

# *Most vs. the most* in languages where *the more* means *most*

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## Abstract

This paper deals with languages in which a superlative interpretation is typically indicated merely by a combination of a definiteness marker with a comparative marker, including French, Spanish, Italian, Romanian, and Greek (‘DEF+CMP languages’). Despite ostensibly using definiteness markers to form the superlative, these languages all have slightly different patterns of definiteness-marking with superlatives, as the paper will illustrate. To explain how superlative interpretations arise without a superlative morpheme, we propose a mechanism of Definite Null Instantiation for the degree-type standard argument of the comparative. This is the unifying feature of all of the derivations we give, for all of the languages. We propose furthermore that quantity words always measure degrees rather than individuals, and that a predicate of degrees is composed with a predicate of individuals by the same semantic composition rule that is operative in pseudopartitives: Measure Identification. This proposal produces differences between quantity and quality superlatives that manifest themselves differently in different languages. To account for the cross-linguistic variation, we identify a number of pressures that all of the languages in consideration may be subject to, and suggest that different languages have different levels of sensitivity to these pressures.

## 1 Introduction

In French, placing a definite article before a comparative adjective suffices to produce a superlative interpretation:

- (1) Elle est **la plus grande**.  
she is the CMP tall  
‘She is **the tallest**.’

French is not alone; other Romance languages, as well as Modern Greek, Maltese and others, make do with the same limited resources. Some examples are given in Table 1.<sup>1</sup> This paper considers such languages, which we call DEF+CMP languages, against the background of

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<sup>1</sup>Besides Romance languages, languages reported to use this strategy include Modern Standard Arabic, Assyrian Neo-Aramaic, Middle Armenian, Modern Greek, Biblical Hebrew, Livonian, Maltese, Chalcatongo Mixtec, Papiamentu, Vlach Romani, Russian, and Tamashek (Bobaljik, 2012; Gorshenin, 2012).

Table 1: The comparative and superlative degree of ‘tall’ in some DEF+CMP languages

LANGUAGE	POS	CMP	SPRL
<b>English</b>	tall	taller	tallest
<b>French</b>	grande	plus grande	la plus grande
<b>Spanish</b>	alto	más alto	el más alto
<b>Romanian</b>	inalt	mai inalt	cea mai inalt
<b>Italian</b>	alto	più alto	il più alto
<b>Greek</b>	psilós	pio psilós	o pio psilós
<b>Greek (alt 2)</b>	psilós	psilóteros	o psilóteros

a growing literature on cross-linguistic variation with respect to the relationship between definiteness-marking and the interpretation of superlatives.

There is particularly great cross-linguistic variation when it comes to the superlatives of quantity words, like English *much*, *many*, *little* and *few*. Quantity words are a bit like adjectives, and a bit like quantifiers. Like adjectives, for example, they have comparative and superlative forms (e.g. *more* and *most*). This is sufficient for Jespersen (1914/1970) and Kayne (2005a) to classify them as adjectives. But like quantifiers, they can take partitive phrases (e.g. *many/more/most of the students*), can stand on their own in e.g. *few are intelligent* (Svenonius, 1992), and can’t follow numerals (e.g. *two red/\*many balls*). Perhaps as a consequence of the tension between these two identities, there is a great deal of variability across languages with respect to the patterns of definiteness-marking associated with the superlative forms of quantity words. For example, English and Swedish are near-opposites; compare the following Swedish examples to their English glosses:

- (2) Gloria har besökt **de flest-a kontinent-er-na**.  
 Gloria has visited the.PL many.SPRL-WK continent-PL-PL.DEF  
 ‘Gloria has visited **most of the continents**.’
- (3) Gloria har besökt **flest kontinent-er** (av alla).  
 Gloria has visited many.SPRL continent-PL of all.PL  
 ‘Gloria has visited **the most continents** (of everyone).’

Example (2) has what is known as a ‘proportional’ reading, specifying that a high proportion of the relevant class of entity (roughly more than half of the continents, in this case), has the relevant property (being visited by Gloria in this case). Example (3) has what is known as a ‘relative’ reading, specifying that the focussed element (Gloria) stands in the relevant relation to more elements of the class in question than any alternative. In English, there is definiteness-marking preceding the superlative *most* on the relative reading but not the proportional reading, whereas in Swedish, the pattern is reversed.

Quality superlatives are also ambiguous between two readings, and English and Swedish differ with respect to how these are marked as well. Consider the Swedish example (4).

- (4) Gloria sålde **god-ast glass**.  
 Gloria sold delicious-SPRL ice cream

‘Gloria sold **the most delicious ice cream.**’

As Teleman et al. (1999) discuss, (4) means that Gloria sold more delicious ice cream than anyone else, not that there was some set of ice creams out of which she sold the most delicious (which would be compatible with others selling the same ice cream). In other words, it has a *relative* reading, but not an *absolute* reading. (In Teleman et al.’s (1999) terms, it is interpreted with *indirect selection* rather than *direct selection*.) The English gloss of (4), on the other hand, is ambiguous between a relative and an absolute reading; it could be true if someone other than Gloria also sold the ice cream that was most delicious of all the ice creams. Here again, we see that definiteness-marking has divergent interpretive effects in English and Swedish.

We might expect the landscape of variation with respect to the definiteness-marking of superlatives to be rather dull and flat within the realm of DEF+CMP languages. If superlatives are formed with definiteness-markers, then definiteness-markers should always appear, regardless of what reading is involved. But this is not what we find.

We find in fact several departures from the dull and flat picture one might expect. First, as Dobrovie-Sorin & Giurgea (2015) discuss, French is one of the many languages of the world where the superlative of ‘many’ does not have a proportional interpretation.

- (5) De tout les enfants de mon école, je suis celui qui joue **le plus**  
of all the kids of my school, I am the.one who plays DEF CMP  
**d’instruments.**  
of.instruments  
‘Of all the kids in my school, I’m the one who plays the most instruments.’
- (6) \***Le plus de cygnes** sont blancs.  
the more of swans are white

Such languages are surprising from the perspective of Hackl (2000, 2009), according to which the proportional readings of quantity superlatives are parallel to absolute readings of quality superlatives. Romanian and Greek are more well-behaved from that perspective; there, the superlative of ‘many’ (literally ‘the more many’) can have a proportional interpretation. This is one point of variation.

French, Romanian, and Greek all have in common that definiteness-marking normally appears with all of the readings that *are* allowed, except that Greek does not have definiteness-marking on adverbial superlatives. The same is not the case for Italian, Spanish and Portuguese. Despite forming quality superlatives through the combination of a definiteness-marker with a comparative form, these languages do not use definiteness-marking for quantity superlatives on relative readings (and they do not allow proportional readings for quantity superlatives at all). Here is an example from Italian (cf. de Boer 1986, Dobrovie-Sorin & Giurgea 2015, i.a.):

- (7) Probabilmente è Hans che ha bevuto **più caffè.**  
Probably it.is Hans who has drunk CMP coffee  
‘It is probably Hans who has drunk **the most coffee.**’

So, in Italian, superlatives are formed by combining a definiteness-marker with a compara-

tive, yet here we have a superlative without a definiteness-marker. This is rather bizarre if the superlative interpretation is supposed to rest fully in the hands of the definite determiner. And this is not the only case where definiteness-marking is missing from a superlative in a DEF+CMP language.

Generally, there are several analytical options we could consider for DEF+CMP superlatives. The one we have just ruled out (at least for Italian) is that the definite article itself is the marker of the superlative. Another is that the comparative is lexically ambiguous between a comparative and a superlative. Another would build on the stance argued for by Bobaljik (2012), where superlatives are composed of comparatives and a bit that means ‘of all’. This latter bit could be taken to be silent in DEF+CMP languages; see Szabolcsi 2012 for a formal analysis of *the more* in English along these lines. A fourth possibility is that a superlative interpretation arises more or less directly from the composition of a comparative meaning and the meaning of the definite article.

We pursue a moderate instantiation of the last-mentioned strategy here, one which also applies to cases in English like *the more qualified candidate (of the two)*. Notice that definite-marked comparatives in English are not compatible with an overt standard phrase:

(8) \*Which one is the more qualified than Donald?

(Cf. Szabolcsi’s (2012) observation for French: *\*Qui a bu le plus de vin que Marie?*, lit., ‘Who has drunk the more of wine than Marie?’) This suggests that some sort of change to the meaning has been made in order to render the comparative compatible with the definite article. We suggest that the same process takes place in DEF+CMP languages, the only difference being that there is no paradigmatic opposition between comparative and superlative forms.

Under our proposal, the superlative interpretation does require one small adjustment to the meaning of the comparative, but it is a very lightweight adjustment. We start with the assumption that a comparative element denotes a function from measure functions to degrees to individuals to truth values, roughly following Dunbar & Wellwood (2016), which builds on a long discussion regarding the analysis of comparatives:

(9)  $more \rightsquigarrow \lambda g \lambda d \lambda x . g(x) > d$

Here  $g$  denotes a measure function, a function that maps individuals to degrees. A gradable adjective like *qualified* is assumed to denote such a function. So, assuming an ordinary composition rule of Functional Application and that the translation relation  $\rightsquigarrow$  is closed under beta-reduction, CMP *qualified* has the following translation:

(10)  $more\ qualified \rightsquigarrow \lambda d \lambda x . QUALIFIED(x) > d$

The next ingredient is a meaning shift that we refer to as Definite Null Instantiation, in homage to Fillmore (1986). It takes any function and saturates its argument with an unbound variable.

(11) **Definite Null Instantiation (Meaning Shift).**

If  $\alpha \rightsquigarrow \alpha'$ , and  $\alpha'$  is an expression of type  $\langle \sigma, \tau \rangle$ , then  $\alpha \rightsquigarrow \alpha'(v)$  as well, where  $v$  is an otherwise unused variable of type  $\sigma$ .

