax (violates Shortest)



c. ⟦MORE$_3$⟧ (⟦ **Slovakia**⟧) (⟦$\boldsymbol{\lambda_2\ \lambda_1}$ **d_2-many people visited t_1**⟧) (⟦**the Czech R.**⟧) =

d. ιd[d-many people visited the Czech R.] > ιd[d-many people visited Slovakia]

(53) *Interim summary*

a. In base generated PCs, the complex [MORE *than*-XP] and the correlate move, generating a configuration of Parasitic Scope.

b. The conditions on these movements are syntactic in nature (Shortest, 'tucking-in').

➜ Common analysis of reflexives and subject restriction in terms of (51).

➜ German (an RA language) includes selected instances of base generated PCs.

<u>Evidence for correlate movement:</u> island effects in attributive comparatives certify that in German, the correlate moves.

(54) a. eine ihren Prinzipien treuere Frau als Maria <ihren Prinzipen d-treue Frau>
a her principles more faithful woman than M.
'a woman who was more faithful to her principles than Mary (was)'

b. *eine ihrer Berufung treuere Frau als ihren Prinzipien
a her vocation more faithful woman than her principles
'a woman (who is) more faithful to her vocation than to her principles'

c. Sie ist ihrer Berufung treuer als ihren Prinzipien
'She is more faithful to her vocation than to her principles'

Movement of the correlate (*her vocation*) in b-examples violates left branch condition (on DA and syntactic locality s. a. Heim 1985):

(55) *Fragment LF for (54)b*:
*[**her vocation** [[MORE than her principles] [λ_2 λ_1 [$_{DP}$ a [d_2-faithful to ***t_1**] woman]]]]

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5. TWO ADDITIONAL CONDITIONS ON PCS

Two additional restrictions indicate that

- ellipsis in PCs is subject to semantic parallelism conditions (Rooth 1992) and that
- parallelism domains may vary in size, confiming the claum PCs contain structure.

5.1. HANKAMER'S PUZZLE

Hankamers (1973): in PCs, GF of comparative must match GF of Comparative Deletion site:

(56) Bill kissed more girls than Alex. [Hankamer's 1973, 198: fn. 1]
  a. ...than Alex kissed <d-many girls>
  b. *...than <d-many girls> kissed Alex

Reduction analysis: Hankamer's puzzle follows from standard assumption that ellipsis is licensed under semantic parallelism (Rooth 1992; Fox and Takahashi 2006; i.a.).

(57) *Assumptions*
  a. Ellipsis consists in vP or TP-deletion ((56) is *not* the result of verb deletion).
  b. Parallelism ignores focused categories (*Bill* and *Alex* in (56); Rooth 1992).
  c. Remnants need to move to escape ellipsis.

(58) *Ellipsis licensing I* [adapted from Fox and Takahashi 2006]
For every elliptical node α, there is a Parallelism Domain (PD) and there is an antecedent AC, such that
  a. PD reflexively dominates α and
  b. PD is semantically identical to AC *modulo* focus-marked constituents
  c. PD is semantically identical to AC *modulo* focus-marking iff there is a focus alternative $[\![PD_{Alt}]\!] \in [\![PD]\!]^f$, s.t. for every assignment function g, $[\![PD_{Alt}]\!]^g = [\![AC]\!]^g$

(59) a. Bill kissed more girls than Alex <kissed d-many girls> (= (56)a)
  b. [[MORE λ_2 (than) Alex <kissed d_2-many girls>] [λ_2 Bill kissed d_2-many girls]]
  c. $[\![AC]\!]$ = λ_2.Bill kissed d_2-many girls
  d. $[\![PD]\!]^f$ = $\{p|p = \lambda_2.\exists x[x\in C \wedge x$ kissed d_2-many girls$]\}$ (focus alternatives of PD)
  e. $[\![PD_{Alt}]\!]$ = λ_2.Bill kissed d_2-many girls ($[\![PD_{Alt}]\!] = [\![AC]\!]$)

