One more comparative
The *de/que* distinction in Spanish comparatives

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Abstract

Spanish comparatives have two morphemes that can introduce the standard of comparison: the complementizer *que* ('that') and the preposition *de* ('of'/'from'). This paper defends the idea that comparatives introduced by the standard morpheme *de* are phrasal comparatives that always express overt comparison to a degree. I show how this analysis derives the key properties of *de* comparatives, including the fact that they are acceptable in a much more restricted set of environments than their *que* counterparts. The latter are argued to involve additional covert structure, which accounts for their general flexibility. If correct, these data point to a previously unnoticed locus of cross-linguistic variation in comparative formation, whereby a standard morpheme is subject to semantic as well as syntactic well-formedness conditions.

1 Introduction

This paper investigates two comparative constructions in Spanish characterized by the use of different standard morphemes, as illustrated in (1).

(1) a. *Comparative with* que
Pedro pescó más peces **que** yo
Pedro fish.PST.3SG more fish.M.PL QUE I
'Pedro fished more fish than me'

b. *Comparative with* de
Pedro pescó más peces **de** los que pesqué yo
Pedro fish.PST.3SG more fish.M.PL DE DEF.M.PL COMP fish.PST.1SG I
'Pedro fished more fish than I did'

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Spanish is not special in this respect. Especially in languages that lack a construction-specific morphological marker for comparatives (e.g. the English *than*), we find that the standard morpheme may have different kinds of exponents. By far the most common alternative to having a dedicated comparative marker is to employ a complementizer, which in Romance corresponds to *que/che*, as shown in (1a). It is also common to find languages that have a second standard morpheme, formed by some other expression, usually a preposition with a directional meaning (Stassen 1985), like the preposition *de* in (1b), but sometimes also a genitive marker, as in Greek (Merchant 2009).

The precise role of these different morphemes is contentious, the debates centering on whether they are semantically vacuous elements that surface solely for purposes of syntactic well-formedness, and whether they introduce their own further, semantically meaningful, selectional restrictions. For example, in languages like Greek (Merchant 2009), Russian (Pancheva 2006) and Hungarian (Wunderlich 2001), to name a few, it has been argued that the choice of the standard morpheme depends on the phrasal (i.e. nominal) or clausal nature of the standard.

In spite of the fact that comparative constructions in Spanish have received a great deal of attention in the literature, the difference between comparatives using the two different standard morphemes has yet to receive a proper analysis. Historically, the efforts to account for the restricted distribution of *de* comparatives have focused either on (*i*) syntactic considerations pertaining the size of the standard, or on (*ii*) intuitions about the semantic differences of *de* comparatives when compared to their *que* counterparts.[1] In the syntactic camp, it has been variously argued that *de* can only take full clauses as standards (Plann 1984), reduced clauses (Price 1990), small clauses (Gallego 2013) or DPs (Brucart 2003). On the other hand, the semantic factors that are said to play a role in the limited distribution of *de* comparatives are far more consistent in the literature. The guiding intuition behind this restriction is that complements of *de* comparatives must refer to a "quantity", an "extent", a "degree" or an "amount", and it can be traced as far back as Bello (1847). For concreteness, let us call this requirement the Quantity Requirement.

(2) **Quantity Requirement**
Comparatives with *de* can only take arguments that are quantity denoting.

As we will see below, this descriptive characterization does some justice to the distributional properties of *de* comparatives, but answers to the question of what exactly constitutes a "quantity denoting" expression have never gone beyond this intuitive notion. Thus, while the consensus on the Quantity Requirement seems to be pointing in the right direction, its loose and vague nature calls for a more precise characterization.

The two lines of analyses, syntactically and semantically centered, reflect the tension between the two aspects of *de* comparatives that seem to drive the choice of the standard morpheme. In this respect, the literature thus far has been lacking in two ways: a tendency to focus on one or other of the two aspects–syntactic *vs* semantic–of *de* comparatives, and within each camp, a lack of consistency and precision about what the relevant factors driving the distribution of *de* are. This paper contributes to this body of literature by (*i*) arguing that both syntactic and semantic factors

1 For an overview, see Sáez and Sánchez López (2013). Works that have attributed the limited distribution of *de* comparatives to syntactic factors include Bolinger (1950, 1953), Solé (1982) Plann (1984), Price (1990), Gutiérrez Ordóñez (1994a,b), Sáez del Álamo (1999) and Gallego (2013), a.o. Works that have tried to explain it in terms of the denotational properties of *de* comparatives include Bello (1847), Prytz (1979), Rivero (1981), and Brucart (2003), a.o.

must be taken into account (and in turn, both camps in the previous literature were in fact right, albeit only partially), and (*ii*) formally clarifying what those conditions are. More specifically, I propose two different constraints, one syntactic and one semantic, that *de* comparatives are subject to. From a semantic point of view, the presence of *de* overtly signals that the comparison is with a degree, rather than an individual. From a syntactic perspective, I argue that *de* comparatives are always phrasal, that is, the complement of *de* must always combine with nominals, either DPs or Numeral/Measure Phrases. This is summarized in (3):

(3) **Constraints on *de*-comparatives**

a. *Semantic constraint*
Comparatives with *de* must combine with *d*-type objects.

b. *Syntactic constraint*
Comparatives with *de* must be nominal.

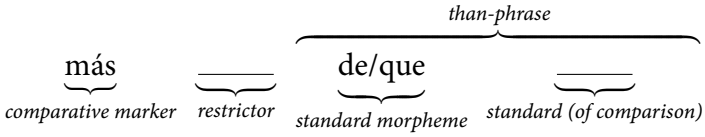
Each of the two conditions in (3) is necessary but on its own insufficient to account for the limited distribution and range of interpretations observed with *de* comparatives.

The task now is twofold: we must show that standards of comparison are syntactically nominal, and that semantically *de* comparatives can only combine with *d*-denoting objects. The syntactic distribution of *de* comparatives and their inability to host multiple remnants speaks in favor of their phrasal nature. Semantically, I show that *de* comparatives are grammatical only with DPs that can denote definite descriptions of degrees. Furthermore, they are shown to be scopally inert, providing support for a direct analysis where no additional DegP movement is required. The resulting analysis is fully compositional, and so *de* comparatives are not taken to be an instance of "contextual" comparison (cf. Beck et al. 2004, Kennedy 2009). In contrast to *de*, comparatives with the standard *que* realize the default strategy for forming comparatives in Spanish (either clausal or phrasal), where the composition involves movement of the comparative marker *-er* and degree abstraction. As a consequence, we will find that even in environments where both *de* and *que* standard morphemes are possible, the resulting semantic interpretations vary in predictable ways.

The paper is divided in two main parts: the first half provides the main body of empirical facts that the formal analysis presented in the second half aims at accounting for. The first part starts off in §2 by describing the semantic properties of *de* comparatives and establishing a distinction between *comparison to a degree* and *comparison to an individual*. In §3, I present a series of arguments showing that *de* comparatives must always be phrasal (i.e. the standard must always be nominal), and §4 shows why neither of the conditions in (3) is reducible to the other. Thus, the main goal of the first part is to refine and precisify many of the observations already present in the literature. The second part of the paper focuses on providing a unified formal account for all instances of *de* comparatives discussed so far. §5 presents a baseline theory based on degree semantics, providing a standard analysis of *que* comparatives against which simpler cases of *de* comparatives are compared; the analysis is then extended to more complex cases in §6. Finally, §7 discusses the cross-linguistic significance of the analysis provided, as well as some odd-ends and open questions.

Before we continue, it is useful to establish some terminology. First, the constitutive parts of comparative constructions will be referred to as follows:

(4)



Second, the literature commonly distinguishes between two types of comparative constructions, depending on the syntactic size of the standards of comparison: "clausal" and "phrasal" comparatives. While clausal comparatives typically involve CP standards, either full or reduced clauses, in phrasal comparatives the standard of comparison is invariably a nominal projection, either a full DP or a Measure/Degree Phrase. I adhere to this conventional terminology here, and thus "phrasal comparatives" should be taken to be those whose standard is nominal, and not just any phrase.

2 Semantic properties of *de* comparatives

This section showcases the main semantic properties of *de* comparatives by directly comparing them to the more garden variety comparatives with *que*. It introduces the distinction between *comparison to a degree* and *comparison to an individual*, and shows that *de* comparatives are only capable of expressing instances of the former.

2.1 Reference to "simplex" degrees

Demonstratives in Spanish provide a good testing ground to highlight the semantic differences between *de*/*que* comparatives. The neuter demonstrative *eso* ("that") can easily refer to either an individual or a degree. (In the examples below, this difference is signaled by using the *e* subscript for individuals and a *d* subscript for degrees.) This is not unlike the English demonstrative *that*: in addition to its ability to point to individual entities, *that* can also point to degrees. For instance, if you told me that your paper is fifty pages long, I could reply that $that_d$ *is too long*, where $that_d$ refers to the length of the paper and not to the paper itself. Comparatives with *de* are compatible with demonstratives that refer to degrees, like $that_d$ in English.

(5) **Comparison to a degree**

a. [*Context:* The minimum height of the railing is 4 feet.]
La valla es más alta { *que / de } eso_d
DEF.F.SG railing.F.SG be.PRS.3SG more tall.F.SG QUE DE DEM.N
'The railing is higher than that'

b. [*Context:* No suitcases heavier than 23 kg. are allowed.]
La maleta pesa más { *que / de } eso_d
DEF.F.SG suitcase.F.SG weigh.PRS.3SG more QUE DE DEM.N
'The suitcase is heavier than that'

However, if the context is such that the demonstrative is referring to an individual rather than a degree, the standard *que* is required.

(6) **Comparison to an individual**

a. [*Context:* Pointing to something in my backyard that is taller than the railing.]
La valla es más alta { que / *de } eso$_e$
DEF.F.SG railing.F.SG be.PRS.3SG more tall.F.SG QUE DE DEM.N
'The railing is higher than that'

b. [*Context:* Pointing to a small object.]
La maleta pesa más { que / *de } eso$_e$
DEF.F.SG suitcase.F.SG weigh.PRS.3SG more QUE DE DEM.N
'The suitcase is heavier than that'

The difference between using one or other standard marker amounts to what the object of the comparison itself is: *de* comparatives are cases of *comparison to a degree*[2], whereas *que* comparatives are cases of *comparison to an individual*. If what I mean is that the railing is taller than some object that has been mentioned/referred to before, I cannot use *de*, (6). Instead, if the railing is taller than some height already salient in the context, only a *de* comparative is able to express such comparison, as illustrated by (5). As a consequence, the potentially ambiguous referent of the prononimal form *eso* must resolve to *eso$_d$* with *de*, and to *eso$_e$* with *que*. It must be noted that some speakers seem to allow *eso$_d$* with *que* standards, i.e., they are more willing to accept (5) with *que* as grammatical. It is difficult to determine the status of these idiolects because there appears to be some within-speaker inconsistencies, and so I defer a better discussion of these cases until a future occasion (see also footnote 7). In what follows I will only consider that *que* is limited to *eso$_e$*.[3]

We can corroborate these facts by looking into the distinction between the neuter and non-neuter forms of the demonstrative. When the demonstrative refers to a degree it must carry neuter φ-features. In turn, non-neuter demonstratives can only refer to individual entities. The consequence is that demonstratives with non-neuter φ-morphology are not allowed with *de* comparatives, as illustrated below.[4]

(7) [*Context:* You said that Pedro ate 3 apples, but he ate more than three.]
Pedro comió más manzanas { que / *de } ésas$_e$
Pedro eat.PST.3SG more apple.F.PL QUE DE DEM.F.PL
'Pedro ate more apples than those'

This limitation extends to all instances of *de* comparatives: with *de*, only the neuter form of the pronominal is allowed. The standard in (8a) below can only refer to the length of the book I read. In contrast, *que* comparatives are grammatical with non-neuter demonstratives, but then the target of the comparison can only be the book I read, instead of its length, (8b).

