

## COMPARATIVES, SUPERLATIVES AND FOCUS ASSOCIATION

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Plan for today:

**Class 1** – The syntax and semantics of **comparatives**.

- How is the standard for comparison introduced?
- What is the structure of the *than*-clause?

**Class 2** – The syntax and semantics of **superlatives**.

- How is comparison achieved with superlatives?
- Why are they ambiguous?
- How is the structure of the superlative DP relevant to the interpretation?

### 1 The syntax and semantics of COMPARATIVES

#### 1.1 Phrasal comparatives in Polish (Pancheva 2009, Pancheva and Tomaszewicz 2012)

- **Our starting point** – a generalization in Pancheva (2009):

In *wh*-fronting languages, a *more*-NP underlying subject (an external argument) in phrasal comparatives induces an island violation.

- (1) a. <sup>??/\*</sup> **Więcej uczniów** zwiedziło Czechy **od** Słowacji. PC  
more students visited Czech R. from Slovakia-gen  
'More students visited the Czech Republic than Slovakia.'
- b. **Więcej uczniów** zwiedziło Czechy **niż** Słowację. CC  
more students visited Czech R. than Slovakia-acc  
'More students visited the Czech Republic than visited Slovakia.'
- (2) a. Marek zwiedził **więcej miejsc od** Anny. PC  
Marek visited more places from Anna-gen  
'Marek visited more places than Anna.'
- b. Marek zwiedził **więcej miejsc niż** Anna. CC  
Marek visited more places than Anna-nom  
'Marek visited more places than Anna did.'

- **Experimental investigation:** acceptability-rating studies in Polish providing quantitative support for the generalization, and therefore, for the small clause analysis of phrasal comparatives (Pancheva and Tomaszewicz 2012)

- **Consequences:**

- ◆ non-overt syntax in phrasal comparatives
- ◆ constraints on lexical semantics: only one *more*
- ◆ anti-locality constraint on movement – universal, inviolable
- ◆ vP subjects are islands, though not categorical ones

## 1.2 The semantics and LF syntax of *more than XP*

- Descriptively, clausal comparatives (CCs) have a CP complement to *than* (as in (3a)); phrasal comparatives (PCs) seemingly have a DP-complement to *than* (as in (3b)).

- (3) a. He visited more places than **she did**. CC  
 b. He visited more places than **her**. PC

- There is consensus on the LF & PF of the complement to *than* in CCs – a degree *wh*-operator binds a degree variable in the *than*-clause; parts of the CP are elided (in (4) there is vP-ellipsis)

- (4) He visited more cities than **she did**. CC  
 ... than [<sub>CP</sub> **wh** she did [<sub>VP</sub> visit **d**-many cities ]]

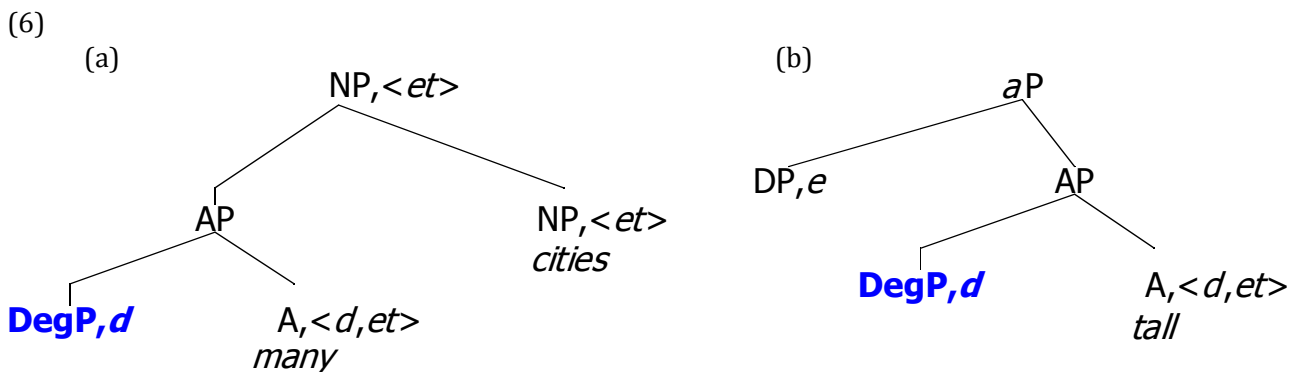
- The syntax of the complement to *than* in PCs remains controversial.

- (5) He visited more cities than **her**. PC

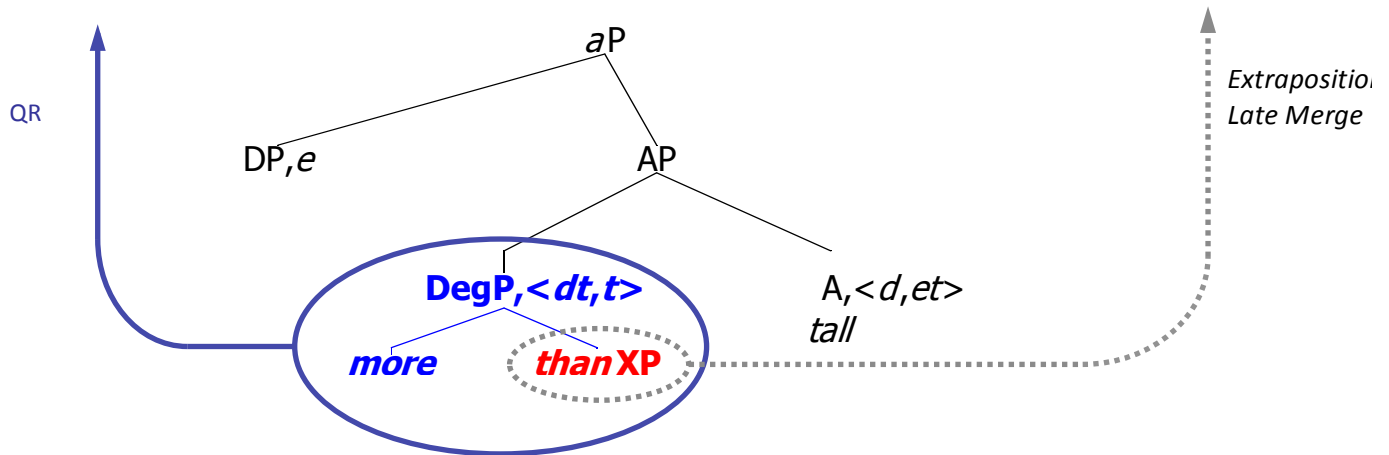
- a. ... than [<sub>CP</sub> **wh**-case she [<sub>TP</sub> past visit **d**-many cities ]] reduction analysis  
 b. ... than [<sub>DP</sub> her] direct analysis  
 c. ... than [<sub>PredP</sub> she **wh** visit **d**-many cities ] small clause analysis

(Chomsky 1965, Bresnan 1973, Cresswell 1976, von Stechow 1984, Heim 2000, Bhatt and Pancheva 2004 a.o.)

- Gradable predicates are of type  $\langle d, \langle e, t \rangle \rangle$
- DegPs, including the one headed by *more*, are arguments of A



- DegP *more than XP* is a degree quantifier; it undergoes QR
- The *than-XP* extraposes to the scope position of *more* (or late-merges to the QR-ed *more*)

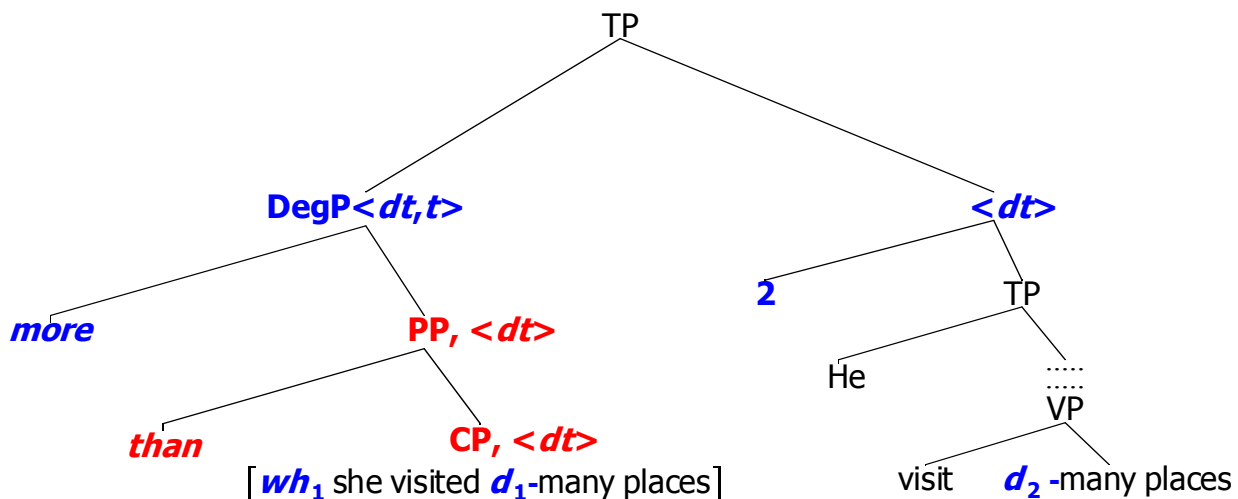


- *More* is a degree quantifier; its first argument is the *than-PP*, which, thanks to the *wh*-movement inside, denotes a degree predicate

$$(7) \quad [[ \text{more} ]] = \lambda P_{dt} \lambda Q_{dt} \exists d_d [Q(d) \wedge \neg P(d)]$$

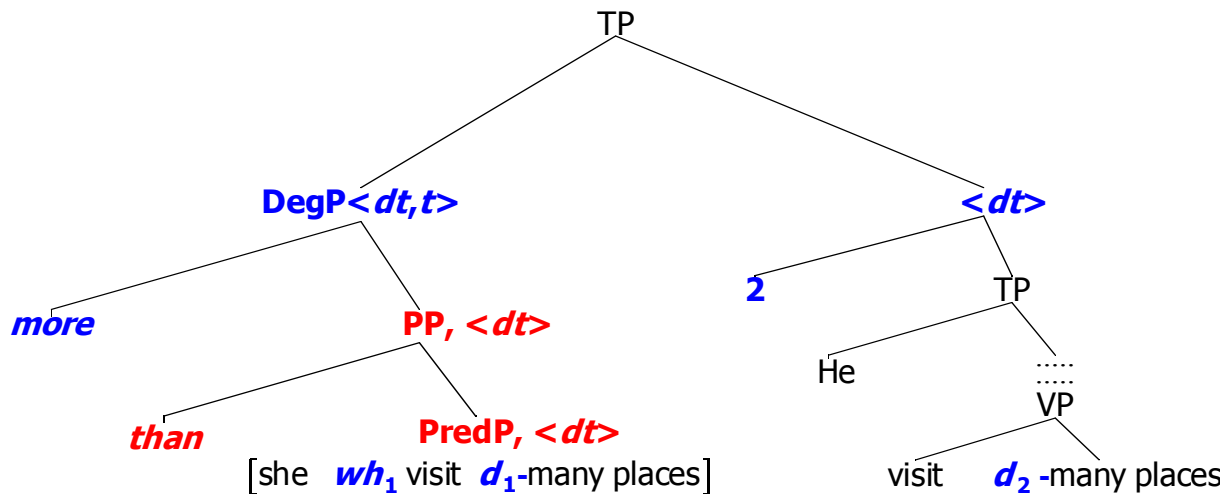
The *than PP* denotes a **degree predicate** – which is what *more* wants as its first argument – in both phrasal and clausal comparatives. In both, **the degree predicate is created by *wh*-movement**

- The LF of a clausal comparative:
- (8) He visited more places than she did.



- The LF of phrasal comparatives on the small clause is identical, except for the structure of the *than-PP*

(9) He visited more places than her.



### 1.2.1 The Direct Analysis

- Bhatt and Takahashi (2007):
  - *More* is not interpreted in-situ but has to QR.
  - Clausal *more* has two arguments: *than-PP*, QR site (predicates of degrees)
  - Phrasal *more* has three arguments: 1<sup>st</sup> an individual in the *than-PP*; 3<sup>rd</sup> an individual in the associate (*Paris*); 2<sup>nd</sup> a predicate of individuals and degrees <e<d,t>>, the result of QR of *more* and of the scrambling of the associate.
  - Degree variable is inside the subject in both PC and CC.
  - Phrasal *more* tucks in below the moved associate.
- For PCs with *more* part of the subject, the direct analysis posits the LF in (10a), which should be just as good as the LFs for the CC matrix clause in (10b) and for the PC with *more* inside the object in (11a).

(10) **More tourists** visited London than Paris.

- a. [*more* [*wh* Paris ...]<sub>1</sub> λd<sub>1</sub> [London λx<sub>2</sub> [<sub>TP</sub> d<sub>1</sub>-many tourists visit x<sub>2</sub>]] CC  
 b. ??/\* London [[*more* [Paris]]<sub>1</sub> λd<sub>1</sub> λx<sub>2</sub> [<sub>TP</sub> d<sub>1</sub>-many tourists visit x<sub>2</sub>]] PC

(11) Ivan loves **more people** than Ana.

