1 Outline

Section 2: The absolute and the relative readings of superlatives. The semantics of the superlative -est (comparing individuals or degrees?) and the questions about its scope, (Heim 1999). Focus effects on the interpretation of superlative sentences.

Section 3: Cross-linguistic restrictions on relative readings. Slavic vs. English. Definite superlative DPs vs. indefinite superlative DPs. Pancheva and Tomaszewicz (2012):
- relative readings require focus, - definite DPs are islands for degree movement Can we derive these restrictions using Heim's semantics for -est proposed for focus association? No.

Section 4: Syntactic evidence for two types of semantics for -est – overt specification of its restrictor.

Section 5: Conclusion (-est compares individuals and associates with focus on relative readings; -est compares degrees when the restrictor overtly specifies a set of degrees)

2 Background

2.1 Superlative ambiguities: absolute and relative reading
(Heim 1985, Szabolcsi 1986, Gawron 1995, a.o.)

1) John climbed the highest mountain.
   a. ‘John climbed a mountain that is higher than all (relevant) mountains.’ Absolute
      (E.g. Mt. Blanc in the Alps)
   b. ‘John climbed a higher mountain than any other (relevant) person did.’ Relative
      (E.g. John climbed the Matterhorn, 4478 m; Mary climbed Zinalrothorn, 4221 m; Bill
      climbed Strahlhorn, 4190 m; and nobody climbed Mt. Blanc, 4810 m.)

2) Scenario 1:
   A: Who climbed the highest mountain? Absolute
   B: Nobody.
(3) **Scenario 2:**
A: Why is John happy and Mary and Bill are not?
B: John climbed the highest mountain. **Relative**

(4) John bought Mary the most expensive cake.

a. ‘John bought Mary the cake that was more expensive than any other cake in the store.’ **Absolute**
b. ‘John bought Mary a more expensive cake than anyone else bought her.’ **Relative**
c. ‘John bought Mary a more expensive cake than he bought for anyone else.’ **Relative**

Relative readings (4b-c) — **comparison class** is set with respect to a constituent other than the superlative DP.

### 2.2 The semantics of the superlative operator

- **Gradable predicates** — relations between individuals and degrees (type (d,(e,t)))
  (e.g. Heim 1999, Sharvit & Stateva 2002, von Stechow 2005, a.o.)

(5) a. \([\text{expensive}]=\lambda d:d\in D_d. \lambda x:x\in D_e. \text{price}(x)\geq(d)\)
b. \([\text{expensive}]=\lambda d. \lambda x. x\text{ is }d\text{-expensive}\)

- **-est** as a degree quantifier taking 3 arguments (Heim 1999, Sharvit & Stateva 2002)

(6) \([-\text{est}_3\text{-place}] = \lambda C_{e,t}. \lambda P_{d,e,t}. \lambda x_e. \exists d[P(d)(x) \land \forall y \in C [y \neq x \rightarrow \neg(P(d)(y))]]\)

Presuppositions:
(i) \(x \in C\)
(ii) \(\forall y[y \in C \rightarrow \exists d[P(d)(y)]\]

The first argument, \(C\), is a set of individuals; it is a covert restrictor of **-est** specifying the **comparison class**. The second argument is a **gradable predicate** \(P\). The third is an **individual** \(x\).

\([-\text{est}_3\text{-place}])(C)(P)(x)\) is true iff there is a degree s.t. \(x\) has that degree of \(P\) and no other individual in \(C\) has that degree of \(P\).

Presuppositions: (i) \(x\) is a member of \(C\), (ii) \(C\) consists of individuals which are arguments of \(P\).

- **The LF syntax** of **-est**

In the syntax \([-\text{est} C]\) (type \(\langle(d,(e,t)),(e,t)\rangle\)) does not combine with the adjective (type \(\langle d,(e,t)\rangle\)) directly.

Presupposition (6ii) requires that all members of the comparison class \(C\) have the property specified by the sister node of \([-\text{est} C]\).

\(\rightarrow\) **LF syntax of [-est C] determines the elements of C.**

---

1 The meaning of the superlative morpheme in (6) requires the assumption that gradable predicates are **downward monotonic**.

(i) A relation \(R\) between objects and degrees is downward monotonic iff: \(\forall x \in X \forall d'[R(x,d)=1 \land d'<d \rightarrow R(x,d')]\)
The movement of [-est C] creates an abstract over degrees. In (7), [-est C] is sister to NP₂, which denotes the property \( P \), (8a). By (6ii), the set \( C \) contains mountains that have some degree of height, (8b).

\[
\text{(7)}
\]

\[
\begin{array}{c}
\text{TP} \\
\text{John} & \text{VP} \\
\text{climbed} & \text{DP} \\
\text{the} & \text{NP₁} \\
\text{-est} & \text{C} \\
\text{NP₂} & \text{P}_{\text{\(d,\text{ext}\)}}} \\
\text{1} & \text{NP₃} \\
\text{d₁-high} & \text{mountain}
\end{array}
\]

\[
\text{(8) a. \([\text{NP₂}] = \{d\text{-high mountain}\} = \lambda d \lambda x [x \text{ is a mountain } \land x \text{ is } d\text{-high}]}
\]
\[
\text{b. } C = \{x: \exists d [x \text{ is a } d\text{-high mountain}]\}
\]
\[
\text{c. \([\text{DP}] = \lambda x \exists d [x \text{ is a } d\text{-high mountain } \land \forall y [y \neq x \land y \in C \rightarrow \neg [y \text{ is a } d\text{-high mountain}]]\]}
\]

i.e. DP is the unique mountain of some height such that no other mountain in the comparison class reaches that height.

