Superlatives and definiteness: lessons from Romance [*]

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1. Introduction: definiteness markers in Romance superlatives

➢ Superlatives are based on comparatives in all Romance languages, but in some languages and constructions, a definite article form combines with the comparative to form the superlative.

➢ Previous research (see Loccioni 2018, Giurgea 2013, Dobrovie-Sorin & Giurgea 2021) has established 3 types of languages, according to whether a definite article form is used as a superlative marker:

Table I: THE as a SUP-marker in Romance

	Prenominal	Postnominal	Predicative, adverbial, quantitative
Romanian	✓ *cele două [**cele** mai bogate] ţări /* *[**cele** mai bogate] două ţări* 'the two richest countries'	✓ *ţara [**cea** mai bogată]* 'the richest country'	✓ *cel care cântă [**cel** mai bine]* 'the one who sings best'
French	* *les deux [(*les) plus riches] pays /* * *[les plus riches] deux pays*	✓ *le pays [**le** plus riche]*	✓ *celui qui chante [**le** mieux]*
Italian, Spanish, ...	* *i due [(*i) più ricchi] paesi /* **i più ricchi due paesi*	* *il paese [(*il) più ricco]*	* *quello che canta [(*il) meglio]*

A non-agreeing definite article can be used as a degree operator in modal superlatives in Italian and Spanish (e.g. *Maria voleva essere **il** più carina possibile* 'Maria wanted to be the kindest possible', see Loccioni 2018). I will not address this issue here.

➢ In **the DP-initial position**, Romanian superlatives look identical to those of the other Romance languages, but there is evidence for a different structure:

(1)   a. **cea   mai frumoasă** fată
         cel.FSG more beautiful girl
      b. la plus belle fille   (Fr.)
      c. la più bella ragazza (It.)

N.B. In other contexts, *cel* is a strong form of the definite article, used when the suffixal form is impossible:

(2)   a. **cele**   două fete   / *două-le   fete
         the.FPL two girls   two-the.FPL girls

b. **cel**   de-al doilea an
   the.MSG of-ORD two-ORD year
c. **cele**   albastre   [THE [[$_D\emptyset$] [$_{AP}$ albastre]]]
   the.FPL blue.FPL
     'the blue ones'

Evidence that *cel* in (1) is not a D, but rather part of the superlative, forming a constituent with *mai*+AP:

➤ In the combination [D [Comparative [NP]], Romanian uses the *suffixal* article on the adjective (and the interpretation is comparative – it is the marked, non-restrictive prenominal position of quality As):

(3)   Dacă vreți o   alternativă la **mai celebrul**   și **mai reușitul**   PhotoFun, ..
       if   want.2PL an alternative to more famous-the and more successful-the PhotoFun...
                        (www.cnet.ro/2008/10/15/yourmagicphotocom-mini-photofun/)

=> For a structure [DEF [Comparative NP]], we would expect a suffixal article

➤ *Cel* must be present whenever a prenominal superlative is separated from D by other constituents (cardinals, ordinals), unlike in French – see Table 1, the Prenominal column, for cardinals; cf. also with ordinals:

(4)   a. al doilea   [**cel**   mai bun] timp   (Ro.)
        ORD second-ORD *cel*.MSG more good time
        'the second best time'
    b. le deuxème (*le) meilleur temps
       the second   the   better   time

➤ Combination with cardinals (see Table 1, the Prenominal column): the preferred order is *cel*+Comp~~Card~~N; in other Romance languages, the normal order is THE-Card-Comp-N, the other order is only possible with an interpretation in which sums of *n*-elements are compared (Loccioni 2018), see (6):

(5)   a. cei   mai înalți doi munți
        cel.MPL more high   two mountains
    b. *les plus hautes deux montagnes / les deux plus hautes montagnes   (Fr.)
(6)   a. le due più lunghe presentazioni   (It., Loccioni 2018:21-22, ex. 23)
       the two more long   presentations
        = 2 presentations such that each of them is longer than all the remaining
         presentations
    b. le più lunghe due presentazioni
       the more long   two presentations
       ="a pair of presentations that, as a twosome, is the longest"
    Ro.: *cele mai lungi două prezentări* has both readings (i.e., it can correspond to (6)a)

=> In Ro., in the type in (1)a, [*cel*+Comparative] forms a constituent in SpecDP and the DP is marked as definite by definiteness agreement.

(7)   a. [$_{DP}$ [$_{DegP}$ cel mai AP] [[$_D\emptyset_{def}$] [..t$_{DegP}$ ..NP..]]]   (Ro.)
    b. [[$_D$ *le/il*] [[$_{DegP}$ plus/più AP] NP]]   (Fr., It.)

