# Prenominal superlatives in Romanian, in a Romance comparative perspective * 

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## 1. Introduction. Romanian superlatives vs. other Romance languages

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

Table I: THE as a SUP-marker in Romance

|  | Prenominal: <br> le plus riche pays <br> le $2^{\text {eme }}$ plus riche pays | Postnominal | Predicative, adverbial, quantitative |
| :---: | :---: | :---: | :---: |
| Romanian | a doua [cea mai bogată] țară cele două [cele mai bogate] ţări/ [cele mai bogate] două ţări | țara [cea mai bogată] | cel care cântă [cel mai bine] |
| French | le deuxième [(*le) plus riche] pays les deux [(*les) plus riche] pays / *les plus riches deux pays | le pays [le plus riche] | celui qui chante [le mieux] |
| Italian, Spanish,... | il secondo [(*il) più ricco] paese $i$ due [(*i) più ricchi] paesi | il paese [(*il) più ricco] | quello che canta [(*il) meglio] |

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
c. la più bella ragazza
N.B. Cel is (in other context) 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 verzi [THE [[NØ] [ap verzi]]]
the.FPL green.PL
'the green ones'
Evidence that cel is not a D, but rather part of the superlative, forming a constituent with mai+AP:

[^0]$>$ 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 vreţi o alternativă la mai celebrul şi mai reuşitul 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 another constituent (cardinals, ordinals), unlike in French (see Table 1, the Prenominal column)
=> 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.
a. $\left[\mathrm{DP}\left[\mathrm{DegP}\right.\right.$ cel mai AP] [[D $\left.\emptyset_{+ \text {def }}\right]\left[. . \mathrm{t}_{\text {DegP }}\right.$..NP...] $]$
(Ro.)
b. [[D le/il] [[DegP plus/più AP] NP]]
(Fr., It.)

Cf. other phrases marking definiteness in SpecDP:
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:
(5)' 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)

Further evidence for a SpecDP position: with cardinals, the preferred order is cel+Comp-Card-N; in other Romance languages, the normal order is THE-Card-Comp-N:
(6) a. cei mai înalţi doi munţi cel.MPL more high two mountains
b. *les plus hautes deux montagnes / les deux plus hautes montagnes (Fr.)
(7) 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 presentation that, as a twosome, is the longest"
Ro.: cele mai lungi două prezentări has both readings (i.e., it can correspond to (7)a)

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

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 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, and this position is stylistically marked; this is not the case for prenominal superlatives:
a. l'intéressant roman
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
(9)
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

## 3. Prenominal superlatives and the absolute / relative distinction. SpecSupP as a scope position vs SpecDP

### 3.1 The absolute vs relative distinction

The interpretation of superlatives requires (at least) two elements:

- a property of degrees $=$ set of degree descriptions
- an element that varies from one description to the other, creating the multiplicity of degree descriptions (the compared element)
The superlative asserts that the compared element is associated to a higher degree than all its alternatives.
Absolute reading: - the compared element $=$ the referent of the DP (the ext. arg. of the NP)
- the degree description $=$ the descriptive material of this DP
(10) Ion s-a suit pe cel mai înalt munte (din România)
'Ion climbed the highest mountain (in Romania)'
Degree descriptions: $\{\mathrm{d}: \mathbf{x}$ is a mountain (in Romania) and $\mathbf{x}$ is d-high $\}$
Compared element $=$ the referent of the DP (the mountain $x$ that is highest)
Relative reading: - the compared element $\neq$ the referent of the $\mathrm{DP}^{1}$
- the degree description is provided by the entire clause
(11) ION s-a suit pe cel mai înalt munte (dintre toate persoanele din clubul de alpinişti)
'ION climbed the highest mountain (among all the members of the climbing club)
Degree descriptions: $\{\mathrm{d}: \mathbf{x}$ climbed a d-high mountain $\}$
Compared element: Ion
Why not reduce relative readings to absolute + contextual restrictions - i.e. why not take the descriptive material of the DP in (11) as 'mountain climbed by somebody in the club'?
$>$ Sometimes, relative-like readings can indeed be achieved by such a pragmatic procedure (see Kotek et al. 2011, Bylinina et al. 2014) ${ }^{2}$
> But not always:

[^1](i) Note that according to the semantics in (11), the DP containing the superlative, in spite of having the definite article, is interpreted as an indefinite; Szabolcsi (1986) shows that this is supported by classical indefiniteness tests:
(12) a. John has the smartest sister
b. * John has the (smart) sister
c. John has a (smart) sister
(13) Who did you take the *(best) picture of? / a picture of?
(ii) Upstairs de dicto readings (split scope): -EST can have a different, higher scope than the determiner of the DP - the DP can be interpreted under a modal (de dicto) but the comparison above it (de re):
(14) John wants to climb the highest mountain
(Heim 1999)
: in one of its readings, it is true in the following context:
set of compared individuals \{John Mary Sue\}
John wants to climb any 7000 m . mountain (not a specific mountain)
Mary wants to climb any 6000 m . mountain (not a specific mountain)
Sue wants to climb any 5000 m . mountain (not a specific mountain)
scope relations: -EST [MOD [ $\exists$
$\lambda \mathrm{s}$. $\exists \mathrm{d} . \forall \mathrm{y}$ in $\mathrm{s}[(\mathrm{y} \neq \mathrm{John}) \rightarrow \max \{\mathrm{d}: J o h n$ WANTS $\lambda \mathrm{w}$. John climbs a d-high mountain in w) $>$ $\max \{\mathrm{d}$ : y WANTS $\lambda \mathrm{w}$. y climbs a d-high mountain in w$\}$ )]

### 3.2 Relative readings of prenominal superlatives: Romanian ( $\checkmark$ ) vs. French, Italian (*)

Cinque (2010) claims that, in Italian, prenominal superlatives have only absolute readings, as opposed to postnominal superlatives:
(15) a. Chi ha scalato la più alta montagna innevata? $\quad \checkmark$ 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 ? $\checkmark$ absolute, $\checkmark$ 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:
(16) a.\# Il più grosso gatto bianco, ce l'ha Betta (Loccioni 2018:41-42, ex.74-75) 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.LOCCL.ACC=has Betta

Cf. also with relational nouns, where the use of a definite object is strictly excluded:
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

Romanian: the prenominal position is acceptable and even preferred in this case:
(18) 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 competiții 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....'

French: the test of upstairs de dicto readings (split scope) indicates that prenominal superlatives must be absolute, like in Italian:
a. C'est Jean qui veut escalader [la montagne [la plus haute]]
it's Jean who wants to-climb the mountain the more high
$\checkmark$ split scope: Jean wants to climb any 7000 m . mountain, Philippe wants to climb any 5000 m . mountain, Paul wants to climb any 4000 m . 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: the prenominal position allows split scope:
(20) ION vrea să urce cel mai înalt munte

Ion wants SUBJ climb. 3 cel.MSG more high mountain
$\checkmark$ split scope
Account:
$>$ SpecSupP, the dedicated position of prenominal superlatives that are not in SpecDP, is a scope position: the raising of DegP indicates the scope of the superlative - note that even in the absolute reading, the superlative is not interpreted in situ, it takes scope at least over $N$ : 'smartest girl' only compares girls, doesn't mean 'somebody who is the smartest individual and also a girl'
$>$ SpecDP is not a scope position, but is used to license a null D ; for relative readings, it can be viewed as an intermediate position in -EST raising
=> The difference in interpretations between Rom. and Fr.+It. comes from the syntactic difference:
(21) $\quad\left[l e\left[\operatorname{SupP}[\operatorname{DegP}\right.\right.$ plus AP $\left.\left.]\left[\operatorname{Sup}^{0}[\mathrm{NP}]\right]\right]\right]$
[DP [DegP cel mai AP] [[DØ] [..t $\mathrm{t}_{\text {DegP }}$..NP..]]]
French, Italian
Romanian
If the prenominal positions are only SpecDP and the scope position SpecSupP, the prediction is that even in Romanian, a superlative that is not DP-initial will only be absolute (because it can only occupy SpecSupP):
(22) Context: there are two classes for which students must write an essay; $3^{\text {rd }}$ year students must write a 10 page essay for the literature class and an 8 page essay for the history class; $2^{\text {nd }}$ and $1^{\text {st }}$ year students need to write 5 page essays for their classes
a. Studenţii de anul trei trebuie să scrie cele mai lungi două eseuri (Sup-Card) students-the of year-the three must SUBJ write cel.FPL more long two essays
'The $3^{\text {rd }}$ year students must write the two longest essays'
b. \# Studenţii de anul trei trebuie să scrie cele două cele mai lungi eseuri (Card-Sup) students-the of year-the three must SUBJ write the two cel.FPL more long essays

Attested example of relative readings with the order Sup-Card:
(23) a. După încheierea rundei inițiale de pariere, setul de Stud Poker reguli spune că fiecare jucător va mai primi câte o carte cu fața în sus. Jucătorul care acționează primul este acela care are cele mai bune două cărți expuse (https://www.supercazino.ro/blog/reguli-stud-poker/)
'After the initial betting round is over, the Stud Poker rule set states that each player will receive one more card face up. The player who acts first is the one who has the best two cards face up' b. Inimioara ce pulsează acum cu peste 130 de bătăi pe minut va avea cele mai bune două surori
'The little heart that is beating now at over 130 beats per minute will have the best two sisters' (https://www.facebook.com/mihaimorar/photos/a.422827761791/10155803066936792/?type=3)