- a. [*more* [*wh* Ana ...]<sub>1</sub> λd<sub>1</sub> [Ivan λx<sub>2</sub> [<sub>TP</sub> x<sub>2</sub> loves d<sub>1</sub>-many people]] CC  
 b. Ivan [[*more* [Ana]]<sub>1</sub> λd<sub>1</sub> λx<sub>2</sub> [<sub>TP</sub> x<sub>2</sub> loves d<sub>1</sub>-many people]] PC

- It is unclear how to explain the cross-linguistic variation (Bulgarian, Polish vs. Hindi, Japanese, Korean, Turkish)

### 1.2.2 The Reduction Analysis

- Under the reduction analysis, both the PC and the CC have the same structure, with TP elided, the difference only in the type of *than* in Polish (plus case licensing)

(12) **More tourists** visited London than Paris.

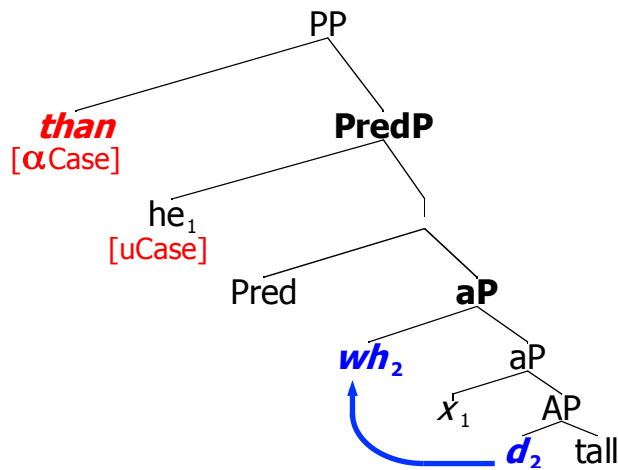
- |         |                |   |    |
|---------|----------------|---|----|
| a. ??/* | ... <b>od</b>  | [ <sub>CP</sub> $\emptyset_{wh_2}$ $\lambda d_2$ Paris <sub>3</sub> $\lambda x_3$ [ <sub>TP</sub> <b>d<sub>2</sub>-many tourists</b> visit $x_3$ ]] | PC |
| b.      | ... <b>niż</b> | [ <sub>CP</sub> $\emptyset_{wh_2}$ $\lambda d_2$ Paris <sub>3</sub> $\lambda x_3$ [ <sub>TP</sub> <b>d<sub>2</sub>-many tourists</b> visit $x_3$ ]] | CC |

- It is similarly unclear how to explain the cross-linguistic variation

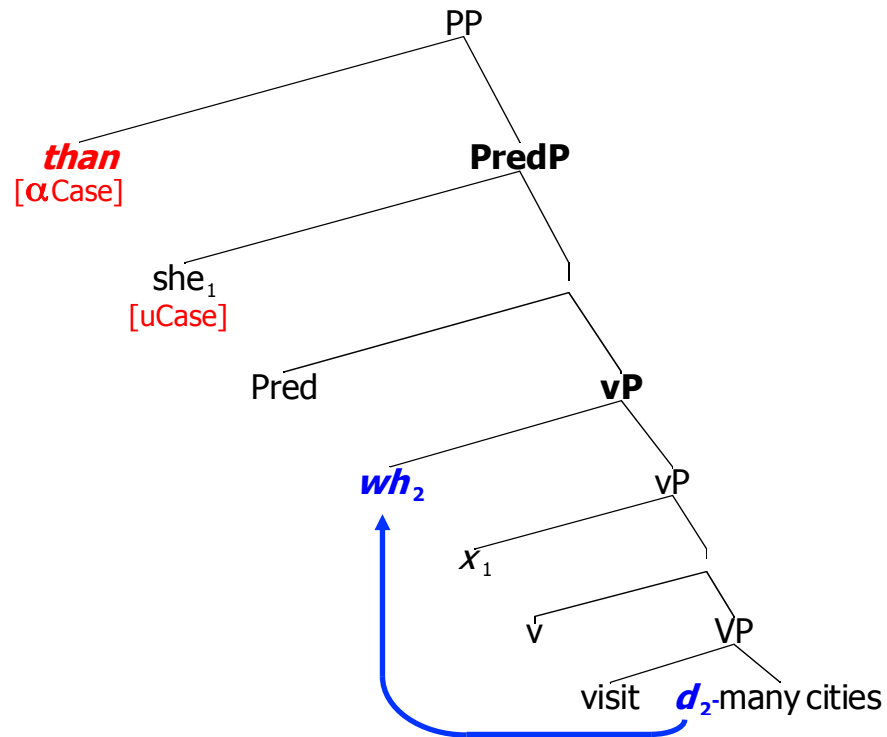
### 1.2.3 The small clause analysis

- The subject of the small clause is ECM-ed by *than*; the small clause predicate is elided under identity with the matrix
- Wh*-movement in the small clause – from a position parallel to that of *more* in the matrix – creates a degree predicate (Heim and Kratzer 1998)
- The small clause predicate is elided under identity with the matrix (as in CCs)

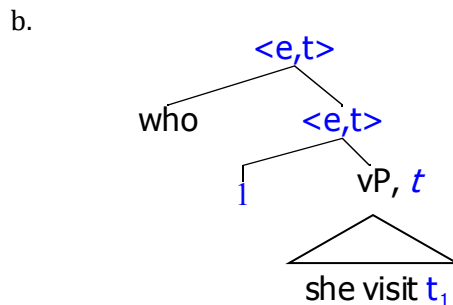
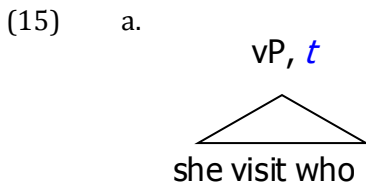
(13) (She is taller) than him



(14) (He visited more cities) than her



- There is **wh-movement** in the small clause from a position parallel to that of *more* in the matrix.
  - ◆ The movement is **not feature-driven** – there is no *wh*-probe in the small clause (unlike  $C_{wh}$  in clausal complements to *than*)
  - ◆ The movement is **needed to create a degree predicate** (as in Heim and Kratzer 1998). By linking predicate creation to syntactic movement we constrain the syntax-semantics mapping (e.g., by locality, islands)
  
- Illustrating semantically-driven *wh*-movement (e.g., Heim and Kratzer 1998: 96, 186)



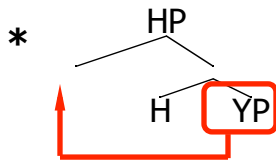
## 1.2.4 Anti-Locality of Movement & Specifiers

### 1.2.4.1 How local is too local?

- An anti-locality constraint on movement has been defined **across projections**, e.g., within “prolific domains” ( $\approx$  extended VP, TP, CP) (Grohmann 2000), or within a sequence of two projections in the absence of a full phrasal boundary (e.g., adjunct of NP – Spec, DP) (Bošković 2005).
- **Within a single projection**, anti-locality has been typically discussed w.r.t. **complements** (see (16)) as in the particular case of complements to phase heads (Abels 2003), or more generally for any head (Pesetsky and Torrego 2001).

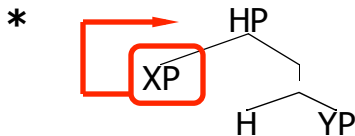
#### (16) *Anti-Locality Constraint on Complements*

The Complement of a head H cannot move to a Spec of H



- Here we focus on movement of specifiers, as in (17) – which, as far as we know, has been discussed only w.r.t. subject movement from Spec, IP to an adjunct of IP.

(17)



## 2.1 Some previous appeals to anti-locality w.r.t. specifiers

- An observation along the lines of (17) goes back to at least Lasnik and Saito (1992: 110-111, ex. 19, 21, 23), who suggest that (vacuous) subject topicalization from Spec, IP to an adjunct of IP is not available (see (18)). This is also the position of Saito and Murasugi (1999: 182).

- (18) a. John thinks that [<sub>IP</sub> himself<sub>i</sub> [<sub>IP</sub> Mary likes t<sub>i</sub>]]    topicalization allows anaphor binding  
 b. \* John thinks that [<sub>IP</sub> himself<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> likes Mary]]    topicalization is not available

- Bošković (1997: 26, ex. 33) rules out A'-movement from Spec, IP to an adjunct of IP, as in (19a).

- (19) a. \* the man [<sub>IP</sub> OP<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> likes Mary]]  
 b. the man [<sub>IP</sub> OP<sub>i</sub> [<sub>IP</sub> Mary likes t<sub>i</sub>]]

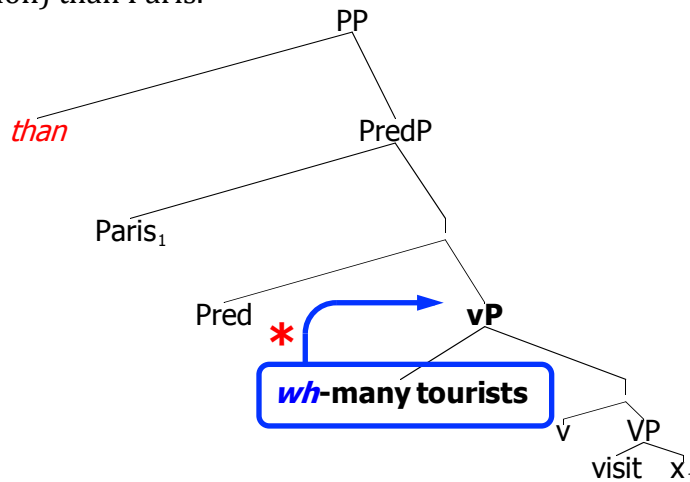
- We don't necessarily agree with the above evidence in favor of anti-locality of subject movement. Nevertheless, we argue that **anti-locality constrains movement from specifier positions**.

- Pancheva (2009) concludes: The *Anti-Locality Constraint on Specifiers* follows from the mechanism of projection in a *Bare-Phrase-Structure* theoretic model.

1.2.5 3.4 Anti-locality of *wh*-movement in phrasal comparatives

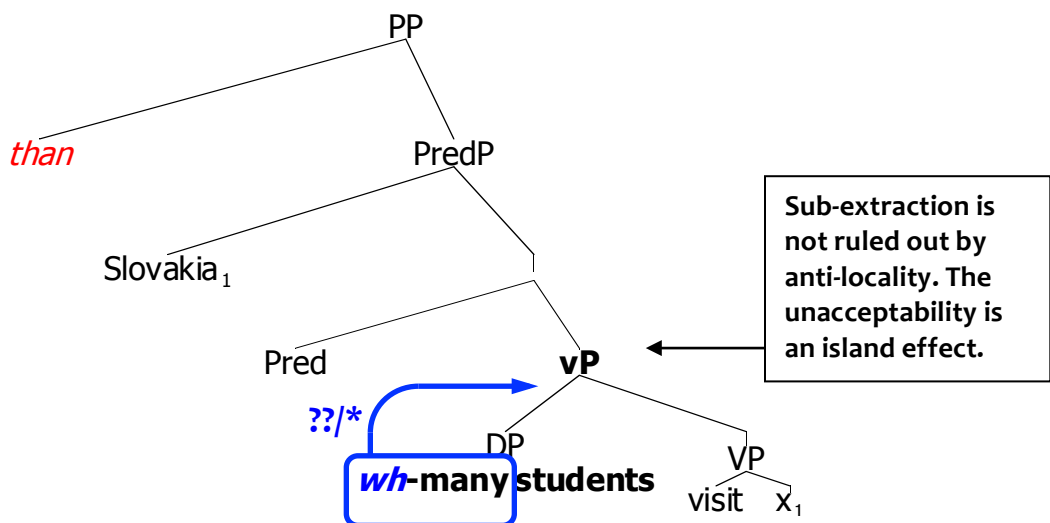
- Movement of *wh-many*-NP (Chomsky 1977, Vergnaud 1974, Kennedy 2000) from Spec, vP to (another Spec,) vP is precluded as too local (20).

(20) (More tourists visited London) than Paris.



- Sub-extraction is the only alternative, and is the source of the gradient unacceptability

(21)



**Confirmed prediction:** When the *wh-many* DP originates in Spec, vP, the phrasal comparative is not acceptable – one derivation is ruled out by an anti-locality violation, and another, by a subject-island violation.



### 1.2.6 Sub-Extraction from Subjects

- Subjects are islands for extraction

(22) a. \* Who did [a story about who] cause a sensation?  
b. Who did you read [a story about who]?

(23) a. \* Of which car did the driver cause a scandal? (Chomsky 2008)  
b. Of which car was the driver awarded a prize?

- Categorical prohibitions against sub-extraction from subjects:

(24) *Condition on Extraction Domains (CED)* (Huang 1982):  
A phrase A may be extracted out of a domain B only if B is properly governed.