(If any of the arguments are obligatorily expressed syntactically, this will have to be managed by the syntax.)<sup>2</sup> Applying this gives the following, where  $\mathbf{d}$  is an unbound degree-type variable:

$$(12) \quad \textit{more qualified} \text{ (after DNI)} \rightsquigarrow \lambda x . \text{QUALIFIED}(x) > \mathbf{d}$$

We have written  $\mathbf{d}$  in bold-face in order to draw attention to the fact that it is unbound. (We could of course have chosen a variable other than  $\mathbf{d}$ ; all we needed was a degree variable that is not otherwise used.) This description can combine with a noun like *mountain* using Predicate Modification to produce:

$$(13) \quad \textit{more qualified candidate} \rightsquigarrow \lambda x . \text{QUALIFIED}(x) > \mathbf{d} \wedge \text{CANDIDATE}(x)$$

If there is a unique most qualified candidate, then there will be a way of choosing a value for  $\mathbf{d}$  in such a way that this description picks her out. Hence, given an appropriate choice of value  $\mathbf{d}$ , the definite article should be able to combine with this description to pick out the most qualified candidate. Normally, the range of potential referents will be limited to a class  $C$ , which we may suppose is introduced by the definite determiner.

$$(14) \quad \text{DEF}_C \rightsquigarrow \lambda P . \iota x . P(x) \wedge C(x)$$

So *the more qualified candidate* denotes the candidate in  $C$  that is more qualified than  $\mathbf{d}$ , for appropriately chosen value of  $\mathbf{d}$ . This is the common core; languages differ with respect to how it plays out.

Throughout the coming sections, we will present the range of patterns for the quality and quantity superlative in each language, and sketch derivations for each language. The main unifying theme for all of these derivations is this process of Definite Null Instantiation for the degree argument of the comparative. A secondary unifying theme is a special mode of composition called Measure Identification; this is the glue that holds pseudopartitives together, and connects quantity words to the nouns they modify on relative interpretations. The final section will summarize the empirical landscape and suggest that all of the languages in question are subject to the same set of competing pressures, but that different languages have different levels of sensitivity to them, or have different priorities.

## 2 Greek

### 2.1 Quality superlatives

We begin with Greek, where a definite article may combine with either a synthetic or periphrastic comparative to form the superlative. The synthetic and periphrastic variants are in free variation. For example, the comparative and superlative forms of *psilós* ‘tall’ have two varieties, as illustrated in Table 2. These two variants appear to be freely interchange-

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<sup>2</sup>Note that this meaning shift depends on the assumption that the  $\rightsquigarrow$  relation is not a function; a given natural language expression can have multiple translations into the formal language and they need not be equivalent. See Partee & Rooth (1983), a foundational classic on type-shifting, for precedent for this assumption.

Table 2: Synthetic and periphrastic forms of *psilós* ‘tall’ in Greek

	POSITIVE	COMPARATIVE	SUPERLATIVE
<b>Synthetic:</b>	<i>psilós</i>	<i>psilóteros</i>	<i>o psilóteros</i>
<b>Periphrastic:</b>	<i>psilós</i>	<i>pio psilós</i>	<i>o pio psilós</i>

able, although the synthetic one may be slightly more commonplace. For all of the types of examples we elicited, many of which are presented below, both variants were judged to be acceptable.

Table 3: Declension of the definite article in Greek

SINGULAR			
	MASCULINE	NEUTER	FEMININE
N.,	<i>o</i>	<i>to</i>	<i>i</i>
G.,	<i>tou</i>	<i>tou</i>	<i>tis</i>
A.,	<i>to(n)</i>	<i>to</i>	<i>ti(n)</i>
PLURAL			
	MASCULINE	NEUTER	FEMININE
N.,	<i>oi</i>	<i>ta</i>	<i>oi</i>
G.,	<i>ton</i>	<i>ton</i>	<i>ton</i>
A.,	<i>tous</i>	<i>ta</i>	<i>tis</i>

In adnominal superlatives, there is always a definite article, which agrees in gender and number with the modified noun. (For reference, the inflectional paradigm for the definite article is as in Table 3. We suppress the agreement features in our glosses for the sake of readability.) The definite article is present regardless of whether an absolute or relative interpretation is intended. Hence, the following example is ambiguous:<sup>3</sup>

- (15) *O Stellios odigei to pio glioron aftokiniton.*  
 the Stellios drives DEF CMP fast car  
 ‘Stellios drives **the fastest car.**’

This example clearly has a superlative interpretation, however; leaving out the definite article in (15) would lead to the expectation that the sentence will be completed with an explicit standard of comparison; it would yield a comparative interpretation.<sup>4</sup>

<sup>3</sup>Thanks to Haris Themistocleous and Stergios Chatzikyriakidis for judgments and discussion.

<sup>4</sup>The definite article is also obligatory under both interpretations in Cypriot Greek, which, unlike Standard Greek, allows clefting:

- (i) *En o Stellios pou odigei to pio glioron aftokiniton.*  
 is DEF Stellios who drives DEF CMP fast car  
 ‘It is Stellios who drives the fastest car.’

Here is an example that strongly favors a relative interpretation; definiteness-marking is obligatory here as well.

- (16) Den eimai ego afti me **ti leptoteri mesi** stin oikogeneia.  
 not I self she with DEF thin.CMP middle in family  
 ‘I’m not the one with **the thinnest waist** in the family.’

Note that the periphrastic variety *ti pio lepsi mesi* ‘the thinnest waist’, lit. ‘the more thin waist’, is equally acceptable here according to our consultants.

With adverbial superlatives, in contrast, there is no definite article:

- (17) I aderfi mou trechei **pio grigora**.  
 the sister my runs COMP fast  
 ‘My sister runs **the fastest**.’
- (18) Pios tragoudái **pio kalá?**  
 who sings more good  
 ‘Who sings the best?’  
 (Dobrovie-Sorin & Giurgea, 2015, 16, ex. (71))

Inserting a definite article before *pio* is not possible in this sentence, e.g. *\*I aderfi mou trechei to pio grigora*. As Dobrovie-Sorin & Giurgea (2015) point out, this shows that the definite article is not an integral part of superlative-marking in Greek. Rather, they argue, Greek superlatives are comparatives inside a definite DP.

Absolute and relative readings of adnominal superlatives are similar to each other and to ordinary adjectives with respect to syntactic behavior as well. As has been much discussed, Greek has a construction in which the order of the adjective and the noun can be reversed, called ‘determiner spreading’; see Alexiadou (2014, 19) for an extensive list of references. The interpretive effect of determiner spreading is similar to that of placing an adjective postnominally in Romance: generally, it is restricted to restrictive modifiers (Alexiadou & Wilder, 1998). But unlike in Romance, this construction involves an extra definite determiner:

- (19) a. to kokino to podilato  
 the red the bicycle  
 ‘the red bicycle’  
 b. to podilato to kokino  
 the bicycle the red  
 ‘the red bicycle’

Determiner spreading can involve superlatives; Alexiadou (2014) discuss the following example, which has an absolute reading, referring to a particular cat:

- (20) Spania haidevo **tin mikroteri ti gata**  
 seldom pet the smallest the cat  
 ‘I seldom pet **the smallest cat**.’

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Thus, although clefting presumably signals uniqueness, it does not obviate the need for a definite article. Thanks to Haris Themistocleous for discussion of this point.

Intuitions appear to be somewhat murky when it comes to determiner spreading with relative readings, but the following variant of (16) was judged as acceptable by our consultants:

- (21) Den eimai ego afti me **ti leptoteri ti mesi** stin oikogeneia  
 not be.1SG I she with the thin.CMP the waist in family  
 ‘I’m not the one with **the thinnest waist** in the family.’

This suggests that superlatives are restrictive modifiers on both absolute and relative interpretations.

In any case, it appears that the comparative adjective in an adnominal superlative is structurally analogous to an ordinary adjective in a determiner-adjective-noun sequences, and that the article is a real article, in its ordinary position. We therefore adopt the following constituency structure for a case like *to pio glioron aftokiniton* ‘the fastest car’.

- (22)
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Let us consider how we might derive a superlative interpretation for a simple case like *to pio glioron aftokiniton* ‘the fastest car’, given that there is no overt superlative morpheme. We start with the assumption that *pio* denotes a function from measure functions to degrees to individuals to truth values (Dunbar & Wellwood, 2016). As in the Introduction, we translate expressions of natural language (here, Greek) into a typed formal language;  $\rightsquigarrow$  denotes the translation relation.

- (23)  $pio \rightsquigarrow \lambda g \lambda d \lambda x . g(x) > d$

As above,  $g$  denotes a measure function, a function that maps individuals to degrees. A gradable adjective like *glorion* is assumed to denote such a function. So, through Functional Application (and  $\beta$ -reduction), *pio glorion* has the following translation:

- (24)  $pio\ glorion \rightsquigarrow \lambda d \lambda x . \text{FAST}(x) > d$

The next step is to apply Definite Null Instantiation. This will saturate the degree argument with a free variable. Applying this gives the following, where  $\mathbf{d}$  is unbound:

- (25)  $pio\ glorion \rightsquigarrow \lambda x . \text{FAST}(x) > \mathbf{d}$

This description can combine with *autokiniton* using Predicate Modification to produce:

- (26)  $pio\ glorion\ autokiniton \rightsquigarrow \lambda x . \text{FAST}(x) > \mathbf{d} \wedge \text{CAR}(x)$

As in the Introduction, if there is a unique fastest car, then there will be a way of choosing  $\mathbf{d}$  in a way such that this description picks out that car. Hence, given an appropriate choice of  $\mathbf{d}$ , the definite article should be able to combine with this description to pick out the fastest car. Relative to a restricted domain  $C$  to which the definite article relates, *to pio glioron autokiniton* denotes the car in  $C$  that is faster than  $\mathbf{d}$ .



This clearly gives an absolute superlative reading. What about relative readings? One natural avenue to explore in this context is that relative readings are really a species of absolute reading, with the comparison class restricted in a particular way, as argued by advocates of this kind of in-situ analysis such as Teodorescu (2007). In our case, there is no superlative to introduce a comparison class, but the definite article comes with a domain restriction that could be exploited for the same purpose. Such an analysis would potentially be open to the criticisms of this approach made by Heim (1999), however. We must leave a full discussion of how to overcome such criticisms to another occasion, mentioning only that the options include Bumford’s (2016) recent proposal, decomposing the definite article into a uniqueness component and an existence component.