2 Here "degree" is used as an umbrella term that covers all types of measures; quantities, amounts, sizes, volumes…all are referred to as degrees.

3 The struggle to characterize the source of this variation is not new: Bello (1847, 301) already notes that although *que* may be admissible in some contexts similar to (5), the *de* variants "sound better" (sic).

4 The sentence in (7) is grammatical as a partitive construction, which also makes use of the preposition *de*, resulting in a construction superficially identical to a comparative construction. They are not to be confused. In these cases, the interpretation of the sentence is that of a simple additive; for (7), we have that *Pedro ate some more apples from* that *set of apples*. Unless specifically noted, all the reported judgments are about comparative constructions alone.

(8) [*Context:* I read a book that is 1200 pages long, and Pedro read a longer book.]

a. Pedro leyó un libro más largo { *que / de } eso$_d$
Pedro read.PST.3SG INDF.M.SG book.M.SG more long.M.SG QUE DE DEM.N
'Pedro read a longer book than that'

b. Pedro leyó un libro más largo { que / *de } ése$_e$
Pedro read.PST.3SG INDF.M.SG book.M.SG more long.M.SG QUE DE DEM.M.SG
'Pedro read a longer book than that one'

A similar case can be made by looking into measure nouns. Measure nouns do not usually have individual referents–i.e. we do not often speak of one particular meter or a certain kilo. Instead, they denote measurements or, in our lingo, degrees, and thus they provide a natural way of establishing a comparison to a degree. In accordance with the restriction to neuter demonstratives, we observe that *de* comparatives are only compatible with measure nouns.

(9) a. La piedra pesa más de { dos kilos / *un coche }
DEF.F.SG stone.F.SG weigh.PRS.3SG more DE two kilos INDF.M.SG car.M.SG
'The stone is heavier than {two kilos / *a car} '

b. NYC está más lejos de { 100 kilómetros / *Boston }
NYC be.PRS.3SG more far DE 100 kilometers Boston
'NYC is further than {100 kilometers / *Boston}'

Of course, ordinary DPs like *a car* and *Boston* may be used to allude to some associated degree when they constitute instances of comparison to individuals. That is, there is nothing wrong with expressing a comparison between the weights of stones and cars, or the distance between any two cities. Those are instances of comparison to an individual, however, and so the choice of the standard morpheme is reverted.

(10) a. La piedra pesa más que { *dos kilos / un coche }
DEF.F.SG stone.F.SG weigh.PRS.3SG more QUE two kilos INDF.M.SG car.M.SG
'The stone is heavier than {two kilos / *a car} '

b. NYC está más lejos que { *100 kilómetros / Boston }
NYC be.PRS.3SG more far QUE 100 kilometers Boston
'NYC is further than {100 kilometers / *Boston}'

Altogether, these examples–and their contrast with the *que* variants–point out the limitation of *de* to appear in contexts where a degree is referenced to, in line with the semantic restriction introduced in (3) above.

2.2 Reference to "complex" degrees

The examples we have seen so far involve a seemingly simple DP in the standard of comparison that must be interpreted relative to some default or contextually determined degree. But there are other means by which degrees can be referenced. In Spanish, the most commonly used degree expressions

that participate in *de* comparatives involve constructions where the complement of *de* is a headless relative clause. These can be either in the form of a quantity free relative or a null NP relative clause–a term that for the moment must be understood in descriptive theory-neutral sense.[5]

In quantity free relatives, the relative clause is headed by the relative pronoun *cuanto* ("how much"), which is the specific relative pronoun for quantity in Spanish. Semantically, *cuanto* and its variants have been extensively argued to denote a definite degree (see Gutiérrez-Rexach 2014 for a summary of arguments). Following the earlier patterns, only the standard morpheme *de* is grammatical when the standard of comparison is a free relative headed by *cuanto* (Plann 1984, Real Academia de la Lengua Española 2010).

(11) Pedro pescó más peces { *que / de } cuantos pesqué yo
Pedro fish.PST.3SG more fish.M.PL QUE DE how many.M.PL fish.PST.1SG I
'Pedro fished more fish than I did'

In the second case, the relative clause is characterized by a definite determiner combining directly with the complementizer *que* that introduces the subordinate clause. The distinguishing property of these null NP relative clauses is that the noun that the subordinate clause modifies is missing, very much like in free relatives. These [D *que*] clusters have been argued to be syntactically akin to relative pronouns like *cuanto* (e.g. Brucart 1992, Real Academia de la Lengua Española 2010) and semantically capable of denoting definite degrees (Gutiérrez-Rexach 1999).

(12) Pedro pescó más peces { ??que / de } los que pesqué yo
Pedro fish.PST.3SG more fish.M.PL QUE DE DEF.M.PL COMP fish.PST.1SG I
'Pedro fished more fish than I did'

Examples (11) and (12) above are semantically equivalent, the two constitute cases of *comparison to a degree*, where the only licit interpretation amounts to a comparison of cardinalities. The corresponding variants with *que* are degraded in the two cases.

Just like we saw with demonstrative pronouns, we can use differences between neuter and non-neuter forms to track the referent of the full relative clause construction. The difference is visible only with comparatives that have non-nominal restrictors. For instance, attributive comparatives with a gradable predicate in the restrictor position admit relative clause constructions bearing both neuter and non-neuter morphology. But, as we saw with demonstratives, the difference between neuter and non-neuter forms tracks the type of referent of the full relative clause construction. Below we have a case of non-neuter φ-morphology on the definite article, rendering the variant with the standard morpheme *de* ungrammatical.

(13) Pescó truchas más grandes { que / *de } las que pesqué yo
fish.PST.3SG trout.M.PL more big.PL QUE DE DEF.F.PL COMP fish.PST.1SG I
'(She) fished bigger trouts than I did'

Informally, (13) states that the trouts that Pedro fished are bigger than some other individual x,

5 As before, the sentence may be construed as a partitive construction interpreted as a simple additive. Judgments only address the comparative constructions.

where *x* corresponds to the trouts that I fished. Rather than comparing sizes directly, (13) compares two sets of individuals along the dimension of size. Once again, this is a case of a comparison to an individual. As expected, then, the relevant comparison to a degree interpretation can be achieved by using neuter morphology, which in turns results in the opposite choice of standard morpheme:

(14) Pescó truchas más grandes { *que / de } lo que estaba
fish.PST.3SG trout.M.PL more big.PL QUE DE DEF.N COMP be.PST.IMPFV
permitido
allow.PTCP.M.SG
'(She) fished bigger trouts than it was allowed'

Now in (14) the comparison happens between sizes alone: the size of the trouts that she fished is greater than the some size corresponding to the upper bound of what is allowed. Thus, the distribution of the different morphological forms and the interpretations of the two variants follows the same pattern we observed with demonstratives. (The interpretations are the same if we substitute the relative clause constructions in (13) and (14) for a demonstrative with matching φ-morphology.)

2.3 Section summary

From a semantic point of view, the difference between the two standard morphemes seems to boil down to the object of the comparison itself: unlike *que*, *de* must compare degrees directly. Thus, *de* uniformly expresses *comparison to a degree*, and *que* must be recruited to express *comparison to an individual*. More formally, I take these facts as indication that the complement of the standard morpheme *de* invariably combines with a degree. When the restriction of the comparative marker is adjectival, the comparison is between different degrees of the same entity along the dimension determined by the adjective. When the restrictor is nominal, the standard morpheme *de* indicates that the comparison is between two cardinalities of two sets of objects. Thus, the Quantity Requirement, here re-characterized as a constraint on these comparatives as expressing comparisons to a degree seems to give us non-trivial empirical coverage.

Those familiar with the semantic literature on comparatives will, at this point, wonder whether this conclusion leads us to problematic predictions. After all, on most theories of comparatives standard phrases are usually ascribed a degree type, either $\langle d, t\rangle$ or d (see Morzycki 2016 for an overview), seemingly washing out the intuitive differences between comparison to degrees *vs.* individuals. Thus, given the semantic constraint in (3a) and the intuitions behind the Quantity Requirement, it would seem that *de* comparatives should be the norm, not the exception. Then, why and how are *de* comparatives different from other comparative constructions?

As advanced earlier, the answer lies in the fact that (3a) only covers half of the picture, as *de* comparatives are also syntactically restricted. In particular, the standard of comparison must always be nominal. This effectively limits the ability of *de*-standards to two kinds of objects: (*i*) nominal phrases that are born as degree denoting expressions, like Number Phrases, Measure Phrases, and demonstratives referring to degrees; and (*ii*) degrees derived via movement operations, as in the case of some relative clause constructions. The goal of the next section is to show that these expectations correspond to the empirical landscape of *de* comparatives in Spanish.

3 Syntactic restrictions on *de* comparatives

As before, this section contrasts the properties of *de* comparatives with those of *que* variants. It shows that, while *que* comparatives show a greater degree of flexibility with respect to the syntactic size of their standard, *de* comparatives can only be phrasal (i.e. nominal).

From a syntactic point of view, the distribution of *de* comparatives is more restricted than its *que* counterparts. As a starting point, (15) illustrates the long-standing observation that *de* comparatives are incompatible with run-of-the-mill (full) clausal comparatives:

(15) Pedro leyó más libros { que / *de } trabajos escribiste tú
Pedro read.PST.3SG more book.M.PL QUE DE paper.M.PL wrote.PST.3SG you
'Pedro read more books than you wrote papers'

Less conspicuous is the question of whether *de* comparatives are cases of reduced clausal comparatives or phrasal comparatives. Phrasal comparatives are comparative constructions where the complement of the standard morpheme is a simple nominal phrase, a DP (e.g. Heim 1985, Kennedy 1997). Reduced clausal comparatives are derived from full clausal comparatives by a process of reduction/elision, as in (16) (Bresnan 1973, Hankamer 1973, Pinkham 1982, a.o). As a consequence, they superficially resemble phrasal comparatives.