(25) *Edge Condition* (Chomsky 2005, see Gallego and Uriagereka 2006)  
Syntactic objects in phase edges become internally opaque.

- Gradient variability in sub-extraction out of subjects
  - ◆ extraction from vP subjects is allowed in some languages, whereas extraction from TP subjects is prohibited (Stepanov 2001, 2007).
  - ◆ Within-language variability in sub-extraction from subjects, vP and TP (Kravtchenko et al 2009, Jurka 2009)
- In Polish vP subjects are islands, but the unacceptability is gradient

(26) ??/\* **Którzy** chciałbyś żeby [[**którzy studenci** ] zagłosowali w wyborach]?  
which you-wish that-Subj which students voted in elections  
'Which students do you wish would vote in the elections?'

- A proposal: the unacceptability of phrasal comparatives in Polish is not absolute, because sub-extraction from subjects is not absolute.

#### 1.2.6.1 Sub-extraction from Subjects: Experiment

- 2 (subject comparative: **niz** (pied-piping) vs. **od** (sub-extraction)) x 2 (subject degree question: pied-piping vs. sub-extraction)
- transitive predicates, perfective aspect
- 24 items (sets of 4 sentences, as in (27)), distributed in 4 questionnaires
- 48 fillers
- 56 participants
- A sample item:

- (27) a. Wczoraj **więcej sprzątaczek** umyło klatkę schodową **niż** windę.  
 b. Wczoraj **więcej sprzątaczek** umyło klatkę schodową **od** windy.  
 yesterday more cleaners washed case stair than elevator  
 'Yesterday more cleaners washed the staircase than the elevator.'  
 c. **Ile sprzątaczek** wczoraj umyło klatkę schodową?  
 d. **Ile** wczoraj **sprzątaczek** umyło klatkę schodową?  
 how-many (yesterday) cleaners (yesterday) washed case stairs  
 'How many cleaners washed the staircase yesterday?'

- Summary of results (56 participants, repeated measures ANOVA)

|      |  |   |  |   |
|------|--|---|--|---|
| (28) | subject <i>niż</i><br>pied-piping<br>(27a) | <b>subject <i>od</i></b><br>sub-extraction<br>(27b) | subject question<br>pied-piping<br>(27c) | subject question<br>sub-extraction<br>(27d) |
|      | 5.67                                       | <b>4.07</b>   | 5.92                                     | 4.99  |

|      |                                   |                              |  |
|------|-----------------------------------|------------------------------|--|
| (29) | pied-piping vs.<br>sub-extraction | comparative vs.<br>question  | type of extraction × type of<br>construction<br><b>interaction</b> |
|      | F(1,55) = 110.79<br>p < 0.0001    | F(1,55) = 13.81<br>p < 0.001 | F(1,55) = 7.08<br>p = <b>0.010</b>                                 |

- ◆ Main effect of type of construction: comparatives are harder to process than questions
- ◆ Main effect of type of extraction: sub-extraction from subjects is less acceptable than pied-piping, in both questions and comparatives
- ◆ Interaction: the lowest mean for *subject od* (27b) is explained by the combined effect of sub-extraction and the independently established reduced acceptability for *od* (a main effect in Exp. 1, 2, and 3)

### 1.3 Conclusion

- Experimental evidence in support of the **small clause analysis of phrasal comparatives**  
 → **comparison of degrees**
  - ◆ Economy in the functional lexicon: only one *more* is needed and surfaces (in languages reported so far)
  - ◆ Phrasal comparatives are yet another case involving non-overt syntax, contra ideas of “simpler syntax” (Culicover and Jackendoff 2005)
- Anti-Locality Constraint on Specifiers*  
 Experimental evidence for variation in sub-extraction from subjects  
 A role for experimental investigation in cases of gradient acceptability

## 2 The syntax and semantics of SUPERLATIVES

### 2.1 Superlative ambiguities

|  |                                 |
|--|---------------------------------|
| (30) a. Jan met the youngest students from London.                                       | (Pancheva and Tomaszewicz 2012) |
| b. Jan poznał najmłodszych studentów z Londynu.<br>Jan met youngest students from London | (Polish)                        |
|  | EN PL                           |
| 'Jan met <b>those students</b> from London who were the youngest.'                       | ✓ ✓ <i>Absolute</i>             |
| ' <b>Jan</b> met younger students from London than <b>anyone</b> else did.'              | ✓ ✓ <i>Relative-1</i>           |
| 'Jan met younger students from <b>London</b> than from any other <b>city</b> .'          | * ✓ <i>Relative-2</i>           |

|  |                    |
|--|--------------------|
| (31) a. Jan bought the most tomatoes.  | (Tomaszewicz 2013) |
| b. Ivan kupi [DP naj-skupi-te domati]<br>Ivan bought est-expensive- <b>the</b> tomatoes                |                    |
|  | EN BG              |
| 'Jan bought the <b>tomatoes</b> that were more expensive than any other <b>tomatoes</b> in the store.' | ✓ ✓ <i>Abs</i>     |
| ' <b>Jan</b> bought more expensive tomatoes than <b>anyone</b> did.'                                   | ✓ ✓ <i>Rel-1</i>   |
| 'Jan bought more expensive <b>tomatoes</b> than any other <b>thing</b> he bought.'                     | * * <i>Rel-2</i>   |

|  |                  |
|--|------------------|
| (32) a. Ivan bought the most expensive tomatoes.   |                  |
| b. Ivan kupi [DP naj-skupi domati]<br>Ivan bought est-expensive tomatoes                               |                  |
|  | EN PL            |
| 'Jan bought the <b>tomatoes</b> that were more expensive than any other <b>tomatoes</b> in the store.' | ✓ * <i>Abs</i>   |
| ' <b>Jan</b> bought more expensive tomatoes than <b>anyone</b> did.'                                   | ✓ ✓ <i>Rel-1</i> |
| 'Jan bought more expensive <b>tomatoes</b> than any other <b>thing</b> he bought.'                     | * ✓ <i>Rel-2</i> |

|  |                  |
|--|------------------|
| (33) a. Jan bought the most expensive tomatoes.  |                  |
| b. Najdroższe <sub>1</sub> Jan kupił t <sub>1</sub> pomidory. (Polish)<br>most-expensive Jan bought tomatoes |                  |
|  | EN PL            |
| 'Jan bought the tomatoes that were more expensive than any other tomatoes in the store.'                     | ✓ * <i>Abs</i>   |
| 'Jan bought more expensive tomatoes than anyone did.'  | ✓ * <i>Rel-1</i> |
| 'Jan bought more expensive tomatoes than any other vegetable he bought.'                                     | * ✓ <i>Rel-2</i> |

Prosody:

|  |  |
|--|--|
| (34) a. [Drogi <sub>1</sub> Jan kupił t <sub>1</sub> pomidory.] <sub>i</sub><br>expensive Jan bought tomatoes                |  |
| b. [[DROgi <sub>e</sub> ]-Focus [Jan kupił pomidory]-Given] <sub>i</sub><br>H*L  |  |
| → c. [[DROgi <sub>e</sub> ]-Topic (t <sub>0</sub> TopPrt)] <sub>i</sub> [Jan kupił [pomiDory]-Focus] <sub>i</sub><br>LH* HL* |  |

In the Slavic languages various ‘split constructions’ (split scrambling, split topicalization) are associated with a “marked information structure” (Féry et al. 2007). Each of the parts of the split phrase has a different information status (topic, focus, given, new).

*-Est* can be said to **associate with focus** similarly to focus sensitive adverbs:

- (35) a. John *only* gave [MAry]<sub>F</sub> a small gift.  
 b. John *only* gave Mary [a SMALL gift]<sub>F</sub>.
- (36) a. John *always* gave [MAry]<sub>F</sub> a small gift.  
 b. John *always* gave Mary [a SMALL gift]<sub>F</sub>.

## 2.2 Two lexical entries for *-est*

The **comparative** *-er* is agreed to involve **comparison of degrees** (in clausal comparatives), its two arguments are of the  $\langle d,t \rangle$  type, e.g. (2b):

- (37) a.  $\llbracket \text{tall} \rrbracket = \lambda d: d \in D_d. \lambda x: x \in D_e. \text{tall}(d)(x)$   
 b.  $\llbracket \text{-er} \rrbracket = \lambda P. \lambda Q. \exists d [\neg P(d) \wedge Q(d)]$  (Seuren 1973, 1984)  
 c.  $\llbracket \text{John is taller than Bill} \rrbracket = 1$  iff  $\exists d [\text{tall}(j,d) \ \& \ \neg \text{tall}(b,d)]$

Heim (1999): two lexical entries for the *-est* **superlative** morpheme, truth-conditionally equivalent meaning.

- The semantics in (38) involves a **comparison between individuals** (the comparison class  $C$  is of type  $\langle e,t \rangle$ , i.e. it contains individuals, of type  $e$ ),
- (39) calls for a comparison between sets of degrees ( $C$  is of type  $\langle dt,t \rangle$ , meaning it contains elements of type  $\langle d,t \rangle$ , sets of degrees).
- The entry in (38) defines a 3-place relation between a set of individuals  $C$ , a predicate of degrees and individuals  $P$ , and an individual  $x$ .
- The entry in (39) is a 2-place relation between a set of sets of degrees  $C$  and a set of degrees  $P$ .

- (38)  $\llbracket \text{-est}_{3\text{-place}} \rrbracket = \lambda C_{\langle e,t \rangle}. \lambda P_{\langle d,et \rangle}. \lambda x_e. \exists d [P(d)(x) \wedge \forall y \in C [y \neq x \rightarrow \neg (P(d)(y))]]$   
 Presuppositions:  $x \in C, \forall y [y \in C \rightarrow \exists d [P(d)(y)]]$

- (39)  $\llbracket \text{-est}_{2\text{-place}} \rrbracket = \lambda C_{\langle dt,t \rangle}. \lambda P_{\langle d,t \rangle}. \exists d [P(d) \wedge \forall Q \in C [Q \neq P \rightarrow \neg (Q(d))]]$   
 Presuppositions:  $P \in C, \exists Q \in C: Q \neq P$

The two entries are truth-conditionally equivalent and both can equally derive the absolute and relative readings. The two entries, however, require **different modes of comparison** (Kennedy’s (1997) term for comparative constructions) – comparison of **individuals** or comparison of **degrees**.

The evidence for **3-place -est** comes from the option of **overtly specifying  $C$**  as in (40); the **PP** explicitly defines a set of individuals (Heim 1999).

- (40) a. John is the most impressive [<sub>PP</sub> among the candidates]. (Heim 1999)  
 b. LF: John is [*-est C*] impressive  
 c.  $C_{\langle e,t \rangle} = \{x: \exists d. x \text{ is a } d\text{-impressive candidate}\}$

An argument that also **2-place -est** is needed in grammar comes from Romero's (2011) analysis of **modal superlatives** (Larson 2000, Schwarz 2005).

(41) John bought the largest possible gift.

- a. 'Out of objects that were possible presents, John bought the largest one.' → noun modifier
- b. 'John bought as large a present as it was possible for him to buy.' → *modal superlative*

c. LF for (41b):

(Romero 2011)

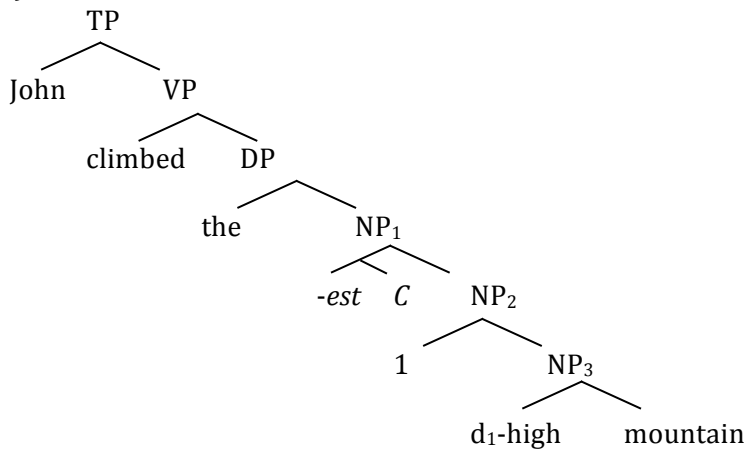
[[*-est*] [1 possible <John bought A t<sub>1</sub>-large gift>]] [2 John bought A t<sub>2</sub>-large gift]

- d.  $C_{\langle dt, t \rangle} = \llbracket 1 \text{ possible } \langle \text{John bought A } t_1\text{-large gift} \rangle \rrbracket =$   
 $= \lambda d. \diamond \exists x [\text{gift}(x) \wedge \text{bought}(j, x) \wedge \text{large}(x, d)]$

### 2.3 3-place -est compares individuals – but mountains or climbers?

The movement of *-est* out of its base position creates an abstract over degrees. When *-est* moves within the DP as in (42), the constituent NP<sub>2</sub> (43a) denotes a relation between degrees *d* and individuals *x* such that *x* is a *d*-high mountain – this relation is the second argument of *-est* according to the lexical entry in (38).