Cf. other phrases marking definiteness in SpecDP:
(8)   a. [al   doilea]   tren   Ordinals
        ORD.MSG two-ORD train   'the second train'

b. [al   cărui] fiu   *al*-Possessors
    GEN.MSG whose son 'whose son'

al is not an article, being used with ordinals and possessors in other contexts:
(8)′   a. un [**al** doilea] tren 'a second train'
        b. o problemă [**a** acestei teorii]   'a problem of this theory'

=> We have items that activate their +def feature only when needed, i.e. in the DP-initial position: *al*, *cel* (which both come from definite articles – *al*, coming from 'proclitic' *ille*, had been a strong definite article form at a previous, unattested stage of Romanian, see Giurgea 2012, 2013)

Romanian, having an inflectional definite article, has developed a system of definiteness agreement, unlike other Romance languages (cf. Cornilescu & Nicolae 2011, Nicolae 2019)

2. Syntactic consequences of the typology in Table I: summary

(i) Prenominal (quality) superlatives rely on a special, scopal position in Fr., It. Sp. (=> restriction to absolute readings), whereas in Romanian they are non-restricted (they can be relative)
(ii) DP-external superlatives (predicative, adverbial) are subject to distributional restrictions in It., Sp. (Loccioni 2018), while they are non-restricted in Ro., Fr.
(iii) Because quantity superlatives cannot be absolute or postnominal, they are subject to the same restrictions as those in (ii) in It., Sp. (Loccioni 2018), whereas in Fr. and Ro. they are unrestricted => THE is a Sup-marker also in Fr. quantity superlatives
(iv) Superlatives in Romanian are much less restricted wrt. the combination with other determiners. However, this only holds for *prenominal* superlatives. For the postnominal ones, the situation is similar to that of other Romance languages (the definite article is required) => postnominal superlatives in Romanian probably rely on a reduced relative structure, like in the other languages, with D_{def} selecting for the relevant $Pred_{sup}$ head (see Giurgea 2022)

3. On a dedicated position for prenominal superlatives which are not in SpecDP

Cinque (2010) claims that, in Italian, prenominal superlatives only have absolute readings, as opposed to postnominal superlatives:
(9)   a. Chi ha scalato la più alta montagna innevata?   ✓ absolute, * relative
         who has climbed the more high mountain snowy   (Cinque 2010, ch. 2 ex. 23)
        b. Chi ha scalato la montagna innevata più alta ?   ✓ absolute, ✓ relative
         who has climbed the mountain snowy more high   (Cinque 2010, ch. 2 ex. 24)

Loccioni (2018) supports this claim with an indefiniteness test, using I-level *have*:
(10)   a.# Il più grosso gatto bianco, ce   l'ha   Betta   (Loccioni 2018:41-42)
          the more big   cat white CL.LOC CL.ACC=has Betta
       b. Il gatto bianco più grosso, ce   l'ha   Betta
         the cat   white more big   CL.LOC CL.ACC=has Betta

Cf. also with relational nouns, where the use of a definite object is strictly excluded:
(11)   Who has the *(smartest) sister?   (Szabolcsi 1986:(36))
(12)   a. Il figlio più intelligente lo ha Betta.   (Lucia Tovena, c.p.)
         the son   more intelligent him=has Betta
       b. * Il figlio intelligente lo ha   Betta
         the son   intelligent   him=has Betta
       c. * Il più intelligente figlio lo ha   Betta
         the more intelligent son   him=has Betta

Split scope (cf. Heim 1999):

(13)   JOHN wants to climb the highest mountain

    (i) **max** {d: $\exists$**x.** x is a d-high mountain and John **wants** to climb x} >
      max {d: $\exists$y$\neq$John. $\exists$**x.** x is a d-high mountain and y **wants** to climb x}   (de re)

    (ii) John **wants** [λw. **max** {d: $\exists$**x.** x is a d-high mountain in w $\wedge$ John climbs x in w} >
      max {d: $\exists$y$\neq$John. $\exists$**x.** x is a d-high mountain in w $\wedge$ y climbs x in w}]   (de dicto)

    (iii) **max** {d: John **wants.**λw[$\exists$**x.** x is a d-high mountain in w $\wedge$ John climbs x in w]}>
      max {d: $\exists$y$\neq$John. y wants λw[$\exists$**x.** x is a d-high mountain in w $\wedge$ y climbs x in w]}
      (upstairs de dicto): -EST > WANT > $\exists$