(16) a. *Full clausal comparative*
Liz is taller than Sue is.

b. *Reduced clausal comparative*
Liz is taller than Sue ⟨~~is~~⟩.

c. *Phrasal comparative*
Liz is taller than Sue.

A reliable method of uncovering true phrasal comparatives is by looking into the syntactic size of the standard, for instance by checking whether it admits more than one syntactic remnant. All else equal, true phrasal (non-reduced) comparatives do not admit more syntactic remnants in the standard of comparison other than the nominal selected by the standard morpheme, since there is no reduced clause in which the offending remnant could have originated. This is illustrated below with Greek and Hindi, both languages which have been shown to possess phrasal comparatives with a dedicated standard morpheme.

(17) a. *Greek "apo"* [Merchant 2009, 140]
* Perisoteri anθropi milisan me ton Gianni tin Kyriaki apo me ton
more people spoke with the Giannis the Sunday than.PHRASAL with the
Anesti to Savato
Anestis the Saturday
Int.: 'More people spoke with Giannis on Sunday than with Anestis on Saturday'

b. *Hindi "-se"* [Bhatt and Takahashi 2011, 593]

*Tina-ne aaj Pim kal-se zyaadaa kitaabẽ parh-ĩ
TinINDF.ERG today Pim yesterday-than.PHRASAL more book.PL read
Int.: 'Tina read more books today than Pim yesterday'

Turning now to Spanish comparatives, we observe that *de* comparatives, unlike their *que* counterparts, do not allow multiple remnants. The following example sets up a context where both *que* and *de* variants are possible and contrasts their availability with single and multiple remnants.

(18) *Context:* In a robotics competition every participant has his robot tested in a long jump test. I compare how well mine performed yesterday to the robot who made a 2″ jump right now, which is very close to what my robot jumped.

(19) [*Pointing to the robot that just jumped*]
Ayer mi robot saltó más { que / *de } ése$_e$
yesterday my.SG robot.M.SG jump.PST.3SG more QUE DE DEM.M.SG
'Yesterday my robot jumped more than that one did'

(20) [*Referring to the length of my robot's jump*]
Ayer mi robot saltó más { *que / de } eso$_d$
yesterday my.SG robot.M.SG jump.PST.3SG more QUE DE DEM.N
'Yesterday my robot jumped more than 2″'

In (19) the comparison is relative to an individual, in this case relative to the robot that jumped yesterday. This is only possible with *que*. On the other hand, (20) compares directly the lengths of the two jumps. Crucially, when the standard of comparison includes more than one remnant, only reference to an individual is possible (i.e., with *eso*$_e$), and only the *que* variant is allowed.

(21) a. Ayer mi robot saltó más que ése$_e$ hoy
yesterday my.SG robot.M.SG jump.PST.3SG more QUE DEM.M.SG today
'Yesterday my robot jumped more than that one has jumped today'

b. *Ayer mi robot saltó más de eso$_d$ hoy

Thus, the fact that *de* comparatives cannot host more than one remnant suggests that they only take phrasal (nominal) standards.[6]

A further argument for the phrasal status of *de* comparatives comes from a ban on reduction. A logical consequence of the full/reduced clausal analysis is that material within the standard of comparison can always be elided (in fact, sometimes it must; Reglero 2007). Important for us is the fact that eliding the verb is always a possibility for clausal *que* comparatives.

6 As an anonymous reviewer points out, there could be independent reasons to rule out configurations like (21b), such as difficulties to recover a meaningful antecedent. Thus, while an underlying structure like "Yesterday my robot jumped more than ⟨~~my robot jumped~~⟩ [that-much]$_d$ today" is conceivable and interpretable, its interpretation involves additional steps which may result in further complexity.

(22) a. Compró más revistas que libros tienes tú
buy.PST.3SG more magazine.F.PL QUE book.M.PL have.PRS.2SG you
'(She) bought more magazines than the books you have'

b. Compró más revistas que tú libros

c. Compró más revistas que libros

d. Compró más revistas que tú

The same is not possible with *de* comparatives. As is well-known, it is not possible to elide the verb of a relative clause construction in Spanish.

(23) Leí { los que / cuantos } tú *(leíste)
read.PST.1SG DEF.M.PL that how many.M.PL you read.PST.2SG
'I read the (books) you read'

Accordingly, the verb cannot be elided in comparatives with *de*, suggesting that it must be a DP–a conclusion in line with current assumptions about the constituency of free relatives as well, which are generally argued to be nominal; see Jacobson (1995), Caponigro (2002), Ojea (2013), a.o.

(24) a. Compró más libros de los que tú *(compraste)
buy.PST.3SG more book.M.PL DE DEF.M.PL COMP you buy.PST.2SG
'He bought more books than the books you bought'

b. Compró más libros de cuantos tú *(compraste)
buy.PST.3SG more book.M.PL DE how many.M.PL you buy.PST.2SG
'He bought more books than the books you bought'

4 Taking stock: two conditions for *de* comparatives

Recall our key generalization: the distribution and range of interpretations of *de* comparatives are the result of the interplay between two independent restrictions:

(3) **Constraints on *de*-comparatives**

a. *Semantic constraint*
Comparatives with *de* must combine with *d*-type objects.

b. *Syntactic constraint*
Comparatives with *de* must be nominal.

From (3a) it follows that *de* comparatives must always express a comparison to a degree, and the fact that they are limited to DPs of various sorts is accounted for by (3b). There are a number of additional facts that fall out of the joint action of the two constraints that speak against the possibility of reducing the limited distribution of *de* comparatives to one or the other.

For the sake of the argument, suppose that *de* comparatives were not limited by (3a), that is, that their only restriction was a syntactic necessity to take nominal standards. This syntacto-centric

account would lead us to make two wrong predictions. Consider first subset comparatives. These are comparative constructions where the restrictor and the standard are in a set membership relation. For instance, in (25) below, *El Quijote* is a member of the sets of all books (Grant 2013).

(25) Liz has read more books than El Quijote.

Aparicio (2014) shows that subset comparatives are phrasal. Evidence comes from their inability to host multiple remnants (26) and their incompatibility with *bona fide* phrasal standard morphemes in languages like Greek (27).

(26) *Liz has read more books today than El Quijote yesterday

(27) I Ariadne diavase parapano vivlia { apo / *apo'ti} tin
the Ariadne read further books than.PHRASAL than.CLAUSAL that
Odysseia
OdysseiINDF.ACC
'Ariadne read more books than the Odyssey.

In addition, the standard of comparison in subset comparatives must always denote an individual (or a kind; see Grant 2013). Evidence for this requirement comes from the fact that elements denoting outside the domain of individuals cannot form subset comparatives, despite standing in similar entailment (set to subset) relationships:

(28) Liz has read more books today than yesterday
a. ✓*Ordinary comparative interpretation*
'Liz read a greater number of books today than she did yesterday'
b. ✘*Subset comparative interpretation*
'Yesterday Liz read some books. Today she read those books and at least one more'

Now, if the only restriction of Spanish *de* comparatives was syntactic, *de* should be grammatical in subset comparatives. This is not the case: subset comparatives are only grammatical with the *que* standard morpheme.

(29) Juan ha leído más libros { que / *de } El Quijote
Juan read.PRS.PRF more book.M.PL QUE DE El Quijote
'Juan has read more books than El Quijote'

In addition to subset comparatives, there are a number of other constructions that have been argued in the literature to correspond to "true" phrasal comparatives in Spanish, and not simply reduced clauses. Brucart (2003, 39), for instance, mentions cases of DP-internal comparison as paradigmatic of phrasal comparatives (see also Gutiérrez Ordóñez 1994a and Sáez and Sánchez López 2013). These are comparatives where the object of the comparison is always DP-internal, although the comparison itself may target constituents of different categories, such as APs, PPs, etc. None of these comparative constructions can be formed with *de*.

(30) a. Un niño más travieso { que / *de } su vecino
INDF.M.SG child.M.SG more naughty.M.SG QUE DE POSS.3SG neighbor
'A child naughtier than his neighbor'

b. Una novela más divertida { que / *de } inspirada
INDF.F.SG novel.F.SG more funny.F.SG QUE DE inspired.F.SG
'A novel that is funnier than it is inspired'

c. Más preocupado por el dinero { que / *de } por el
more worry.PTCP.M.SG for DEF.M.SG money.M.SG QUE DE for DEF.M.SG
bienestar
wellbeing.M.SG
'He is more worried about money than about wellbeing'

Sáez del Álamo (1999) provides a final testing case. He argues that nominal comparative phrases in subject position in Spanish must always be phrasal. The main reason is that no licit elision process could have derived the corresponding surface order. However, these are environments that do not admit the standard *de*.

(31) a. Más chicos { que / *de } chicas leyeron ese libro
more boy.M.PL QUE DE girl.F.PL read.PST.3PL DEM.M.SG book.M.SG
'More boys than girls read this book'

b. ✘ Más chicos [⟨~~leyeron ese libro~~⟩] que chicas leyeron ese libro

The conclusion is clear: it is not possible to reduce the overall behavior of *de* comparatives to their syntactic idiosyncratic properties. Because they are syntactically well-formed, the offending variants with *de* in (29) through (31) must be unacceptable because of some other reason. In my view, this is good evidence that we need the semantic restriction expressed in clause (3a). Notice that there is also a secondary corollary that follows these data: unlike *de* comparatives, *que* comparatives are much freer in their distribution, as they may take full clauses and a variety of different phrases as their standards, such as DPs, APs and PPs.[7]

We can ask ourselves the same question in the opposite direction. Suppose that *de* comparatives were not limited by any syntactic considerations, and all they require is a certain semantic constraint on their standards. It is easy to show that the Quantity Requirement, as phrased in (2), is insufficient, in part because it is too vague and general about what should count as quantity-denoting. For example, there is agreement that expressions like "many athletes" are quantity-denoting, but that is not enough to grant their compatibility with *de*.

7 The speaker variation mentioned earlier in §2.1 with respect to (5) could be related to *que*'s greater flexibility: it is conceivable that while in some idiolects *que* expresses any comparison, thus overlapping with *de* uses, in others the two are in complementary distribution. In comparison, the data regarding the distribution of *de* comparatives is much clearer, only with a few exceptions; see §7.2.

(32) Pedro corre más rápido { que / *de } muchos atletas
Pedro run.PRS.3SG more fast.ADV QUE DE many.M.PL athlete.M.PL
'Pedro runs faster than many athletes'

The more concrete proposal in (3a) argues that *de* comparatives only allow comparison to a degree. The cases we have explored so far have been limited to (*i*) simplex denoting-expressions like Number/Measure Phrases and degree-referring demonstratives and (*ii*) degree and quantity free relatives. To show that this semantic restriction is insufficient, however, we must show that a degree-denoting expression (i.e. the *semantic* criterion) that is nevertheless not expressed as a DP (the *syntactic* criterion) is ill-formed with *de*.[8] I suggest that subcomparatives with gradable predicates as standards provide such a case.