This meaning of the DP, (8c), is used for the computation of the **absolute reading** of the sentence in (1), i.e. (1a).

\[
\cdot \text{ There are two main approaches to the derivation of the relative reading:}
\]

2.2.1 “Movement theory”

The absolute and relative superlative readings are a result of scope ambiguity, (Szabolcsi 1986, Heim 1999, Hackl 2009, Romero 2011).

In (9) [-est C] takes sentential scope, and an individual-denoting DP (John in (9)) raises to become the third argument of -est, which tucks in right below it.

\[
\text{(9)}
\]

\[
\begin{array}{c}
\text{TP₁} \\
\text{John} & \text{TP₂} \\
\text{-est} & \text{C} \\
\text{TP₃} & \text{P}_{\text{\(d,\text{ext}\)}}} \\
\text{1} & \text{TP₄} \\
\text{2} & \text{vP} \\
\text{x₂} & \text{DP} \\
\text{a} & \text{NP} \\
\text{d₁-high} & \text{mountain}
\end{array}
\]

(relative interpretation (1b) on the movement theory)
(10)  a. \[ TP_3 ] = \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. \[ TP_1 \] = \exists d \; [\text{John climbed a } d\text{-high mountain} \land \forall y \exists d' \; [ y \text{ climbed a } d'\text{-high mountain} \land y \neq \text{John} \rightarrow \neg y \text{ climbed a } d\text{-high mountain}] ] \\
    i.e. TP_1 \text{ is the proposition that there is degree of height such that John climbed a mountain of that height and no other individual in the comparison class of people who climbed a mountain of some height, climbed a mountain of that height. }

Heim (1999): The definite determiner on the relative reading is assumed to be just an expletive that is interpreted as indefinite; movement of [-est C] outside of the superlative DP is only allowed when D is indefinite.

(11) \qquad \text{(relative interpretation (4c) on the movement theory)}

\[ \\
\text{TP}_1 \\
\text{Mary} \\
\text{TP}_2 \\
\text{-est- C} \\
\text{TP}_3 \\
\uparrow P_{(d, (e, 3))} \\
\downarrow 1 \\
\downarrow 2 \\
\text{TP} \\
\text{John} \\
\text{bought} \\
\downarrow x_2 \\
\text{NP} \\
\text{a} \\
\text{d}_1\text{-expensive cake} \\
\]

(12)  a. \[ TP_3 ] = \lambda d \lambda x \; [ \text{John bought a } d\text{-expensive cake for } x] \\
    b. C = \{x: \exists d \; [ \text{John bought a } d\text{-expensive cake for } x] \}
    c. \[ TP_1 \] = \exists d \; [\text{John bought a } d\text{-expensive cake for Mary} \land \forall y \exists d' \; [\text{John bought a } d'\text{-expensive cake for } y \land y \neq \text{John} \rightarrow \neg \text{John bought a } d\text{-expensive cake for } y] ]

2.2.2 “DP-internal theory”

The DP-internal theory (Farkas and É. Kiss 2000, Sharvit and Stateva 2002, Krasikova 2012) derives the absolute (1a) and the relative reading (1b) from a single LF, (identical to (7)).

The relative interpretation obtains by virtue of the fact that the variable C is contextually specified. Thus, on the DP-internal theory the two readings of (1) 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 “pragmatic” theory.)

Absolute interpretation (1a) \(\rightarrow\) C to the set of relevant mountains (of a certain height)

(13)  a. \(C = \{x: \exists d \; [ x \text{ is a } d\text{-high mountain}] \}
    b. \([(7)] = \text{John climbed the unique } x: \exists d \; [ x \text{ is a } d\text{-high mountain} \land \forall y \exists d' \; [ y \text{ is a } d'\text{-high mountain} \land y \neq x \rightarrow \neg y \text{ is a } d\text{-high mountain}]]\]

Relative interpretation (1b) \(\rightarrow\) C is the set of mountains climbed by relevant climbers

(14)  a. \(C = \{x: \exists d \; [ x \text{ is a } d\text{-high mountain} \land \exists y \; [ y \text{ is a person} \land y \text{ climbed } x]]\}

\[ \\
\text{Barbara Tomaszewicz, USC} \\
\]
Tübingen, June 18, 2013

b. \[\{\{7\}\} = \text{John climbed some } x: \exists d \ [x \text{ is a } d\text{-high mountain } \land \forall y \exists d' \ [y \text{ is a } d'\text{-high mountain } \land \exists z \ [z \text{ is a person } \land z \text{ climbed } y] \land y = x \rightarrow \neg [y \text{ is a } d\text{-high mountain}]]\]

2.3 Focus effects

(15) \[\text{[John]}_F \text{ bought Mary the most expensive cake.}\]

a. \[\text{‘John bought Mary the cake that was more expensive than any other cake in the store.’}\]

b. \[\text{‘John bought Mary a more expensive cake than anyone else bought her.’}\]

c. \[\text{‘*John bought Mary a more expensive cake than he bought for anyone else.’}\]

(16) \[\text{John bought [Mary]}_F \text{ the most expensive cake.}\]

a. \[\text{‘John bought Mary the cake that was more expensive than any other cake in the store.’}\]

b. \[\text{‘*John bought Mary a more expensive cake than anyone else bought her.’}\]

c. \[\text{‘John bought Mary a more expensive cake than he bought for anyone else.’}\]

Even though in English a sentence containing a superlative adjective can always receive the absolute reading, \textit{relative readings are focus sensitive} (Ross 1964, Jackendoff 1972, Szabolcsi 1986, Heim 1999, Farkas and É. Kiss 2000, Sharvit and Stateva 2002, a.o.).

In cases such as (15)-(16) -est can be said to \textit{associate with focus} similarly to \textit{focus sensitive particles} such as \textit{only} whose truth-conditional effect, when applied to a proposition, depends on the constituents in focus. The covert restrictor variable of \textit{only}, the comparison set \(C\) is determined by focus, (17c), (18c).