(14)   a. C'est Jean qui   veut   escalader [la montagne [la plus haute]]
      it's Jean who wants to-climb   the mountain   the more high
       ✓ split scope: Jean wants to climb any 7000 m. mountain, Philippe wants to climb
       any 5000m. mountain, Paul wants to climb any 4000m. mountain
    b. C'est Jean qui veut   escalader [la [[plus haute] [montagne]].   (A. Rouveret, c.p.)
      it's Jean who wants to-climb   the more high   mountain
     * split scope

Romanian–prenominal superlatives are OK in the diagnostic contexts for relative readings:

(15)   a. Brânzoi **are cea   mai   frumoasă** nevastă
      Brânzoi has *cel*.FSG more beautiful   wife
                (https://www.youtube.com/watch?v=GNcClPVcIzM)
    b. De obicei intră în competiţii subtile de genul: cine **are cel mai mult succes** la
      servici, cine **are soţia cea mai frumoasă şi copiii cei mai deştepţi**,
             (https://www.adriana-nanea.ro/tipologia-trei-competitivul/)
     '(S)he/They usually get into subtle competitions of the type: who has the most
     success at work, who has the most beautiful wife and the most intelligent
     children....'

(16)   ION vrea   să   urce   cel   mai înalt munte
    Ion   wants SUBJ climb.3 *cel*.MSG more high mountain
     ✓ split scope

Account:
➢ The post-D prenominal position of superlatives, found in the other Romance languages (and, in Ro., in examples with non-DP-initial superlatives, see Table I, the Prenominal column), is clearly not a regular position of quality adjectives: it is well-known that quality adjectives, or at least the majority of them, have a non-restrictive reading in prenominal position; this is not the case for prenominal superlatives:

(17)   a. l'intéressant   roman   (Fr.)
     the interesting novel
     : non-restrictive, cf. * *Je ne lirai que l'intéressant roman, pas les autres* 'I'll only
     read the interesting novel, not the others'
    b. le plus intéressant roman
     the more interesting novel
     : restrictive: *Je ne lirai que le plus intéressant roman, pas les autres*
(18)   a. i   notevoli   palazzi   (non-restrictive) (It.)
     the remarkable palaces
    b. i più notevoli   palazzi   (restrictive)
     the more remarkable palaces

=> the idea of a dedicated DP-peripheral position for superlatives–SupP (Loccioni 2018)

➢ SpecSupP is a *scope* position => the scope of superlatives in SpecSupP must be DP-internal (below definite D) = absolute reading
Heim (1999): -EST always takes scope over the NP (in the absolute readings, we only compare entities that satisfy the N property, e.g. we never require the highest tree to be higher than a house):
(19) $[D [\text{-EST } \lambda d \lambda x [[_{DegP} t_{\text{-est}} [\text{Deg}^0 \text{ AP}]] \text{ NP}]]]$

The dedicated prenominal position found in Romance could be used to overtly indicate the scope of -EST (for the fact that AP also raises, pied-piping can be assumed):
(20) $[_{DP} \text{ le } [_{SupP} [_{DegP} \text{ plus int\'eressant}] [\text{Sup}^0 [_{NP} \text{ roman } [_{DegP} \text{ plus int\'eressant}]]]]]$
         LF: $[_{DP} \text{ le } [_{SupP} [_{DegP} \text{ plus int\'eressant}] \lambda d. [\text{Sup}^0 [_{NP} \text{ roman } [d\text{-int\'eressant}]]]]]$

➢ In SpecSupP, not only It. and Sp., but also French licenses a null SUP:
(21) $_{DP} \text{ le } [_{SupP} [_{DegP} [_{SUP} \emptyset] [_{COMP} \text{ plus}] \text{ int\'eressant}] [\text{Sup}^0 [_{NP} \text{ roman } [_{DegP} \text{ plus int\'eressant}]]]]]$

Bobaljik (2012): Superlatives embed a comparative cross-linguistically (besides languages of the Romance-type, the evidence comes from patterns of suppletivism, e.g. *good – better – best*). Possible analyses:
(22)   a. [SUP [COMP AP]]   (Bobaljik 2012)
         b. [[SUP COMP] AP]   (Dunbar & Wellwood 2016–for semantic reasons)

➢ Romanian: DP-initial superlatives are in SpecDP => no scope position, no restriction on the interpretation
➢ If relative readings are analyzed via movement of -EST out of the DP, as in Szabolcsi (1986) and Heim (1999), the SpecDP position can be analyzed as an intermediate position, an escape hatch needed to get out of the DP-phase
We will turn to relative readings after briefly examining the DP-external contexts

4. DP-external superlatives

In languages with no overt SUP – It. and Sp. – they are restricted: Bosque & Brucart (1991), Loccioni (2018): only in relative clauses embedded in definite DPs:

- Adverbial superlatives (cf. Loccioni 2018:190, ex. 54):

(23)   a. * Maria scrive il   meglio (It.)
              Maria writes the better
         a′. Maria scrie cel mai bine (Ro.)
         a″. Marie écrit le mieux.   (Fr.)
              'Maria writes the best.'
         b. Maria   scrive meglio: (It.)   * superlative (only comparative)
            Maria writes better
            'Maria writes {better/*the best}
         c. Maria e [**quella** [**che** scrive **meglio**]] ✓ superlative
            Maria is the-one that writes better
            'Maria is the one who writes {better/the best}'

- Predicative superlatives:

(24)   a. Maria è stata la più ricca nel 1999   (It.)
            Maria is been the more rich in-the 1999
            ✓ In 1999, Maria was richer than any other person: the richest person

≠ In 1999, Maria was richer than in (she was) any other year

=> [DP la [SupP [più ricca][NP Ø]]]

    b. Marie a été le   plus riche en 1999. (Fr.)

    b′. Maria a fost cea   mai bogată în 1999. (Ro.)

       Maria has been *cel*.FSG the more   in 1999

        ✓ In 1999, Maria was richer than any other person: the richest person

        ✓ In 1999, Maria was richer than in (she was) any other year

    c. 1999 è [**l'anno** [in **cui**   Maria è stata **più   ricca**]] (It.) ✓ superlative

       1999 is the-year in which Maria is been more happy

       '1999 is the year when Maria was richest' : richer than (she was) in any other year

    d. Maria è stata più ricca nel   1999 (It.)   * superlative

       Maria is been more rich in-the 1999

       'Maria was {richer/*richest} in 1999'

=> Loccioni (2018): the covert Sup operator, which is a maximalizing operator over degrees, must be licensed by being in the scope of the definite D, which is also a maximalizing operator   (Loccioni 2018: 118, see (130)b)

However, some speakers also allow superlative readings in other contexts:

- Clefts:

(25)   a. È nel   1987 [**che** è stata **più   felice** Maria]   (It.) %✓ superlative

       is in-the 1987 that has been more happy M.   (6:OK, 1:?; 1:*)

       'It's in 1987 that Maria was happiest.'

    b. Tra   tutti i paesi   che ho   visitato, è in Italia [**che** ho mangiato **meglio**]

       among all the countries that have.1SG visited is in Italy that have.1SG eaten better

                                     (Silvio Cruschina, p.c.)

       'Among/Of all the countries I visited, it's in Italy that I ate best.'

    c. Maria non ha avuto una vita facile, ma fino ad oggi è nel 1987 **che** è stata **più felice**

       'Maria didn't have an easy life, but until now it's in 1987 that she was happiest.'

                   (Laura Brugè, Silvio Cruschina, p.c.)

(26)   a. Es en 1987 **cuando** María fue **más**   feliz (Sp.) % superlative

       is in 1987 when   Maria was more happy

    b. De todos los países   que he   visitado, es en Italia **que/donde mejor** comí

       of all   the countries that have.1SG visited   is in Italy that/where better ate.1SG

       / comí **mejor**   % superlative

       ate.1SG better

- Interrogatives:

(27)   **Dove** hai   mangiato **meglio** e   **peggio** nel   mondo? (It.)

       where have.2SG eaten   better and worse in-the world

       (https://travelbloggeritaliane.it/selene-di-viaggi-che-mangi/)

(28)   ¿Con **quién** es (ella) **más**   feliz? (Sp.) % superlative

      with whom is she more happy

Account:

➤ The position where the null SUP raises must be overtly signaled as an Operator-variable construction:
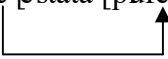
(29)   è nel 1987 [-EST [che è stata [t-EST felice]]]]

➤ Heim (1999) proposes two raising analyses :

(30)   Mary writes best

    (i) Mary λx [-EST λdλx [x writes d-good]] (the 3-argument analysis: C,R,x)

$$[\![\text{-EST}]\!] = \lambda C_{et}\, \lambda R_{<d,<e,t>>}\, \lambda x\, \exists d\, (R(d)(x) \wedge \forall y\, ((y \in C \wedge y \neq x) \to \neg R(d)(y)))$$

(ii) -EST λd [[Mary]$_F$ writes d-good]]　　　　(the 2-argument analysis)

$$[\![\text{-EST}]\!] = \lambda C_{<d,dt>}\, \lambda P_{dt}\, \exists d\, (P(d) \wedge \forall Q\, ((Q \in C \wedge Q \neq P) \to \neg Q(d)))$$

In the analysis (i), the operator indicates the position where -EST must raise (see (29)) => we may assume agreement in an Op-feature between the null -EST and the C of clefts and interrogatives. This agreement licenses the null SUP and triggers LF-raising.