(33) La mesa es más larga { que / *de } ancha
DEF.F.SG table.F.SG be.PRS.3SG more long.F.SG QUE DE wide.F.SG
'The table is longer than it is wide'

The sentence in (33) constitutes an instance of comparison to a degree, whereby two distinct degrees pertaining to the same individual are compared along the dimension of length. It cannot be a case of comparison to an individual because there are no two individuals being compared. There is also little doubt that the gradable predicate constitutes a degree expression.[9] The ill-formedness of (33) must therefore be attributed to extra-semantic factors. As defended above, the syntactic requirement that the standard be nominal is not met in subcomparatives like (33). This is easily demonstrable by showing that the standard can accept multiple remnants, effectively establishing a comparison to individuals, which, as shown in §3, is never possible with truly nominal standards.

(34) La mesa es más larga { que / *de } ancha es
DEF.F.SG table.F.SG be.PRS.3SG more long.F.SG QUE DE wide.F.SG be.PRS.3SG
la puerta
DEF.F.SG door.F.SG
'The table is longer than the door is wide'

What these examples show is that establishing a comparison to a degree is a necessary but not sufficient condition to form *de* comparatives in Spanish. The main conclusion so far is that, taken independently, none of the two requirements in (3) suffices to account for the distribution and range of interpretations observed in *de* comparatives.

8 This is a difficult task. Given current degree-based analyses of comparatives, standards of comparison also constitute degree expressions even in clausal comparatives–either a maximalized degree (type *d*) or a set of degrees (type $\langle dt \rangle$). Moreover, one could appeal to a theory where the standard moves from its base position, resulting in a type *d* trace in the launching site. These concerns are difficult to address partly because the discussion quickly leads to theory-dependent reasoning. Thus, it could be that the right choice of theoretical assumptions captures the properties of *de* comparatives by appealing solely to a semantic requirement. While I regard this as a possibility that is worth exploring further, I will continue to assume that *de* comparatives are subject to a syntactic as well as a semantic restriction, as expressed in (3).

9 In fact, many theories derive truth-conditions for (33) along the following lines: *the degree* d *such that the table is* d-*long* > *the degree* d' *such that the table is* d'-*wide*, where two definite degrees are said to be in a "greater than" relation to each other.

5 Formal implementation

In this section I present a formal analysis of *de* comparatives that accounts for the body of data discussed above. Before doing so, I lay out my assumptions about the syntax and semantics of comparatives in Spanish using *que* comparatives as an illustrative baseline.

5.1 Background: setting a baseline

The analysis appeals to degree-semantics. Degrees are ways of representing measurements along a scale, that is, they are measures of some property, like being *d*-tall, *d*-big, *d*-many, etc. (Seuren 1973, Cresswell 1976, von Stechow 1984, Heim 1985, Bierwisch 1989, a.o.). Scales are sets whose elements are totally ordered according to some ordering relation, and degrees can be regarded as primitive members of these sets (Cresswell 1976, Bierwisch 1989). Thus, not just any set of degrees can conform a scale: every degree in it must be ordered with respect to each other. As a consequence, degrees cannot be compared across scales–i.e. we cannot compare degrees of size to degrees of weight; this is the problem of incommensurability. In this view, gradable predicates are regarded as ways of relating individuals and degrees (Bartsch and Vennemann 1972, Cresswell 1976, Kennedy 1999); because nothing is just "big", it must be big to some degree. I assume then that gradable predicates conform to the following general schema.

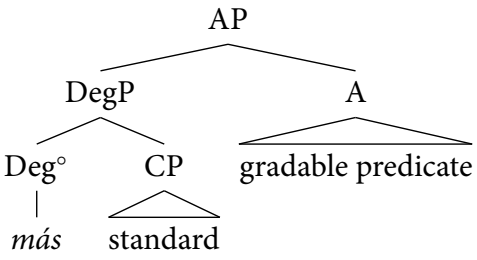
(35) $[\![\text{GP}]\!] = \lambda n_d.\lambda x_e.\mu_{\text{GP}}(x) \geq n$ for any gradable predicate GP

The degree argument in (35) can be provided by either degree expressions like 6″ and 20°C, demonstratives like $that_d$ and can even be contextually supplied. What is important for us is that *any* measure can be represented by appealing to degrees, regardless of whether there is a natural language unit to directly express such degree. Thus, quantities, amounts, sizes, are all expressible via degrees, as is the extent to which somebody is bored, interesting, and so on.

Turning now to Spanish, we have seen that *que* comparatives have a much wider distribution than comparatives with *de*. Using *que* is the only strategy when it comes to construct clausal comparatives in Spanish, either full or reduced, which constitute the vast majority of constructions that are available with the standard morpheme *que* (Bolinger 1950, 1953 a.o.). For the syntax and semantics of Spanish clausal *que* comparatives, I assume the standard framework pioneered by Bresnan (1973) and von Stechow (1984) as spelled-out by Heim (2001) and others. In Spanish *que* comparatives, standards of comparison have an underlying clausal structure and are generated as complements of the comparative marker *más*, which constitutes the head of its own projection, a Degree Phrase (DegP). The syntactic geometry of the comparative clause is the one depicted in (36).[10]

10 Nothing hinges of this decision. Everything I will say about *que* comparatives is compatible as well with other common geometries for clausal comparative DegPs (e.g., Abney 1987, Kennedy 1999 a.o.).

(36)



Semantically, DegP is a generalized quantifier over degrees (type $\langle dt, t\rangle$), which undergoes Quantifier Raising to resolve a type mismatch, and does so by leaving a trace of type d. The comparative marker itself is a generalized quantifier-determiner over degrees (of type $\langle dt, \langle dt, t\rangle\rangle$), analogous to generalized quantifier-determiners over individuals. The assumed lexical entry is provided in (37a), together with the denotation of the maximality operator MAX in (37b) (Heim 2001).

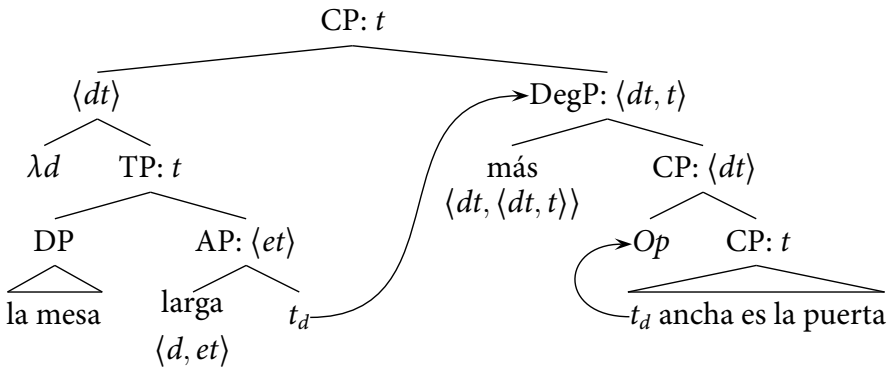
(37) a. $[\![más_{\text{CLAUSAL}}]\!] = \lambda P_{\langle dt\rangle}.\lambda Q_{\langle dt\rangle}.\text{MAX}(Q) > \text{MAX}(P)$

b. $[\![\text{MAX}]\!] = \lambda N_{\langle dt\rangle}.\iota n[N(n) \wedge \forall n'[N(n') \rightarrow n' < n]]$

Finally, I assume the movement of a silent operator *Op* (analogous to a silent *wh*-pronoun) in the standard of comparison (Chomsky 1977). This movement originates out of the degree argument position of the gradable adjective and yields a set of degrees (type $\langle dt\rangle$). This property of degrees serves as the restrictor of the comparative marker *más*. For the sake of concreteness, consider example (38), with the relevant LF configuration illustrated in (39) below.[11]

(38) La mesa es más larga que ancha es la puerta
DEF.F.SG table.F.SG be.PRS.3SG more long.F.SG QUE wide.F.SG be.PRS.3SG DEF.F.SG
door.F.SG
'The table is longer than the door is wide'

(39)



What is important for us is that the subordinate CP is of a type that allows it to be taken as the first argument of the comparative marker *más* after the movement of the *wh*-operator. This type of

11 The adjective *ancha* in the subordinate clause overtly moves to the edge of the clause, prior to the movement of the operator that abstracts over degrees. This inversion pattern is known from Spanish focus inversion constructions (Ordóñez 1997) as well as questions (Ormazabal and Uribe-Etxebarria 1994), and comparatives (Reglero 2007).

analysis allows us to do so.

5.2 *Standards as definite descriptions of degrees*

If the characterization of *de* comparatives in §3 is correct and the arguments go through, there are good reasons to believe that these constitute an instance of phrasal comparison (against Plann 1984 but with Sáez del Álamo 1999 and Brucart 2003). This accounts for the syntactic restriction on *de* comparatives, in (3b). In what follows, I present a concrete semantic implementation of the semantic condition in (3a) that allows for a unified analysis of *de* comparatives discussed in §2 through §4. I begin by first presenting the general analysis with simpler cases, where *de* comparatives take standards that are minimal, and then I extend it to the more complex cases with relative clause constructions.

The semantic literature contains a handful of suggestions about what the denotation of the comparative marker should be. Part of this discussion is concerned with the type of the first argument of the comparative marker, as well as the order in which the operator takes its arguments, its currying. Some authors (e.g. Heim 1985) argue that the first argument is an individual (type e), while others (e.g., von Stechow 1984) defend that it must be a property of degrees (type $\langle dt \rangle$). It is also possible, however, to find comparative operators that combine with an expression that denotes a degree, of type d:

(40) [*Context:* You said that Pedro is 6" tall, but he turned out to be taller than 6".]
Pedro es más alto de eso$_d$ [=(5)]
Pedro be.PRS.3SG more tall.M.SG DE DEM.N
'Pedro is taller than that'

Here the pronominal *that*$_d$ refers to 6″. The semantic truth conditions of such sentences can be represented as HEIGHT(*Pedro*) > 6″, i.e., true *iff* the height of Pedro is greater than some relevant height in the discourse (in this case 6″). As emphasized by Beck et al. (2012), this type of comparison is quite common across languages. In fact, examples like (40) are no different than cases where the standard of comparison is not given by a *than* phrase (see Kennedy 2009). In (41), the standard of comparison usually expressed by the *than* phrase is left unspoken and yet the interpretation of the sentence is equivalent to its counterpart with an overt standard phrase *than that*$_d$.

(41) [*Context:* Juan is 6 feet tall] Pedro is taller ~~than d_c~~.