(42)



(43) a.  $\llbracket \text{NP}_2 \rrbracket = \llbracket d\text{-high mountain} \rrbracket = \lambda d \lambda x [x \text{ is a mountain } \wedge x \text{ is } d\text{-high}]$

b.  $C = \{x: \exists d [x \text{ is a } d\text{-high mountain}]\}$

c.  $\llbracket \text{DP} \rrbracket = \iota x \exists d [x \text{ is a } d\text{-high mountain } \wedge \forall y [y \neq x \wedge y \in C \rightarrow \neg [y \text{ is a } d\text{-high mountain}]]]$

→ By the presupposition in **Error! Reference source not found.**b) all the members of *C* have the property *P* to some degree, hence for (43a) they must be (contextually relevant) mountains with some height *d*, (43b). Therefore, if *-est* stays DP internally the comparison needs to be between mountains.

## 2.3.1 “DP-internal theory”

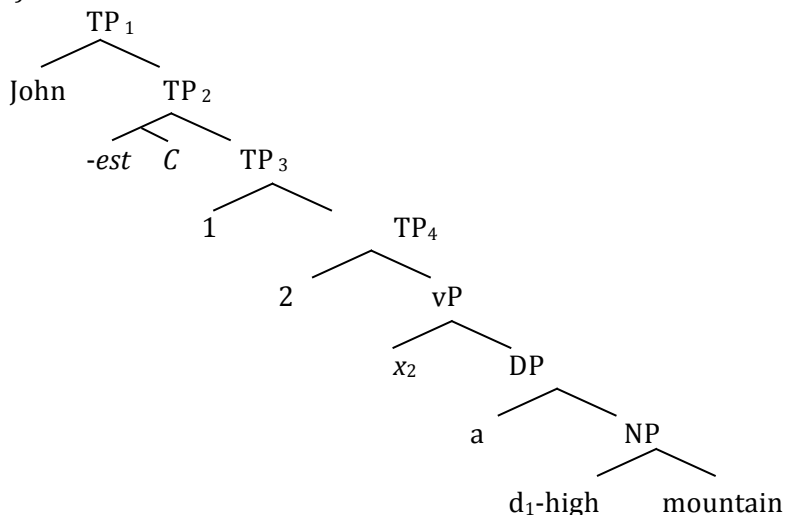
(44) (= (42)) [John climbed [<sub>DP</sub> the [<sub>NP</sub> [-est C] [<sub>NP</sub> d-high mountain]]]](45) a.  $C = \{x: \exists d [x \text{ is a } d\text{-high mountain}]\}$ **Absolute**b.  $\llbracket (44) \rrbracket = \text{John climbed the unique } x: \exists d [x \text{ is a } d\text{-high mountain} \wedge \forall y \exists d' [y \text{ is a } d'\text{-high mountain} \wedge y \neq x \rightarrow \neg [y \text{ is a } d\text{-high mountain}]]]$ (46) a.  $C = \{x: \exists d [x \text{ is a } d\text{-high mountain} \wedge \exists y [y \text{ is a person} \wedge y \text{ climbed } x]]\}$ **Relative**b.  $\llbracket (44) \rrbracket = \text{John climbed the unique } x: \exists d [x \text{ is a } d\text{-high mountain} \wedge \forall y \exists d' [y \text{ is a } d'\text{-high mountain} \wedge \exists z [z \text{ is a person} \wedge z \text{ climbed } y] \wedge y \neq x \rightarrow \neg [y \text{ is a } d\text{-high mountain}]]]$ 

→ the two readings do not constitute a genuine ambiguity, but a case of **context dependency**– on both readings the individuals compared are mountains and the context specifies which sets of mountains are relevant. (also called the “pragmatic” theory)

## 2.3.2 “Movement theory”

(47) (= (42)) [John climbed [<sub>DP</sub> the [<sub>NP</sub> [-est C] [<sub>NP</sub> d-high mountain]]]]*Absolute*

(48)

*Relative*(49) a.  $\llbracket TP_3 \rrbracket = \lambda d \lambda x [x \text{ climbed a } d\text{-high mountain}]$ b.  $C = \{x: \exists d [x \text{ climbed a } d\text{-high mountain}]\}$ c.  $\llbracket TP_1 \rrbracket = \exists d [\text{John climbed a } d\text{-high mountain} \wedge \forall y [y \text{ climbed a mountain}$  $\wedge y \neq \text{John} \rightarrow \neg [y \text{ climbed a } d\text{-high mountain}]]]$ 

→ the landing site of [-est C] in (48) delimits the comparison set  $C$  to be the set of (contextually relevant) mountain climbers, (49c).

**2.4 2-place -est compares degrees and associates with focus**

(50)  $\llbracket \neg\text{-est}_{2\text{-place}} \rrbracket = \lambda C_{\langle dt, t \rangle}. \lambda P_{\langle d, t \rangle}. \exists d [P(d) \wedge \forall Q \in C [Q \neq P \rightarrow \neg(Q(d))]]$

Presuppositions:

- a.  $P \in C$
- b.  $\exists Q \in C': Q \neq P$

Heim (1999) introduced the 2-place semantics for *-est* specifically to allow focus to determine what enters the comparison class via the mechanism of **Rooth's (1985, 1992) theory of focus interpretation.**

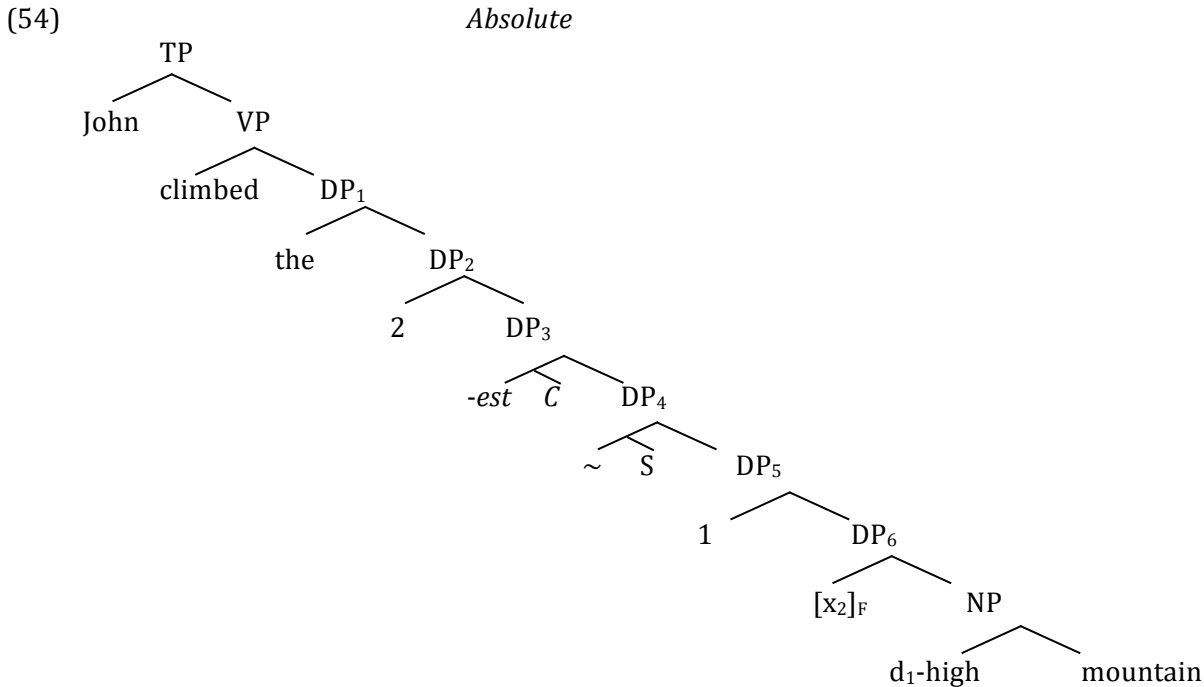
(51)  $[\phi \sim S]$  presupposes that  $S$  is a subset of the focus semantic value for  $\phi$  and contains both the ordinary semantic value  $\phi$  and an element distinct from the ordinary semantic value of  $\phi$ . (**focus presupposition**)

(52)  $C \subseteq S$  (**focus association**)

(53) Rooth (1985): *Computing focus semantic values*  $\llbracket \cdot \rrbracket^f$ :

- a. If  $\alpha$  is a terminal node, then  $\llbracket \alpha \rrbracket^f = \{\llbracket \alpha \rrbracket\}$ .
- b. If  $\alpha$  is a non-branching node with single daughter  $\beta$ , then  $\llbracket \alpha \rrbracket^f = \llbracket \beta \rrbracket^f$ .
- c. If  $\alpha$  is a branching node with daughters  $\beta$  and  $F$  (Focus feature), then  $\llbracket \alpha \rrbracket^f = D_\sigma$ , where  $\sigma$  is the type of  $\llbracket \beta \rrbracket^\circ$ .
- d. If  $\alpha$  is a branching node with daughters  $\beta$  and  $\gamma$  (order irrelevant), and there are types  $\sigma$  and  $\tau$  such that  $\llbracket \beta \rrbracket \in D_{\langle \sigma, \tau \rangle}$  and  $\llbracket \gamma \rrbracket \in D_\sigma$ , then  $\llbracket \alpha \rrbracket^f = \{x \in D_\tau. \exists y \exists z [y \in \llbracket \beta \rrbracket^f \ \& \ z \in \llbracket \gamma \rrbracket^f \ \& \ x = y(z)]\}$

Romero (2011, 2012) - additional necessary assumption is that traces can be focused. The trace of 'the' in (54) is focused in order to derive the right specification for  $C$ .

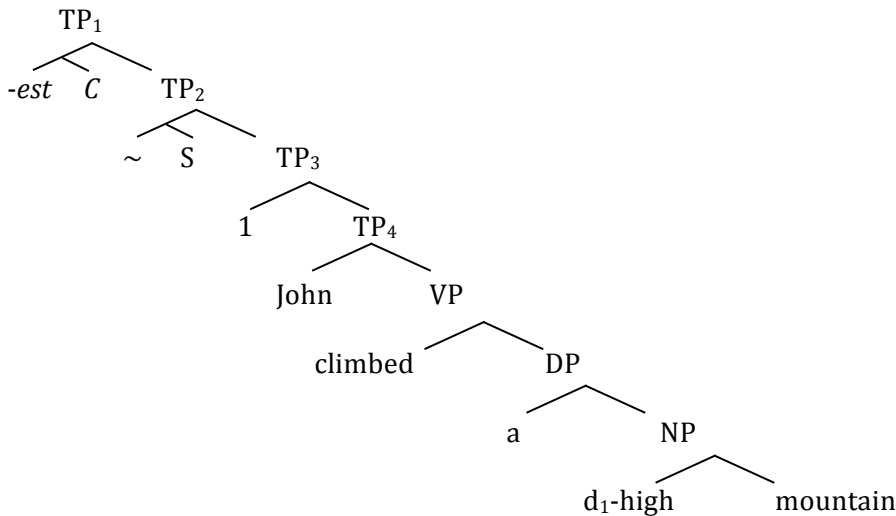


(55) a.  $\llbracket NP \rrbracket = \lambda x. [\text{mountain}(x) \wedge \text{high}(x, g(1))]$   
 b.  $\llbracket DP_6 \rrbracket = \lambda x. [g(2) = g(1) \wedge \text{mountain}(x) \wedge \text{high}(x, g(1))]$   
 c.  $\llbracket DP_5 \rrbracket = \lambda d. \lambda x. [g(2) = d \wedge \text{mountain}(x) \wedge \text{high}(x, d)]$   
 d.  $\llbracket DP_3 \rrbracket = \exists d. \exists x. [g(2) = d \wedge \text{mountain}(x) \wedge \text{high}(x, d) \wedge \forall Q \in C [Q \neq \llbracket DP_4 \rrbracket \rightarrow \neg(Q(d))]]$

(56) a.  $\llbracket DP_5 \rrbracket^f = \{D: \exists x [D = \lambda d. x \text{ is a } d\text{-high mountain}]\}$   
 b.  $C \subseteq \llbracket DP_5 \rrbracket^f$

(57)  $\llbracket(54)\rrbracket = \text{John climbed the unique } x: \exists d [x \text{ is a } d\text{-high mountain} \wedge \forall Q \in C' [Q \neq (\lambda d'. x \text{ is a } d'\text{-high mountain}) \rightarrow \neg Q(d)]]$

(58) *Relative*



(59) a.  $\llbracket TP_3 \rrbracket = \lambda d [\text{John climbed a } d\text{-high mountain}]$

b.  $\llbracket TP_3 \rrbracket^f = \{D: \exists x [D = \lambda d. x \text{ climbed a } d\text{-high mountain}]\}$

c.  $C \subseteq \llbracket TP_3 \rrbracket^f$

(60)  $\llbracket(58)\rrbracket = \exists d [\exists z [\text{John climbed } z \wedge z \text{ is a } d\text{-high mountain}] \wedge \forall Q \in C [Q \neq (\lambda d'. \text{John climbed a } d'\text{-high mountain}) \rightarrow \neg Q(d)]]$

→ **Two different lexical entries for -est** have been proposed that are truth conditionally equivalent and independently motivated on empirical grounds.