## 2.2 Quantity superlatives

Like quality superlatives, quantity superlatives are formed through the combination of a definite article with a comparative form, which may be either periphrastic, as in (27), or synthetic, as in (28). Here are some examples with relative readings, one count and one mass:

- (27) Apó óla ta paidiá sto scholeío, egó paízo **ta pio pollá órgana**.  
of all the kids at school, I play DEF CMP many instruments  
‘Of all the kids in my school, I’m the one who plays **the most instruments.**’
- (28) Eimai aftos pou pinei **to ligotero kafe**.  
I he who drinks DEF little.CMP coffee  
‘I am the one who drinks **the least coffee.**’

Definiteness-marking is not optional here. Note that the word for ‘many’ is transparently contained within the superlative phrase in its periphrastic form.

Definite-marked quantity superlatives are also regularly used for expressing a proportional interpretation. Here are some examples from our data:

- (29) **S-ta perissótera paidiá** sto scholeío mou arései na paízoun mousikí.  
DAT-DEF many.CMP kids at school mine like to play music  
‘Most of the kids in my school like to play music.’
- (30) I mamá éftiaxe biskóta chthes kai éfaga **ta perissótera**.  
the mom made cookies yesterday and ate DEF many.CMP  
‘Mom baked cookies yesterday and I ate **most of them.**’
- (31) Ípia epísis **to perissótero gála**.  
drank also DEF much.CMP milk  
‘I drank **most of the milk**, too.’

Definiteness-marking is not optional here either.

Although quantity superlatives look morphologically very much like quality superlatives, there is a slight difference in their syntactic behavior. Definiteness spreading appears to be somewhat less acceptable with quantity superlatives than with quality superlatives. None of our consultants were entirely comfortable with the following examples (although they were

characterized as ‘syntactically perfect’), and some rejected them:

- (32) a. ??Éfaga **ta perissotera ta biskóta.**  
 ate.1SG the much.CMP the cookies  
 ‘I ate **the most cookies**’ or ‘I ate **most of the cookies.**’  
 b. ??Éfaga **ta biskóta ta perissotera.**  
 ate.1SG the cookies the much.CMP  
 ‘I ate **the most cookies**’ or ‘I ate **most of the cookies.**’
- (33) a. ??Eimai aftos pou pinei **to ligotero to kafe.**  
 be.1SG him who drinks the little.CMP the coffee  
 ‘I’m the one who drinks **the least coffee.**’  
 b. ??Eimai aftos pou pinei **to kafe to ligotero.**  
 be.1SG him who drinks the coffee the little.CMP  
 ‘I’m the one who drinks **the least coffee.**’

This suggests that quantity superlatives are not restrictive modifiers (on either interpretation).

However, even if *pio pollá* is not in the position of an ordinary adjective, it still may form a constituent with the modified noun to the exclusion of the definite determiner:

- (34)
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The alternative, treating *ta pio pollá* as a constituent, would raise the question why such strings do not occur adverbially. (34) also gives a more unified view of the grammar of Greek superlatives.

Let us consider how to give a compositional semantic interpretation, keeping in mind the awkwardness of definiteness-spreading. The key assumption is that a word like *pollá* ‘much’ denotes an identity function on degrees, rather than a function from individuals to degrees like ordinary gradable adjectives.

- (35)  $pollá_i \rightsquigarrow \lambda d . d$

We then combine *pio* with *pollá* via Functional Application:

- (36)  $pio\ pollá \rightsquigarrow \lambda d \lambda d' . d' > d$

Then by the Definite Null Instantiation meaning shift:

- (37)  $pio\ pollá \text{ (after DNI)} \rightsquigarrow \lambda d' . d' > \mathbf{d}$

Now, we cannot use Predicate Modification to comparative with the noun. (And this correctly predicts that definiteness spreading should be problematic.) Let us assume that what happens instead is that the degree predicate is linked to the nominal predicate by the same glue that holds a pseudopartitive together. The result is a predicate that holds of some individual  $x$  if the nominal predicate holds of  $x$  and  $x$  has an extensive measure satisfying

the degree predicate.

(38) **Measure Identification (Composition Rule)**

If  $\gamma$  is a subtree whose only two immediate subtrees are  $\alpha$  and  $\beta$ , and  $\alpha \rightsquigarrow D$ , where  $D$  is of type  $\langle d, t \rangle$ , and  $\beta \rightsquigarrow P$ , where  $P$  is of type  $\langle \tau, t \rangle$ , where  $\tau$  is any type, then

$$\gamma \rightsquigarrow \lambda v . D(\mu_i(v)) \wedge P(v)$$

where  $v$  is a variable of type  $\tau$  and  $\mu_i$  is a free variable over measure functions (type  $\langle \tau, d \rangle$ ).

We use  $\mu_i$  to denote a contextually-salient measure function along the lines of Wellwood (2014), with  $i$  as a free variable index presumed to be constrained somehow by context. So given a predicate of degrees  $D$  and a predicate of individuals  $P$ , this operation yields  $\lambda x . D(\mu_i(x)) \wedge P(x)$ . For example (assuming the plural is translated using the cumulativity operator \*):

(39) *pio pollá órgana*  $\rightsquigarrow \lambda x . \mu_i(x) > \mathbf{d} \wedge * \text{INSTRUMENT}(x)$

and this is the right sort of thing to combine with a definite article as long as  $\mathbf{d}$  is chosen appropriately. The definite article introduces a comparison class  $C$ . So *ta pio pollá órgana* will be predicted to denote the plurality of instruments in  $C$  whose contextually-relevant extensive measure is  $\mathbf{d}$ .

For a proportional reading, one option would be to assume that  $C$  may consist of two non-overlapping pluralities covering the domain picked out by the substance noun. This idea would not be unlike Hoeksema’s (1983) treatment of definite quantity superlatives with proportional readings in Dutch, on which ‘the many-est Ns’ denotes the unique plurality of Ns that is most numerous among some salient set of N-pluralities. This idea differs from the view on proportional readings of quantity words espoused by Dobrovie-Sorin (2013) and Dobrovie-Sorin & Giurgea (2015), according to which they arise through grammaticalization of a string with a relative reading into a proportional quantifier. One prediction of their approach, which is met for Romanian as we will see below, is that proportional readings cannot arise with mass terms. But as we have seen, this is not a problem in Greek. We suggest that Dobrovie-Sorin & Giurgea (2015) may be right for Romanian, but that a Hoeksema-style approach to proportional readings may be more on the right track for Greek.

### 3 Romanian

We turn now to Romanian, which is like Greek in some respects, but not in others. It uses DEF+COMP for both relative and proportional readings, but there is evidence that the definite article is more tightly knit with the comparative here than it is in Greek.

#### 3.1 Quality superlatives

Example (40) shows a predicative use of a superlative in Romanian, (41) an attributive use, and (42) an adverbial use.

Table 4: Inflectional paradigm for *cel* in Romanian (Cojocaru, 2003, 53).

SINGULAR		
	MASCULINE, NEUTER	FEMININE
N., A.	cel	cea
G, D.	celui	celei
PLURAL		
	MASCULINE	FEMININE, NEUTER
N., A.	cei	cele
G., D.	celor	celor

- (40) Pentru că eram **cea mai entuziasmată**.  
 for that I.was DEF CMP enthusiastic  
 ‘Because I (fem.) was **the most enthusiastic**.’
- (41) A scris **cea mai frumoasă compunere**.  
 has written DEF CMP beautiful composition.ACC  
 ‘She wrote **the most beautiful composition**.’
- (42) Sora mea poate alerga **cel mai repede**.  
 sister my can run DEF CMP fast  
 ‘My sister can run **the fastest**.’

In (40) and (41), *cea* is a feminine singular form of *cel*. In (42), we have the invariant, default form.<sup>5</sup> We will not gloss the agreement features, but simply refer the reader to the inflectional paradigm for the demonstrative in Table 4, taken from Cojocaru (2003, 53). Note also that the adjective *frumosă* ‘beautiful’ shows feminine singular agreement with the noun *compunere* ‘composition’.

We gloss *cel* here as DEF, in order to bring out the parallels with other DEF+CMP languages, but it should be kept in mind that this element is not the most direct correlate of English *the* in the language. *Cel* is not found in ordinary, simple definites; instead a suffix is used. For example, in (43-a), we have feminine singular definite ending *-a*, modified from the stem-inherent *-ă*. We gloss this ending here as ‘the’.

- (43) a. Carte-a e pe mas-a mare.  
 map-the is on table-the big  
 ‘The map is on the big table.’
- b. Carte-a e pe o masă mare.  
 map-the is on a table big  
 ‘The map is on a big table.’

(The full inflectional paradigm for the definite suffix is given in Table 5.) In traditional

<sup>5</sup>Dindelgan (2013, 315) points out that adverbial *cel* can receive dative case marking, so it is not entirely invariable.

Table 5: Inflectional paradigm for definite suffixes in Romanian (Cojocaru, 2003).

SINGULAR			
	MASCULINE	NEUTER	FEMININE
N., A.	pom <b>ul</b>	scaun <b>ul</b>	casa; floarea; cafea
G, D.	pom <b>ului</b>	scaun <b>ului</b>	casei; florii; cafelei
PLURAL			
N., A.	pomii	scaune <b>le</b>	case <b>le</b> , floril <b>e</b> ; cafele <b>le</b>
G., D.	pomil <b>or</b>	scaunel <b>or</b>	casel <b>or</b> , floril <b>or</b> ; cafelel <b>or</b>

grammar (e.g. Cojocaru 2003), *cel* is classified as a demonstrative, though it has additional functions as well. For instance, it can double a definite suffix (Alexiadou, 2014):

- (44) Legile (cele) importante n’au fost votate  
 laws-the (DEF) important have not<sub>been</sub> voted  
 ‘The laws which were important have not been passed.’

See Alexiadou (2014, 53-62) for a recent discussion of this phenomenon and its relation to Greek determiner spreading.