## 4. Superlatives and ordinals

As Loccioni (2018) noticed, prenominal superlatives have two positions wrt. ordinals, associated to two distinct interpretations (the orders directly reflecting scope):
(24) a. la seconda più alta montagna che sia mai stata scalata (It., Loccioni 2018:21, ex.21) the second more high mountain that is.SUBJ ever been climbed 'the second highest mountain that was ever climbed'
b. la più alta seconda montagna che sia mai stata scalata (It., Loccioni 2018:21, ex.22) the more high second mountain that is.SUBJ ever been climbed
'the highest mountain that is second in some series of climbed mountains'
The same readings obtain in Romanian:
(24)' a. al doilea cel mai înalt munte
(comparison between mountains)
b. cel mai înalt al doilea munte
(comparison between second mountains)
This shows that a superlative cannot cross an ordinal when raising to SpecDP
This is not unexpected given the fact that ordinals may themselves license a definite D by occupying SpecDP - see (24)'a and (5)a above.

Possibly inspired by the combination with ordinals, Loccioni (2018:§2.5.5) proposed a special semantics for prenominal superlatives, which would account for the fact that they are identical to comparatives even in French (see §1, Table I etc: la plus haute montagne, la deuxième plus haute montagne vs. la montagne la plus haute, Elle court le plus vite)
[il [xp SUP [yp [Comparative più grosso] [np gato bianco]]]]

- the comparative creates a total ordering of the NP-set
- SUP picks the first element of this set (it is an ordinal-like element)

Problems:

- These intuitions are not formally expressed; if the ordering is represented by associating entities to degrees, the 'ordering-created' operation amounts to the Deg-operator movement that creates a <d, <et>> predicate, as in Heim (1999): $\lambda \mathrm{d} . \lambda \mathrm{x} . \mathrm{x}$ is a d-large white cat.
- This purported use of the comparative is unrelated to its other uses, in which it compares degrees or entities, taking a than-argument
- No total ordering of the NP-set is needed
(26) L'uomo è il piu intelligente animale 'Man is the most intelligent animal':
no need to establish an order between the ape and the dolphin in order to evaluate this sentence
- In languages with dedicated superlative morphology such as English and even in Romanian (a language where SUP is overt in prenominal position), ordinals combine with prenominal superlatives rather than comparatives:
a. the second largest planet
b. a doua cea mai mare planetă
=> I propose, for the Ord-Sup configurations, a semantics in which ordinals combine with superlatives
With ordinals, the relation that creates an ordering in the NP-set is often covert. Superlatives in the scope of the ordinal indicate this relation overtly $=>$ I take the superlative to be an argument of the ordinal

There may be other PPs with this function - see the locative in (28)a:
a. al doilea scaun din stânga
'the second seat from the left'
b. al doilea cel mai bogat om
'the second richest person'

Ordering requires an antisymmetric relation. 'To-the-left' is such an antisymmetric relation, just like the ' $>$ ' relation that superlatives exploit.

Based on an antisymmetric relation we build a superlative relation, which qualifies an element as 'superlative' in a set wrt. some ordering relation:
(29) din stânga 'leftmost': $\lambda \mathrm{N} . \lambda \mathrm{x} .[\mathrm{N}(\mathrm{x}) \wedge \forall \mathrm{y}((\mathrm{N}(\mathrm{y}) \wedge \mathrm{y} \neq \mathrm{x}) \rightarrow$ to-the-left $(\mathrm{x}, \mathrm{y}))]$
la stânga 'to the left' is antisymmetric: x to the left of $\mathrm{y}=>$ not ( y to the left of x )
For superlatives, we need an ordering relation distinct from the N property $=>$ a semantics of -EST as in von Fintel (1999), Gajewski (2010) ( $\sim$ Bumford \& Sharvit 2022), in which -EST stays together with the AP (vs. Heim 1999, where -EST moves leaving a d-trace in the AP):
(30) cel mai bogat 'richest': $\lambda \mathrm{N} . \lambda \mathrm{x} .[\mathrm{N}(\mathrm{x}) \wedge \forall \mathrm{y}(\mathrm{N}(\mathrm{y}) \wedge \mathrm{y} \neq \mathrm{x}) \rightarrow \max \{\mathrm{d}: \operatorname{rich}(\mathrm{x}, \mathrm{d})\}>\max \{\mathrm{d}: r i c h(\mathrm{y}, \mathrm{d})\})]$