(31)　　è nel 1987 [che è stata [più felice]]]

In the analysis (ii), it is focus that provides the set of compared degrees C. But it is not clear why a prosodically marked focus in (23)b or (24)d is not sufficient for licensing null -EST
=> analysis (i) seems to be better equipped for explaining the licensing facts
Analysis (i) is also fit for absolute superlatives–it applies straightforwardly to the structure in (19), whereas (ii) requires relativization of the external argument of the NP + the assumption that the trace of PRO serves as the focus:

(32)　　a. [D [-EST $\lambda d \lambda x$ [[$_{DegP}$ t-$_{est}$ [Deg^0 AP]] NP]]]　　(absolute superl. under analysis (i))

　　　　b. [D [λx PRO [-EST λd [[t$_{PRO}$]$_F$ [[$_{DegP}$ t-$_{est}$ [Deg^0 AP]] NP]]]]]　(abs. sup. under (ii))

5. Note on the entity-argument analysis of -EST

Analysis (i) can be easily modified so as to get rid of the covert C (comparison class) argument: note that C acts as a domain restrictor, and with other quantifiers such as determiners, there is evidence for encoding domain restriction in the situation argument (all predicates, including nominal and adjectival ones, are evaluated wrt. a situation, which includes the world and time parameters) – see Schwarz (2009) and reference therein for evidence that the situation of evaluation is introduced as an argument of D (except with weak determiners, where it is probably left unsaturated) and plays the role of domain restrictions.
=> the situation argument–which is independently needed for superlatives, being found on all predicates–provides the domain where the alternatives to *x* (the compared elements) are to be looked for:

(33)　　a. $[\![\text{-EST}]\!] = \lambda R_{<d,<e<s,t>>>}\, \lambda x.\, \boldsymbol{\lambda s.}\, \exists d\, [R(d)(x)(s) \wedge \forall y\, [(y \neq x \wedge \boldsymbol{\exists d'\, R(d')(y)(s)}) \to$
　　　　　　$\neg R(d)(y)(s)]]$
　　　definedness condition: $\exists d\, R(d)(x)$
　　or (using '>', which might prove helpful if we try to account for the relation between comparatives and superlatives)

　　　b. $[\![\text{-EST}]\!] = \lambda R_{<d,<e<s,t>>>}\, \lambda x.\, \boldsymbol{\lambda s.}\, \forall y\, [(y \neq x \wedge \boldsymbol{\exists d'\, R(d')(y)(s)}) \to \max\{d:R(d)(x)(s)\} >$
　　　　　　$\max\{d:R(d)(y)(s)\}]$
　　　definedness condition: $\exists d\, R(d)(x)$
　　Relative readings: the compared entities are entities that satisfy the main predicate
　　(e.g. *want to climb a d-high mountain* or *climb a d-high mountain*) in the topic
　　　situation

N.B. This does not rule out the 2-argument analysis for constructions in which -EST has an *explicit* C argument denoting a set of degree properties, such as those discussed in Howard (2014):

(34)　　a. John wrote the most poems that anyone ever wrote.
　　　　b. Mary sang the loudest that any soprano ever sang.

　　　　$[\![\text{that any soprano ever sang}]\!] = \{\lambda d.\lambda w.x \text{ sang d-loud in } w \mid x \text{ is a soprano}\}$

We may assume a variety of -EST with a special selectional pattern (+degree-clause) associated to a different denotation. Note that some languages, such as Romanian, lack this construction altogether, so no argument coming from overt C-arguments can apply to them:

(34)′ a. * Ion a scris cele mai multe poeme {pe care le-/(din) cât(e)/ce} a scris vreodată cineva.

b. * Maria a cântat cel mai tare {ce/(din) cât} a cântat vreodată vreo soprană.

6. Quantity superlatives

➢ Quantity superlatives do not have absolute readings (Szabolcsi 1986, Gawron 1995, Dobrovie-Sorin & Giurgea 2021)

(35) a. Brown's campaign has been joined by the most volunteers (Gawron 1995:36)
= 'by more volunteers than any other's campaign'
≠ 'by a group of volunteers larger than any other group of volunteers'
b. Brown's campaign has been joined by the largest group of volunteers
= 'by more volunteers than any other's campaign'
= 'by a group of volunteers larger than any other group of volunteers'

=> they cannot occur in the prenominal scopal position SpecSupP
➢ But they also cannot be postnominal modifiers or predicates of reduced relatives
=> Quantity superlatives in Italian and Spanish need external licensing, showing the same restrictions as DP-external superlatives:

(36) a. Maria ha (*i) più soldi   (It.)   * superlative (only comparative)
Maria has the more money
'Maria has {more/*the most} money'
b. Maria è [**quella** [**che** ha **più** soldi]]   ✓ superlative, ✓ comparative
Maria is the-one that has more money
'Maria is the one who has more/the most money.'