As (44) shows, Romanian has two word order options for adjectives, including superlatives. This choice bears on the presence or absence of a definite suffix the noun. If the adjective precedes the modified noun as in (41), repeated in (45-a), this noun remains uninflected. If the noun precedes the adjective, as in (44) and (45-b), the noun receives definiteness marking (Cojocaru, 2003, 53).

- (45) a. A scris cea mai frumoasă compunere.  
 has written DEF CMP beautiful composition.ACC  
 ‘She wrote **the most beautiful composition.**’  
 b. A scris compunere-a cea mai frumoasă.  
 has written composition-the DEF CMP beautiful  
 ‘She wrote **the most beautiful composition.**’

According to Teodorescu (2007), the prenominal variant (45-a) and the postnominal variant (45-b) have the same interpretive options. The following is an example favoring a relative interpretation; both orders are reportedly fine, although all four of the Romanian speakers we consulted spontaneously translated the sentence indicated in the English gloss using the prenominal variant (46-a).<sup>6</sup>

- (46) a. Eu nu sunt cea din familie cu cel mai subțire talie.  
 I not be.1SG DEF from family.ACC with DEF CMP thin waist  
 ‘I am not the one in my family with **the thinnest waist.**’  
 b. Eu nu sunt cea din familie cu tali-a cea mai subtire.  
 I not be.1SG DEF from family.ACC with waist-the DEF CMP thin

<sup>6</sup>Thanks to Gianina Iordachioaia for help and discussion.

‘I am not the one in my family with **the thinnest waist.**’

Note that postnominal adjectives typically receive a restrictive interpretation (Cornilescu, 1992; Teodorescu, 2007; Marchis & Alexiadou, 2009):

- (47) a. o poveste advărată  
a story true  
‘a story that is true’ (not ‘quite a story’)  
b. o advărată poveste  
a true story  
‘a story that is true’ or ‘quite a story’  
c. Această poveste este advărată  
this story is true  
‘This story is true.’

If this applies to superlatives, then the fact that both relative and absolute readings of superlatives are possible in post-nominal position suggests that both relative and absolute readings are, or can be, restrictive readings.

Dobrovie-Sorin & Giurgea (2015) give a number of arguments that *cel mai* + AP form a constituent that sits in the specifier of DP. One is the striking fact that *cel* can be preceded by an indefinite article (Dobrovie-Sorin & Giurgea, 2015, 15, ex. (64)):<sup>7</sup>

- (48) Există întotdeauna **un cel mai mic divizor comun** a două elemente  
exists always a DEF CMP small divisor common of two elements  
‘There always exists **a smallest common factor** of two elements.’

The second argument they make is that *cel* is always present in superlatives, both when the superlative is post-nominal as in (45-b), and when it is adverbial as in (49).

- (49) Vi fi premiat *cel* care va scrie **#(cel) mai clar.**  
will be awarded-prize DEF which will write DEF more clearly  
‘The one who writes **the most clearly** will be awarded a prize.’  
(Dobrovie-Sorin & Giurgea, 2015, 15, ex. (66))

Their third argument is that definite comparatives involve the suffix rather than *cel*:

- (50) ... dar cu **mult mai dificil-ul obiectiv** al ...  
... but with much more difficult-the goal of ...  
‘... but with **the much more difficult goal** of ...’

(Note that the definite suffix appears on the adjective preceding the head noun rather than the head noun.) So *cel* must have some meaning or function distinct from the suffix.

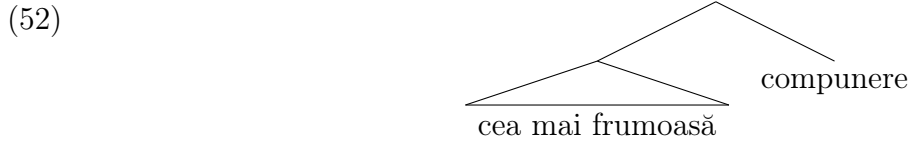
They also observe that the unmarked position of comparatives is postnominal, whereas the unmarked position for superlatives is prenominal, and note that *cel* cannot be separated from a prenominal comparative by numerals (though numerals can normally follow *cel*):

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<sup>7</sup>Source: [ro.wikipedia.org/wiki/Algoritmul\\_lui\\_Euclid](http://ro.wikipedia.org/wiki/Algoritmul_lui_Euclid)

- (51) a. \**cei doi mai înalți munți*  
 these two more high mountains  
 b. *cei mai înalți doi munți*  
 these more high two mountains  
 ‘the two highest mountains’

These arguments have us convinced that *cel* in superlatives is not a direct dependent of the modified noun, but rather forms a phrase with the comparative marker and the adjective to the exclusion of the noun. So the structure of *cea mai frumoasă compunere* ‘the most beautiful composition’ appears to be:



If we assume that *mai* is as we analyzed *prio* above:

$$(53) \quad \textit{mai} \rightsquigarrow \lambda g \lambda d \lambda x . g(x) > d$$

Then *mai frumoasă* is, after Definite Null Instantiation:

$$(54) \quad \textit{mai frumoasă} \rightsquigarrow \lambda x . \text{BEAUTIFUL}(x) > \mathbf{d}$$

This denotation is of an appropriate type to combine with a definite article, but a treatment of the definite element as a plain iota operator will present a couple of problems. First, if the definite article is an iota operator, then the superlative phrase will end up denoting an individual, and it won’t be able to combine with *compunere*. This can be solved by adopting Coppock & Beaver’s (2015) predicative treatment of the definite article, whereby it denotes a function from predicates to predicates, presupposing uniqueness but not existence. Another danger lurking is potentially making the faulty prediction that *cea mai frumoasă compunere* means ‘a composition that is the most beautiful thing in the world’. One possible solution might make use of a domain restriction *C*, which we may assume is introduced by the definite article. Thus:

$$(55) \quad \textit{cel}_C \rightsquigarrow \lambda P \lambda x . \partial(|P \cap C| \leq 1) \wedge P(x) \wedge C(x)$$

(Here  $\partial$  is the ‘partial’ operator, whose scope is presupposed material.) If it can be enforced that this *C* is always a subset of the modified noun, then this problem can be avoided. With this the interpretation for the superlative phrase that we derive is the following:

$$(56) \quad \textit{cel}_C \textit{ mai frumoasă} \rightsquigarrow \lambda x . \partial(|\lambda x' . \text{BEAUTIFUL}(x') > \mathbf{d} \wedge C(x)| \leq 1) \wedge \text{BEAUTIFUL}(x) > \mathbf{d} \wedge C(x)$$

which can then be combined via Predicate Modification with the noun:

$$(57) \quad \textit{cel}_C \textit{ mai frumoasă} \rightsquigarrow \lambda x . \partial(|\lambda x' . \text{BEAUTIFUL}(x') > \mathbf{d} \wedge C(x')| \leq 1) \wedge \text{BEAUTIFUL}(x) > \mathbf{d} \wedge C(x) \wedge \text{COMPOSITION}(x)$$

This description characterizes a composition  $x$  in  $C$  that is the only one whose beauty exceeds  $d$ .

### 3.2 Quantity superlatives

Now let us turn to quantity superlatives in Romanian. The superlative form of ‘much’ has both proportional and relative readings in Romanian. Here are cases with relative readings (the latter from Teodorescu (2007, 11)).

- (58) Eu sunt cel care cânta la **cele mai multe instrumente**.  
 I am the which plays to DEF CMP much instruments  
 ‘I am the one who plays **the most instruments**.’
- (59) Dan a băut **cea mai multă bere**.  
 Dan has drunk the CMP much beer  
 ‘Dan drank **the most beer**.’

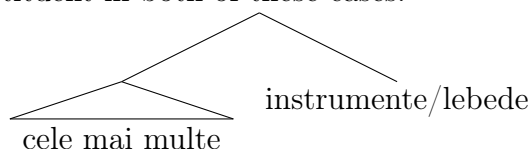
Here is a case with a proportional reading, using the partitive preposition *dintre*:<sup>8</sup>

- (60) **Cele mai multe dintre copiii** care merge la scoala mea place să se joace  
 DEF CMP much of kids.DEF who go at school mine like to REFL play  
 muzica.  
 music  
 ‘**Most of the kids** who go to my school like to play music.’

We also find non-partitive uses:

- (61) **Cei mai mulți elevi** din clasa mea au plecat devreme  
 the more many students from class.the my have left early  
 ‘**Most of the students** in my class have left early.’
- (62) **Cele mai multe lebede** sunt albe  
 the more many swans are white  
 ‘**Most swans** are white.’

Given the argumentation given above for quality superlatives, it is reasonable to assume that *cele mai multe* forms a constituent in both of these cases:



But the syntactic position of the superlative phrase may not be the same as with quality superlatives: In contrast to quality superlatives, quantity superlatives are normally only permitted prenominally (Teodorescu, 2007, 11).

<sup>8</sup>The preposition *dintre* (*din* with singular complements) is used in Romanian to introduce an explicit comparison class in superlative constructions, e.g. *El scrie cel mai bine dintre toți*, ‘He writes the best of all’, lit. ‘He writes the more good among all’ (Cojocaru, 2003, 169). *Dintre* is also used in quantificational partitive constructions, e.g. *Unul dintre ei prezintă proiectul* ‘One of them is presenting the project’.



- (63) \*Dan a băut bere-a cea mai multă.  
 Dan has drunk beer-DEF DEF CMP much  
 ‘Dan drank the most beer.’

To explain why quantity superlatives are disallowed in postnominal position, Teodorescu postulates that “whenever the *-est* operator is merged with a quantity item as its sister, it must scope out of the determiner phrase containing it on the surface,” and “[u]nlike ordinary superlatives, quantity ones can never be interpreted with *-est* inside its host determiner phrase since this would make them referential and would generate an unattested meaning” (Teodorescu, 2009, 11). This of course leaves open the question of why that unattested meaning does not arise.

We suggest instead that *mult* typically measures degrees rather than individuals, so that *cele mai multe* denotes something like ‘the greatest amount’ (as we suggested above for Greek). As above, we suggest furthermore that this kind of denotation is a general property of measure phrases like *two liters* in pseudopartitives like *two liters of water*, and that the semantic glue that connects a measure phrase to the substance noun in a pseudopartitive is what is operative with quantity words on relative readings (irrespective of whether the pseudopartitive preposition is present), namely Measure Identification. This mode of composition is not restrictive modification, hence the impossibility of postnominal quantity superlatives on a relative reading.