(17) a. \[\text{John only gave [MARy]}_F \text{ a cheap gift.}\]

b. \[\text{Only}_{C\bigcap [TF]} \text{John gave [MARy]}_F \text{ a cheap gift}\]

c. \[\{17b\} = 1 \text{ iff } \lambda w. \forall p ((p \in C \land p \neq \text{[John gave Mary a cheap gift]}) \rightarrow \neg p(w))]\]

d. \[C = \{P: P = \exists x \text{[John gave x a small gift]}\}\]

(18) a. \[\text{John only gave Mary a [CHEAP]}_F \text{ gift.}\]

b. \[\text{Only}_{C\bigcap [TF]} \text{John gave Mary a [CHEAP]}_F \text{ gift}\]

c. \[\{18b\} = 1 \text{ iff } \lambda w. \forall p ((p \in C \land p \neq \text{[John gave Mary a cheap gift]}) \rightarrow \neg p(w))]\]

d. \[C = \{P: P = \exists j \exists d \text{[John gave Mary a gift } \land j(d)(gift)]\}\]

2.3.1 Focus association and the DP-internal theory (Heim 1999)

The superlative DP undergoes QR to provide the right kind of a constituent for \(~\) (Rooth's focus operator) to attach to, i.e. generate the right set of alternatives due to its presupposition, (19). The \textit{focus semantic value} of \(\{\phi\}\) is the set of alternatives that \(\phi\) with the focused expression replaced by a variable of the same type existentially bound, e.g. (22a) for the focus on ‘John’ in (21), the LF for \(\{15b\}\) (‘John bought Mary a more expensive cake than anyone else bought her.’). The focus value of TP is the set of sets of individuals that someone bought for Mary, and \(S\) is the subset of this set (22a).

For \textit{association with focus}, \(C\), the contextual variable of \(-\text{est}\), has to be determined on the basis of \(S\), by satisfying the condition in (20) \((C\) is the union of \(S\), i.e. it contains all the elements in the sets in \(S\), e.g. (22b-c)).

The \textit{presupposition} (6ii) and the \textit{requirement for focus association} should \textit{not clash}, e.g. (22b-c).
presupposes that \( S \subseteq [\phi] \), \( S \) is a subset of the focus semantic value for \( \phi \), and contains both the ordinary semantic value \( \phi \) and an element distinct from from the ordinary semantic value of \( \phi \).

**focus presupposition**

(Rooth 1985, 1992)

\[ \phi \sim S \]

\[ C = \cup S \]

**focus association**

(von Fintel 1994)

(19) \[ \phi \sim S \]

(20) \[ C = \cup S \]

(21) LF for (15b):

\[
[TP1 [DP the [-est C] [NP d-expensive cake]] [TP2 [~ S] [TP3 JohnF bought x for Mary]]]
\]

(22) a. \( S \subseteq [TP3]^i = \{P: \exists y [P = \lambda x [y bought x for Mary]]\} \)

b. \( C = \cup S = \{x: \exists y [y bought x for Mary]\} \)

c. \( C = \{x: \exists d [x is a d-expensive cake]\} \)

(focus association)

(presupposition of -est (6ii))

Heim 1999: this analysis does not require focus on 'John' for the relative reading in (15b), since \( C \) can also be contextually set. This consequence is desirable given that in (23a-b) elements that are not prosodically prominent can determine the comparison class, such as who (or its trace) (23a), or a non-overt constituent such as PRO (23b).

(23) a. We should console the girl who got the fewest [LETTERS].

b. One can win this contest by PRO putting the largest [PLANT] on the table.
(26) \([-est_{-place}] = \lambda C_{\langle dt,t \rangle}. \lambda P_{\langle dt,t \rangle}. \exists d \[P(d) \land \forall Q \in C \[Q \neq P \rightarrow \neg (Q(d))\]\]  

Presuppositions:  
   a. \(P \in C\)  
   b. \(\exists Q \in C, Q \neq P\)

The first argument, \(C\), is a set of properties of degrees; it is a covert restrictor of \(-est\) specifying the comparison class. The second argument, \(P\), is a property of degrees.

\([-est_{-place}](C)(P)\) is true iff there is a degree s.t. \(d\) has the property \(P\) and \(d\) has no other property in \(C\)  

Presuppositions: (i) \(P\) is a member of \(C\), (ii) there a degree property in \(C\) different from \(P\).

E.g. (Heim 1999, ex. (67)) \(d\) has no property of the form \(\lambda d[x \text{ is } d\text{-tall}]\) other than \(\lambda d[\text{John } d\text{-tall}]\) ⇔ no \(x\) other than John is \(d\)-tall

In (26) the comparison set \(C\) is a set of sets of degrees, and focus serves to narrow them down to the relevant subset, (27).

(27) \(C \subseteq S\)  

(focus association)

In (28b) the focus value of the sister of \([-S], TP_2\), 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, (29a), a focus feature on 'John' specifies \(C\) as in (29b).

(28) a. \(\lbrack \text{John} \rbrack_F\) bought the largest cake for Mary.
   b. LF:

\[\text{[John]}_F \text{ bought the largest cake for Mary.}\]

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\[\text{[John]}_F \text{ bought the largest cake for Mary.\]
(29) a. \( C \subseteq S \subseteq [TP_2]' \)
b. \([TP_2]' = \{D: \exists x [D = \lambda d. x \text{ bought a } d\text{-expensive cake for Mary}])\)
c. \(C_{\text{d.t.s}} \subseteq \{D: \exists x [D = \lambda d. x \text{ bought a } d\text{-expensive cake for Mary}])\}

- We now see a problem – there is **no way to prevent a relative reading set wrt. DP-internal focus**, cake in such a configuration as (28b). ‘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, (30).