(37) Tra   tutti i   paesi   del   mondo, è in Olanda   **che** ci   sono **più**
among all the countries of-the world is in Netherlands that CL.LOC are more
mulini a vento
mills   at wind
'Among all the countries in the world, it's in the Netherlands that there are the most windmills.'   (S. Cruschina, p.c.)

(38) a. % In **che   anno** ha guadagnato di **più**? (5 OK, 2 *, 1 ??)
in which year has earned   of more
'In which year did (s)he earn the most?'
b. **Nell'arco della tua vita lavorativa**, in **che anno** hai guadagnato di **più**?
(S. Cruschina, p.c.)
'During your working life, in which year did you earn the most?'
c. In **che anno** ha guadagnato di **più in assoluto**?
'In which year did (s)he earn the most, overall?'   (Chiara Gianollo, p.c.)

➢ In Ro. and French, they are not restricted:

(39) a. Marie a le plus d'argent.   (Fr.)
b. Maria are cei   mai mulţi bani.   (Ro.)
Maria has *cel*.MPL more many money

=> the position in (39), even in French, is not SpecSup
It is rather the normal position of DP-initial quantifiers, as in *beaucoup d'argent, mulţi bani* 'many money', or *plus d'argent, mai mulţi bani* 'more money'
=> *le* in French not a D here, but a SUP (cf. Loccioni 2018)

7. Consequences for the general analysis of relative superlatives

(40)   a. JOHN wants to climb [**the** highest mountain].
      b. È Gianni che vuole scalare **[la** montagna più alta]   (It.)
      c. C'est Jean qui veut escalader [**la** montagne la plus haute]. (Fr.)
      d. ION vrea să urce [munte**le** cel mai înalt]   (Ro.)

In the raising analysis, the DP containing the superlative is interpreted as an indefinite:

(41)   (i) John λx [-EST λd [[**a d-high mountain**] λy [x wants to climb y]]]
        max {d: $\exists$**x**. x is a d-high mountain and John wants to climb x} >
        max {d: $\exists$y$\neq$John. $\exists$**x**. x is a d-high mountain and y wants to climb x} (de re)
    (ii) John λx wants [-EST λd [[**a d-high mountain**] λy [x climb y]]]
        John wants [λw. max {d: $\exists$**x**. x is a d-high mountain in w $\wedge$ John climbs x in w} >
        max {d: $\exists$y$\neq$John. $\exists$**x**. x is a d-high mountain in w $\wedge$ y climbs x in w}] (de dicto)
    (iii) John λx [-EST λd [wants [[**a d-high mountain**] λy [x climb y]]]]
         max {d: John wants.λw[$\exists$**x**. x is a d-high mountain in w $\wedge$ John climbs x in w]}>
        max {d: $\exists$y$\neq$John. y wants λw[$\exists$**x**. x is a d-high mountain in w $\wedge$ y climbs x in w]}
          (upstairs de dicto): -EST > WANT > $\exists$

Although Szabolcsi showed that DPs with relative superlatives behave as indefinites wrt certain tests, the consistent occurrence of the definite article, across languages, is problematic. Szabolcsi (1986) suggested that THE in (40)a is part of the DegP, rather than being the D of the DP, an idea further developed by Krasikova (2012), who analyzes THE as a maximalizing operator over degrees.
But in (40)b-d we clearly see a THE that is not part of DegP, but is rather the determiner of the DP.

- Interestingly, there are some article languages in which nominals with relative superlatives may appear bare (Swedish, Bulgarian, see Coppock & Josefsson 2015, Pancheva & Tomaszewicz 2012, Mostrov 2021) but *I know of no article language in which an overt indefinite D occurs in DPs with relative superlatives*.

- The use of THE has been taken as an argument for 'in-situ' analyses, in which -EST remains DP-internal and the relative reading is achieved via other mechanisms:
    - by restricting the comparison class via association with focus (Pancheva & Tomaszewicz 2012, following a suggestion in Heim 1999),
    - by putting an 'association relation' into the semantics of -EST (Coppock & Beaver 2014) or into the semantics of N (Farkas & Kiss 2000),
    - by usual contextual restrictions + a special property-denotation for upstairs de dicto readings (Sharvit & Stateva 2000).