- (64)  $multe \rightsquigarrow \lambda d . d$   
 (65)  $mai\ multe \rightsquigarrow \lambda d \lambda d' . d' > d$   
 (66)  $mai\ multe$  (after DNI)  $\rightsquigarrow \lambda d' . d' > \mathbf{d}$

Then, assuming that the definite article is cross-categorial enough to apply to a predicate of degrees, we obtain:

- (67)  $cele_C\ mai\ multe \rightsquigarrow \lambda d' . \partial(|\lambda d'' . d'' > \mathbf{d} \wedge C(d'')| \leq 1) \wedge d' > \mathbf{d} \wedge C(d')$

Then, via Measure Identification:

- (68)  $cele_C\ mai\ multe\ instrumente \rightsquigarrow \lambda x . \partial(|\lambda d'' . d'' > \mathbf{d} \wedge C(d'')| \leq 1) \wedge \mu_i(x) > \mathbf{d} \wedge C(\mu_i(x)) \wedge *INSTRUMENT(x)$

where  $i$  is a free variable, constrained by context so that  $\mu_i(x)$  denotes an appropriate extensive measure of  $x$  (cardinality, normally).

As for proportional readings, according to Dobrovie-Sorin, *cel mai mult* has grammaticalized, perhaps from something along the lines just suggested, into a traditional-style generalized quantifier, expressing a relation between two sets. One indirect piece of evidence for this is that the *cel mai mult*-construction can actually occur postnominally, in which case it does not give rise to a relative *or* proportional reading, but “comparison between predefined groups”, where the noun phrase refers to one of these groups.

- (69) a. **Cele mai multe lebede** sunt albe  
 DEF CMP many swans are white  
 ‘**Most swans** are white.’

- b. ?**Lebedele cele mai multe** sunt albe  
 swans.the DEF CMP many are white  
 ‘**The more/most numerous (group of) swans** are white.’

This reading is referential, and distinct from the proportional reading that arises in prenominal position. Thus proportional readings are not the same as referential readings, contrary to Hoeksema’s (1983) analysis of definite superlatives on a proportional interpretation in Dutch, where they refer to a plurality that is most numerous among a given set of non-overlapping pluralities.

An analysis along the lines of what Dobrovie-Sorin (2015) suggests, where, *cel mai mult* functions as a complex proportional quantifier, would also explain the peculiar fact that this construction cannot be used to quantify over mass nouns in Romanian:

- (70) Dan a băut **cea mai multă bere**.  
 Dan has drunk the CMP much beer  
 ‘Dan drank **the most beer**.’ (Teodorescu, 2007, 11)  
 → interpretation: relative/\*proportional

In our data, a proportional interpretation, in the case of mass quantification, typically involves a ‘majority’ or ‘part’ noun instead, just as in other Romance languages:

- (71) Am baut **majoritatea laptelui**.  
 have drunk majority milk  
 ‘I drank **most of the milk**.’
- (72) Am baut **mai mare parte a laptelui**.  
 have drunk CMP big part GEN milk  
 ‘I drank **most of the milk**.’

In fact, a proportional reading is not always available for count nouns, either. Dobrovie-Sorin (2015) provides examples, contrasting the acceptability of (73) to the unacceptability of (74):

- (73) **Cei mai mulți elevi** din clasa mea au plecat devreme.  
 DEF CMP many students.DEF of class.DEF my have left early.  
 ‘**Most students** in my class left early.’ (Dobrovie-Sorin, 2015, 395)
- (74) \***Cei mai mulți băieți** s-au adunat în sala asta.  
 DEF CMP many boys REFL-have gathered in room.DEF this.  
 ‘**Most of the boys** have gathered in this room.’ (Dobrovie-Sorin, 2015, 395)

She ascribes these differences to whether or not the nuclear scope is filled with a distributive predicate, i.e., whether the relevant predicate applies to individuals or groups. While the nature of the grammaticalization process that would produce a proportional quantifier from a quantity superlative giving rise to relative interpretations remains to be understood, it does appear as if *cel mai mult* functions in this way synchronically.

## 4 French

### 4.1 Quality superlatives

Let us now turn to French. In predicative superlatives, a definite article precedes a comparative, and agrees with the subject:

- (75) a. Mais elle est **la meilleure**.  
But she is DEF good.CMP  
'But she is **the best**.'  
b. Parce-que j'étais **le meilleur**.  
Because I.was DEF good.CMP  
'Because I was **the best**.' (masc.)

With adnominal quality superlatives as well, French uses a definite article, regardless of whether the interpretation is absolute or relative. Here is an example with a relative interpretation, in two variants, one prenominal and one postnominal:<sup>9</sup>

- (76) a. Je ne suis pas celui de la famille avec **la plus petite taille**.  
I NEG am NEG the-one of the family with DEF CMP small waist  
'I'm not the one in the family with **the thinnest waist**.'  
b. Je ne suis pas celui de la famille avec **la taille la plus fine**.  
I NEG am NEG the-one of the family with the waist DEF CMP fine  
'I'm not the one in the family with the thinnest waist.'

In the postnominal case, both definiteness markers agree in gender and number with the relevant noun; for example:

- (77) Ma mère cuisine **les cookies les plus délicieux** du monde.  
my mother bakes DEF cookies DEF CMP tasty of.the world  
'But it's hard since mom bakes **the yummiest cookies** in the whole world.'

(Other Romance languages in which postnominal superlatives are accompanied by a definite article include Rumantsch and certain "local and historical" varieties of Italian; Plank 2003. As we will see below, the definite article does not accompany post-nominal superlatives in Italian, Spanish, and other Ibero-Romance languages.)

Adverbial superlatives also come with a definite article, which shows default agreement:

- (78) C'est lui qui court **le plus lentement**.  
it:is him who runs DEF CMP slowly  
'It is he who runs the slowest.'

So French looks very much like Romanian so far.

However, unlike in Romanian, it is possible to separate the definite article from the comparative with a numeral in French, as we see in the following famous quote:

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<sup>9</sup>Cinque (2010) reports that the relative reading is not available with prenominal syntax in Italian; example (76-a), if it is reliable, shows that relative readings can arise with prenominal superlatives in French, so it is not a general Romance phenomenon as Alexiadou (2014, 72) suggests.

- (79) **Les deux plus belles conquêtes** que l’homme ait faites sur lui-meme, c’est  
the two more beautiful conquests that the’man has made on him-self, it’is  
le saut périlleux et la philosophie.  
the jump perilous and the philosophy  
‘**The two most beautiful conquests** that man has made over himself are the  
acrobatic flip and philosophy.’

This suggests that the definite article should be analyzed as being in its ordinary position, as in Greek, at least in this case.

In the literature that we have been able to find on the syntax of French superlatives (Barbaud, 1976; Plank, 2003; Kayne, 2004; Matushansky, 2008a; Alexiadou, 2014), several approaches can be distinguished. Both Barbaud (1976) and Plank (2003, 360-363) imply that prenominal superlatives like *la plus belle femme* are underlyingly of the form *la [ la plus belle ] femme*, and that the inner *la* is suppressed through haplology. As he suggests, this idea is supported by the fact that prenominal superlatives are ambiguous between superlatives and definite comparatives; *le plus jeune homme* can mean either ‘the youngest man’ or ‘the younger man’; the superlative interpretation arises when there is an underlying article. The article is of course not suppressed in postnominal superlatives, which, as he points out, are presumably base-generated in the postnominal position rather than being shifted from a prenominal position, given the differences in meaning that adjectives have depending on whether they are pre- or postnominal.

Plank also considers arguments for and against the possibility that the inner *la* is in fact a superlative element rather than a determiner. Coordination provides an argument in favor. As he puts it, “the definite article is omissible under identity from the second conjunct in adjectival coordination in French [cf. *le grand et le beau homme*] but the superlative marker is not [cf. *l’homme le plus grand et \*(le) plus fort*]” (p. 362-3). On the other hand, he points out that haplology would not be expected to target the sequence of determiners if they have different meanings. This latter side of the debate is supported by the fact that, as Matushansky (2008a) points out, superlatives in French do not always contain the definite article, for example the case where the noun phrase is possessed. If the article were a superlative marker, then there would be no obvious reason for it to be obviated in the presence of a possessive.

Kayne (2004) analyses post-nominal superlatives in French as resulting from a reduced relative clause structure involving movement both of *plus court* and of a small clause consisting of *le livre* and the trace of *plus court*. The extra article is inserted above the landing site of *plus court*. Kayne assumes that the movement of *plus court* involves a kind of pied-piping of *court* with *plus*; hence the restriction to superlatives. The number and variety of traces makes it complicated and challenging to give a compositional semantics for this structure; moreover, the imagined kind of predicate preposing is not independently attested in the language, (e.g. *\*plus court le livre* is not a valid French sentence), nor is there independent evidence that a small clause whose only overt material is the subject can be preposed. Alexiadou (2014) also makes the observation (credited to Jonathan Bobaljik) that “when two singular DPs are co-ordinated, the modifier in the superlative as well as the determiner that precedes it are in the plural, e.g. [*l’histoire et l’article*] *les plus intéressantes* ‘the history and the article the-PL more interesting-PL’,” which is not expected under Kayne’s analysis.

Matushansky (2008a) argues for an analysis where in French postnominal superlatives, there is a silent noun following the superlative. This approach is also adopted by Alexiadou (2014). This view would explain the presence of the ‘extra’ definite determiner, and is supported by the fact that superlatives generally license nominal ellipsis.<sup>10</sup>

Several of these analyses are compatible in principle with the idea that a superlative interpretation of a comparative arises through Definite Null Instantiation of a degree parameter. Under a view where prenominal superlatives involve only one definite determiner, the compositional semantics could work as follows:

$$(80) \quad \textit{plus petite} \rightsquigarrow \lambda x . \text{SMALL}(x) > \mathbf{d}$$

$$(81) \quad \textit{plus petite taille} \rightsquigarrow \lambda x . \text{SMALL}(x) > \mathbf{d} \wedge \text{WAIST}(x)$$

$$(82) \quad \text{DEF}_C \rightsquigarrow \lambda P . \iota x . P(x) \wedge C(x)$$

So *la plus petite taille* denotes the waist in *C* that is smaller than **d**:

$$(83) \quad \textit{la plus petite taille} \rightsquigarrow \iota x . \text{SMALL}(x) > \mathbf{d} \wedge \text{WAIST}(x)$$

(Definite comparatives would have to involve a ‘phrasal’ semantics for the comparative, i.e. one involving a comparison between two individuals.)