(60) a. *Bill kissed more girls than $Alex_1$ <d-many girls kissed t_1> (= (56)b)
  b. [[MORE λ_2 (than) $Alex_1$ λ_1 <d_2-many girls kissed t_1>] [λ_2 Bill kissed d_2-many girls]]
  c. $[\![AC]\!]$ = λ_2.Bill kissed d_2-many girls
  d. $[\![PD_{Alt}]\!]$ = $\lambda_2.d_2$-many girls kissed Bill ($[\![PD_{Alt}]\!] \neq [\![AC]\!]$)

Adverbial comparatives are ambiguous, depending on choice of focused correlate:

(61) John likes Bill more than Mary
  a. ... than Mary d-much likes Bill (PD relative to focus alternatives of *John*)
  b. ... than John d-much likes Mary (PD relative to focus alternatives of *Mary*)

Direct analysis: MORE_3 reconstructs *identical* relations for the remnant and the correlate.

(62) a. Bill kissed more girls than $Alex_1$ <d-many girls kissed t_1>
  b. $Bill_1$ [[MORE_3 than Alex] [λ_2 λ_1 [t_1 kissed d_2-many girls]]]
  c. **MORE_3 ($[\![$Alex$]\!]$) ($[\![\lambda_2\ \lambda_1\ t_1$ kissed d_2-many girls$]\!]$) ($[\![$Bill$]\!]$) =**
  d. ιd[Bill kissed d-many girls] > ιd[Alex kissed d-many girls]

DA does not even allow comparative to serve as correlate (comparative above MORE):

(63) *[**d_2**-many girls [[MORE_3 than Alex] [λ_2 λ_1 [Bill kissed t_1]] (d_2 is unbound)

➜ Hankamer's puzzle is accomodated both by RA and DA.

5.2. ATEMPORAL READINGS OF PCS

(64) *Observation*: On RA, Hankamer's puzzle is a consequence of ellipsis parallelism. Thus, PCs are predicted to display sensitivity to ellipsis parallelism also in other domains.

PCs can be temporally underspecified (Pinkham 1982: 130; McCawley 1988 [1998: 716]):

(65) ✓*Atemporal reading: $DO_{[COMP]}$ - $SUB_{correlate}$*
John will visit more friends than Sam_{SUB}.
a. ...than Sam will visit d-many friends
b. ...than Sam visited d-many friends

Not all PCs admit atemporal interpretations. The conditions are structural (Lechner 2004).

(66) **Atemporal reading: $SUB_{[COMP]}$ - $DO_{correlate}$*
More friends will visit John than Sam_{DO}.
a. ... than d-many friends will visit Sam
b. *... than d-many friends visited Sam

(67) ✓*Atemporal reading, double object constructions: $PP_{[COMP]}$ - $DO_{correlate}$*
John will subject this year's students to a harder exam than last year's $\text{students}_{\text{DO}}$.
a. ... than John will subject last years students to a d-hard exam
b. ... than John subjected last years students to a d-hard exam

(68) **Atemporal reading, double object constructions: $DO_{[COMP]}$ - $PP_{correlate}$*
John will subject more students to this year's exam than to last year's exam_{PP}.[1]
a. ... than John will subject d-many students to last year's exam.
b. *... than John subjected d-many students to last year's exam.

(69) John will promise her more money than Sam_{IO}.
a. .... than John will promise Sam.
b. .... than John has promised Sam.

(70) John will promise more people money than love_{DO}.
a. .... than John will promise love
b. *.... than John has promised love.

(71) *Table 1: Distribution of atemporal readings*

	Remnant/correlate:	*Subject*	*Object*	*Indirect object*
Comparative:	Subject	na	*	*
	Object	✓	na	*
	Indirect object	✓	✓	na

(72) ***Atemporal PC Generalization***
In atemporal PCs, the correlate c-commands the comparative DP.

Note that (72) is strongly reminiscent of the *Attributive Comparative Generalization* ((26)):

(26) *Attributive Comparative Generalization*
In attributive degree comparatives, the correlate c-commands the comparative DP.

[1] Choice of an amount comparative avoids interference from Attributive Comparative Generalization (26).