$$
\begin{equation*}
-\mathrm{EST}=\lambda \mathrm{R} \lambda \mathrm{~N} \lambda \mathrm{x}[\mathrm{~N}(\mathrm{x}) \wedge \forall \mathrm{y}((\mathrm{~N}(\mathrm{y}) \wedge \mathrm{y} \neq \mathrm{x}) \rightarrow \max \{\mathrm{d}: \mathrm{R}(\mathrm{x}, \mathrm{~d})\}>\max \{\mathrm{d}: \mathrm{R}(\mathrm{y}, \mathrm{~d})\})] \tag{31}
\end{equation*}
$$

Ordinals allow accessing an element that is superlative wrt. a subset of the entire N -set. The number shows how many elements we have to eliminate from N in order to get this subset: no element $=>$ first, one element $=>$ second etc. ${ }^{3}$
For the case where all elements different from $x$ must be eliminated (last $(x)$ ), the relation is satisfied by the set containing only $x$ because $y \neq x$ is false so the implication ' $N(y) \wedge y \neq x \rightarrow$ to-the-left $(x, y)$ ' is true.
So we need to calculate the cardinality of the difference between N and the maximum subset of N in which x is superlative wrt. $\mathrm{R}^{4}$ :

$$
\begin{equation*}
\mathrm{n}^{\text {th }}(\mathrm{R}, \mathrm{~N})=\lambda \mathrm{x} \cdot\left(\mathrm{~N}(\mathrm{x}) \wedge\left|\mathrm{N}-\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \mathrm{R}\left(\mathrm{x}, \mathrm{~N}^{\prime}\right)\right\}\right|+1=\mathrm{n}\right) \tag{32}
\end{equation*}
$$

* In this formula N is treated both as a set and as the characteristic function of the set, for brevity's sake. N as a set can be defined based on N as a function as $\{\mathrm{x}: \mathrm{N}(\mathrm{x})\}$ (the set of elements that satisfy the predicate N ), and (32) reads as
(32) $\quad \mathrm{n}^{\text {th }}(\mathrm{R}, \mathrm{N})=\lambda \mathrm{x} .\left(\mathrm{N}(\mathrm{x}) \wedge\left|\{\mathrm{z}: \mathrm{N}(\mathrm{z})\}-\max \left\{\mathrm{N}^{\prime}:\left\{\mathrm{y}: \mathrm{N}^{\prime}(\mathrm{y})\right\} \subseteq\{\mathrm{z}: \mathrm{N}(\mathrm{z})\} \wedge \mathrm{R}\left(\mathrm{x}, \mathrm{N}^{\prime}\right)\right\}\right|+1=\mathrm{n}\right)$
(33)


## abc

a: $\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \operatorname{leftmost}\left(\mathrm{a}, \mathrm{N}^{\prime}\right)\right\}=\{\mathrm{a}, \mathrm{b}, \mathrm{c}\}$
$\mathrm{N}=\{\mathrm{a}, \mathrm{b}, \mathrm{c}\}$
$\mathrm{N}-\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \operatorname{leftmost}\left(\mathrm{x}, \mathrm{N}^{\prime}\right)\right\}=\varnothing$
$|\varnothing|=0$
$\left|\mathrm{N}-\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \mathrm{R}\left(\mathrm{x}, \mathrm{N}^{\prime}\right)\right\}\right|+1=0+1=1$
$=>1^{\text {st }}$ (leftmost)(N)(a)
c: $\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \operatorname{leftmost}\left(\mathrm{c}, \mathrm{N}^{\prime}\right)\right\}=\{\mathrm{c}\}$
$\mathrm{N}-\mathrm{max}\left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \operatorname{leftmost}\left(\mathrm{c}, \mathrm{N}^{\prime}\right)\right\}=\{\mathrm{a}, \mathrm{b}\}$
$\left|\mathrm{N}-\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \operatorname{leftmost}\left(\mathrm{c}, \mathrm{N}^{\prime}\right)\right\}\right|=|\{\mathrm{a}, \mathrm{b}\}|=2$
$\left|\mathrm{N}-\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \operatorname{leftmost}\left(\mathrm{c}, \mathrm{N}^{\prime}\right)\right\}\right|+1=2+1=3$
$=>3^{\text {rd }}$ (leftmost) $(\mathrm{N})(\mathrm{c})$
Obs. In this situation we could also use last
$\operatorname{last}(\mathrm{R}, \mathrm{N})=\lambda \mathrm{x} .\left|\mathrm{N}-\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \mathrm{R}\left(\mathrm{x}, \mathrm{N}^{\prime}\right)\right\}\right|+1=|\mathrm{N}|$