The postnominal case is easier to analyze using Coppock & Beaver’s (2015) proposal that definite articles are essentially predicative; then *la plus petite* (or *la plus petite*  $\emptyset$ ) can denote a predicate that can combine intersectively with the (overt) noun, as follows:

$$(84) \quad \textit{la}_C \textit{ plus petite} (\emptyset) \rightsquigarrow \lambda x . \partial(|\text{SMALL}(x) > \mathbf{d} \wedge C(x)| \leq 1) \wedge \text{SMALL}(x) > \mathbf{d} \wedge C(x)$$

$$(85) \quad \textit{taille la}_C \textit{ plus petite} (\emptyset) \rightsquigarrow \lambda x . \partial(|\text{SMALL}(x) > \mathbf{d} \wedge C(x)| \leq 1) \wedge \text{SMALL}(x) > \mathbf{d} \wedge C(x) \wedge \text{WAIST}(x)$$

If the presupposition of the postnominal article is met, then, a fortiori, the description in (85) will be unique and the definite article will apply. If Plank is right and prenominal

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<sup>10</sup>More generally, Matushansky claims that superlatives are universally attributive, even when there is no overt noun; in such cases, there is nominal ellipsis. As she points out, a potential objection to the general claim comes from the fact that the article also appears in constructions where no overt noun can appear, such as adverbial superlatives and reflexive PP superlatives:

- (i) John ran the most slowly (\*pace).
- (ii) Alice found herself at her loneliest (??state).

Somewhat paradoxically, however, she marshals these PP superlatives in favor of the view that superlatives always modify a noun, pointing out that definite articles and possessives are not compatible with bare adjectives but rather require an overt noun: The ungrammaticality of *\*at her lonely* is taken to show that *at her loneliest* contains a noun. But other explanations are possible; another possibility is that superlatives and nouns share some semantic or syntactic feature that allows them to serve as the complement of a preposition. In any case, the impossibility of overt nouns in adverbials would appear to remain a problem, both for English and for French. Moreover, as we will see below and as Matushansky herself discusses, there are a number of cases in Italian where an article would be expected to appear with a superlative and fails to, suggesting that there is in fact no noun in these cases. So we are not convinced of the universality of Matushansky’s claim, though nominal ellipsis may be at work in many cases.

superlatives have an extra definite article, then the same elements will combine, only in the opposite linear order.

## 4.2 Quantity superlatives

French quantity superlatives do not transparently include a word for ‘many’. The closest counterpart to positive *many*, namely *beaucoup*, is not found in either the comparative *plus* (so there is no *\*plus beaucoup*), or in the superlative, *le plus*:

- (86) Mon frère Hans joue **beaucoup d’instruments**, mais pas **plus**  
 My brother Hans plays much.POS of.instruments but NEG CMP  
 (**\*beaucoup**) que moi.  
 much.POS than me.  
 ‘My brother Hans plays **many instruments**, but not **more** than me.’
- (87) Je ne suis pas celui de la famille avec **le plus** (**\*beaucoup**) d’argent.  
 I NEG am NEG the-one of the family with DEF CMP much.POS of.money  
 ‘I’m not the one in the family with the most money.’

As discussed by Doetjes (1997) and Kayne (2005b), *beaucoup* is unlike ‘many’ in a number of respects. For example, one cannot say *\*trop beaucoup*; cf. *too many*. Doetjes (1997, 101) categorizes *beaucoup*, historically literally ‘good strike’, as a classifier like ‘a bunch’ in ‘a bunch of flowers’. Similarly, Kayne (2005b) draws a parallel between *beaucoup* and ‘a good deal’. We might also say that *beaucoup* is a positive form, whereas *many* is a neutral form (see Roelandt 2016 on the positive/neutral distinction).

Note also that *plus* in (the acceptable variants of) (86) and (87) is pronounced with a final ‘s’, whereas when it precedes an adjective or an adverb, the final ‘s’ is not pronounced. This suggests that (86) and (87) do not involve the *plus* that appears in *(la) plus belle* (whose final ‘s’ is silent).

When DEF+CMPS is used in French quantity superlatives, it is obligatorily accompanied by a pseudopartitive, *de NP*, and has only a relative reading.

- (88) Je suis celui qui joue **le plus d’instruments**.  
 I am the-one who plays DEF CMP of-instruments  
 ‘I am the one who plays **the most instruments**.’

French is generally enthusiastic about *de* after quantity words, as Kayne (2002, 2005b) discusses; where English has *too few tables/sugar*, French has *trop peu de tables/sucre*; where English has *so few tables* or *so little sugar*, French has *si peu de tables/sucre*, and where English has *too many* (*\*of*) *tables* and *too much* (*\*of*) *sugar*, French has *trop* *\*(de) tables/sucre*. This is specific for French; Italian is like English, with *poche* (*\*di*) *tavole* and *poco* (*\*di*) *zucchero*. Kayne (2002) suggests that the presence or absence of *de* is related to the Case Filter (Chomsky 1981, attributed to Jean-Roger Vergnaud) as interpreted by Emonds (2000), requiring that every noun receive Case. We suggest that quantity words (*plus* with pronounced final ‘s’ and *moins*) in French are nominal and hence absorb Case.

In *le plus d’instruments*, it is clear that *le* is not a dependent of the substance noun, as there is no agreement and the two are separated by pseudopartitive *de*. Several scholars

assume that *le plus* forms a constituent, including Bouchard (2012) and Dobrovie-Sorin & Giurgea (2015); the latter label it a measure phrase (cf. Jackendoff 1977). Such an analysis is consonant with the fact that *le plus* can appear on its own, in adverbial quantity superlatives (e.g. *dormir le plus* ‘sleep the most’).

Hence, with quantity superlatives, we have definiteness at the level of the degree predicate, as we posited for Romanian.

$$(89) \quad plus \rightsquigarrow \lambda d \lambda d'. d' > d$$

$$(90) \quad plus \text{ (after DNI)} \rightsquigarrow \lambda d'. d' > \mathbf{d}$$

$$(91) \quad le_C plus \rightsquigarrow \lambda d'. \partial(|\lambda d''. d'' > \mathbf{d} \wedge C(d'')| \leq 1) \wedge d' > \mathbf{d} \wedge C(d')$$

This predicate of degrees can then combine with the head noun using Measure Identification:

$$(92) \quad le_C plus d'instruments \rightsquigarrow \lambda x. \partial(|\lambda d''. d'' > \mathbf{d} \wedge C(d'')| \leq 1) \wedge \mu_i(x) > \mathbf{d} \wedge C(\mu_i(x)) \wedge *INSTRUMENT(x)$$

So this description holds of  $x$  if  $x$  is a plurality of instruments and the contextually-salient extensive measure of  $x$  is the greatest degree in the context.

The proportional reading of DEF+CMP in French is illicit across the board, irrespectively of the quantified noun being mass or count, e.g.:

- (93) \***Le plus d'enfants** aiment jouer de la musique.  
 DEF CMP of'kids like to.play of the music  
 \*‘**Most of the kids** like to play music.’

The proportional reading requires an overt ‘majority/part’ noun; *la plupart* (possibly a grammaticalized proportional quantifier, consisting of *plus* + *part*) or *la majorité* (the majority):

- (94) **La plupart des enfants** qui vont à mon école aiment jouer de la musique.  
 DEF majority of.the kids who go to my school like playing of the music  
 \*‘**Most of the kids** who go to my school like to play music.’

According to Dobrovie-Sorin & Giurgea (2015), there are no proportional readings for *le plus* in French because a proportional reading can only arise through grammaticalization of the superlative of *many* (possibly along with a preceding determiner) into a proportional quantifier, sitting in a determiner position. This process is blocked in French by the pseudopartitive construction. The question then is why a proportional reading does not arise through the same mechanism as the one posited above for Greek. We suspect that one crucial difference between Greek and French is that the definite determiner applies at the level of the noun phrase in Greek, whereas *le plus* forms a constituent in French. Semantically, this means that  $C$  is a set of degrees in French, whereas it is a set of entities in the extension of the noun in Greek. Thus, the reason that *le plus d'instruments* has no proportional reading is the same as the reason that *the greatest number of instruments* does not have one. Another potentially relevant factor is the existence of the word *plupart*, in which *part* makes overt the kind of domain-partitioning posited for Greek. This would explain the contrast between

French and Italian, which, as we will see below, actually does marginally allow a proportional reading for DEF+CMP despite otherwise being very much like French.

## 5 Italian and Ibero-Romance

### 5.1 Quality superlatives

Predicative adjectival superlatives in Italian (95) and Spanish (96) normally involve a definite article (examples from de Boer 1986, 53 and Rohena-Madrado 2007, 1 respectively):

- (95) Carla è **la più intelligente** di tutte queste studentesse.  
Carla is the CMP intelligent of all these students.  
'Carla is **the most intelligent** of all these students.'
- (96) Ese carro es **el major**.  
that car is the better  
'That car is **the best**.'

although de Boer (1986, 53) notes the following predicative example without definiteness-marking, which has the flavor of a relative reading:

- (97) il giorno in cui il nostro lavoro era **più faticoso**  
the day in which DEF our work was CMP tiresome  
'the day on which our work was **most tiresome**'

Here, even though the example is grammatically predicative, one has the sense that it is days that are being compared rather than alternatives to the subject of the sentence *il nostro lavoro* 'our work'. The same example in French involves a definite article (Alexandre Cremers, p.c.):

- (98) le jour où notre travail était **le plus fatiguant**  
the day when our work was DEF CMP tiresome  
'the day on which our work was **most tiresome**'

But Matushansky (2008b) reports on a similar phenomenon in Spanish:

- (99) la que es **más alta**  
DEF who is CMP tall  
'the one who is **tallest**'
- (100) la que está **más enojada**  
DEF who is CMP annoyed  
'the one who is **most annoyed**'

In both these examples and in the Italian example (97), uniqueness is indicated with the help of a relative clause. So, predicative superlatives are usually, but not always, accompanied by definiteness-marking.