- The Romance data in §3 are problematic for these analyses: the mechanisms used for in-situ analyses do not concern the *position* of the superlative; why should placing the superlative in SpecSupP block these mechanisms?
(Recall that the raising analysis offers a straightforward account here: SpecSupP is a scope position)

Evidence that relative readings may be *syntactically* reflected in the structure of the DP is also found in English: DP-initial possessors block relative readings (Chacon & Wellwood 2012, Bumford 2017):
(42)   a. Ty chose the tastiest cookies of Sue's (of all the cookies/of all the party guests).
      b. Ty chose Sue's tastiest cookies (of all the cookies/# of all the party guests).

        c. Ty ate the most cookies of Sue's.
        d. * Ty ate Sue's most cookies.   (Chacon & Wellwood 2012:(11)-(14)
(43)   a. the student who read Shakespeare's longest play (* relative) (Bumford 2017: 14)
        b. the student who read the longest Shakespeare play (✓ relative)
        c. the student who read the longest play of Shakespeare's (✓ relative)

Possible solutions to the definiteness paradox:
(i) The D of DPs containing relative superlatives is neither THE nor A, but a complex quantifier which includes -EST (a possibility suggested by Bumford & Sharvit 2022 and also envisaged by Carmen Dobrovie-Sorin in unpublished work; as the authors acknowledge, Heim's 1999 split scope ('upstairs de dicto') readings cannot be derived under such an analysis); instead of raising -EST immediately below the compared entity ('correlate'), the entire DP would be raised, attaching to a constituent of type <e,<e,st>> (relation); an unsaturated situation variable and an ∃ would account for the weak indefinite behavior:

(44)   ⟦-EST-D⟧ $= \lambda N_{<d,<e,st>>}.\lambda R_{<e,<e,st>>}.\lambda x.\lambda s.\exists z\ \exists d\ [N(d)(z)(s) \wedge R(z)(x)(s) \wedge$
               $\forall y\ \forall z'[(y{\neq}x \wedge z'{\neq}z \wedge \exists d'\ N(d')(z')(s) \wedge R(z')(y)(s)) \rightarrow \neg N(d)(z')(s)]]$
               defined iff $\exists d'\ \exists z\ [N(d')(z)(s) \wedge R(z)(x)(s)]$

(ii) Heim's raising analysis + an intermediate landing site in SpecDP: in order for -EST to raise at LF, it must first raise to SpecDP, which would be an escape hatch needed because the DP is a phase. In this position, -EST and D would *agree in a maximality feature*, spelled-out on D as definiteness (Giurgea 2021).

(45)   JOHN [-EST [wants to climb [$_{DP}$ [t$_{-EST}$]$_{+max}$ [D$_{\cancel{+max}}$ [$_{NP}$ [t$_{-EST}$ AP] NP]]]]]

Both analyses explain why SpecDP cannot be filled by a possessor (under (i), the complex quantifier is formed via -EST raising to SpecDP; under (ii), SpecDP is an intermediate position in -EST movement) and why the Romance SpecSup position does not allow relative readings (it is a scope position => no further raising to SpecDP).

The maximality feature of -EST. SUP and the MAX operator
The idea that the superlative involves maximalization can also be found in Krasikova (2012) and Loccioni (2018). Krasikova uses Heim's 2-argument entry of -EST, using a comparison class consisting of a set of degree properties:

(46)   a. [$_{NP}$ [$_{AP}$ [$_{DegP}$ the *max* C] highest] [mountain]
        b. $max(Q) = \lambda D_{dt}\ [Q(D) \wedge \forall D'[Q(D') \rightarrow D'(w) {\subseteq} D(w)]]$ (the property of being a
                                                    max. deg. property)
        c. ⟦the⟧ $= \lambda Q: \exists!D[Q(D)].\iota D[Q(D)]$ (the max. degree property)
        d. [the *max* C] * [λd JOHN climbed [∃ d highest mountain]~C]
        e. $\exists x[x$ is a mountain in w $\wedge$ John climbed x in w $\wedge$
           $\forall d[d \in$ ⟦the *max* C⟧ $(w) \rightarrow height(x) \geq d]]$ (Krasikova 2012:(19),(21),(22))

But in §5 above I argued for an entity-argument denotation of -EST (see (33)), in order to replace comparison classes by the situation argument.
Let use see how a MAX operator can underlie this denotation:

(47)   MAX in definites: $MAX(P)(x)(s) = P(x)(s) \wedge \forall y(P(y)(s) \rightarrow y{\leq}x(s)) =$
                                  $P(x)(s) \wedge \forall y(P(y)(s) \rightarrow (y{<}x(s) \vee x{=}y))$

$$\llbracket \text{THE} \rrbracket = \lambda P \lambda s : \exists x \; \text{MAX}(P)(x)(s).\iota x.\text{MAX}(P)(x)(s)$$