→ Each of the two entries is **compatible** with either approach to the semantics of superlatives, the **DP-internal theory** and the **movement theory**.

## 2.5 Pancheva and Tomaszewicz (2012)

- We account for the availability of **DP-internal relative readings** in Slavic by proposing that:
  - (i) the superlative morpheme has to **associate with focus** on relative readings,
  - (ii) association with DP-internal focus is **only possible when -est is DP-external**,
  - (iii) -est can QR in the **absence of the definite** determiner in Slavic.
- What precludes DP-internal relative readings is thus an island effect – the definite article blocking -est movement out of the DP. The presence vs. absence of the definite determiner in the superlative DP is seen as a parametric difference.
- The focus operator with its own restrictor *S* attaches at the clausal level, TP<sub>4</sub> in (62).
- The focus value of TP<sub>4</sub> is a set of alternatives of the same semantic type. Since ‘London’ moves at LF to become the third argument of -est, TP<sub>4</sub> contains a variable and its focus semantic value is a set of sets of individuals<sup>1</sup>.

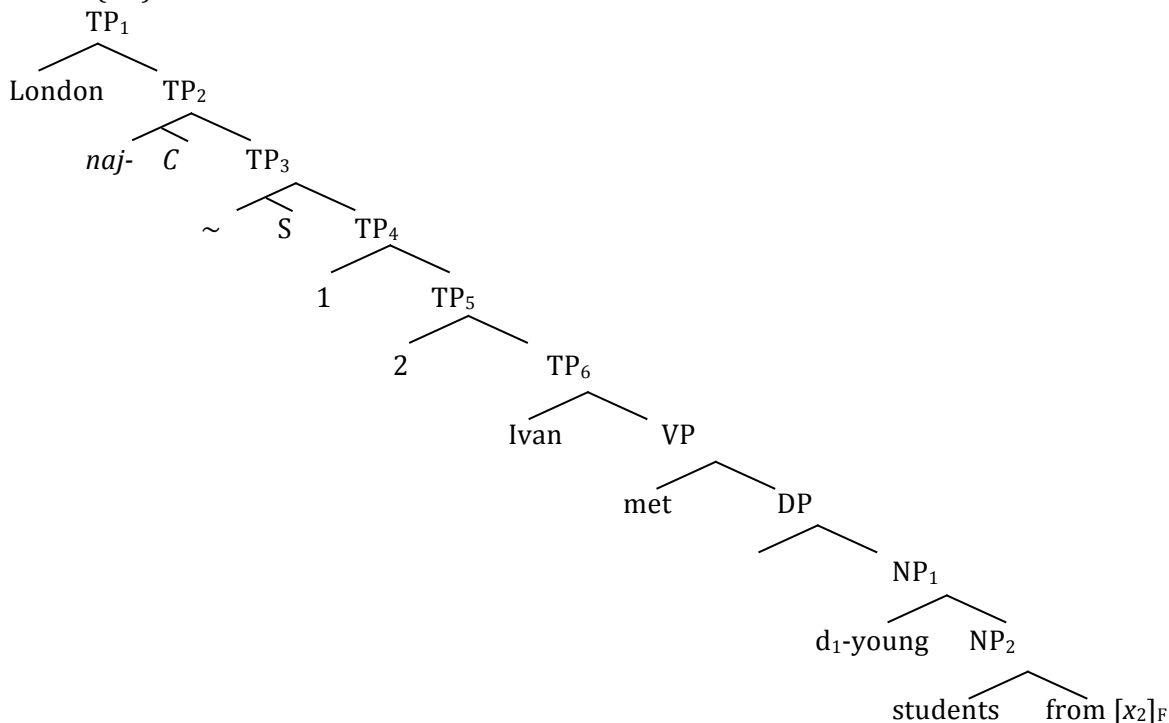
<sup>1</sup> Typically, overt elements are F-marked, but in this case it is a trace while the moved constituent not only receives phonological focus, but ends up in the right-peripheral focus position. → Focus association with traces. Erlewine (2012) assumes that on the copy theory of movement both copies are interpreted as focused but because only the lower copy is in the scope of *only* the two focal presuppositions conflict.



- *S* restricts the set of alternatives to a contextually relevant subset (63a).
- The ordinary semantic value of TP<sub>4</sub> is unaffected by the presence of ~ and is the same as TP<sub>3</sub>, (63b), which is the second argument of *-est*, (38).
- Crucially for Pancheva and Tomaszewicz's (2012) proposal, the DP in (61) does not contain a definite determiner and *-est* is able to scope out.

(61) Ivan se zapozna s naj-mladi studenti ot [London]<sub>F</sub>. (Bulgarian)  
 Ivan refl met with youngest students from London  
 Reading: 'Ivan met younger students from London than from any other city.'

(62) LF for (61):



(63) a.  $S \subseteq \llbracket \text{TP}_4 \rrbracket^f = \{D: \exists d [D = \lambda x [\text{Ivan met } d\text{-young students from } x]]\}$   
 b.  $\llbracket \text{TP}_3 \rrbracket = \llbracket \text{TP}_4 \rrbracket^o = \lambda d \lambda x [\text{Ivan met } d\text{-young students from } x]$

- *-Est* associates with focus by having its restrictor *C* dependent on *S* by meeting the condition in (64) (Heim 1999, von Stechow 1994).
- *C* being the union of all the elements in *S* comes out as the set of individuals in (65a).
- *C* has to satisfy the presuppositions of *-est*, (38a-b), so that London is its element, (65b), and all its elements are arguments of *P* (i.e. the set in (61d)), (65b).

(64)  $C = \cup S$  (focus association) (von Stechow 1994)

(65) a.  $\cup S = C = \{x: \exists d [\text{Ivan met } d\text{-young students from } x]\}$  (focus association)  
 b.  $\text{London} \in C$  (presupposition of *-est*, (38a))  
 c.  $\forall y [y \in C \rightarrow \exists d [\text{Ivan met } d\text{-young students from } y]]$  (presupposition of *-est*, (38b))

- Importantly, the set resulting from focus association, (65a), and the set in (65c) match, which allows for the DP-internal relative reading of (61).

### 2.5.1 Definite superlative DPs are degree islands

- Definite superlative DPs are islands for degree movement, and thus the only way to derive the DP-external relative reading **in the presence of the definite** article is to **QR the whole superlative DP**.
- This proposal is compatible with the assumption of the Movement theory that QR of *-est* is allowed only out of indefinite DPs (Szabolcsi (1986), Heim (1999)). At the same time, the proposal predicts that in a language where superlative DPs are always definite *-est* always stays DP internally, and, indeed, the DP-internal theory was developed on the basis of the evidence from English (Sharvit and Stateva 2002) and Hungarian (Farkas and É. Kiss (2000), where superlative DPs contain the definite determiner *the*<sup>2</sup>.
- Additional support for the claim that the definite DPs are degree islands comes from the fact that **also QR of the comparative *-er* is blocked out of definite DPs**.
- In (66a), *-er* can QR out of the indefinite DP and merge with its restrictor *than*-clause (Bhatt and Pancheva 2004), but in (66b) QR is blocked. Sentential scope for *-er* is needed in (66a,b) because of clausal ellipsis in the *than*-clause. In (66c) it is enough for *-er* to QR locally, internally to the definite DP, because there is no need for resolving clausal ellipsis.

- (66) a. John gave Mary a larger cake than Susan (did).  
 b. \*John gave Mary the larger cake than Susan (did).  
 c. John gave Mary the larger cake of the two.

- (67) a. Ivan kupi *po-goljama(\*-ta)* torta ot Maria. (Bulgarian)  
 Ivan bought *-er-large(-the)* cake from Maria  
 'Ivan bought a/\*the larger cake than Maria.'  
 b. Ivan kupi *po-goljama-ta* torta ot dvete.  
 Ivan bought *-er-large-the* cake from the-two  
 'Ivan bought the larger cake of the two.'

- Thus, covert movement of degree quantifiers out of definite DPs is blocked, even though QR of regular quantifier phrases, such as *every band* in (68) is not.

- (68) Some boy listened to [<sub>DP</sub> the best [<sub>NP</sub> albums of/by every band]]  
 (69) a. Which band does John have [<sub>DP</sub> the best [<sub>NP</sub> albums of/by \_ ]]?  
 b. It is U2 that John has [<sub>DP</sub> the best [<sub>NP</sub> albums of/by \_ ]]

- (70) a. Na/otkoj *sâstav* ima Ivan [<sub>DP</sub> naj-dobri-te [<sub>NP</sub> albumi \_ ]]? (Bg)  
 of/by whichband has Ivan *naj-good-the* albums  
 'Which band does John have the best albums of/by?'  
 b. Na/otU2 ima Ivan [<sub>DP</sub> naj-dobri-te [<sub>NP</sub> albumi \_ ]]  
 of/by U2 has Ivan *naj-good-the* albums  
 'It is U2 that John has the best albums of/by.'

- ◆ **Definiteness of the superlative DP is the only parametric difference**, while the definite island effects on degree movement are universal.

### 2.5.2 DP-internal *-est* and DP-external focus

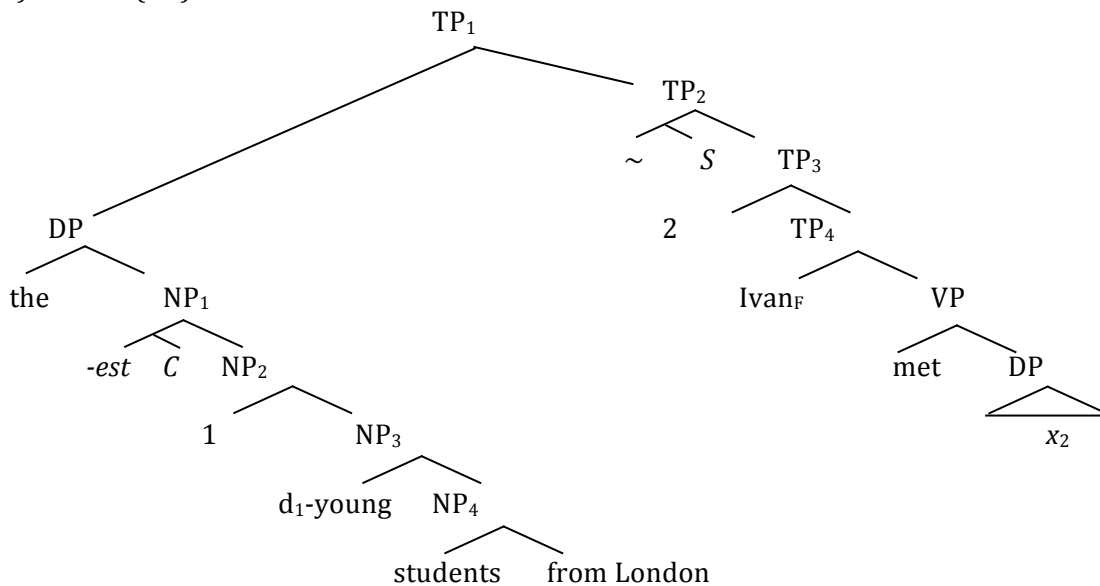
- DP-external relative reading in the presence of the definite article, (71).
- The subject is focus marked and the definite superlative DP QRs to Spec, TP, (72).

<sup>2</sup> The determiner *the*, however, can be interpreted either as definite or indefinite given that the semantics of superlative contribute uniqueness.

- The  $\sim$  operator is attached to the clause creating a set of alternatives to  $TP_3$ , which is contextually restricted by  $S$  to the set of sets of individuals that someone met, (73a). Focus association delimits  $C$  to the set individuals that someone met, (73b), while the presuppositions of *-est* require  $C$  to be the set of students from London of a certain age (74e-f).
- The requirements imposed on  $C$  by focus association and by the presuppositions of *-est* do not clash and allow for the relative reading.

(71) [Ivan]<sub>F</sub> se zapozna s najmladi-te studenti ot London. (Bulgarian)  
 Ivan refl met with youngest-the students from London (P&T 2012)  
 Reading: 'Ivan met younger students from London than anyone else did.'

(72) LF for (71):



- (73) a.  $S \subseteq \llbracket TP_3 \rrbracket^f = \{D: \exists y [D = \lambda x [y \text{ met } x]]\}$   
 b.  $\cup S = C = \{x: \exists y [y \text{ met } x]\}$  (focus association)  
 c.  $\llbracket \text{students from London} \rrbracket \in C$  (presupposition of *-est*, (38a))  
 d.  $\forall y[y \in C \rightarrow \exists d[y \text{ is a } d\text{-young student from London}]]$  (presupposition of *-est*, (38b))

- Like in the DP-internal theory, the **comparison is between students from London** met by relevant people, and not between Ivan and other people who met students from London.
- Unlike in the DP-internal theory, the **restriction on  $C$**  ('met by relevant people') is **not purely contextual** but derives from **association with focus**.