[^2]a: $1.000 .000 \$$
b: 500.000 \$
c: $400.000 \$$
b: $\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \operatorname{richest}\left(\mathrm{b}, \mathrm{N}^{\prime}\right)\right\}=\{\mathrm{b}, \mathrm{c}\}$
$\mathrm{N}-\mathrm{N}-\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \operatorname{richest}\left(\mathrm{b}, \mathrm{N}^{\prime}\right)\right\}=\{\mathrm{a}\}$
$\left|\mathrm{N}-\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \operatorname{richest}\left(\mathrm{b}, \mathrm{N}^{\prime}\right)\right\}\right|=|\{\mathrm{a}\}|=1$
$\left|\mathrm{N}-\max \left\{\mathrm{N}^{\prime}: \mathrm{N}^{\prime} \subseteq \mathrm{N} \wedge \operatorname{richest}\left(\mathrm{b}, \mathrm{N}^{\prime}\right)\right\}\right|+1=1+1=2$
$=>2^{\text {nd }}$ (richest)(N)(b)
Welcome consequence: to calculate an ordinal, we don't need to order the entire set (contra Loccioni); we remain agnostic of the ordering relations between elements that are both below x (so we have no problem with (26); we only need to know the order of these elements wrt. $x$ and everything higher than $x$ )
Potential problem: for what is above x , the system predicts that if two elements of equal degree exist, the rank will be augmented (e.g. in the situation $a>b=c>d$, we calculate $d$ as fourth). For the use in which the rank is not augmented, we need to somehow blend together in one element those elements that have the same degree.

Building a superlative relation based on an antisymmetric relation:
(35) $\quad \operatorname{SUP}\left(\mathrm{R}_{<\mathrm{e}, \mathrm{e} \triangleright}\right)=\lambda \mathrm{P}_{\mathrm{et} .} \cdot \lambda \mathrm{x} .(\mathrm{P}(\mathrm{x}) \wedge \forall \mathrm{y}((\mathrm{P}(\mathrm{y}) \wedge \mathrm{y} \neq \mathrm{x}) \rightarrow \mathrm{R}(\mathrm{y})(\mathrm{x})))$
or, with definedness conditions:
(35)' $\operatorname{SUP}\left(\mathrm{R}_{<\mathrm{e}, \mathrm{et}}\right)=\lambda \mathrm{P}_{\mathrm{et}} \cdot \lambda \mathrm{x}: \mathrm{P}(\mathrm{x}) . \forall \mathrm{y}((\mathrm{P}(\mathrm{y}) \wedge \mathrm{y} \neq \mathrm{x}) \rightarrow \mathrm{R}(\mathrm{y})(\mathrm{x}))$

Superlatives can be obtained in this way from comparatives by using a <e,et> entry for -ER(A):
(36) $\quad-\mathrm{ER}_{\mathrm{e}, \mathrm{et}}=\lambda \mathrm{A}_{<\mathrm{d}, \mathrm{et}\rangle} \cdot \lambda \mathrm{x} \cdot \lambda \mathrm{y} . \max \{\mathrm{d}: \mathrm{A}(\mathrm{d})(\mathrm{y})\}>\max \{\mathrm{d}: \mathrm{A}(\mathrm{d})(\mathrm{x})\}$

The definedness condition requiring that all y's satisfy A to some degree may come from a definition of max that introduces the presupposition that the degree sets on which it operates are non-null.

Syntax: in this analysis the superlative is the first argument of the ordinal $\Rightarrow>$ it must be a complement of the ordinal:
(37) [al doilea [cel mai bun]] [NP]
[the [ [second][best]] NP]

## 5. Quantity superlatives and the issue of indefiniteness of DPs with a superlative SpecDP

Issue: if DPs with relative superlatives are semantically indefinite and in DP-initial superlatives cel is not a D in Romanian, couldn't DPs with DP-initial relative superlatives be formally indefinite?
Test: clitic-doubling of a preverbal object, which is obligatory for definites
(38) $\quad$ Cadoul $*(1)$-a adus Iulia present-the CL.ACC-has brought Iulia 'It's Iulia who bought the present'

Result:
(i) At least for quantity superlatives (which are always relative, cf. Szabolcsi 1986, Gawron 1995, Dobrovie-Sorin \& Giurgea 2021), indefiniteness seems unproblematic:
(39) Cele mai puține greşeli a făcut Victor cel.FPL more few mistakes has made Victor
'It's Victor who made the fewest mistakes'
This is not surprising, because quantitatives in general have a DP-initial position associated to indefiniteness, irrespective of the superlative issue:
(40) Victor a făcut [puţine greşeli]