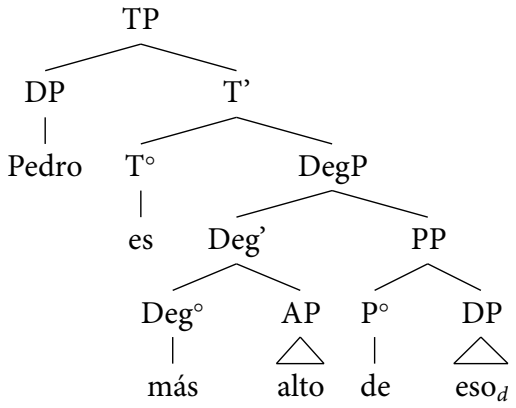
The similarity between the two constructions in (40) and (41) suggests a syntactic and semantic isomorphism between them, relating to their ability to directly pick a degree, either explicitly or implicitly. In order to achieve the right truth-conditions for these and all other degree comparatives with *de* in Spanish, I propose the lexical entry for the comparative marker in (42) (see Pinkal 1989, Beck et al. 2012, a.o.).

(42) $[\![más_{\text{DEGREE}}]\!] = \lambda R_{\langle d,et \rangle}.\lambda n_d.\lambda x_e.\text{MAX}(\lambda n'.R(n')(x)) > n$

The lexical entry in (42) directly takes a gradable predicate (an adjective in the case of (40)) and then it relates a degree and an individual along the dimension established by said gradable predicate. This is the lexical entry suggested by Pinkal (1989) for certain cases of comparative constructions in

English and German, and by Beck et al. (2004) for *yori* comparatives in Japanese. Notice also that *prima facie* (42) does not require any sort of covert movement to get to the right semantics, allowing us to assume a simple syntactic structure for (40) like in (43).

(43)



The order in which elements combine at LF matches their arrangement in the surface syntactic structure. With these ingredients in place, the semantic computation for sentences like (40) proceeds along the following lines:

(44) a. $[\![Deg']\!] = \lambda n.\lambda x.\textsc{max}(\lambda n'.\textsc{height}(x) \geq n') > n$

b. $[\![DegP]\!] = \lambda x.\textsc{max}(\lambda n'.\textsc{height}(x) \geq n') > 6''$

c. $[\![TP]\!] = \textsc{max}(\lambda n'.\textsc{height}(Pedro) \geq n') > 6''$
$= \iota n[\textsc{height}(Pedro) \geq n \ \wedge \ \forall n''[\textsc{height}(Pedro) \geq n'' \rightarrow n'' < n]] > 6''$
$= 1$ *iff* $\textsc{height}(Pedro) > 6''$

5.3 *Assessment*

The main syntactic and semantic properties of *de* comparatives mentioned earlier in (3) follow directly from this analysis. From a syntactic standpoint, the inability of *de* comparatives to host multiple remnants follows naturally from its phrasal nature: *de* comparatives must take nominal complements, and so there is no space for multiple remnants. It also follows that comparatives with *eso*$_e$, which do allow multiple remnants, require the *que* standard morpheme.

From a syntactic standpoint, the analysis proposes a categorical distinction between *de* comparatives, whose standard is invariably a DP, and *que* comparatives, whose standard is a clause, a CP.[12] Given the two geometries assumed for the *que* and *de* comparatives, and that CPs, unlike certain PPs, are easier to extrapose, we would expect that extraposing the standard of comparison is easier

12 This categorical distinction can be formally captured by exploiting the fact that the two standard morphemes belong to two distinct syntactic categories, thereby imposing different c-selectional restrictions. This can be modeled by means of uninterpretable features [*u*F], syntactic features which must be valued by a matching [F] feature on its sister node, and some principle (e.g. Full Interpretation) that obligatorily requires all uninterpretable features to be deleted prior to interpreting any one tree structure (e.g. Chomsky 2001). As is usually assumed, we can take the feature specification of a preposition such as *de* to be [P,*u*D], and that of a complementizer like *que* to be [C[-*wh*], *u*T], effectively forcing *de* to take DP and *que* to take TP complements.

in the case of *que* comparatives as compared to their *de* counterparts. This is precisely what we find: extraposing the *de*-phrase and allowing material to intervene between *más* and the restrictor render (45a) below ungrammatical.[13]

(45) [*Context:* a couple of days ago Juan jumped 20 ft.]

a. Pedro saltó más de eso [**ayer por la tarde**]
Pedro jump.PST.3SG more DE DEM.N yesterday at DEF.F.SG evening.F.SG
'Last evening Pedro jumped more than that'

b. *Pedro saltó más [**ayer por la tarde**] de eso

Instead, these configurations are not problematic for *que* cases taking an individual denoting standard, given the greater facility to extrapose CPs across the board.

(46) a. Pedro saltó más que Juan [**ayer por la tarde**]
Pedro jump.PST.3SG more QUE Juan yesterday at DEF.F.SG evening.F.SG
'Last evening Pedro jumped more than Juan'

b. Pedro saltó más [**ayer por la tarde**] que Juan

From a semantic standpoint, the analysis directly captures the difference between comparison to a degree and comparison to an individual. If what I intend to convey is, for instance, that Pedro is taller than some height I explicitly mentioned before, then (5)/(40) must be used in a comparison to a degree construal. Instead, if Pedro is taller than some object that I am pointing at, only a sentence like (6) above can be used to express such comparison (see also the contrasts in (8a) *vs.* (8b), (9) and (13) *vs.* (14)).

We have already calculated the truth-conditions of (5)/(40): the neuter demonstrative pronoun *eso* can refer either to an individual, eso_e or to a degree, eso_d. The presence of *de* signals that a certain comparative marker *más* must be used, $más_{\text{DEGREE}}$, which can only take degrees as its second argument. When the demonstrative pronoun refers to an entity, $más_{\text{CLAUSAL}}$ is required, since eso_e, being of type *e* will not provide the right input to a comparative marker like $más_{\text{DEGREE}}$.[14] This choice comes with a number of consequences. First, the standard must denote a set of degrees. One possible LF is provided below.

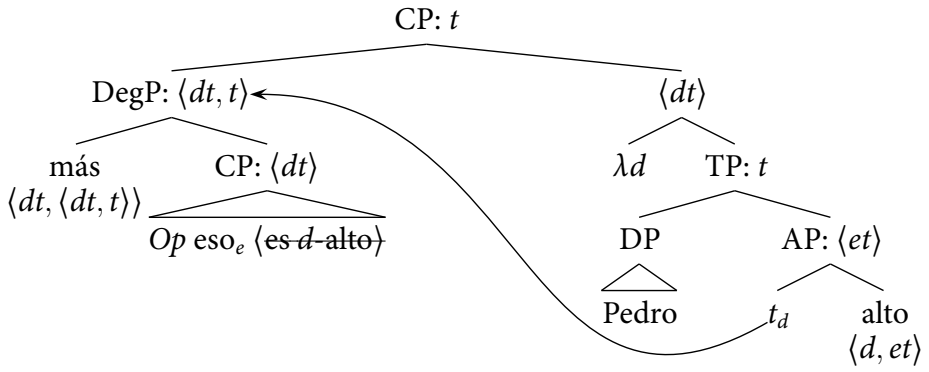
13 Notice that, although PPs may extrapose in certain contexts like (i), this is not allowed when they are embedded within a Degree Phrase, as in additives (ii).

(i) a. Las películas [de tu actor preferido] que me gustan
DEF.F.PL movie.F.PL of your actor.M.SG favorite.M.SG COMP I.DAT like.PRS.3PL
b. Las películas que me gustan [de tu actor preferido]

(ii) a. Más manzanas [de ésas$_e$] que son muy dulces
more apple.F.PL of DEM.F.PL COMP be.PRS.3PL very sweet.PL
b. *Más manzanas que son muy dulces [de ésas$_e$]

14 As mentioned earlier in §4, it is possible that a third different *más* is required for certain phrasal *que* comparatives after all. If so, it is an open question whether the best analysis of (6) involves such third type of standard marker or just $más_{\text{CLAUSAL}}$. The scope data discussed below lends preliminary support for $más_{\text{CLAUSAL}}$.

(47)



The computation proceeds as explained in §5.1 above. The denotation of the CP in the standard is the set of degrees d such that the referent picked by *eso*$_e$ is d-tall. This difference with respect to the *de* case in (5)/(40) captures their semantic difference from *que*, the comparison is always between individuals along some scale, whereas with *de* comparatives, different degrees are compared directly. In order for the CP to arrive at a $\langle dt\rangle$-type denotation, movement of a *wh*-operator within the subordinate clause is required. Since the source of the degree is clausal, material other than *eso*$_e$ could be spelled out, accounting for the fact that *que* comparatives may have more than one remnant (see (21) above).

There is, in addition, a further semantic prediction of the present analysis. In the semantics literature, one can find two types of semantic definitions for the comparative marker: those that require rearrangement at LF and those that do not. For the case of *que* comparatives, we have assumed a classical approach that requires *más* to be mobile, if only for type reasons. In the case of *de*, however, no mobility is predicted, since the lexical entry in tandem with the syntactic geometry allows every piece to be interpreted in-situ. This is shown schematically below.

(48) $\big[_{\text{DegP}}$ [*más*$_{\langle\langle d,et\rangle,\langle d,et\rangle\rangle}$ Gradable-Predicate$_{\langle d,et\rangle}$] [*de* standard]$_d$ $\big]$

Not only can the computation proceed following the surface arrangement, but in fact movement from out of the DegP is not possible without further stipulations: if *más* moved, it would not find any other gradable predicate in the structure to take as its first argument. If the standard moved, the same problem arises: it will not find any predicate of degrees that would take it as an argument; and if the two moved, leaving traces of type d in each case, there would be a type clash with the gradable predicate. Thus, the immediate consequence is that, all else equal, we expect DegP to take low scope with respect to other operators in the sentence (e.g. subjects, sentential negation, intensional verbs, etc.).

For reasons extensively discussed in Rullmann (1995), Kennedy (1997) and Heim (2001) a.o., one must be careful when trying to prove the scopal mobility of comparative markers like *más*.[15] Scope interactions must be tested using either a non-monotonic differential (like *exactly n*) or switching from *more* to the downward-entailing comparative *less*. In those situations, it can be argued that

15 As Kennedy (1997) showed, DegP can never scope beyond a quantificational DP in subject position. This is known as the Kennedy/Heim Constraint: if the scope of a quantificational DP contains the trace of a DegP, it also contains that DegP itself. Moreover, Heim (2001) showed that not every scope ambiguity translates into a truth-conditional ambiguity, making putative scope movements of DegP hard to assess.

DegP interacts with some intensional verbs (example from Heim 2001).

(49) [*Context:* this draft is 10 pages long.] The paper is required to be less long than that.