### 2.5.3 DP-internal *-est* and DP-internal focus – conflict of presuppositions

- Crucially, the impossibility of the DP-internal relative readings in English and in Bulgarian **definite superlative DPs** is not a result of a restriction on focus association per se.
- Focus association with constituents inside definite DPs is possible in English and Bulgarian, what is **not possible** is the **QR of *-est* out of a definite DP**.
- In the case of *only*, in English as well as in Bulgarian, when the definite article is present, association with DP-internal focus is possible (74)-(75).

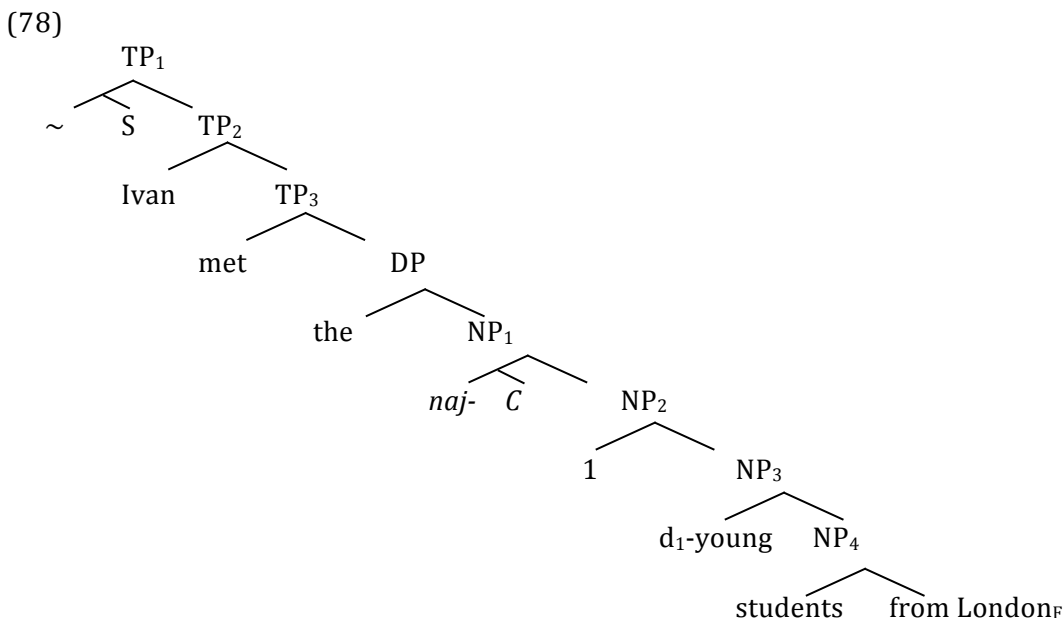
- (74) John *only* met [<sub>DP</sub> the youngest [<sub>NP</sub> students *from* [London]<sub>F</sub>]]. (P&T 2012)  
 (75) Ivan *samo* se zapozna s najmladi-*te* studenti ot London. (Bulgarian)  
 Ivan *only* refl met with youngest-*the* students from London  
 ‘Ivan only met younger students from London (not the youngest students from other cities).’

- *Only* always takes sentential scope ((76)/(77)) (although it associates with an element in its c-command domain).

- (76) a. John *only* gave [MAry]<sub>F</sub> a cheap gift.  
 b. *Only*<sub>C</sub> [<sub>TP</sub> John gave [MAry]<sub>F</sub> a cheap gift]  
 c.  $\llbracket (76b) \rrbracket = 1$  iff  $\lambda w. \forall p [(p \in C \wedge p \neq \llbracket \text{John gave Mary a cheap gift} \rrbracket]) \rightarrow \neg p(w)]$   
 d.  $C = \{P: P = \exists x [\text{John gave } x \text{ a small gift}]\}$

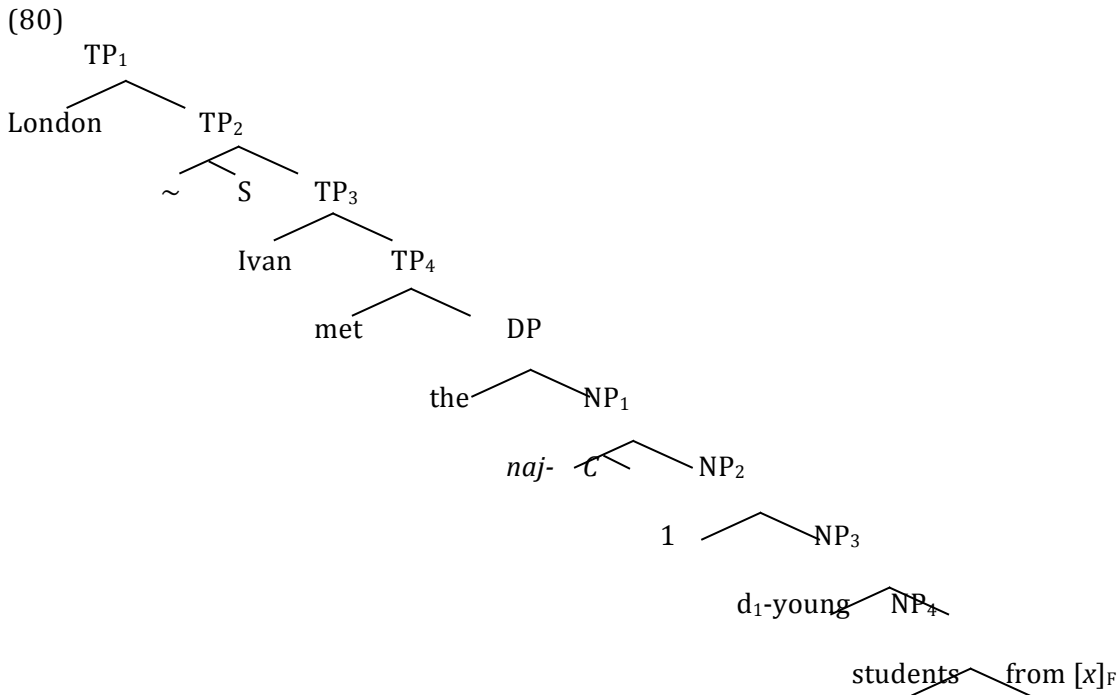
- (77) a. John *only* gave Mary a [CHEAP]<sub>F</sub> gift.  
 b. *Only*<sub>C</sub> [<sub>TP</sub> John gave Mary a [CHEAP]<sub>F</sub> gift]  
 c.  $\llbracket (77b) \rrbracket = 1$  iff  $\lambda w. \forall p [(p \in C \wedge p \neq \llbracket \text{John gave Mary a cheap gift} \rrbracket]) \rightarrow \neg p(w)]$   
 d.  $C = \{P: P = \exists f \exists d [\text{John gave Mary a gift} \wedge f(d)(\text{gift})]\}$

- When *-est* moves on its own, just like *only*, it can associate with DP-internal focus – when it QRs inside a definite DP, it cannot.
- **When *-est* stays inside the definite superlative DP**, whatever configuration with respect to the [<sub>~S</sub>] complex is attempted, the **DP-internal relative reading is never derived** because the DP-internal *-est* fails to associate with focus in each case.
- (Attempt 1) Leaving the focused constituent in-situ and attaching the  $\sim$  operator at the sentential level, (78). The restrictor is the subset of the focus value of TP<sub>2</sub>, (79a). The restrictor of *-est* is the set in (79b). On these specifications  $C$  cannot be the union of all the elements in  $S$ , (79c). The condition for focus association  $C = \cup S$ , (64), cannot be satisfied.



- (79) a.  $S \subseteq \llbracket \text{TP}_2 \rrbracket^f = \{p: \exists x [p = \text{Ivan met the youngest students from } x]\}$   
 b.  $C = \{x: \exists d [x \text{ are } d\text{-young students from London}]\}$   
 c.  $C \neq \cup S$

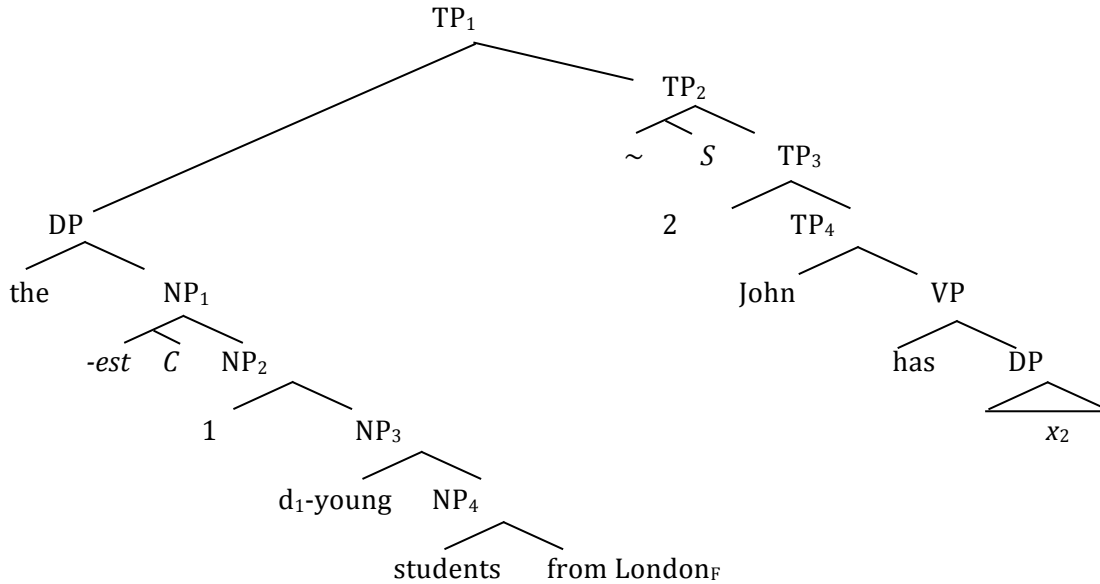
- (Attempt 2) Adding the QR of the focus to the previous derivation, (80). The focus value of  $TP_3$  is the set of sets of cities  $x$  such that Ivan met the youngest students from  $x$ , and the set  $S$  is a subset of that set, (81a). The sets  $S$  and  $C$  cannot satisfy the condition  $C = \cup S$ , (81c), because  $C$  is a set of students (81b).



- (81) a.  $S \subseteq \llbracket TP_3 \rrbracket^f = \{P: P = \lambda x [Ivan \text{ met the youngest students from } x]\}$   
 b.  $C = \{x: \exists d \exists y [x \text{ are } d\text{-young students from } y]\}$   
 c.  $C \neq \cup S$

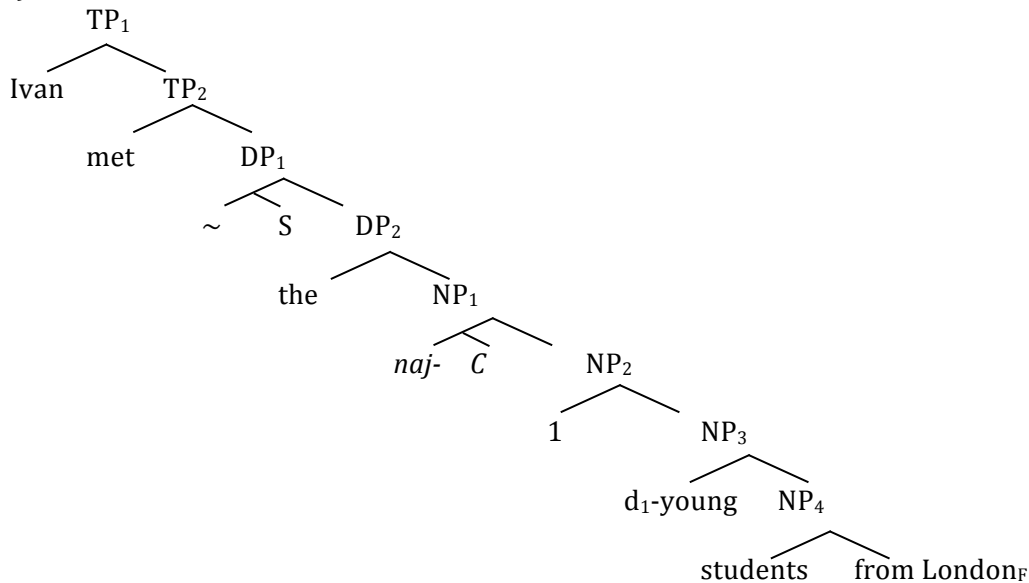
- (Attempt 3) QR of the whole superlative DP. This removes the F-marked constituent from the scope of the focus operator  $\sim$ . Unlike the cases where the trace of the moved focus was left in the scope of  $\sim$  (e.g. in the derivation above), here there is no F-marked element at all in the scope of  $\sim$ . This LF is uninterpretable.