(30) a. John bought the largest [cake] for Mary.
b. LF:

```
           TP₄
          /   |
         /     |
        C(dₜ,t) TP₃
          /   |
         /     |
        ~   S(dₜ,t) TP₂
          /     /   |
        1 TP₁     TP₃
          /   |
        John VP₂   VP₁
            /   |
          bought DP
```

- **Only** and DP-internal focus, (32a) vs. (33b)

English:

(32) a. John **only** gave Mary a cheap [CAKE]ₕ.
i.e. John gave Mary nothing else that was cheap except for the cake.

b. \(\text{Only}_C [\text{TP}] \exists x [D = \lambda f(x) \land \text{John gave } x \text{ for Mary}]\)
c. \([\text{TP}] = 1 \iff \lambda w. \forall p [p \in C \land p \neq [\text{John gave Mary a cheap cake}] \rightarrow \neg p(w)]\)
d. \(C = \{P: P = \exists f(eₜ) \exists x \exists d [f(x) \land \text{John gave } x \land \text{cheap}(d)(x)]\}\)

(33) John gave Mary the cheapest [CAKE]ₕ.

a. ‘John bought Mary the cake that was cheaper than any other cake in the store.’ **Absolute**
b. *‘John bought Mary a cheaper cake than anything else bought her.’* **DP-Internal Relative**
The DP-internal relative reading is found in Slavic languages (Pancheva and Tomaszewicz 2012).

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

3 Cross-linguistic restrictions on relative readings

3.1 Polish vs. English

- Pancheva and Tomaszewicz (2012) identify an additional relative reading in Polish and Bulgarian, the DP-internal relative reading:

(34) a. Jan met the youngest students from London.
    b. Jan poznał najmłodszych studentów z Londynu. (Polish)

Jan met youngest students from London

<table>
<thead>
<tr>
<th>EN</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Jan met those students from London who were the youngest.'</td>
<td>√</td>
</tr>
<tr>
<td>'Jan met younger students from London than anyone else did.'</td>
<td>√</td>
</tr>
<tr>
<td>'Jan met younger students from London than from any other city.'</td>
<td>*</td>
</tr>
</tbody>
</table>

Tomaszewicz (2013) adds the observation that the DP-internal reading can also be established with respect to the head noun:

(35) a. Jan bought the most expensive tomatoes.
    b. Jan kupił najdroższe pomidory. (Polish)

Jan bought most-expensive tomatoes

<table>
<thead>
<tr>
<th>EN</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Jan bought the tomatoes that were more expensive than any other tomatoes in the store.'</td>
<td>√</td>
</tr>
<tr>
<td>'Jan bought more expensive tomatoes than anyone did.'</td>
<td>√</td>
</tr>
<tr>
<td>'Jan bought more expensive tomatoes than any other thing he bought.'</td>
<td>*</td>
</tr>
</tbody>
</table>

The difference between Polish and English in the availability of the DP-internal Rel-2 reading is especially conspicuous with most (quantity superlative):

(36) a. Jan bought the most tomatoes.
    b. Jan kupił najwięcej pomidorów. (Polish)

Jan bought most tomatoes

<table>
<thead>
<tr>
<th>EN</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Jan bought the plurality of tomatoes that was more numerous than any other plurality of tomatoes in the store.'</td>
<td>*</td>
</tr>
<tr>
<td>'Jan bought more tomatoes than anyone else did.'</td>
<td>√</td>
</tr>
<tr>
<td>'Jan bought more tomatoes than any other thing he bought.'</td>
<td>*</td>
</tr>
</tbody>
</table>

(36b), when uttered with default intonation, receives the DP-Internal Relative interpretation, where the amount of tomatoes is compared to amounts of other vegetables (or other relevant items) that Jan bought. For the DP-External Relative reading pitch accent on 'Jan' is required.
Dedicated focus position

“Split superlative” – excluding the possibility of focus on ‘Jan’ by topicalization of ‘most-expensive’ and obligatory focus on ‘tomatoes’ ➔ English (37a) and Polish (37b) do not have overlapping interpretations:

(37) a. Jan bought the most expensive tomatoes.
b. Najdroższe Jan kupił t₁ pomidory. (Polish)

Jan bought the tomatoes that were more expensive than any other tomatoes in the store.’

Jan bought more expensive tomatoes than anyone did.’

Jan bought more expensive tomatoes than any other vegetable he bought.’

Prosody for (37b) is as in (38c):

(38) a. [Drogie₁ Jan kupił t₁ pomidory.],
    expensive Jan bought tomatoes
b. [[DROgie]_focus Jan kupił pomidory]_given
    H*L
    ➔ c. [[DROgie]_topic (toTopPrt) ]₁[Jan kupił [pomiDory]_focus]₁
    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).

“Split superlative” – obligatory DP-internal relative reading

The following scenarios show that sentence (37b) can neither express the absolute, (39), nor the DP-external relative reading, (40).

(39) Kontekst: Spośród wielu gatunków dostępnych w sklepie, ...

Context: Among many varieties of tomatoes available in the store, ...

a. #Najdroższe₁ Jan kupił t₁ pomidory. (Polish)
    most-expensive Jan bought tomatoes
b. #Najdroższe pomidory kupił Jan.
    most-expensive tomatoes bought Jan
c. Jan kupił najdroższe pomidory.
    Jan bought most-expensive tomatoes

(40) Kontekst: Marek, Jan i Piotr kupili różne gatunki drogich egzotycznych pomidorów.

Context: Marek, Jan and Piotr bought different kinds of expensive exotic tomatoes.

a. #Najdroższe₁ Jan kupił t₁ pomidory. (Polish)
    most-expensive Jan bought tomatoes
    most-expensive tomatoes bought Jan
c. Jan kupił najdroższe pomidory.
    Jan bought most-expensive tomatoes

Sentence final focus position in Slavic – in (39b),(40b) the subject is focalized. Focalized subject induces the DP-external relative interpretation, (41).