As in French, adnominal superlatives can appear both pre- and post-nominally in Italian:



- (101) a. La mamma prepara **i biscotti più buoni** del mondo.  
 DEF mom makes DEF cookies CMP tasty of.the world  
 ‘But it’s hard since mom bakes **the yummiest cookies** in the whole world.’  
 b. La mamma fa **i più buoni biscotti** di tutto il mondo.  
 DEF mom makes DEF CMP tasty cookies of.DEF whole world  
 ‘But it’s hard since mom bakes the yummiest cookies in the whole world.’

And normally, there is no definite article on a postnominal superlative, although Plank (2003) reports that both of the following variants are acceptable, the latter “putting greater emphasis on the adjective”:

- (102) a. l’uomo **più forte**  
 the man more strong  
 ‘the **stronger** / **strongest** man’  
 b. l’uomo **il più forte**  
 the man the more strong  
 ‘the **strongest** man’

Here is an example with a relative reading; here again there is no definite article:<sup>11</sup>

- (103) a. Non sono quello con **il girovita più sottile** in famiglia.  
 not am the.one with DEF waist CMP thin in family  
 ‘I’m not the one with **the thinnest waist** in the family.’  
 b. #Non sono quello con **il più sottile girovita** in famiglia.  
 not am the.one with DEF CMP thin waist in family

Adverbial quality superlatives systematically lack definiteness-marking, as shown in the following example from de Boer (1986, 53):

- (104) Di tutte queste ragazze, Marisa lavora **più diligentemente**.  
 of all these kids Marisa works CMP diligently  
 ‘Of all these kids, Marisa works **the most diligently**.’

The same holds in Spanish (Rohena-Madrado, 2007, 1-2):

- (105) Juan es el que corre **más rápido**.  
 Juan is DEF who runs CMP fast  
 ‘Joan is the one who runs **the fastest**.’

As Rohena-Madrado (2007) notes, the relative clause in (105) is necessary in order for a

<sup>11</sup>According to Cinque (2010, 11-12), only the postnominal syntax is possible on relative readings. Here is a speculation as to how one might explain this in semantic/pragmatic terms: The prenominal position is normally hostile to non-restrictive modifiers in Italian (e.g. *\*la presenza mera* vs. *la mera presenza* ‘the mere presence’). Matushansky (2008b) proposes that the modified noun saturates the comparison class argument of a superlative, so that a superlative modifier combines with the noun via Functional Application rather than Predicate Modification. This kind of analysis would yield an absolute reading; suppose this is how absolute readings arise. Then absolute readings would be non-restrictive and relative readings would be restrictive. Placing a superlative postnominally could then serve as an indication that an absolute reading is not intended.

superlative interpretation to arise. The following example has only a comparative interpretation:

- (106) Juan corre **más rápido**.  
 Juan runs CMP fast  
 ‘Joan runs **faster**.’

Thus a superlative interpretation does not freely arise on its own here; uniqueness must somehow be signaled in the absence of a determiner.

This evidence clearly shows that the definite article is not an inherent part of the superlative, and should rather be analyzed as being in its ordinary position, as a dependent of the noun.

On the question of why French and Italian differ with respect to the appearance of the definite article in postnominal superlatives, there are several ideas in the literature. According to Kayne (2004), the reason has to do with the licensing of bare nouns in general. Alexiadou (2014, 74-75) suggests an approach appealing to the richness of agreement features. Another alternative is of course that Italian and French differ with respect to whether a DP is projected. One might imagine for example that French resorts to the use of a DP structure with a silent noun in order to avoid the ambiguity with the comparative that arises in Italian, but that this innovation, though functionally motivated in this way, is by no means the most ordinary or simple way to go about things. The simpler way, coming at the cost of producing an ambiguity, is to follow the normal pattern where the phrase coming after the noun is adjectival, pace Matushansky (2008a). And then of course there is the possibility that French allows definite-marking of adjective phrases while Italian does not, in the special case of superlatives. (See the next section for some speculations as to why superlatives would be special in this regard.)

Regardless of how this is explained, the compositional semantics for quality superlatives in Italian will be parallel to French in the prenominal case:

- (107)  $più\ buoni \rightsquigarrow \lambda x . DELICIOUS(x) > \mathbf{d}$   
 (108)  $più\ buoni\ biscotti \rightsquigarrow \lambda x . DELICIOUS(x) > \mathbf{d} \wedge *COOKIE(x)$   
 (109)  $DEF_C \rightsquigarrow \lambda P . \iota x . P(x) \wedge C(x)$

So  $i\ più\ buoni\ biscotti$  denotes the cookie-plurality in  $C$  that is more delicious than  $\mathbf{d}$ :

- (110)  $i\ più\ buoni\ biscotti \rightsquigarrow \iota x . DELICIOUS(x) > \mathbf{d} \wedge *COOKIE(x)$

If there is no silent definite article in the postnominal case, then the postnominal case works identically to the prenominal case, except with the reverse linear order. If there is a definite article, then it works like French.

## 5.2 Quantity superlatives

Naturally, we expect the definite article to mark the superlative degree with quantity superlatives as it does with quality superlatives. However, the definite article is sometimes absent even in superlative constructions. de Boer (1986, 53) gives the example in (111);

our informants consistently gave us translations like that in (112) and (113) for sentences involving relative readings:

- (111) Dei nostri amici Luigi è quello che ha **più soldi**.  
of.DEF our friends Luigi is the.one who has CMP money  
‘Of our friends, Luigi is the one who has **the most money**.’
- (112) Ma probabilmente è Hans che ha bevuto **più caffè**.  
But probably it.is Hans who has drunk CMP coffee  
‘But it is probably Hans who has drunk the most coffee.’
- (113) Di tutti i ragazzi della mia scuola io sono quello che suona **più**  
of all the kids in.the my school I am the.one that plays CMP  
**strumenti**.  
instruments  
‘Of all the kids in my school, I’m the one who plays the most instruments.’

Hence there is no overt morphological distinction between ‘more coffee’ and ‘most coffee’.

Following Bosque & Brucart (1991), Rohena-Madrado (2007) uses comparative and superlative ‘codas’ to distinguish between comparative and superlative interpretations in Spanish:

- (114) **el niño más rápido** (que todos nosotros)  
the boy CMP fast (than all we)  
‘**the boy faster** (than all of us)’
- (115) **el niño más rápido** (de todos nosotros)  
the boy CMP fast (of all we)  
‘**the fastest boy** (of all of us)’

Using this technique, he shows that superlatives in Spanish can be fronted before the verb, but comparatives cannot:

- (116) Juan es el niño que **más libros** leyó (de/\*que todos ellos)  
John is the boy that CMP books read (of/\*than all them)  
‘Juan is the boy that read **the most books** (of/\*than all of them).’

In addition to being interesting in its own right, this shows that the comparative and the superlative interpretations are really distinct.

Similarly, *the most instruments* in ‘I’m the one who plays the most instruments’ and *the most coffee* in ‘Hans has drunk the most coffee’ are translated without definiteness-marking:

- (117) Yo soy el que toca **más instrumentos**. (Spanish)  
Eu sou o que toca **mais instrumentos**. (Portuguese)  
Jo sóc qui toca **més instruments**. (Catalan)  
‘I am the one who play **the most instruments**.’
- (118) Hans es el que ha bebido **más café**. (Spanish)  
Hans quem bebeu **mais café**. (Portuguese)  
Hans és probablement qui ha begut **més café**. (Catalan)

‘Hans is the one who has drunk **the most coffee**.’

We propose the same kind of analysis for these cases as we have proposed for other quantity superlatives: after Definite Null Instantiation, the quantity word denotes a property of degrees, which combines via Measure Identification to produce a property of individuals:

$$(119) \quad \textit{più} \rightsquigarrow \lambda d \lambda d' . d' > d$$

$$(120) \quad \textit{più} \text{ (after DNI)} \rightsquigarrow \lambda d' . d' > \mathbf{d}$$

$$(121) \quad \textit{più strumenti} \rightsquigarrow \lambda x . \wedge \mu_i(x) > \mathbf{d} \wedge * \text{INSTRUMENT}(x)$$

But notice here that there is no overt element to introduce the comparison class. The comparison class must enter the interpretation through covert means. We suggest that this is the sacrifice that Italian makes, in order to avoid letting a definite determiner attach to a non-nominal constituent. So the idea is that Italian is less liberal about which syntactic categories definite determiners may attach to: Quantity words are of category Q; in French (and English), a definite article can attach to a Q, but not in Italian. In French (and English), a definite article can attach to an adverb, but not in Italian. The difference between French and Italian in the realm of predicative adjectives could potentially also be explained in this way; French perhaps allows a definite article to attach to an adjective, but not Italian. In general, in Italian, a definite article requires a nominal host, whereas French is more liberal. But French does not always allow it; only when it is necessary to overtly signal the introduction of a comparison class. (Although this idea strictly speaking contradicts Matushansky’s (2008b) idea that superlatives are always attributive modifiers of a noun, it is nevertheless somewhat inspired by it; Matushansky’s semantic motivation for positing the universal presence of a noun is that the noun saturates the comparison class argument.)

A remaining question is why a definite article could not apply to the result of combining *più* with the noun, as posited above for Greek. Recall that above, we posited a composition rule that produces the effect of a pseudopartitive structure, putting together a predicate of degrees with a predicate of individuals (Measure Identification). The result of this composition rule is a description which in principle could then take a definite article, as far as the semantic types are concerned. The question is what blocks this. One possibility is that the result of combining the quantity word with the noun is of the wrong syntactic category to combine with a determiner, in contrast to Greek, where quantity words are adjectives, syntactically. A variant on this idea is that when a quantity word is found in a quantifier position, the phrase it heads undergoes existential closure:

(122) **Existential Closure (Meaning Shift)**

If  $\alpha \rightsquigarrow P$  where  $P$  is a predicate of type  $\langle \tau, t \rangle$ , then  $\alpha \rightsquigarrow \lambda Q . \exists x [P(x) \wedge Q(x)]$ .