(50) a. Low DegP require ≫ less
$\forall w' \in Acc(w, w') : \textsc{max}\big(\lambda n : \textsc{long}(paper, n)(w')\big) < 10pp$

b. High DegP less ≫ require
$\textsc{max}\big(\lambda n : \forall w' \in Acc(w, w') : \textsc{long}(paper, n)(w')\big) < 10pp$

The example in (49) is ambiguous: when DegP takes low scope, the sentence has the strong meaning that the paper is not allowed to be as long as 10 pages. If DegP takes high scope, the sentence provides a weaker meaning, namely that the paper is not required to be as long as 10 pages. That is, the paper is shorter than 10 pages in some accessible world, but it could be that it is longer than 10 pages in some other.

In Spanish, too, it is possible to reproduce this ambiguity with *que*.

(51) a. Pedro tiene que saltar menos alto que Juan
Pedro have.PRS.3SG COMP jump.INF less high.ADV QUE Juan
'Pedro must jump less than Juan'

b. ✓ Low DegP require ≫ less
The requirement is that Pedro jumps less high than Juan

c. ✓ High DegP less ≫ require
The minimal height required of Pedro's jump is below Juan's jump

The low scope reading of (51) states that there is an upper bound on the height of Pedro's jump, whereas such restrictions do not come to being if DegP scopes above the intensional predicate. Thus, if Pedro jumps higher than Juan, he will meet the requirements only under the high scope reading of (51), but not under the low scope reading. This is the same weak reading that arises in (50b). (The same ambiguity arises with demonstratives like *eso*$_e$ and *ése*.) Therefore, this constitutes a good test for looking for truth-conditional ambiguities between different scope configurations also in Spanish. In (52) below, the context imposes a weak requirement, namely that Pedro jump some height below what Juan jumped. In this context, utterance of a *de* variant of (51) is odd:

(52) [*Context:* Juan jumped 2" and Pedro must jump at least 1.8"]
Pedro debe saltar menos alto de eso [where ⟦eso⟧ = 2″]
Pedro must.PRS.2SG jump.INF less high DE DEM.N
'Pedro must jump less than that'

The incompatibility of examples like (52) in these contexts provide support for the conclusion that *de* comparatives are scopally inert. In contrast, the ambiguity of examples like (51) show that *que* comparatives do allow DegP movement.

To sum up, this section provided evidence for a characterization of *de* comparatives as not involving complex structure with multiple LF movements, in contrast to garden-variety comparatives with *que*. In fact, every aspect of the derivation of such constructions can be kept minimally simple

just by assuming that the standard of comparison must denote a degree and that it does not have a clausal source. This type of "direct" semantics has been argued to be independently necessary for cases of contextual comparison, which are ubiquitous across languages (Kennedy 2009, Beck et al. 2012). Thus, the analysis accounts for the syntactic limitations of *de* comparatives, and it does so by appealing to a comparative construction that is attested elsewhere. These results are moreover in accordance to the hypothesis put forth earlier in (3), where it was suggested that *de* comparatives are subject to two distinct conditions, one syntactic and one semantic. This analysis is able to capture this intuition and fits well with the general sentiment expressed by in the previous literature, that *de* comparatives are specialized to compare "quantities" directly.

6 Extending the analysis: relative clauses

So far I have presented how the analysis applies to standards of comparison that were *d*-denoting. But this is not immediately obvious with all standards that are compatible with the standard morpheme *de*. As shown in §2, certain relative clause constructions are compatible with *de* comparatives, a fact that has been used in the past to argue for the syntactically clausal nature of their standards (see Plann 1984). From a semantic standpoint, it is also not immediate how such relative clause constructions come to denote definite descriptions of degrees, which is the denotation required by the comparative marker *más* in *de* comparatives if the above analysis is on the right track. The goal of this section is to show that the same analysis can be extended to cases where the standard of comparison is given by a relative clause construction.

6.1 Degree relatives

In order to extend the analysis outlined above to degree relatives we must show that the relevant relative clauses meet the syntactic and semantic criteria laid out in (2): they must be syntactically nominal, and they must denote a definite description of a degree, of type *d*.

There are two kinds of relative clauses that are compatible with *de* comparatives in Spanish: free relatives headed by the degree relative pronoun *cuanto* ("how much") and relative clauses with an elided head.

(11) Pedro pescó más truchas de cuantas pesqué yo
Pedro fish.PST.3SG more trout.F.PL DE how many.F.PL fish.PST.1SG I
'Pedro fished more trouts than me'

(12) Pedro pescó más truchas de las que pesqué yo
Pedro fish.PST.3SG more trout.F.PL DE DEF.F.PL COMP fish.PST.1SG I
'Pedro fished more trouts than me'

Both sentences above yield the same semantic interpretation: the number of trouts fished by Pedro is greater than the number of trouts fished by the speaker. Thus, intuitively at least, both relative constructions seem to refer to degrees–amounts in this case–rather than individuals. This behavior is not unique to Spanish. In English too, relative clause constructions can receive degree interpretations without containing any overt degree morphology, an observation that goes back to Carlson

(1977). When they give rise to these interpretations, the relative clause constructions are commonly referred to as "amount" or "degree" relatives. Consider the following example, from Heim (1987):

(53) It will take us the rest of our lives to drink the champagne they spilled that evening.

The sentence in (53) is ambiguous between an ordinary individual and a degree interpretation. In the first case, the relative clause is interpreted as a run-of-the-mill restrictive relative clause, where the relative clause is intersected with the head *champagne* (Partee 1973), yielding the odd interpretation that involves drinking champagne from the floor. Under its more natural interpretation, however, the sentence refers to the *amount* of champagne that they spilled. This is precisely the degree interpretation of (53). Free relatives are no different in the availability of the individual/degree ambiguity, and they may also range over degrees as well as over individuals. The following is an example from Carlson (1977), where the degree reading is again more salient:

(54) Bill put [$_{CP}$ what things he could] into his pockets

a. DEGREE: Bill put *d*-many objects into his pockets, where *d* is the maximum amount of objects Bill could put into his pockets

b. INDIVIDUAL: For every *x* such that Bill could put *x* into his pockets, Bill put *x* into his pockets

Spanish also displays the same type of ambiguity in the same contexts. For one, ordinary relative clauses are also compatible with degree readings in the general case:

(55) Bebe el vino que bebía antes, es decir…
drink.PRS.3SG DEF.M.SG wine.M.SG COMP drink.PST.3SG before, be.PRS.3SG say.INF
'He drinks the wine he used to drink, that is…'

a. …a lot. DEGREE

b. …Pinot Noir. INDIVIDUAL

Moreover, Spanish also behaves like English in contexts like (54). In the absence of a counterpart to the relative pronoun *what*, the composite form *lo que* must be used, which, like in English, can denote both individuals and degrees. Under the degree interpretation, (56a) is equivalent to (56b) with the quantity relative pronoun *cuanto*.

(56) a. Pedro metió [$_{CP}$ lo que pudo] en sus bolsillos
Pedro put.PST.3SG DEF.N COMP can.PST.3SG in his pockets

b. Pedro metió [$_{CP}$ cuanto pudo] en sus bolsillos
Pedro put.PST.3SG how much.N can.PST.3SG in his pockets

In sum, these examples show that referencing degrees via relative clauses is by no means unique to Spanish. Most analyses of degree relatives resort to degree semantics to account for degree interpretations like these (Grosu and Landman 1998, von Fintel 1999, Herdan 2008, Meier 2015, Mendia 2018 a.o.). The main idea according to this type of analyses is that the relative clause provides a set of degrees: a CP-internal copy of the head of the relative clause is modified by an indefinite determiner

with a semantic interpretation akin to *much/many*, and a *wh*-operator moves at LF creating a degree denoting lambda-abstract. In the case of (53), the result is a set of degrees at CP level, representative of the quantity of champagne that they spilled.

(57) the champagne λd [that they spilled ⟨ *d*-MUCH ~~champagne~~⟩]

In the next section I lay out the syntactic and semantic assumptions that, building up on structures like (57), allow relative clause constructions to denote definite descriptions of degrees.

6.2 Syntactic and semantic housekeeping

SYNTACTIC ASSUMPTIONS Following Sáez del Álamo (1999) and Brucart (2003), I assume that the relative clauses that participate in *de* and *que* comparatives are in fact different. For *de* comparatives, I endorse the idea that [D *que*] constructions constitute free relatives, where the cluster [D *que*] functions as a complex relative pronoun akin to *cuanto* (Real Academia de la Lengua Española 2010), for instance in the following configuration.

(58) $[_{DP}\ [\{\text{D que / cuanto}\}]_1\ [_{RC}\ t_1\ ]\ ]$ [Ott 2011, Cecchetto and Donati 2015]

Comparatives with *que*, instead, take regular headed relative clauses whose head, when missing, has simply been elided; they thus conform to the following geometry:

(59) $[_{DP}\ D\ [_{NP}\ \{\varnothing / NP\}\ [_{CP}\ que\ \ldots]\ ]\ ]$

There are a number of reasons to believe that, despite the string-identity, the two standards combine with different structures. First, only *que* comparatives are freely allowed with both headed and null head relative clauses; *de* comparatives do not easily allow headed relative clauses (but see the discussion in §7.2).

(60) a. *Leyó más libros de los { libros / cuadernos } que
read.PST.3SG more book.M.PL DE DEF.M.PL book.M.PL notebook.M.PL COMP
traje yo
bring.PST.3SG I
'He read more books than the {books / notebooks } that I brought'

b. Leyó más libros que los { libros / cuadernos } que
read.PST.3SG more book.M.PL QUE DEF.M.PL book.M.PL notebook.M.PL COMP
traje yo
bring.PST.3SG I

Second, free relatives do not accept intervening material between the determiner and the complementizer. As indicated by the glosses, sentences like (61a) where a modifier is disrupting the [D *que*] cluster cannot get a comparative interpretation (the only available interpretation is a partitive). In the case of quantity free relatives, further modification of the relative pronoun results in ungrammaticality.

(61) a. Leyó más libros de los { mejores / veinte } que traje yo
read.PST.3SG more book.M.PL DE DEF.M.PL best.PL twenty COMP bring.PST.3SG I
'He read more books of the { best ones / twenty } that I brought'

b. *Leyó más libros de cuantos { mejores / veinte } traje yo

Third, comparatives with *que* are possible also if we replace the definite determiner by any other determiner or demonstrative. This is not possible with *de* comparatives, suggesting that [D *que*] indeed acts as a complex relative pronoun in a free relative, admitting no other constructions.[16] In (62) we have a demonstrative pronoun modified by a relative clause, and only the *que* variant can constitute a comparative construction (the *de* variant can still get a partitive interpretation).

(62) Pedro leyó más libros { que / *de } esos que hay ahí
Pedro read.PST.3SG more book.M.PL QUE DE DEM.M.PL COMP be.PRS.3SG there
'Pedro read more books than those over there'

Thus, I take it that (*i*) [D *que*] clusters behave in every respect like relative pronouns and that (*ii*) relative clauses in *de* comparatives are always free relatives, whereas (*iii*) relative clauses in *que* comparatives are ordinary headed relative constructions with a possibly elided head.