Victor has made few mistakes

By the way, being only relative, quantitative superlatives are excluded from SpecSupP $=>$ in Italian, where superlatives need special licensing, quantitative superlatives need external licensing, on a par with adverbial and predicative superlatives (Loccioni 2018:chapter 5):
a. Lei ha $\left(*_{i}\right)$ più soldi : comparative only she has more money
b. la ballerina che ha $\left({ }^{*}\right.$ i) più soldi $\quad \checkmark$ superlative the dancer who has more money 'the dancer who has the most money'

French allows them without restrictions, due to the fact that SUP is in this case overtly realized as $l e$ :
(42) La ballerine qui a le plus d'argent
(ii) For quality superlatives, only some speakers allow absence of clitic doubling with fronted objects in Romanian (note that in the postnominal use, where the DP has a genuine definite article, clitic doubling is compulsory):
(43) a. Cel mai scump cadou $\%(1-)$ a adus MARIA. ( $\checkmark-3$ informants, ? $-2, *-3$ ) cel more expensive present CL.ACC-has brought Maria 'It's Maria who brought the most expensive present'
$\mathrm{a}^{\prime}$. Cadoul cel mai scump *(1-)a adus MARIA present-the cel more expensive CL.ACC-has brought Maria
b. Cel mai bun răspuns $\%(1-) \mathrm{a}$ dat GEORGE cel more good answer CL.ACC-has given George 'It's George who gave the best answer'
b'. Răspunsul cel mai bun *(1-)a dat GEORGE answer-the cel more good CL.ACC-has given George

Attested examples: with abstract nouns, especially with light verbs such as have ${ }^{5}$ :
(44) a. Cea mai bună evoluție a avut rusul Evgheni Plușenko, cu un record personal ( 90,66 puncte)
'The Russian Evgeni Plushenko had the best performance, with a personal record ( 90,66 points)' (Agenda2006-07-06-torino2 (2006))
b. Dintre cele patru românce participante la întrecerea probei individuale de floretă feminină de la Campionatul Mondial de scrimă de la Havana, cea mai bună comportare a avut Roxana Scarlat, care a primit medalia de bronz.
'Among the four Romanians participating in the individual women's épée competition at the World Fencing Championship in Havana, it's Roxana Scarlat who had the best performance, receiving the bronze medal'
c. Cea mai mare influență au avut totuși învățăturile religioase ale lui Choe Je-u
'However, it's Choe Je-u's religious teachings that had the greatest influence.'
(https://ro.wikipedia.org/wiki/Reforma_Gabo)
d. Cel mai mare succes au avut campaniile generalilor Belizarie și Narses
'The campaigns of the generals Belisarius and Narses had the greatest success'
(https://ro.wikipedia.org/wiki/Imperiul_Roman_de_Apus)
e. Salariații cu titlul de doctor și cei cu studii superioare de lungă durată au avut ponderea cea mai ridicată, respectiv $36,1 \%$ și $31,8 \%$, iar cea mai mică pondere au avut salariații cu studii superioare de scurtă durată, de $2,3 \%$.
'Employees with a doctorate and those with long-term higher education had the highest share, $36.1 \%$ and $31.8 \%$ respectively, and employees with short-term higher education had the lowest share, 2.3 \%.' (https://insse.ro/cms/files/statistici/comunicate/com_anuale/Activcerc_dezv/activ_cd1 1 r.pdf)

[^3]f. Cea mai mare căutare au romanele polițiste
'Detective novels have the greatest popularity'(Corola:http://confluente.ro/harry_ross_1423268009.html)
g. Dintre strategiile amintite, cea mai mare frecvență au evaluarea psihologică a personalului didactic și autoevaluarea.
'Among the mentioned strategies, the psychological evaluation of the teaching staff and self-evaluation have the highest frequency.' (Corola-publishinghouse/Science/992_a_2500)
h. Cea mai mică rezistență opun, de regulă, managerii care dețin în general toate informațiile legate de schimbare și implicațiile acesteia.
'Those who oppose the least resistance are usually the managers who have all the information about the change and its implications' (Corola-publishinghouse/Science/992_a_2500)

## 6. Compatibility with other determiners

Romanian, due to the presence of an overt marker on prenominal superlatives (cel), puts fewer restrictions than other Romance languages on the co-occurrence of superlatives and determiners other than the definite $\mathrm{D}^{6}$.