(41) Najdroższe pomidory kupił wieczorem [Jan].
    most-expensive tomatoes bought evening Jan
'Jan bought more expensive tomatoes in the evening than anyone else did.'

* 'Jan bought tomatoes more expensive in the evening than at any other time of the day.'

* 'In the evening Jan bought tomatoes more expensive than any other vegetable he bought.'

* 'In the evening Jan bought the tomatoes that were more expensive than any other tomatoes in the store.'

(King 1993, Bailyn 1995, Junghanns and Zybatow 1997, Dyakonova 2009, Baylin 2012, a. o.). Due to the Information Structure Ordering Rule in (42), the constituents that are interpreted as foci receive the nuclear stress (on the neutral intonation), a falling accent HL*.

(42) IS Ordering Rule (Dyakonova 2009, p. 55):
Topic > (Discourse Neutral Material) > Focus

- Polish in contrast to English allows for the DP-internal relative reading in superlatives. (The Polish facts also hold for other Slavic languages we tested in detail: Serbian, Czech and Slovenian2).
- The DP-internal reading is the only obligatory reading when the noun alone is in focus.
- Polish split construction provides an argument for the obligatory role of focus in the derivation of the DP-internal relative reading.
- Bulgarian data provides an argument for the obligatory role of (in)definiteness in the derivation of the DP-internal relative reading  → only indefinite superlative DPs allow the DP-internal relative reading, as shown in the next section.

3.2 Bulgarian vs. English

In Bulgarian superlative DPs in the presence of the definite determiner allow the same range of interpretations as in English:

(43) a. Ivan bought the most expensive tomatoes.
   b. Ivan kupi [DP naj-skupi-te domati]
   Ivan bought est-expensive-the tomatoes
   'Jan bought the tomatoes that were more expensive than any other tomatoes in the store.'
   'Jan bought more expensive tomatoes than anyone did.'
   'Jan bought more expensive tomatoes than any other thing he bought.'

In the absence of the definite, the DP-internal reading is available just like in Polish. (Additionally, the absolute interpretation disappears.)

(44) a. Ivan bought the most expensive tomatoes.
   b. Ivan kupi [DP naj-skupi domati]
   Ivan bought est-expensive tomatoes
   'Jan bought the tomatoes that were more expensive than any other tomatoes in the store.'
   'Jan bought more expensive tomatoes than anyone did.'
   'Jan bought more expensive tomatoes than any other thing he bought.'

---
2 Some Slavic speakers find the DP-internal focus reading easier to get in quantity, (36b), than in quality, (35b), superlatives
Summary of the empirical observations:

- In English, when the focus is inside the superlative DP, the corresponding relative reading is blocked.
- In Polish, and in other languages without definite article, this constraint doesn’t hold.3
- Bulgarian behaves like English when the definite article is present in superlative DPs, but like Polish, it allows the DP-internal relative reading when the definite is absent. (The same holds for Macedonian).

3.3 Definite DPs are islands for degree movement

Pancheva and Tomaszewicz (2012) propose that the definite article creates an island for degree movement, trapping -est (English)/ naj- (Bulgarian/Macedonian) DP-internally.

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 (45a), -er can QR out of the indefinite DP and merge with its restrictor than-clause (Bhatt and Pancheva 2004), but in (45b) QR is blocked. Sentential scope for -er is needed in (45a,b) because of clausal ellipsis in the than-clause. In (45c) it is enough for -er to QR locally, internally to the definite DP, because there is no need for resolving clausal ellipsis.

(45) 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.

(46) a. Ivan kúpí 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 kúpí 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 (47) is not.4

(47) Some boy listened to [DP the best [NP albums of/by every band]]
(48) a. Which band does John have [DP the best [NP albums of/by __]]?
   b. It is U2 that John has [DP the best [NP albums of/by __]]

(49) a. Na/otkoj sastav ima Ivan [DP naj-dobri-te [NP albumi __]]? (Bulgarian)
   of/by which band has Ivan naj-good-the albums
   ‘Which band does John have the best albums of/by?’
   b. Na/otU2 ima Ivan [DP naj-dobri-te [NP albumi __]]
    of/by U2 has Ivan naj-good-the albums
    ‘It is U2 that John has the best albums of/by.’

3 For help with judgments thanks to Dimka Atanasov, Boris Harizanov, Snejana Iovtcheva, Iliyana Krapova, Todor Kolev (Bulgarian), Joanna Błaszczak, Dorota Klimek-Jankowska, Agnieszka Łazarczyk, Krzysztof Migdalski, Ewa Tomaszewicz (Polish), Boban Karapejovski, Slavica Kovichska, Olga Mišeska Tomić, Bojan Petrovski, Rade Sazdovski, Katerina Zdravkova (Macedonian), Petr Biskup, Mojmir Dočekal, Vera Dvorák (Czech), Nataša Miličević, Ivana Mitrović, Anja Šarić, Mile Živković (Serbian/Croatian), Lanko Marušič (Slovenian).

4 It is often suggested that definite DPs are islands, but this is too strong a claim in light of examples like (47)-(49). The examples in the literature in support of the claim that definite DPs are islands usually involve DPs with possessors and quantifiers, and not DPs headed by the. In fact, the acceptability of (i) has been invoked, rather famously, as the control case for illustrating island effects with subject sub-extraction (Chomsky 2008).

(i) Of which car did they find the driver?
3.4 Focus association with [-est$_{2\text{-place}}$] and the definiteness of the superlative DP

Pancheva and Tomaszewicz (2012) 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.

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

Heim (1999) introduced the 2-place semantics for -est, (26) repeated below in (50), to account for the focus effects in relative readings. The availability of the DP-internal relative reading is straightforwardly predicted.