Analysis: Atemporal PC generalization is a consequence of semantic ellipsis paralellism and the assumption that PC-remnants need to move to escape ellipsis.

(73) *Assumptions*
a. Kratzer (1994): subjects are introduces by v° (keeps computation of subjects simpler).
b. Successive cyclic OP-movement: d-variables can be bound from VP, vP or above TP.
☞ c. Remnants that escape ellipsis need to move to SpecCP (Merchant 2004, 2013, i.a.).
d. In atemporal PCs, the elided constituent is a bare vP.
e. In temporally fully specified PCs, the missing node is at least as large as TP.

(74) *Max-Elide (= ellipsis licensing II)* (Fox and Takahashi 2006)
Elide the biggest deletable constituent reflexively dominated by the PD.

Object comparatives: remnant (underlined) does *not* have to move. PD is VP, which will accordingly be elided (MaxElide), resulting in atemporal reading.

(75) a. John will visit more friends than Sam$_{SUB}$.
b. [MORE [λ_3 than [$_{TP}$ Sam$_1$ [d_3 λ_2 [$_{vP}$ t_1 <[$_{VP}$ visit d_2-many friends]>]]]]]
[λ_3 [$_{TP}$ John$_1$ will [d_3 λ_2 [$_{vP}$ t_1 [$_{VP}$ visit d_2-many friends]]]]]

PD is VP

Subject comparatives: remnant (underlined) *must* move to escape ellipsis. PD is therefore large (CP), and ellipsis needs to target TP. Since PD contains temporal specification (T°), atemporal reading are correctly predicted to be missing.

(76) a. More friends will visit John than Sam$_{DO.}$
b. [MORE [λ_2 than [$_{CP}$ Sam <[λ_4 [$_{TP}$ d_2-many friends$_1$ [$_{vP}$ t_1 [$_{VP}$ visit t_4]]]]>]]
[λ_2 [$_{CP}$ John [λ_4 [$_{TP}$ d_2-many friends$_1$ will [$_{vP}$ t_1 [$_{VP}$ visit t_4]]]]]]]

PD includes TP

DOCs/DO-comparatives: remnant does *not* have to move. PD and ellipsis are small (vP; verb movement to left of IO not represented):

(77) a. John will promise her more money than Sam$_{IO}$.
b. John$_1$ ...
[MORE [λ_3 than [$_{TP}$ t_1 [$_{vP}$ t_4 [d_3 λ_2 [$_{VP}$ Sam <[promise d_2-much money]>]]]]]
[λ_3 [$_{TP}$ t_1 will [$_{vP}$ t_4 [d_3 λ_2 [$_{VP}$ her [promise d_2-much money]]]]]]

PD is VP

DOCs/IO-comparatives: remnant *must* move. PD is large (CP), ellipsis affects TP.

(78) a. John will promise more people money than love$_{DO}$.
b. John$_1$ ...
[MORE [λ_3 than [$_{CP}$ love <[λ_4 ... [$_{vP}$ t_1 [d_3 λ_2 [$_{VP}$ d_2-many people [promise t_4]]]]]>]]
[λ_3 [$_{CP}$ money [λ_4 ..will [$_{vP}$ t_1 [d_3 λ_2 [$_{VP}$ d_2-many people promise t_4]]]]]]

PD includes TP

➜ Atemporal PC Generalization falls out from RA and standard ellipsis licensing conditions.

5.3. TYPOLOGY AND ATTRIBUTIVE VS. AMOUNT PCS

(79) *Typology of PCs (fragment)*

a. RA_{German}: German has a clausal strategy for all PCs.
 i. RA derives atemporal readings.
 ii. RA-PCs are not subject to the Parasitic Scope Generalization (51).
 iii. Restricted to amount PCs (*more NP*)

b. DA_{German}: German has base generated PCs after all (contra Lechner 2004; B&T 2011)
 i. DA derives *Attributive Comparative Generalization* (26)
 ii. DA-PCs are subject to the Parasitic Scope Generalization (51).

c. $DA_{Japanese/Hindi}$: Japanese and Hindi only have non-elliptical PCs.