- Demonstratives are acceptable in anaphoric DPs (of course, since the superlative ensures uniqueness, the definite article is normally used; the demonstrative, very rarely used, just signals the fact that the referent has already been mentioned; the superlative may provide additional information about the referent, resembling non-restrictive modifiers):
a. acest cel mai înalt pisc al masivului Godeanu uneori se ascunde this cel more high peak GEN massive-the.GEN Godeanu sometimes REFL hides (www.normal-paranormal.ro/)
b. Comparativ însă cu volumele precedente, în acest cel mai recent volum al său, tonul lui Virgil Ciucă este mai blând
'Compared to the preceding volumes, in this most recent volume of his, Virgil Ciucă's tone is softer’ (http://confluente.ro/virgil_ciuca_1483283140.html, in the Corola corpus)
c. La sfârșit de august, timp de nouă zile, aproape 1500 de dascăli au participat la Suceava, Cernăuți, Chișinău și Eforie Sud la a XXXVI-a ediție a acestui cel mai mare forum anual de dezbatere din învățământul românesc
'At the end of August, for nine days, almost 1500 teachers participated in Suceava, Cernăuți, Chişinău and Eforie Sud to the XXXVI ${ }^{\text {th }}$ edition of this largest annual debate forum of the Romanian education system'
(http://uzp.org.ro/1500-de-cadre-didactice-din-romania-r-moldova-ucraina-si-serbia-au-participat-la-al-xxxvi-lea-congres-al-agiro/, in the Corola corpus)

Demonstratives are reported to be ungrammatical in It. (Loccioni 2018), Sp. (Bosque \& Brucart 1991) and French (Roussarie \& Van Peteghem 2021: 1701):
(46)
a. * quella più bella ragazza (It. Loccioni 2018:20, ex. 19)
that more beautiful girl
b. * esa mejor corbata (Sp., Bosque \& Brucart 1991, ex. 3) this best tie

In French, exceptions such as (47) might be accounted for as lexicalized, concept-like expressions (best possible world):
(47) isolé comme je le suis dans ce meilleur des mondes possibles,
'Isolate as I am in this best of the possible worlds' (P. Hazard, La pensée européenne au XVIII' siècle, 352)

[^4](i) a. mon plus fidèle ami / mon ami le plus fidèle (Fr.)
b. mi más leal amigo / mi amigo más leal (Sp.)
'my most loyal friend'

- The indefinite article is mostly found in contexts where existence is asserted, questioned or denied see (48)a-d, g (a-e are from Giurgea 2013, §2.3.2.2, ex. 51); in (48)f, the referent is presented as coming into being; maybe in h we have the meaning 'one of several that (might) satisfy the superlative'; in i we have a generic indefinite (something that is a best alternative in a situation):
(48) a. Dacă considerăm că există un cel mai mare număr, acesta... (http://www.cumsaorice.ro/) 'If we consider that there is a largest number, this...'
b. există întotdeauna un cel mai mic divizor comun a două elemente
'There is always a least common divisor of two numbers'
(ro.wikipedia.org/wiki/Algoritmul_lui_Euclid)
c. să existe un cel mai mic preţ la care să poată să vândă foarte uşor apartamentele pe piaţă şi totuşi să aibă un profit (apartamente-noi.ro/stiri.php)
'that there should exist a lowest price at which they can sell the apartments very easily on the market and still make a profit'
d. Aşadar avem un cel mai bun triatlonist din această parte de țară şi un sponsor al său francez care ar organiza un triatlon-loco (sporttim.ro/)
'So we have a best triathlete from this part of the country and a French sponsor of his who...'
e. Jorge Lorenzo a făcut un mic pas spre punerea în umbră a evoluţiei lui slabe din Grand Prixul Cehiei, cu un cel mai rapid timp în sesiunea de teste de la Brno
'Jorge Lorenzo took a small step towards overshadowing his poor performance at the Czech Grand Prix with a fastest time in the Brno test session' (http://www.sport365.ro/)
f. În 1991 s -a început lucrul la o cea mai mare biserică ortodoxă din oraș numită "Biserica Sfântul Sava" (,,Istoria Buzăului", 2017, in Corola)
'In 1991, work began on a largest Orthodox church in the city called "Saint Sava Church'
g. În mod evident, nu se poate discuta nici de o cea mai bună opțiune dacă (...)
'Obviously, there is no question of a best option if...'
(Corola-publishinghouse/Science/2133_a 3458 )
h. Ele sunt un cel mai complet tablou al moravurilor, obiceiurilor, costumelor și vieții sociale 'They are a most complete picture of (the) manners, customs, costumes and social life' (Corola-publishinghouse/Science/977_a_2485)
i. Așa cum Sen nota în (1970a), în privința mulțimii maximale și a celei de alegere, pot fi făcute două observații: în primul rând, o cea mai bună alternativă este și o alternativă maximală, însă nu și invers
'As Sen noted in (1970a), regarding the maximal set and the choice set, two observation can be made: first, a best alternative is also a maximal alternative, but not the other way around'
(M. Ungureanu, "Paradoxuri libertariene în Teoria Alegerii Sociale", 2013, in Corola)