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

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

◆ Can we model the cross-linguistic restriction on the availability of the DP-internal relative reading in the presence of the definite, assuming that -est associates with focus on relative readings (as in Pancheva and Tomaszewicz 2012) using the 2-place semantics?

3.4.1 Attempting to constrain focus association – low scope for [-est C]

(51) a. John bought the largest [cake]$_F$.

b. LF:

\[
\begin{array}{c}
TP \\
\text{John} \quad VP \\
\text{bought} \quad DP \\
\text{the} \quad NP_4 \\
\text{NP}_4 \quad \text{TYPE CLASH} \\
\text{[-est C]$_{dt, t}$} \\
\sim S \quad NP_2 \\
1 \quad NP_1 \\
d_1\text{-large} \quad \text{cake}_F
\end{array}
\]

c. $[\text{NP}_3] = [\text{NP}_2] = \lambda d. \lambda x. [\text{cake}(x) \land \text{large}(x, d)]$
If we try lower scope for \([-\text{est } C]\), it needs to be placed above ‘the’ to avoid a type clash as in (51). \([-\text{est } C]\) needs an argument of type \((d,t)\) as its second argument, but in (51) \(NP_3\) is of type \((d,et)\).

\begin{enumerate}
\item \textbf{a.} John bought the largest \([\text{cake}]_F\).
\item \textbf{b.} LF:
\begin{itemize}
\item \text{TP}
\item \text{bought}
\item \text{NP}_4
\item \text{[\text{-est } C]~}_{\text{dt,t}}
\item \text{DP}_3
\item \text{\sim S}
\item \text{DP}_2
\item \text{1}
\item \text{NP}_2
\item \text{a}
\item \text{d}_1\text{-large}
\item \text{cake}_F
\end{itemize}
\item \text{c.} \([\text{DP}_3] = [\text{DP}_2] = \lambda d. \exists x [\text{cake}(x) \land \text{large}(x,d)]\)
\item \text{d.} \([\text{DP}_3] = \exists d. \exists x. [\text{cake}(x) \land \text{large}(x,d) \land \forall Q \in C [Q \neq [\text{DP}_3] \rightarrow \neg (Q(d))] ]\)
\item \text{f.} \(C \subseteq S \subseteq [\text{DP}_2]^f\)
\item \text{g.} \(C_{\text{dt,t}} \subseteq \{ D : \exists f \exists x [D = \lambda d. f(x) \land \text{large}(x,d)] \}\)
\end{enumerate}

In (52), we get the right types for \([-\text{est } C]\) to combine with \(NP_3\), but what is the reading that we get?

An ‘absolute-like’ reading where cake is compared in terms of size with other large things in \(C\), (52g). 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 in Slavic.

\textbf{3.4.2 Attempting to constrain focus association – high scope for \([-\text{est } C]\)}

Assume that (i) in the presence of ‘the’ the whole superlative DP can be pied-piped, and (ii) \([-S]\) always takes sentential scope. The movement of the superlative DP will take it out of the scope of \([-S]\) and allow for the focus on ‘John’ only.

\begin{enumerate}
\item \textbf{a.} \([\text{John}_F\text{ bought the largest cake.}\)
\item \textbf{b.} LF:
\begin{itemize}
\item \text{TP}_4
\item \text{TP}_3
\item \text{\sim S}
\item \text{TP}_2
\item \text{2}
\item \text{TP}_1
\item \text{John}_F
\item \text{bought}
\item \text{NP}_5
\item \text{the}
\item \text{NP}_5
\item \text{[\text{-est } C]~}_{\text{dt,t}}
\item \text{NP}_2
\item \text{1}
\item \text{NP}_1
\item \text{d}_1\text{-large}
\item \text{cake}
\item \text{t}_2
\end{itemize}
\end{enumerate}
In (53) we prevent DP-internal focus, but we get a type clash within the DP, as NP₂ is of type (d,et) as in (51).

To avoid the type clash 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) a. Johnfoundland bought the largest cake.

b. LF:

```
  TP₄           DP₅
  /\           /
TP₃ /           / S
  /\           / 3
TP₂ /           / TP₁
  /\           /
John /           / VP
  /\           /
  /\           /
bought /         / t₃
  /\           /
DP /           /
  /\           /
NP₁ /           /
  /\           /
d₁-large / cake₇₁
```

c. $[DP₂]^{²} = \lambda d. [\text{cake}(g(2)) \land \text{large}((g2),d)]$

In (54) focus is external to the superlative DP, but C cannot satisfy the condition $C \subseteq S \subseteq [TP₂]^t$, given that DP₂ contains an unbound variable and -est presupposes that $P \in C$, (26b).

### 3.5 Conclusion about $[-est_{2-place}]$ 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, (28b). 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, (52). If -est takes high scope within the DP, condition on focus association and the presuppositions of -est cannot be simultaneously satisfied, (54).

### 3.6 $[-est_{3-place}]$ and focus association

#### 3.6.1 DP-external -est can associate with DP-internal focus.

A cross-categorial lexical entry for the -est, (55).
The DP-internal reading requires comparison with alternatives to the NP, which is of type \((e,t)\), while in the DP-external reading we consider alternatives to the subject DP, which is of type \(e\).

\[
\text{[\text{-est}_3\text{-place}]} = [\text{naj}_3\text{-place}] = \\
\lambda C_{<e,t>}, \lambda P_{<e,d,t>}, \lambda x_0 . \exists d[P(d)(x) \land \forall y \in C [y \neq x \rightarrow \neg(P(d)(y))]]
\]

Presuppositions:

a. \(x_0 \in C_{<e,t>}\)

b. \(\forall y_0 [y_0 \in C_{<e,t>} \rightarrow \exists d[P(d)(y)]]\)

(55) \[\text{Jan kupił najdroższe [pomidory]}_F.\]

Jan bought most-expensive tomatoes

'Jan bought tomatoes more expensive than any other vegetable he bought.'