(82)



- (Attempt 4) Abandoning the clausal scope for  $\sim$ . In the LF in (83)  $\sim$  takes scope just over the superlative D.  $S$  is the subset of the focus value of the sister constituent,  $DP_2$ , a set of the youngest students from some city, (84a).  $C$  is the set of students of some age from London, (84b). The condition  $C = \cup S$  cannot be fulfilled, (84b).

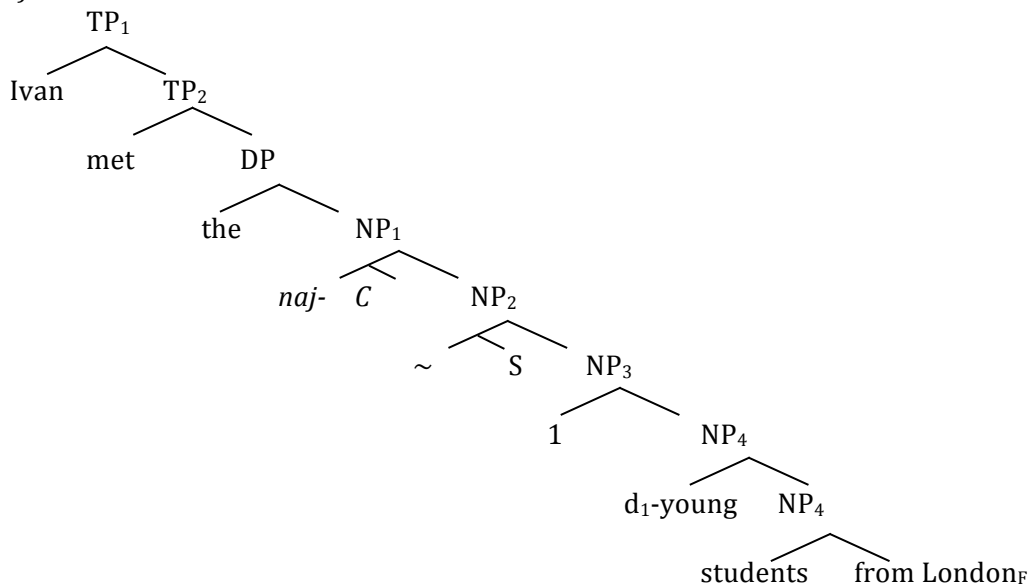
(83)



- (84) a.  $S \subseteq \llbracket [DP_2]^f \rrbracket = \{x: \exists y [x \text{ are the youngest students from } y]\}$   
 b.  $C = \{x: \exists d [x \text{ are } d\text{-young students from London}]\}$   
 c.  $C \neq \cup S$

- (Attempt 5) Placing the focus operator just over the NP, as in (85), does not help to match the requirements on  $C$ .  $C$  is the set of students of a certain age from London, (85b), but  $S$  is a subset of the set of sets of cities such that there a students of certain age from them, (85c).  $C$  cannot be an element of  $S$ , (85c), as required by the condition for focus association  $C = \cup S$ .

(85)



- (86) a.  $S \subseteq \llbracket \text{NP}_3 \rrbracket^f = \{P: \exists y \exists d [P = \lambda x [y \text{ are } d\text{-young students from } x]]\}$   
 b.  $C = \{x: \exists d [x \text{ are } d\text{-young students from London}]\}$   
 c.  $C \neq \cup S$

- ◆ In all the above cases  $C$  is specified by the presuppositions of *-est*, (39). The condition for focus association,  $C = \cup S$ , (64), places a mismatching requirement on what  $C$  should like, which is not alleviated either by different scope for  $[\sim S]$  nor by movement of the focus in combination with the QR of the whole DP.
- ◆ Once *-est* is **not allowed to scope out** of the DP, it **cannot associate with the DP-internal focus**.

## 2.6 DP-internal focus on the NP

- A **cross-categorial lexical entry** for the *-est* in (38), as in (87).
- The DP-internal reading requires comparison with alternatives to the NP, which is of type  $\langle e, t \rangle$ , while in the DP-external reading we consider alternatives to the subject DP, which is of type  $e$ . The comparison set  $C$  in (38) is of type  $\langle e, t \rangle$ , i.e. it is a set of individuals. For DP-internal comparison we need the **set  $C$**  to be of **type  $\langle e, t \rangle$** .

$$(87) \llbracket [-est]_{3\text{-place}} \rrbracket = \llbracket [naj]_{3\text{-place}} \rrbracket = \\ = \lambda C_{\langle \delta, t \rangle}. \lambda P_{\langle d, \delta t \rangle}. \lambda x_{\delta}. \exists d [P(d)(x) \wedge \forall y \in C [y \neq x \rightarrow \neg (P(d)(y))]]$$

Presuppositions:

- a.  $x_{\delta} \in C_{\langle \delta, t \rangle}$   
 b.  $\forall y_{\delta} [y_{\delta} \in C_{\langle \delta, t \rangle} \rightarrow \exists d [P(d)(y)]]$

- (88) a. Jan kupił najdroższe [pomidory]<sub>F</sub>.  
 Jan bought most-expensive tomatoes  
 'Jan bought tomatoes more expensive than any other vegetable he bought.'

- b.  $[\text{TP}_1 \text{ tomatoes } [\text{TP}_2 [-est] C] [\text{TP}_3 [\sim S] [\text{TP}_4 \text{ Jan bought } [\text{DP } d\text{-expensive } [t_{\langle e, t \rangle}]_F ]]]]$   
 c.  $S_{\langle \langle e, t \rangle, t \rangle} \subseteq \llbracket \text{TP}_4 \rrbracket^f = \{D_{\langle e, t \rangle}: \exists d [D = \lambda f \exists x [f(x) \wedge \text{Jan bought } x \wedge x \text{ is } d\text{-expensive}]]\}$   
 d.  $\llbracket \text{TP}_3 \rrbracket = \llbracket \text{TP}_4 \rrbracket^o = \lambda d \lambda f \exists x [f(x) \wedge \text{Jan bought } x \wedge \text{and } x \text{ is } d\text{-expensive}]$   
 e.  $\cup S = C_{\langle e, t \rangle} = \{f: \exists d \exists x [f(x) \wedge \text{Jan bought } x \wedge \text{and } x \text{ is } d\text{-expensive}]\}$

- f.  $\llbracket \text{tomatoes} \rrbracket \in C_{\langle e,t \rangle}$  (focus association)  
 (presupposition of *-est*, (38a))
- g.  $\forall h_{\langle e,t \rangle} [h \in C_{\langle e,t \rangle} \rightarrow \exists d \exists x [h(x) \wedge \text{Jan bought } x \wedge \text{and } x \text{ is } d\text{-expensive}]]$   
 (presupposition of *-est*, (38b))

## 2.7 2-place *-est* and DP-internal relative readings

- In Pancheva and Tomaszewicz we develop our analysis on the basis of the 3-place semantics for *-est*, and note that the 2-place semantics would also work.
- Romero (2011, 2012) uses a 2-place semantics with focus for both absolute and relative readings.
- I conclude, however, that **2-place *-est* is incompatible with focus association**.
- **Heim (1999)** concludes that focus association of *-est* cannot be modeled on the 3-place semantics because there is no way for the **Roothian  $\sim$  operator to c-command the F-marked expression**.
- She assumes that  $[\sim C]$  attaches to the QR-ed third argument as in (89a)) so that **prosodic focus** can be expressed.
- **Prosodically, focus is realized as prominence relative to the non-F-marked material** (Truckenbrodt 1995), but in a configuration like (89a) there is no non-F-marked material in the scope of  $\sim$ .
- Our LFs, e.g. (89b) face exactly the same problem – the prosodically focused element is not in the scope of  $\sim$ , only its trace is. This configuration is not a transparent for the **syntax-phonology interface**.

- (89) a.  $[_{TP1} [_{London} [\sim S]] [_{TP2} [naj- C] [_{TP4} \text{Ivan met } [_{DP} d\text{-young students from } x_F ]]]]]$   
 b.  $[_{TP1} \text{London } [_{TP2} [naj- C] [_{TP3} [\sim S] [_{TP4} \text{Ivan met } [_{DP} d\text{-young students from } x_F ]]]]]]]$

- **Heim** argues that the theory of superlatives should not rely on the availability of focus – **focus should be just a contextual effect**, which is easily accounted for on the DP-internal theory, where the value of  $C$  can be easily shaped by the context. Due to the independent reasons for which she finds the movement theory more advantageous, Heim proposes to incorporate the optional effects of focus, by assuming the 2-place semantics for *-est*, (repeated below (90)).
- Here the comparison set  $C$  is always a **set of sets of degrees**, and focus serves to narrow them down to the relevant subset.

- (90)  $\llbracket [-est_{2\text{-place}}] \rrbracket = \lambda C_{\langle dt,t \rangle}. \lambda P_{\langle d,t \rangle}. \exists d [P(d) \wedge \forall Q \in C [Q \neq P \rightarrow \neg(Q(d))]]$   
 Presuppositions:  
 a.  $P \in C$   
 b.  $\exists Q \in C: Q \neq P$

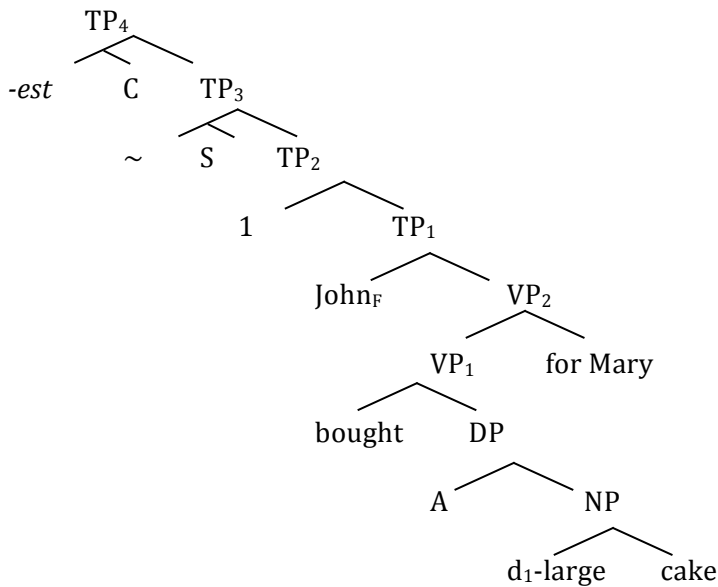
- (91)  $C \subseteq S$  (focus association)

Presupposition that  $C$  is a subset of the focus semantic value of the constituent under the scope of the  $\sim$  operator. The  $S$  restrictor of  $\sim$  is a subset of the focus value of the sister of  $[\sim S]$ , while  $C$  is a subset of  $S$ .

- In (92b) the focus value of the sister of  $[\sim S]$ ,  $TP_2$ , is a set of sets of degrees, hence  $S$  is of type  $\langle dt,t \rangle$  the right type for  $C$ . Focus is interpreted in-situ, (93a), a focus feature on 'John' specifies  $C$  as in (93b), whereas focus on Mary gives (93c).



- (92) a. John bought the largest cake for Mary.  
 b. LF:



- c.  $\llbracket \text{DP} \rrbracket = \exists x. [\text{cake}(x) \wedge \text{large}(x, g(1))]$   
 d.  $\llbracket \text{VP}_2 \rrbracket = \lambda y. \exists x. [\text{cake}(x) \wedge \text{large}(x, g(1)) \wedge \text{bought}(y, x, m)]$   
 e.  $\llbracket \text{TP}_1 \rrbracket = \exists x. [\text{cake}(x) \wedge \text{large}(x, g(1)) \wedge \text{bought}(j, x, m)]$   
 f.  $\llbracket \text{TP}_2 \rrbracket = \lambda d. \exists x. [\text{cake}(x) \wedge \text{large}(x, d) \wedge \text{bought}(j, x, m)]$   
 g.  $\llbracket \text{TP}_4 \rrbracket = \exists d. \exists x. [\text{cake}(x) \wedge \text{large}(x, d) \wedge \text{bought}(j, x, m)] \wedge \forall Q \in C [Q \neq \llbracket \text{TP}_3 \rrbracket \rightarrow \neg (Q(d))]$

- (93) a.  $C \subseteq S \subseteq \llbracket \text{TP}_2 \rrbracket^f$   
 b.  $C_{\langle dt, t \rangle} \subseteq \{D: \exists x [D = \lambda d. x \text{ bought a } d\text{-large cake for Mary}]\}$   
 c.  $C_{\langle dt, t \rangle} \subseteq \{D: \exists x [D = \lambda d. \text{John bought a } d\text{-large cake for } x]\}$

- We now see a problem – there is **no way to prevent DP-internal focus in English** in such a configuration as (92b). ‘Mary’ and ‘John’ are the two most obvious locations for focus in English, but **if focus placement resulted purely from the context**, focus on ‘cake’ should also be allowed in (92b).