In It., Sp. and Fr. the article is in principle excluded (for French, see Roussarie \& Van Peteghem 2021 : 1701); see however (49) in French, with a quasi-lexicalized expression in an existential construction:
(49) chaque fois qu'il existera un plus petit diviseur commun every time that it will-exist a more small divisor common
'Every time that there will be a least common divisor'
(Charles Henry, Cercle chromatique, Paris, 1888, p.20)
Herdan \& Sharvit (2006) point out a further situation in which superlatives are compatible with the indefinite article and any other determiner: when there are several sets out of which a maximal element is selected:
(50) a. This class has a best student
(Herdan \& Sharvit 2006 :ex.4-6)
b. The dean praised $\mathrm{a} /$ some best student (= a student best in his class/year)

Context: The dean praised some best student. He happened to be the best student in the class of 2005. The best students in the other classes were not praised at all.
c. Sonia decided that she would marry some richest eligible bachelor; preferably the richest bachelor among the tennis players, but he could also be the richest bachelor among the art collectors or the richest bachelor mong the yacht-owners
(ibid. ex. 8)
(ibid. ex. 22)

This type seems impossible in Romanian (the counterpart of (50)a is possible because it asserts existence, but the other examples are problematic) :
$(50)^{\prime}$ b. ?? Decanul a lăudat un cel mai bun student
c. ?? Sonia a decis să se căsătorească cu un cel mai bogat burlac, de preferință cel mai bogat dintre jucătorii de tenis, dar ar putea fi şi cel mai bogat dintre colecţionarii de artă sau dintre posesorii de iahturi
d. ?? Ion se îndoieşte că Maria este o cea mai bună studentă

- Distributive quantifiers? One ex. in Corola; Sup+N creates a kind-like expression "smallest packaging unit" (3 occurrences in a law text (https://lege5.ro/Gratuit/gmzdsnrzga/hotararea-nr-519-2009-privind-instituirea-unui-sistem-de-identificare-unica-si-trasabilitate-a-explozivilor-de-uz-civil?d=2022-05-18):
(51) Operatorii economici care produc ori importă explozivi sau care asamblează capse detonante trebuie să marcheze explozivii şi fiecare cea mai mică unitate de ambalare a acestora cu un marcaj de identificare unică (....)În cazul explozivilor din două componente ambalaţi, marcajul de identificare unică trebuie să fie constituit dintr-o etichetă adezivă sau o imprimare directă pe fiecare cea mai mică unitate de ambalare care conţine cele două componente (...) Fiecare cea mai mică unitate de ambalare se sigilează (...)


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[^1]:    ${ }^{1}$ For this type of compared element, distinct from the referent of the DP, Farkas \& Kiss (2000) introduced the term 'correlate'
    ${ }^{2}$ A procedure of achieving relative readings for a DP-internal -EST, by building a comparison class based on the focus-value of the clause, was proposed by Heim (1999), but ultimately rejected as a general account of relative readings because of the split scope examples (upstairs de dicto readings). However, several studies supported such a procedure at least for some instances of relative(-like) readings (see Kotek et al. 2011, Pancheva \& Tomaszewicz 2012, Bylinina et al. 2014)

[^2]:    ${ }^{3}$ Bylinina et al. (2014) propose a totally different semantics for ordinals, but they deal with a special type of ordering, which is temporal. Such an ordering needs pairing the entities with events. In spatial and property orderings, we need not resort to events and times. Therefore, the semantics sketched here appears to be more general. Its extension to temporal ordering and event-related readings is left for future work.
    ${ }^{4}$ The difference between sets $A$ and $B$ or (relative) complement of $B$ in $A=$ the set of elements of A that are not in B (written ' $\mathrm{A}-\mathrm{B}$ ' or ' $\mathrm{A} \backslash \mathrm{B}$ ').

[^3]:    ${ }^{5}$ Corola search-form: [drukola/m=pos:article\&drukola/m=type:demonstrative] mai [drukola/m=pos:adjective] [drukola/m=pos:noun] [drukola/m=pos:verb]

[^4]:    ${ }^{6}$ Those languages where the possessive is a "determiner" allow it in DPs with superlatives, but this is expected given the fact that the possessive determiner is decomposable into a possessive pronoun and a definite D :