(56)

(57)

(58)

a. \([\text{TP}_3] = [\text{TP}_4]^e = \lambda d \lambda f \exists x [f(x) \land \text{Jan bought } x \land x \text{ is } d\text{-expensive}]\)

b. \(S_{<e,t>\subseteq} \subseteq \{[\text{TP}_4] \land \exists d \lambda f \exists x [f(x) \land \text{Jan bought } x \land x \text{ is } d\text{-expensive}]]\)

c. \(\cup S = C_{<e,t>} = \{f : \exists d \exists x [f(x) \land \text{Jan bought } x \land x \text{ is } d\text{-expensive}]]\) (focus association)

d. \([\text{tomatoes}] \subseteq C_{<e,t>}\) (presupposition of -est, (6a))

e. \(\forall h_{<e,t>} [h \in C_{<e,t>} \rightarrow \exists d \exists x [h(x) \land \text{Jan bought } x \land x \text{ is } d\text{-expensive}]]\) (presupposition of -est, (6b))

The requirements imposed on \(C\) by focus association and by the presuppositions of -est do not clash and allow for the relative reading. Crucially for Pancheva and Tomaszewicz’s (2012) proposal, the DP does not contain a definite determiner and -est is able to scope out.

3.6.2 DP-internal -est cannot associate with DP-internal focus.
Tübingen, June 18, 2013

Pancheva and Tomaszewicz (2012): **Definite superlative DPs are islands for degree movement.** DP-internal -est cannot associate with DP-internal focus (59), (61), (even if we assume that [~ S] does not have to take sentential scope, see Pancheva and Tomaszewicz 2012). It can only associate with DP-external focus.

(59)

```
(59)    
     TP₁   
    ~  S  TP₂  
    John VP  
     bought DP  
      the NP₁  
     -est C NP₂  
      1 NP₃  
        d₁-expensive [cake]ᵢ  
```

(60) a. $S \subseteq \left[ TP₂ \right] = \{ p : \exists x[p = \text{John bought the most expensive } x] \}$

i.e. $S$ is a subset of a set of propositions of the form “John bought the most expensive $x$”.

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

i.e. $C$ is a set of cakes of some price

c. $C \neq \cup S$

(61)

```
(61)    
     TP₁   
  ~ S TP₂  TP₃  
     John VP  
     bought DP  
      the NP₁  
     -est C NP₂  
      1 NP₃  
        d₁-expensive tomatoesᵢ  
```

In (61) there is no F-marked element at all in the scope of ~. This LF is uninterpretable.
(62) 

\[ \text{TP}_1 \]

\[ \text{NP}_1 \]

\[ \text{the } \]

\[ \text{NP}_2 \]

\[ -\text{est } \]

\[ \text{C} \]

\[ \text{NP}_3 \]

\[ 1 \]

\[ \text{d}_1-\text{expensive tomatoes} \]

\[ \text{TP}_2 \]

\[ \sim \]

\[ \text{S} \]

\[ \text{TP}_3 \]

\[ 2 \]

\[ \text{NP}_4 \]

\[ \text{John}_F \]

\[ \text{bought} \]

\[ \text{DP} \]

\[ x_2 \]

(63) a. \( S \subseteq [\text{TP}_3] = \{ D: \exists y [D = \lambda x [y \text{ bought } x]] \} \)

b. \( \cup S = C = \{ x: \exists y [y \text{ bought } x] \} \) (focus association)

c. \( [\text{tomatoes}] \in C \) (presupposition of -est, (6a))

d. \( \forall y [y \in C \rightarrow \exists d [\text{expensive}(d)(y) \land \text{tomato}(y)]] \) (presupposition of -est, (6b))

- Like in the DP-internal theory, the comparison is between tomatoes bought by relevant people, and not between John and other people who bought tomatoes.
- Unlike in the DP-internal theory, the restriction on \( C \) (‘bought by relevant people’) is not purely contextual but derives from association with focus.

The proposal in Pancheva and Tomaszewicz (2012) 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\(^5\).

4 Comparison of degrees vs. individuals

4.1 Evidence for two lexical entries – overt specification of \( C_{(e,t)} \) and \( C_{(d,t)} \)

The evidence for 3-place -est comes from the option of overtly specifying \( C \) as in (64); the PP explicitly defines a set of individuals (Heim 1999).

(64) a. John is the most impressive \([\text{PP among the candidates}]\). \hspace{1cm} \text{(Heim 1999)}

b. LF: John is \([-\text{est } \text{C}] \) impressive

c. \( C_{est} = \{ x: \exists d. x \text{ is a d-impressive candidate} \} \)

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

\(^5\) The determiner the, however, can be interpreted either as definite or indefinite given that the semantics of superlative contribute uniqueness.
(65) 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 (65b): (Romero 2011)
[[−est] [1 possible <John bought a $t_1$-large gift>]] [2 John bought A $t_2$-large gift]
d. $C_{dt,t} = [1$ possible <John bought A $t_1$-large gift> $] =
= \lambda d. \exists x [\text{gift}(x) \land \text{bought}(j,x) \land \text{large}(x,d)]$

4.2 Degree relative clauses in Polish – overt specification of $C_{(dt,t)}$

Tomaszewicz (2013b): An argument that 2-place -est is needed in Polish comes from the presence of degree relative clauses.

(66) *ile pomidorów kupił Jan?* 
How-many tomatoes bought Jan
‘How many tomatoes did Jan buy?’

Correlativization shows that ile-relative clauses modify degrees - in the matrix clause the degree variable it abstracts over is picked up by a dedicated degree demonstrative tyle (‘that much/many’), (67), and not a regular demonstrative referring to individuals, (68) vs. (69).