Generalizing, MAX is true of an entity *x* in a domain wrt an antisymmetric relation R iff for all y≠x in the domain, R(x,y) – in definites, R is *(proper) inclusion*, the reverse of *part-of* (R(y)(x) = x properly includes y):

(48) $\llbracket \text{MAX} \rrbracket = \lambda R.\lambda P.\lambda x.\lambda s. [P(x)(s) \wedge \forall y[P(y)(s) \rightarrow [R(y)(x)(s) \vee x=y]]]]$

In order to use MAX for the denotation of superlatives, we need to
        (i) turn the <d,<e,st>> relation into a property, by existentially binding the degree, and
            (this can be seen as a type-shifting operation), and
        (ii) use the relation provided by the comparative instead of the inclusion relation:
- Let's start with

(49) $\llbracket \text{-EST} \rrbracket = \lambda R.\lambda x.\lambda s. [\exists \mathbf{d} \; \mathbf{R(d)}(x)(s) \wedge \forall y [\exists \mathbf{d} \; \mathbf{R(d)}(y)(s) \rightarrow [\max\{d:R(d)(x)(s)\} >$
            $\max\{d:R(d)(y)(s)\} \vee x=y]]]$

- Let the P argument of MAX be $\lambda z.\lambda s.\exists d \; R(d)(z)(s)$ and use 'greater-than' as an ordering relation (the antisymmetric relation argument of MAX); since we are ordering entities, the 'greater-than' relation must take entity arguments, see the denotation of COMP below COMP(R)(y)(x) = x is greater wrt. R than y):

(50) $\llbracket \text{-EST} \rrbracket = \lambda R.\lambda x.\lambda s. \; \text{MAX}(\text{COMP}(R))(\mathbf{\lambda z.\lambda s.\exists d \; R(d)(z)(s)})(x)(s)$
        where
        $\text{COMP} = \lambda R_{<d,<e,st>>}\lambda y.\lambda x.\lambda s. \; \max\{d:R(d)(x)(s)\} > \max\{d:R(d)(y)(s)\}$

Adopting the decomposition of superlatives into comparative + another operator, this COMP can be seen as the import of the comparative head – which must be assumed to form a constituent with SUP, as in Dunbar & Wellwood (2016):

(51) $\llbracket \text{SUP} \rrbracket = \lambda \mathbf{C}_{<d,et><e,<e,st>>} \; \lambda R_{<d,et>}.\lambda x.\lambda s. \; \text{MAX}(\mathbf{C}(R))(\lambda z.\lambda s.\exists d.R(d)(z)(s))(x)(s)$
        -EST = [SUP][COMP]

Let us check that the formula with MAX in (51)-(50) leads to the denotation in (49):

(52) $\llbracket \text{-EST} \rrbracket = \lambda R.\lambda x.\lambda s.[\exists d. \; \mathbf{(\lambda z.\lambda s.\exists d.R(d)(z)(s))}(x)(s) \wedge$
            $\forall y[\mathbf{(\lambda z.\lambda s.\exists d.R(d)(z)(s))}(y)(s) \rightarrow$
            $[\max\{d:R(d)(x)(s)\} > \max\{d:R(d)(y)(s)\} \vee x=y]]]$
        $= \lambda R.\lambda x.\lambda s.[\exists d. \; R(d)(x)(s) \wedge \forall y [\exists d.R(d)(y)(s)) \rightarrow$
            $[\max\{d:R(d)(x)(s)\} > \max\{d:R(d)(y)(s)\} \vee x=y]]]$

N.B.: the first conjunct can also be omitted, because -EST comes with a definedness condition (see Heim 1999 and (33) above)–at least the fact that the external argument of the superlative has the property to a certain degree is presupposed:

(53) $\llbracket \text{-EST} \rrbracket = \lambda R.\lambda x.\lambda s. \; \forall y [\exists d.R(d)(y)(s)) \rightarrow$
                $[\max\{d:R(d)(x)(s)\} > \max\{d:R(d)(y)(s)\} \vee x=y]]$
            defined iff $\exists d. \; R(d)(x)(s)$

Conclusion:
- This proposal accounts for the fact that superlatives include the comparative
- The MAX operator accounts for the common feature shared by THE and SUP
- Entity-argument entries for SUP and COMP are used in order to dispense with the peculiar covert C argument of superlatives, which is superfluous given the fact that domain restriction is performed via the situation argument, which is present on all predicates

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