SEMANTIC ASSUMPTIONS Following Jacobson (1995) and Caponigro (2002) I assume that free relatives are semantically equivalent to definite descriptions. In particular, building on Rullmann (1995), I take quantity free relatives to denote maximal entities, i.e., definite descriptions of degrees. I also follow Jacobson (1995) and Caponigro (2004) in assuming that *wh*-words in definite

16 For this reason too, [D *que*] structures cannot be light headed relative clauses, in the sense of Citko (2004). Light headed relatives are relative clause constructions with a semantically "light" lexical head, usually a pronoun or demonstrative. Citko (2004, 98) provides the following example from Polish.

(i) Jan czyta to, co Maria czyta
Jan read.PRS.3SG this what Maria reads
'John reads what Mary reads'

Spanish has similar constructions, formed by a demonstrative and a complementizer, like *esos que* ("these who"), or *aquellos que* ("those whose"). It seems that the kind of relative clauses appearing with *de* comparatives cannot be light headed relatives (see also Ojea 2013). Evidence comes from the [*lo que*] variant of the relative pronoun. One of the hallmarks of light headed relatives is that the demonstrative preceding the complementizer is invariably a pronoun (demonstrative or *wh*). However, *lo* in [*lo que*] constructions cannot be a pronoun, because pronoun *lo* is necessarily [±HUMAN], whereas determiner *lo* is always [−HUMAN]:

(ii) Lo ví
PR.M.S/N saw
'I saw {him/it}'

(iii) Lo bueno
DEF.N good
'The good thing' (*'The good one')

free relatives and in *wh*-interrogatives are the same lexical item and contribute the same semantics in both constructions–as attested by the fact that in Spanish both can be complements of verbs that select for propositional and nominal complements.

Below I sketch one possible way of arriving at this result. The idea is that the relative pronouns *cuanto* and [D *que*] embody the otherwise null operator *Op* which $\overline{A}$-moves to the edge of CP and is interpreted as λ-abstract over degrees.[17] Schematically:

(63) $\big[_{\text{CP}}$ [cuanto / D que]$_i$ λd $[_{\text{TP}}$ NP VP $t_i]$ $\big]$

In the lower position, the quantity relative pronouns *cuanto* and [D *que*] leave a trace of type *d*. This trace combines then with a gradable predicate which can be supplied in one of two ways: by means of a possibly elided adjective, or by means of a silent measurement operator $\textsc{many}_\mu$/$\textsc{much}_\mu$ modifying an NP (Schwarzschild 2006, Rett 2014, Solt 2015 a.o.). The role of the measure function is simply to map entities to degrees, just like a regular gradable predicate. As it was pointed out above in §3, φ-morphology on the relative pronoun correlates with the target of the comparison: if the relative pronoun contains non-neuter φ-features, the comparison can only range over degrees of cardinality (or volume for mass nouns), and so the only dimension that is accessible to $\textsc{much}_\mu$ is quantity. On the other hand, predicative comparatives come with their own gradable predicate and trigger neuter φ-features, thereby precluding the use of $\textsc{many}_\mu$/$\textsc{much}_\mu$.

(35) $[\![\textsc{gp}]\!] = \lambda n_d.\lambda x_e.\mu_{\textsc{gp}}(x) \geq n$ for any gradable predicate GP

(64) a. $[\![\textsc{many}_\mu]\!] = \lambda n_d.\lambda x_e.|x| \geq n$ [count nouns]

b. $[\![\textsc{much}_\mu]\!] = \lambda n_d.\lambda x_e.\mu_{\textsc{volume}}(x) \geq n$ [mass nouns]

Finally, following Rullmann (1995), I assume that a maximality operator MAX extracts the maximal degree from the property of degrees denoted by the CP. To keep derivations short I assume that MAX is introduced by the *wh*-operator itself, as in Rullmann (1995), but see footnote 17. For [D *que*] I generalize the definition so that it can take properties of both individuals and degrees.

(65) $[\![[\text{D } \textit{que}]]\!] = \lambda P_{\langle\sigma,t\rangle}.[\textsc{max}(P(x))]$ where σ is of type *e* or *d*.

The general structure of the relative clause looks as in (66b). The result of the derivation is the maximal degree *d*, such that the number of things *x* that Pedro ate is *d*.

17 For simplicity, I assume that free relatives are bare CPs denoting a property of degrees, which are then "nominalized" by the application of a null D with the semantics of a MAX operator (Rullmann 1995, Caponigro 2002, a.m.o.). Nothing crucial hinges on this assumption. There is a plethora of syntactic approaches to free relatives that get to the same end I will later: that free relatives are interpreted as DPs. For instance, Mendia (2018) proposes a more articulated view where the [D *que*] cluster in free relatives is syntactically decomposed, and the task of the null MAX posited here is carried out by the overt D itself.

(i) a. $[_{\text{DP}}$ $\text{D}_\varnothing$ $[_{\text{CP}}$ $[_{\text{DP}}$ cuanto $]_i$ $[_{\text{C}^\circ[+\text{REL}]}$ $\varnothing$ $[_{\text{TP}}$ …t_i …]]]]

b. $[_{\text{DP}}$ lo $[_{\text{CP}}$ $[_{\text{DP}}$ Op_{wh} $]_i$ $[_{\text{C}^\circ[+\text{REL}]}$ que $[_{\text{TP}}$ …t_i …]]]]

As long as both construction are treated as free relatives denoting a maximal degree, the difference is not important for us.

(66) a. Juan comió más bombones de los que Pedro comió
Juan eat.PST.3SG more bonbon.M.PL DE DEF.M.PL COMP Pedro eat.PST.3SG

b. $\left[_{\text{CP}}\ [\textit{los que}]\ \lambda d\ [\ \exists\ [_{\text{TP}}\ \text{Pedro ate}\ [_{\text{DP}}\ \text{t}_d\ \textsc{many}_\mu\ \langle\sout{\text{bonbons}}\rangle\ ]\ ]\ ]\ \right]$

c. $[\![\text{CP}]\!] = \textsc{max}\big(\lambda d.\exists x[\mathit{ate}(\mathit{Pedro}, x) \wedge \mathit{bonbons}(x) \wedge |x| \geq n]\big)$

The object in the subordinate clause must undergo Comparative Deletion, which is known to be different from ordinary elliptical processes in that it is not optional (see Lechner 2001 and Kennedy 2002 for discussion). With this background we are ready to spell out the analysis of *de* comparatives when they take a relative clause as the standard of comparison.

6.3 *Degree Relatives in comparative constructions*

The derivation of a predicative case proceeds exactly as we saw in §5.2. Take a sentence like (67).

(67) Pedro es más alto de lo que tú eres
Pedro be.PRS.3SG more tall.M.SG DE DEF.N COMP you be.PRS.3SG
'Pedro is taller than you are'

First, the subordinate clause provides a degree as explained above. The LF of the free relative is represented in (68), its denotation is calculated in (69). In this case, the measure function in the subordinate clause is set to the dimension of height.[18]

(68) $[_{\text{RC}}\ [_{\text{DP}_1}\ \text{lo que}]\ [_{\lambda\text{P}}\ \lambda d\ [_{\text{TP}_1}\ \text{tú}\ [_{\text{T'}_1}\ \text{eres}\ [_{\text{AP}_1}\ \text{t}_d\ \langle\sout{\text{alto}}\rangle]]]]]$

(69) a. $[\![\text{AP}_1]\!] = \lambda x.\mu_{\text{HEIGHT}}(x) \geq n$

b. $[\![\text{TP}_1]\!] = \mu_{\text{HEIGHT}}(\mathit{you}) \geq n$

c. $[\![\lambda\text{P}]\!] = \lambda n.\mu_{\text{HEIGHT}}(\mathit{you}) \geq n$

d. $[\![\text{RC}]\!] = \textsc{max}(\lambda n.\mu_{\text{HEIGHT}}(\mathit{you}) \geq n)$

The rest of the computation proceeds as described for the simplex cases in §5.2. The full syntactic structure is represented (70), its final truth-conditions calculated in (71).

(70) $[_{\text{TP}_2}\ \text{Pedro}\ [_{\text{T'}_2}\ \text{es}\ [_{\text{DEGP}}\ [_{\text{DEG'}}\ \text{más alto}\ ]\ [_{\text{PP}}\ \text{de (68)}\ ]]]]$

(71) a. $\lambda n'.\lambda x.\textsc{max}\big(\lambda n.\mu_{\text{HEIGHT}}(x) \geq n\big) > n'$

b. $[\![\text{DegP}]\!] = \lambda x.\textsc{max}\big(\lambda n.\mu_{\text{HEIGHT}}(x) \geq n\big) > [\![\text{RC}]\!]$

18 The full derivation should include an assignment function to properly interpret the trace left behind by the relative pronoun, as well as the pronoun *you*. For simplicity, the trace is taken to contribute the degree that would otherwise be picked by said assignment function, and the correct representation of the pronoun is omitted.

c. $[\![\text{TP}_2]\!] = \textsc{max}\big(\lambda n.\mu_{\textsc{height}}(\textit{Pedro}) \geq n\big) > [\![\text{RC}]\!]$
$= \textsc{max}\big(\lambda n.\mu_{\textsc{height}}(\textit{Pedro}) \geq n\big) > \textsc{max}\big(\lambda n\,.\,\mu_{\textsc{height}}(\textit{you}) \geq n\big)$
$= 1$ *iff Pedro is taller than you*

These are the right truth-conditions: they simply state that Pedro's maximal height exceeds yours.

Consider now instead the case of attributive comparatives like (72).

(72) Pedro comió más manzanas de las que Juan trajo
Pedro eat.PRS.3SG more apple.F.PL DE DEF.F.PL COMP Juan bring.PST.3SG
'Pedro ate more apples than apples brought Juan'

There are two main differences between attributive and predicative comparatives. The first difference is that, unlike in predicative cases, the comparative marker *más* in (72) cannot directly combine with its restrictor, since nouns are not of a suitable type–they are not gradable predicates. To solve this problem, I assume that nominals come with a silent Measure Phrase, where the head denotes a function MEAS that relates an individual to a degree, in that order (e.g. Solt 2015; note that MEAS and $\textsc{many}_{\mu}$ are curried differently).