(80) *Hypothesis:* Attributive PCs are base-generated, numeral PCs also have a clausal analysis.

Problem for (80)*:* Attributive PCs that abide by the Attributive Comparative Generalization (26) have atemporal readings, hence can also be given a reduction analysis, in contradicion to (80).

Possible response: PCs are ambiguous between DA and RA. RA is unavailable in contexts falling under (26) for reasons yet to be explored.

Conjecture: (80) is related to the fact that the interpretation of degree adjectives (*good*) is model dependent, while logical operators (*more*) are isomorphism invariant (Keenan & Westerstahl 1997: 850). Idea: *good* has an additional situation argument that is absent in *more.* (80) should be linked to this difference in the logical syntax of these two expressions.

Prediction: If (80) is correct, degree PCs should lack contrasts in disjoint reference effects characterstic of elliptical PCs in (82) (Lechner 2004; Bhatt & Takahashi 2007; (83)):

(81) a. *More people introduced *him*$_3$ to Sally than to *Peter*$_3$'s sister.
 b. More people introduced *Peter*$_3$ to Sally than to *his*$_3$ sister.

(82) *DA predicts no contrast*
 a. LF: Sally$_1$ [MORE than *Peter*$_3$'s sister]$_2$ [λ_2 λ_1 d_2-many people introduced *him*$_3$ to t_1]
 b. LF: Sally$_1$ [MORE than to *his*$_3$'s sister]$_2$ [λ_2 λ_1 d_2-many people introduced *Peter*$_3$ to t_1]

(83) *RA predicts contrast*
 a. *More people introduced *him*$_3$ to Sally than <introduced him$_3$> to *Peter*$_3$'s sister.
 b. More people introduced *Peter*$_3$ to Sally than <introduced Peter$_3$> to *his*$_3$ sister.

(84) Atif-ne [*Ravi-kii*$_3$ behen-kii foto]-se *us-ko*$_3$ [Hindi; Bhatt and Takahashi 2011: (35)]
 Atif-ERG Ravi-GEN sister-GEN picture-than he-DAT
 Mohan-kii behen-kii foto zyaadaa baar dikhaa-ii
 Mohan-GEN sister-GEN picture more times show–PERF
 'Atif showed Mohan's sister's picture to *him*$_3$ more times than *Ravi*$_3$'s sister's picture.'

The relevant test cases: (86)a should contrast with (84)b.

(85) a. [?] Younger people introduced *him*$_3$ to Sally than to *Peter*$_3$'s sister.
 b. [?] Younger people introduced *Peter*$_3$ to Sally than to *his*$_3$ sister.

This prediction does not seem to be confirmed, also not for German.

6. CONCLUSION

(86) a. Distribution of non-elliptical PCs is cross-linguistically co-determined by general syntactic constraints determining licit Parasitic Scope configurations (*Parasitic Scope Generalization*).

b. Atemporal readings are a by-product of small PDs.

c. German employs RA as well as DA (note the quirk discussed w.r.t. atemporal PCs)
i. Reduced PCs with amount comparatives.
ii. DA for attributive PCs.

⇨ This finding is in line with Bhatt & Takahashi, according to which the lexicon universally contains both the clausal and the phrasal degree head (MORE_2 and MORE_3), and particular constellations (DA vs. RA) are blocked for syntactic reasons.

(87) *Some open questions*

a. What is the correct analysis of attributive PCs in German(ic)?

b. What distinguishes between amount (*more*) and degree comparatives?

c. Why do (some) Slavic languages opt for a uniform system in which all PCs are base-generated, hence sensitive to *Parasitic Scope Generalization*, while German (and possibly other Germanic languages) differentiate between attributive and amount PCs? (*Conjecture*: the difference is related to obligatory binding of situation variables, which are present in adjectival modifiers, but not in quantificational *more.*)

d. What causes variation across Slavic?

e. Do the diagnostics for structure (disjoint reference effect, single remnant condition) correctly track the attributive vs. amount split?