(67) *Jan kupił tyle pomidorów.* ( + a pointing gesture) → degrees of quantity
Jan bought DEM tomatoes
‘Jan bought that many tomatoes.’

(68) *Jan kupił Marii tyle pomidorów, ile/*które pro mógł kupić.*
Jan bought for-Maria DEM tomatoes how-many/which could buy
‘Jan bought Maria as many tomatoes as he could buy.’

(69) *Jan kupił Marii te pomidory, które pro mógł kupić.*
Jan bought for-Maria DEM tomatoes which could buy
‘Jan bought Maria those tomatoes that he could buy.’

In English a that-relative clause can receive a degree reading, as disambiguated by the context, (70) (Heim 1987).

(70) It will take us the rest of our lives to drink the champagne that they spilled that evening.
a. LF1: [champagne $\lambda d$ [they spilled $d$-much champagne that evening]]
b. LF2: [champagne $\lambda x$ [they spilled $x$ that evening]]

(70a): ‘identity of amounts’ (i.e. degree) interpretation of the that-clause (⟨d,t⟩)
(70b): regular relative clause interpretation) of the that-clause (‘identity of substances’, ⟨e,t⟩)

For the amount reading in Polish the dedicated quantity demonstrative tyle and the relativizer ile have to be used:

(71) a. *Jan wypił tyle szampana, ile wylano na podłogę tego wieczoru.*
Jan drank DEM champagne how-much spilled.Imprs on floor that evening.
‘Jan drank as much champagne as they spilled on the floor that evening.’
b. *Jan wypił tego szampana, którym wylano na podłogę tego wieczoru.*
Jan drank that champagne which spilled.Imprs on floor that evening.
‘Jan drank the same champagne that they spilled on the floor that evening.’

The ile-relative clause (= degree relative clause) can function as overt specification of the comparison class (‘than other things’) (with relative readings blocked):
Relativization over a degree variable produces a \(\langle d, t \rangle\) type interpretation for the relative clause. This denotation can be shifted to the \(\langle dt, t \rangle\) type, the type of the \(C\) variable in the 2-place entry for -est \(\rightarrow\) Romero’s (2011) SHIFT operator, (75), can apply freely to convert the set of degree points into a set of sets of lower-or-equal degrees.

\[
\text{SHIFT}^{<d,t>\rightarrow<dt,t>} = \lambda D^{<d,t>} \cdot \lambda D''^{<dt,t>} \cdot \exists d' [D(d') \& D' = \lambda d'' \cdot d'' \leq d']
\]

For (73):
\[
C^{<dt,t>} = \text{SHIFT}^{<d,t>\rightarrow<dt,t>} (\left[ 1 \text{ he could buy } d\text{-many tomatoes } \right]) =
\text{SHIFT}^{<d,t>\rightarrow<dt,t>} (\left[ \lambda d. \text{ he could buy } d\text{-many tomatoes } \right]) =
\lambda D''^{<dt,t>} \cdot \exists d' (\left[ \lambda d. \text{ he could buy } d\text{-many tomatoes } \right])(d') \& D' = \lambda d'' \cdot d'' \leq d'
\]

\(\rightarrow C\) in (73) is the set of amounts of tomatoes Jan could afford

**Degree relatives are incompatible** with relative readings when focus targets an individual denoting NP:

(77) a. Jan kupił [MARII]_{F} najwięcej pomidorów, *ile pro komukolwiek kupił.
Jan bought for-Maria most tomatoes how-for-anyone bought

b. [MARII]_{F} Jan kupił najwięcej pomidorów, *ile pro komukolwiek kupił.
for-Maria Jan bought most tomatoes how-for-anyone bought

‘Jan bought Maria the most tomatoes he bought anyone.’

(78) [JAN]_{F} kupił najwięcej pomidorów, *ile jego koledzy kupili.
Jan bought most tomatoes how-much his friends bought

‘Jan bought more tomatoes than his friends did.’

Relative readings on which the amount is explicitly modified are compatible with *ile-clauses and focus obligatorily falls on the superlative quantifier:

(79) (=72) Jan kupił [NJWIECEJ]_{F} pomidorów, ile było dozwolone.
Jan bought most tomatoes how-much was allowed
‘Jan bought the largest amount of tomatoes that was allowed.’

(80) (=73) Jan kupił Marii [NJWIECEJ]_{F} pomidorów, ile pro mógł kupić.
Jan bought for-Maria most tomatoes how-many could buy
‘Jan bought Maria the most tomatoes he could buy.’
Tübingen, June 18, 2013

5 Conclusions

Focus and definiteness:

Slavic languages, in contrast to English allows for the **DP-internal relative reading** in superlatives in the **absence of the definite** determiner in the superlative DP.

The Polish "**split superlative**" construction provides an argument for the **obligatory role of focus** in relative readings.

Bulgarian data provide an argument that in the presence of the definite determiner DP-external scope of **-est** is not allowed. Data from comparatives supports the proposal of in Pancheva and Tomaszewicz (2012) that **definite DPs are islands for degree movement**.

This constraint together with obligatory focus association for relative readings derives the cross-linguistic differences in the availability of DP-internal relative readings. The only parametric difference is the **definiteness of the superlative DP**.

Comparing individuals/degrees:

The **2-place semantics for -est** makes the **wrong predictions** for focus effects in English vs. Slavic. There is no way to derive the restriction on the availability of the DP-internal relative reading with relation to the definite determiner.

The cross-linguistic facts can be accounted for using **3-place -est** (Pancheva and Tomaszewicz 2012).

We need the **3-place -est** in the grammar for **focus association** (when focus is on an individual denoting argument).

We need the **2-place semantics** for cases where -est's restrictor **C is overtly specified as a set of degrees** (e.g. by a degree relative clause in Polish).

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