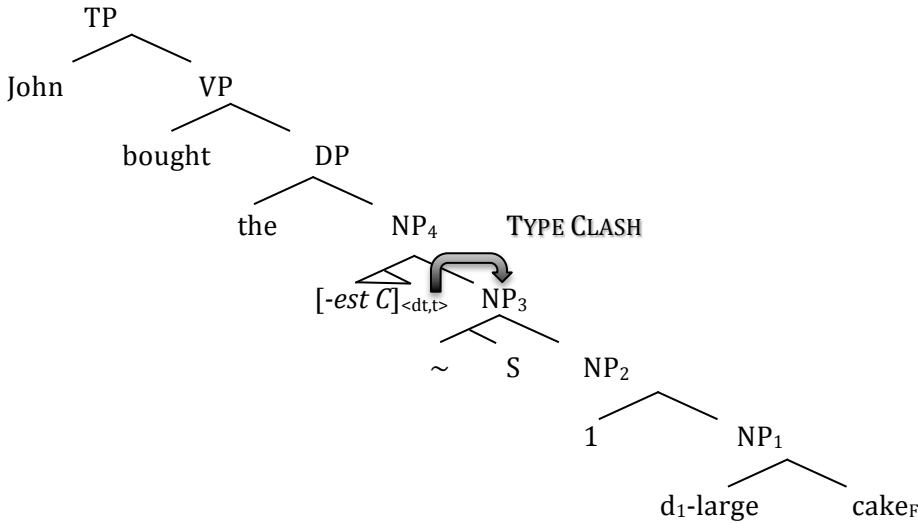
- (94)  $C_{\langle dt, t \rangle} \subseteq \{D: \exists f \exists x [D = \lambda d. f(x) \wedge \text{Jan bought } x \text{ for Mary} \wedge x \text{ is } d\text{-large}]\}$

- How to account for the **cross-linguistic restrictions** on the availability of the different readings while using the 2-place semantics for *-est*?

### 2.7.1 Attempting to constrain focus association – low scope for 2-place *-est*

- If we try lower scope for  $[-est C]$ , it needs to be placed above ‘the’ to avoid a type clash as in (95).  $[-est C]$  needs an argument of type  $\langle d, t \rangle$  as its second argument, but in (95)  $\text{NP}_3$  is of type  $\langle d, et \rangle$ .

- (95) a. John bought the largest cake<sub>F</sub>.  
 b. LF:



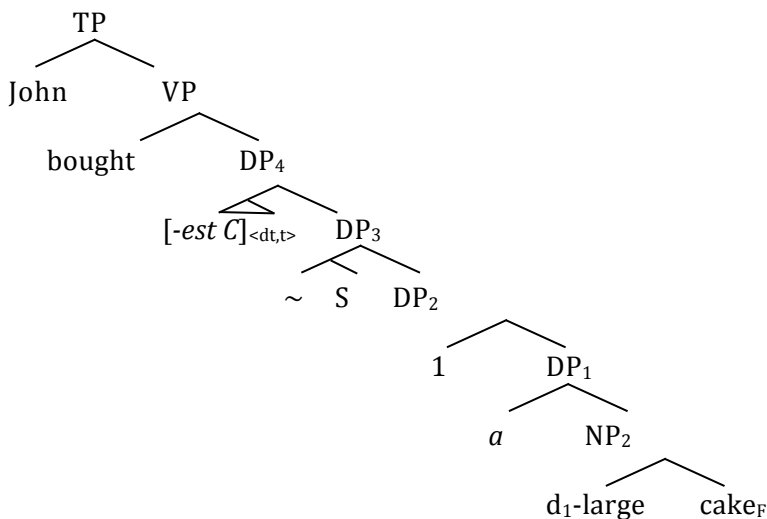
c.  $\llbracket NP_2 \rrbracket = \lambda d. \lambda x. [cake(x) \wedge large(x,d)]$

d.  $\llbracket NP_3 \rrbracket = \lambda d. \lambda x. [cake(x) \wedge large(x,d)]$

- If  $[-est C]$  scopes right above ‘the’ (interpreted as ‘a’) and  $[~ S]$  below it, (96), we get the right types for  $[-est C]$  to combine with  $NP_3$ , but we can only derive an ‘absolute-like’ reading where cake is compared in terms of size with other large things in  $C$ , (96g). This reading would be true in a situation where John buys a cake that is larger than anything else that was in the store. The superlative never gets such a reading in English nor is Slavic (recall, the DP-internal reading for (96) is true when the cake John bought is larger than any other thing he bought, not any other thing in the store.)

(96) a. John bought the largest cake<sub>F</sub>.

b. LF:



c.  $\llbracket DP_2 \rrbracket = \lambda d. \exists x [cake(x) \wedge large(x,d)]$

d.  $\llbracket DP_3 \rrbracket = \lambda d. \exists x [cake(x) \wedge large(x,d)]$

e.  $\llbracket DP_4 \rrbracket = \exists d. \exists x. [cake(x) \wedge large(x,d) \wedge \forall Q \in C [Q \neq \llbracket DP_3 \rrbracket \rightarrow \neg (Q(d))]]$

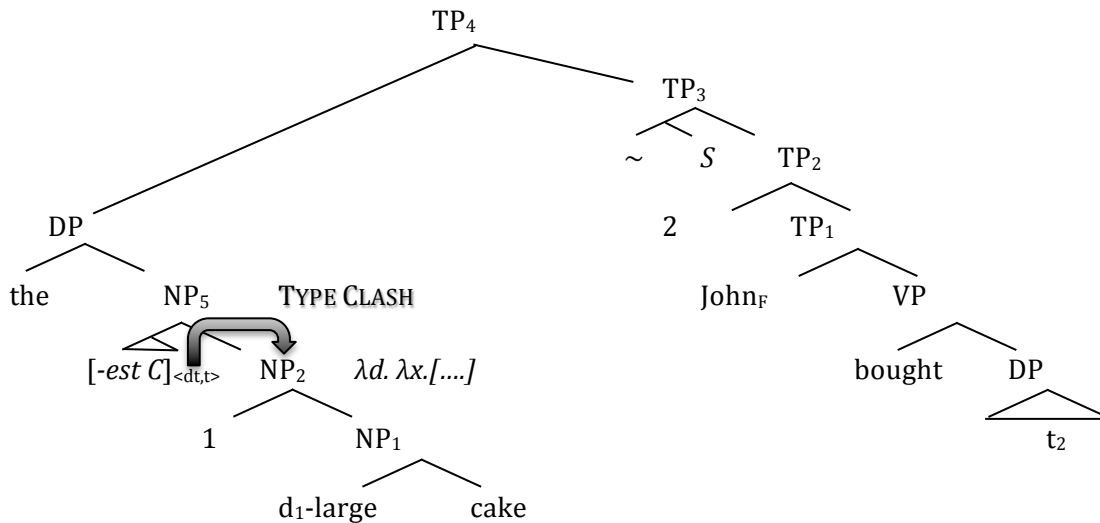
f.  $C \subseteq S \subseteq \llbracket DP_2 \rrbracket^f$

g.  $C_{<dt,t>} \subseteq \{D: \exists f \exists x [D = \lambda d. f(x) \wedge large(x,d)]\}$

2.7.2 Attempting to constrain focus association – high scope for 2-place *-est*

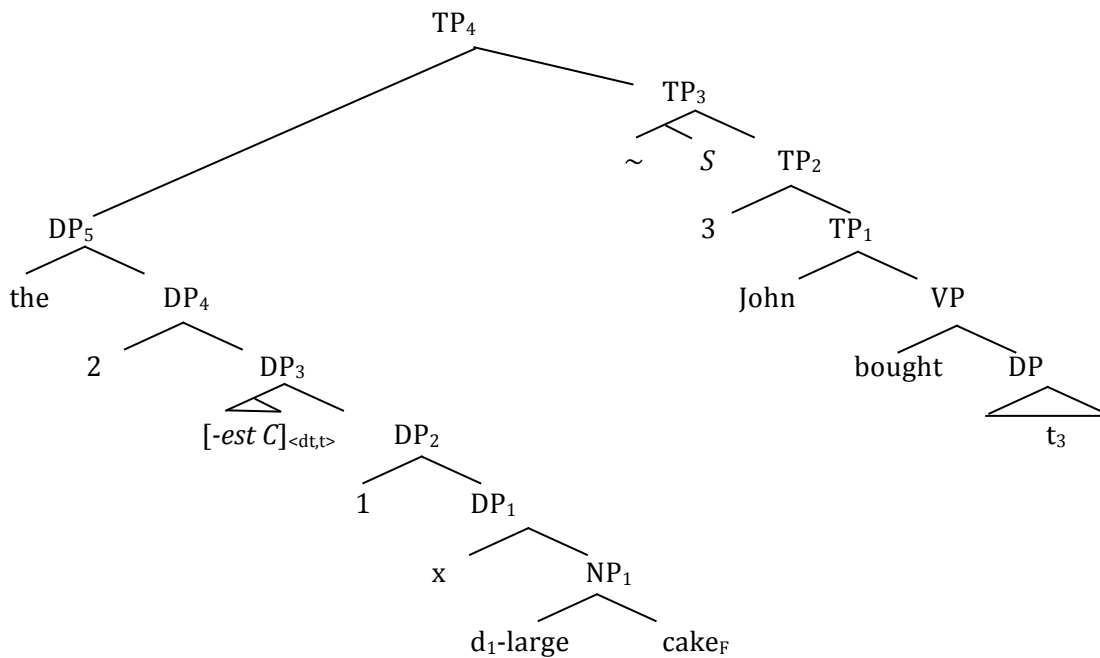
- If we assume that that (i) in the presence of ‘the’ the whole superlative DP can be pied-piped and that (ii) [ $\sim$  S] always takes sentential scope, the movement of the superlative DP will take it out of its scope and allow for the focus on ‘John’ only. We prevent DP-internal focus, but we get a type clash within the DP, as NP<sub>2</sub> is not suitable as *-est*’s second argument (97).

(97) a. John<sub>F</sub> bought the largest cake.  
 b. LF:



- To avoid the type class we could allow for the definite determiner to move leaving a variable of type  $e$ , as proposed by Romero (2011) for the absolute reading, (54). Recall that Romero is assumes that traces can be focused, then attaching [ $\sim$  S] to the constituent [<sub>DP3</sub>  $e$   $d$ -high mountain] in (54) generates a set  $\{D: \exists x [D = \lambda d. x \text{ is a } d\text{-high mountain}]\}$  and  $C$  can be a subset of that set, while at the same time the presupposition  $P \in C$ , (90b) is satisfied.
- In (98) focus is DP-external, but  $C$  cannot satisfy the condition  $C \subseteq \llbracket [TP_2]^f \rrbracket$ , given that DP<sub>2</sub> contains an unbound variable and *-est* presupposes that  $P \in C$ , (90b).

(98) a. John<sub>F</sub> bought the largest cake.  
 b. LF:



a.  $\llbracket DP_2 \rrbracket = \lambda d. [\text{cake}(g(2)) \wedge \text{large}((g2),d)]$

### 2.7.3 Conclusion about 2-place *-est* and focus association

- The 2-place semantics for *-est* makes the **wrong predictions** for focus effects in **English vs. Slavic**.
- When 2-place *-est* QRs and takes sentential scope, focus on any of the sentence constituents is predicted to be able to shape the comparison set *C*, (92b). **There does not seem a way to block the possibility of DP-internal relative readings with 2-place *-est***, whether or not we try to attribute this role to the presence of the definite determiner.
- For relative readings 2-place *-est* cannot take lower scope because the specification of *C* does not come out right, (96). If *-est* takes high scope within the DP, condition on focus association and the presuppositions of *-est* cannot be simultaneously satisfied, (98).

## 3 Conclusion

- **Phrasal comparatives** in Polish can be analyzed as derived from small clauses – *Wh*-movement in the small clause – from a position parallel to that of *more* in the matrix – creates a degree predicate → In clausal and phrasal comparatives in Polish **degrees are compared**.
- Romero (2011, 2013) and Szabolcsi (2012) have argued that with **superlatives both modes of comparison** (of individuals and of degrees) can be available in a single language.
- The **cross-linguistic restrictions** on the **availability of DP-internal readings** follows from the presence of definite determiner, the QR of *-est* and focus association (only DP-external *-est* can associate with DP-internal focus; *-est* can QR only in the absence of the definite determiner).
- This restriction can be modeled on the **3-place semantics** for *-est* on which **individuals** are compared, but not on the 2-place semantics comparing degrees.

- → In **relative** readings derived by **focus** on an **individual** denoting expression **individuals are compared**.
- → In readings with **focus on the superlative** itself **degrees** are compared. Cf. the data from yesterday:

(99) Jan kupił [najWIĘcej]<sub>F</sub> pomidorów, ile było dozwolone.  
Jan bought most tomatoes how-much was allowed  
'Jan bought the largest amount of tomatoes that was allowed.'

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