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APPENDIX 1: TWO PROBLEMS FOR CATEGORIAL ANALYSES OF REFLEXIVES

(88) <x, x, a>-pattern (Subject binds IO)
a. *Alice* showed us_{DO} to *herself*$_{\text{IO}}$ (in the mirror)
b. *Alice* showed *herself*$_{\text{IO}}$ Bill_{DO}

(89) <a, x, x>-pattern (DO binds IO or v.v.)
a. We showed *Alice*$_{\text{DO}}$ to *herself*$_{\text{IO}}$
b. We showed *Alice*$_{\text{IO}}$ *herself*$_{\text{DO}}$

(90) <x, a, x>-pattern (Subject binds DO)
a. *Alice* showed *herself*$_{\text{DO}}$ to us_{IO}
b. *Alice* showed us_{IO} *herself*$_{\text{DO}}$

Problem 1: surface oriented categorial analysis only derives pattern (89)a.

Problem 2: even this analysis requires non-standard parse (92)b in which order does not translate into c-command (contra Barss & Lasnik 1987; Larson 1988).

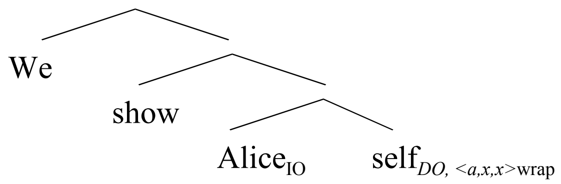
(91) *Alice* showed us_{DO} to *herself*$_{IO}$ (= (89)a)
   a. self(show'(us))(alice)
   b. Alice [[showed us_{DO}] to herself_{IO}]

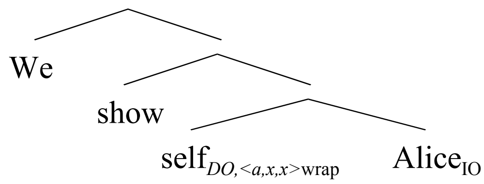
Potential solution: Type polymorphism (type shifting) and Wrap (reordering of arguments)

(92) a. $[\![self_{<a,x,x>}]\!] = \lambda R_{<e,<e,<e,t>>>}\lambda\wp_{<et,t>}\,\lambda x[\wp(\lambda y[R(x)(x)(y)])]$ (for (90)a)
   b. $[\![self_{<a,x,x>\ wrap}]\!] = \lambda\wp\lambda R\lambda x[\wp(\lambda y[R(x)(x)(y)])]$ (for (90)b)

Problem - overgeneration: (93)b derives (94)a, but also admits ill-formed (94)b. Similar problems affect other members of the family.

(93) a. We showed *Alice*$_{IO}$ *herself*$_{DO}$ b. *We showed *herself*$_{IO}$ *Alice*$_{DO}$





APPENDIX 2: A NEW PUZZLE?

In general, subject degree comparatives (with non-small clausal degree clause) are severly restricted irrespective whether they are phrasal or not:

(94) a. *Older people are interesting than boring
   b. *Older people than boring are interesting
   c. People who are interesting are older than people who are boring
   d. "The age of interesting people exceeds the age of boring people"

(95) a. *Older employees sleep in the afternoon than in the morning
   b. "The age of employees who sleep in the afternoon exceeds the age of employees who sleep in the morning."

(96) a. *weil ältere Menschen interessant sind als langweilig (sind)
   b. *weil ältere Menschen als langweilig (sind) interessant sind
   c. Das Alter von interessanten Menschen übersteigt das Alter von langweiligen Menschen.

There are also well-formed manifestations of subject degree PCs:

(97) a. dass in Wien fähigere Linguisten arbeiten als in Graz
   that in Vienna more competent linguists work than in Graz
   b. dass fähigere Leute eingestellt als gefeuert wurden
   that more competent people were hired than fired
   c. dass sich ein jüngerer Kandidat beworben hat als von uns gesucht wurde
   that self a younger candidate applied has than by us looked-for was

At the moment, it is unclear what the discriminating properties are. Natural canditates: IL/SL-distinction, genericiy, focus and conditions on conjunction reduction.