So the translation we get for *più strumenti* becomes:

$$(123) \quad \textit{più strumenti} \rightsquigarrow \lambda Q . \exists [\mu_i(x) > \mathbf{d} \wedge * \text{INSTRUMENT}(x) \wedge Q(x)]$$

This is a quantifier that will need to take scope in order to be interpreted.

In Greek the quantity word is an adjective, so Existential Closure does not apply, so a definite article can.

We turn now, finally, to proportional readings. As in French, proportional readings for DEF+CMP are generally disallowed in Italian. In our data, only an overt ‘part’ or ‘majority’ NP makes a proportional reading possible.

- (124) **Alla maggior parte dei bambini** nella mia scuola piace suonare.  
of.DEF big.CMP part of.DEF kids in my school like play  
‘**Most of the kids** in my school like to play (music).’
- (125) \***Il più (molti) dei bambini...**  
DEF CMP many of.DEF kids...

The same holds for the entire Ibero-Romance subfamily, as far as we can see, including Spanish, Portuguese, and Catalan. For example, ‘Most of the kids’ in ‘Most of the kids in my school like to play music’ is translated using a majority noun in these languages:

- (126) **La mayoría de los niños...** (Spanish)  
**A maioria das crianças...** (Portuguese)  
**La majoria dels nens...** (Catalan)  
‘**Most of the kids...**’

However, according to Dobrovie-Sorin & Giurgea (2015, ex. (94), p. 20), “Italian allows the article and a proportional meaning in the *partitive* construction”:

- (127) **Il più degli uomini** predicano ciascuno la sua benignità  
the more of.DEF men preach each the his kindness  
‘Most men preach their own kindness.’

Dobrovie-Sorin & Giurgea (2015, ex. (95), p. 21) also write that this is possible with no overt partitive complement.

- (128) Gli ospiti sono partiti. **I più** erano già stanchi.  
DEF guests have left DEF CMP were already tired  
‘The guests left. **Most (of them)** were already tired.’

We suggest that a partitive construction signals what *part* in *plupart* does: that the comparison class is constituted by a partition of the domain. In French, when this happens, the *part* noun must be made explicit. The possibility of the definite article in (127) and (128) suggests that the quantity word can occupy an adjectival position when it is not followed by a noun. (See Giusti (1991) for arguments that quantity words that follow a definite determiner are adjectives; otherwise they are quantifiers.)

## 6 Summary

Two newly proposed semantic mechanisms have played a role in derivations for all of the languages we have investigated:

- (129) **Definite Null Instantiation (Meaning Shift)**  
If  $\alpha \rightsquigarrow \alpha'$ , and  $\alpha'$  is an expression of type  $\langle \sigma, \tau \rangle$ , then  $\alpha \rightsquigarrow \alpha'(v)$  as well, where  $v$  is

Table 6: Distribution of the definite article in superlatives in DEF+CMP languages.

	Greek	Romanian	French	Italian, etc.
Qual./pred.	+	+	+	+/-
Qual./abs.	+	+	+	+
Qual./rel.	+	+	+	+
Qual./adv.	-	+	+	-
Quant./prop.	+	+	NA	(+ with partitives)
Quant./rel.	+	+	+	-

an otherwise unused variable of type  $\sigma$ .

(130) **Measure Identification (Composition Rule)**

If  $\gamma$  is a subtree whose only two immediate subtrees are  $\alpha$  and  $\beta$ , and  $\alpha \rightsquigarrow D$ , where  $D$  is of type  $\langle d, t \rangle$ , and  $\beta \rightsquigarrow P$ , where  $P$  is of type  $\langle \tau, t \rangle$ , where  $\tau$  is any type, then

$$\gamma \rightsquigarrow \lambda v . D(\mu_i(v)) \wedge P(v)$$

where  $v$  is a variable of type  $\tau$  and  $\mu_i$  is a free variable over measure functions (type  $\langle \tau, d \rangle$ ).

When Definite Null Instantiation applies to the degree argument of a comparative, a unique description arises, as long as the free variable is assigned appropriately. Measure Identification is a special composition rule that links descriptions of degrees with descriptions of individuals, and it is the rule that connects quantity superlatives to the nouns they modify, at least in the case of relative readings.

Table 6 gives a summary of the definiteness-marking patterns we have observed. For a set of languages in which superlatives are formed with the help of a definite article, there is a remarkable diversity of definiteness-marking patterns.

The contrasts raise a number of questions, all of which we cannot address adequately here, and many of which are well-known issues. Among them are the following:

- Why do quantity superlatives in Italian lack definiteness-marking, in contrast to Greek, Romanian, and French?
- Why are adverbial superlatives marked definite in French and Romanian, but not Italian or Greek?
- Why is definiteness-marking absent on predicative superlatives in relative clauses in Italian, but not in French?
- Why are postnominal superlatives marked definite in French (and Romanian) but not Italian?
- Why do Greek and Romanian allow proportional readings for DEF+CMP but not Italian (except in partitive environments) or French?

We will consider these more or less in turn.

The variety of different systems we see suggests that the grammars of these languages may be pulled between a number of competing pressures. One pressure, we suggest, is not to mark non-nominal constituents with a definite determiner; this wins out more often in Italian than in French. Another pressure is to mark superlatives as definite. We suggest that this latter pressure stems from the fact that definite articles serve to introduce comparison classes, a crucial part of the meaning of any superlative, be it predicative, adnominal, adverbial, or otherwise. French and Romanian (and English) have marshalled the resource of definiteness-marking to introduce comparison classes explicitly, even in adverbial cases, where there is no noun. (It is not clear how much of a sacrifice French is making in the case of quantity superlatives, as *plus/moins* may in fact be nominal, given that they seem to absorb case, triggering the insertion of pseudopartitive *de*. But certainly the adverbial cases are hard to see as nominal.) Italian chooses to reserve its articles for nominal constituents, letting the comparison class enter the meaning through implicit means.

In Optimality Theoretic terms, we might conceive of these forces as constraints that we could label \*DEF\_<sub>[-N]</sub> and INTRODUCE-C. Italian ranks the former over the latter, and French ranks the latter over the former. An adverbial superlative like *le moins fort* violates \*DEF\_<sub>[-N]</sub> but not INTRODUCE-C, while one like *más rápido* violates INTRODUCE-C but not \*DEF\_<sub>[-N]</sub>.

In Romanian, *cel* often appears in environments lacking an overt noun so it may be that there is no requirement for using *cel* in nominal environments in the first place, in which case there is no tension between these two forces here. In other words, it may be that *cel mai repede* does not violate \*DEF\_<sub>[-N]</sub>. In any case, such a constraint does not impede the expression of definiteness in Romanian. Greek draws the line at adverbial superlatives, and may in fact have the same priorities as Italian, the difference in the case of quantity superlatives arising due to the treatment of the quantity word as an adjective modifying the noun, rather than a quantifier, so that *ta pio pollá órgana* for example does not actually violate \*DEF\_<sub>[-N]</sub>.

Now, in Italian (and Spanish), the definite article is normally used in predicative superlatives, presumably to distinguish between the comparative and the superlative interpretations. But in relative clauses the comparison class could be argued to be introduced in conjunction with the head of the relative clause, so the definite article is not necessary. This explanation implicitly relies on the constraint ‘distinguish comparatives and superlatives’, which is presumably an instance of a more general CLARITY constraint.

As for postnominal superlatives, an explanation in terms of clarity could be applicable here as well: French values distinguishing comparatives from superlatives over keeping determiners from modifying adjective phrases. So CLARITY is higher-ranked in French than \*DEF\_<sub>[-N]</sub>. (Arguably, a comparison class is explicitly introduced for both French Italian postnominal superlatives, so INTRODUCE-C is not the source of the difference here.)

Regarding proportional readings, we have suggested that the work that is accomplished by an explicit *part* noun in French, or by a partitive phrase in Italian, is accomplished implicitly in Greek, so that the comparison class *C* can be treated as a partition even without the help of an overt *part* noun. It was noted that Greek and Romanian are slightly different when it comes to mass nouns; Greek freely allows proportional readings with DEF+*CMP* for mass nouns, while Romanian does not. We suggested that this could be explained using Dobrovie-

Sorin & Giurgea’s (2015) idea that in Romanian, *cel mai mult* has grammaticalized into a generalized quantifier, although this idea admittedly could be worked out in more detail.

There are quite a number of issues that we have touched on in the presentation of the data that we have not been able to offer an explanation for. One important issue that we have not resolved is why relative readings are not permitted for prenominal quality superlatives in Italian. It may be due to constraints on how the comparison class is identified; this is one of many problems for future work that remain.

There are also a number of other DEF+CMP languages that we have not investigated here. For example, Plank (2003) briefly discusses the very interesting case of Maltese, which makes use of fronting to distinguish the superlative degree (131-c) from the comparative (131-b).

- (131) a. il-belt il-qawwi  
DEF-city DEF-powerful  
‘the powerful city’  
b. il-belt l-aqwa  
DEF-city DEF-powerful.CMP  
‘the more powerful city’  
c. l-aqwa belt  
DEF-powerful.CMP city  
‘the most powerful city’.

About this case, Plank writes (pp. 361-362), “Paradoxically, as a result of this fronting, NPs with superlatives thus end up less articulated than NPs with other adjectives in normal postnominal position. Just like *le plus jeune homme* [...] in French, they are in fact under-articulated: there ought to be two definiteness markers on the initial superlative, one by virtue of it being a superlative, another by virtue of it being NP-initial.” We leave it to future work to work out whether and how the approach we have taken here can be fruitfully applied to Maltese, and other DEF+CMP languages.

## Abbreviations

POS: positive  
CMP: comparative  
SPRL: superlative  
DEF: definite  
PL: plural  
WK: weak ending  
NEG: negation

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