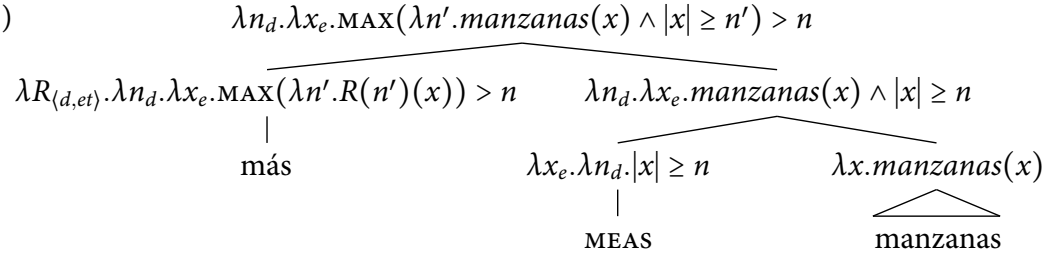
(73) $[\![\textsc{meas}]\!] = \lambda x_e.\lambda n_d.|x| \geq n$

The function MEAS and the NP cannot yet combine, since their types do not match ($\langle e, dt\rangle$ and $\langle et\rangle$ respectively). Moreover, the motivation for introducing MEAS is to create a gradable predicate, and so the resulting phrase [MEAS NP] must be of type $\langle d, et\rangle$; that is, existentially closing the NP will not do. The problem is solved by appealing to the mode of composition Degree Argument Introduction, suggested and independently motivated by Solt (2015):[19]

(74) *Degree Argument Introduction (DAI)*:
If α is a branching node, $\{\beta, \gamma\}$ are the set of α's daughters, and $[\![\beta]\!] = \lambda x_e.P(x)$, $[\![\gamma]\!] = \lambda x_e.\lambda n_d.Q(n)(x)$, then $[\![\alpha]\!] = \lambda n_d.\lambda x_e.P(x) \wedge Q(n)(x)$.

The mode of composition DAI is reminiscent of Variable Identification (Kratzer 1996), except the argument targeted for composition in this way–the individual argument–is demoted to the second position in the lambda prefix. The semantic computation of *más* and its restrictor is illustrated below.

(75)



19 A second option is to provide two different of definitions MEAS, an attributive and a predicative version.

(i) a. $[\![\textsc{meas}_{\textit{attributive}}]\!] = \lambda P_{\langle et\rangle}.\lambda n_d.\lambda x_e.P(x) \wedge |x| \geq n$
b. $[\![\textsc{meas}_{\textit{predicative}}]\!] = \lambda n_d.\lambda x_e.|x| \geq n$

The second difference with respect to predicative comparatives is the treatment of the object which, being of type $\langle et \rangle$, cannot serve as argument to a transitive verb. I argue that rather than providing an argument to the verb, these objects semantically restrict its denotation: instead of the verb taking the object as its argument via Functional Application, they combine via Restrict (Chung and Ladusaw 2004).

(76) $\textsc{Restrict}\left([\lambda x_\sigma.\lambda y_\sigma.P_{\langle\sigma,\sigma t\rangle}(y,x)],\ \lambda z_\sigma.Q_{\langle\sigma t\rangle}(z)\right) = \lambda y_\sigma.\lambda x_\sigma.P(y,x) \wedge Q(x)$

This mode of composition has three main properties: (*i*) it identifies the first two *e*-type variables in the two expressions (x and z above), (*ii*) it does not saturate the argument slot of the verb and (*iii*) and it demotes the lambda term corresponding to the modified argument to the last position. As a result, after combining with the object, a transitive VP will not denote an $\langle et \rangle$ function; it will still be of type $\langle e, \langle et \rangle \rangle$, but the order of the arguments in the lambda prefix will have switched with respect to the original denotation of V.

There is independent motivation for Restrict. Nominals combining via Restrict show a number of properties. First, they take lowest scope with respect to other sentential operators (e.g. McNally 2004). In §5.3 we saw that this was the case for simplex *de* comparatives and below in §6.4 we will see that this is the case as well for *de* comparatives taking degree relatives. Thus, this immediately rules out resolving the offending type mismatch by appealing to scope-shifting type shifters, such as *A* (Partee 1987) and, in general, any operation requiring Quantifier Raising.[20]

The second argument for Restrict is that only nominals combining via Restrict are compatible with existential constructions with the copulative verb *haber*. As López (2012) shows, NPs with either definite or indefinite determiners are ungrammatical as complements to *haber*, and so these objects must be semantically incorporated to the verb (note the *unos* variant is grammatical with a locative coda).

(77) *Hay { los / unos } hombres
COP.PRS.3SG DEF.M.PL INDF.M.PL man.M.PL
'There are men'

Comparatives as well as degree relatives are grammatical in these contexts, suggesting that Restrict may be the main mode of composition in such cases.

(78) a. Hay más manzanas de las que Juan trajo
COP.PRS.3SG more apple.F.PL DE DEF.F.PL COMP Juan bring.PST.3SG
'There are more apples than the apples that Juan brought'

20 One could opt for other valency-reducing operations, but the choice requires further justification than I can offer here. For instance, one could adopt the type-shifter *nom* (or "$\cap$") from Dayal (2013) (based on Chierchia 1984). In Chierchia's system *nom* is the operation involved in transforming common nouns like *dog* into their bare plural form *dogs*. The type-shifter, however, maps properties onto their entity-correlates only if these exist. It is a matter of debate whether such entity-correlates exist for predicates like $\lambda x_e.|x| \geq n$ (see Moltmann 2013, §6). For an objection against the *iota* type-shifter, see footnote 22.

b. Hay las manzanas que Juan trajo el año pasado
COP.PRS.3SG DEF.F.PL apple.F.PL COMP Juan bring.PST.3SG DEF.M.SG year past
'There is the (same) amount of apples than Juan brought last year'

Now everything is in place to provide an analysis of (72). The LF of the free relative is as in (79), its derivation proceeds as in (80). By adopting Restrict, we allow the semantic computation to proceed as if the object slot of the predicate were saturated, when in fact it is not. Existential closure at the TP level closes the remaining unsaturated argument slot, bringing the valency of the predicate to zero.[21]

(79) $[_{\text{RC}}\ [_{\text{DP}_3}\ \text{las que}]\ [_{\lambda\text{P}}\ \lambda d\ [_{\text{TP}_2}\ \exists\ [_{\text{TP}_1}\ \text{Juan}\ [_{\text{T'}_1}\ \text{trajo}\ [_{\text{DP}_1}\ \text{t}_d\ \text{MANY}_\mu\ \langle\text{~~manzanas~~}\rangle]]]]]]$

(80) a. $[\![\text{DP}_1]\!] = \lambda x.manzanas(x)\ \wedge\ |x| \geq n$ by FA

b. $[\![\text{T'}_1]\!] = \lambda z.\lambda y.trajo(z,y)\ \wedge\ manzanas(y)\ \wedge\ |y| \geq n$ by RESTRICT

c. $[\![\text{TP}_1]\!] = \lambda y.trajo(Juan,y)\ \wedge\ manzanas(y)\ \wedge\ |y| \geq n$ by FA

d. $[\![\text{TP}_2]\!] = \exists y[trajo(Juan,y)\ \wedge\ manzanas(y)\ \wedge |y| \geq n]$ by EC

e. $[\![\lambda\text{P}]\!] = \lambda n.\exists y[trajo(Juan,y)\ \wedge\ manzanas(y)\ \wedge\ |y| \geq n]$ by PA

f. $[\![\text{RC}]\!] = \text{MAX}\big(\lambda n.\exists y[trajo(Juan,y)\ \wedge\ manzanas(y)\ \wedge\ |y| \geq n]\big)$ by FA

As before, the standard denotes a maximal degree. The rest of the derivation proceeds as expected. The nominal restrictor combines by DAI with the silent predicate MEAS to form a gradable predicate, that is then taken by the comparative marker as argument. Then, DegP restricts the denotation of the verb.[22]

(81) $[_{\text{TP}_4}\ \exists\ [_{\text{TP}_3}\ \text{Pedro}\ [_{\text{T'}_3}\ \text{comió}\ [_{\text{DEGP}}\ [_{\text{DEG'}}\ \text{más}\ [_{\text{MP}}\ \text{MEAS manzanas}]]\ [_{\text{RC}}\ \text{de (79)}\ ]]]]]$

(82) a. $[\![\text{MP}]\!] = \lambda n.\lambda x.manzanas(x) \wedge |x| \geq n$ by DAI

b. $[\![\text{Deg'}]\!] = \lambda n''.\lambda z.\text{MAX}(\lambda n'.manzanas(z) \wedge |z| \geq n') > n''$ by FA

(83) a. $[\![\text{DegP}]\!] = \lambda z.\text{MAX}(\lambda n'.manzanas(z) \wedge |z| \geq n') > [\![\text{RC}]\!]$ by FA

b. $[\![\text{T'}_3]\!]$ by RESTRICT
$= \lambda y.\lambda x.comió(y,x)\ \wedge\ \text{MAX}(\lambda n'.manzanas(x) \wedge |x| \geq n') > [\![\text{RC}]\!]$

21 For simplicity, I will only represent the existential quantifier when it is required to close the argument left open by Restrict. I am also ignoring other aspects that are irrelevant for comparatives, such as V to T movement. I assume the familiar operations of Functional Application (FA), Predicate Abstraction (PA) and Existential Closure (EC), as spelled out in Heim and Kratzer (1998); I note them by each line for readability.

22 If we were to close the DegP with ι in order to avoid applying Restrict, the resulting truth conditions would be of the form *ate*(*Pedro*, $\iota x[\ldots x \ldots]$). These truth-conditions incorrectly require the existence of some *specific unique* set of apples that are greater in number to the apples that Juan brought, such that Pedro ate *those* apples. The truth-conditions, however, are too strong, as there need not be any specific or unique set of apples: any one set of apples that Pedro ate would suffice to render (72) true as long as the cardinality of the set is sufficiently big.

c. $[\![\text{TP}_3]\!]$ by FA
$= \lambda x.comió(Pedro, x) \ \wedge \ \text{MAX}(\lambda n'.manzanas(x) \wedge |x| \geq n') > [\![\text{RC}]\!]$

d. $[\![\text{TP}_4]\!]$ by (80f) & EC
$= \exists x[comió(Pedro, x) \wedge \text{MAX}(\lambda n'.manzanas(x) \wedge |x| \geq n') >$
$\text{MAX}(\lambda n.\exists y[trajo(Juan, y) \wedge \ manzanas(y) \ \wedge |y| \geq n] \ )]$

The resulting truth-conditions correctly claim the existence of some apples that Pedro ate in an amount greater to the amount of (different) apples that Juan ate.

6.4 Assessment

Like before, the analysis successfully derives the fact that *de* comparatives cannot express comparison to an individual. The standard *de* can only combine with objects denoting a definite degree, and so the construction is only compatible with a small number of standards.

There are other welcome semantic consequences, as well. A first consequence is the prediction that, without further stipulations, scope interactions between DegP and other operators should not be expected. Like in the cases discussed in §5.2, this is what we find. In (51) above we showed that a *que* comparative taking an individual denoting standard is ambiguous in the same way as reported for English in Heim (2001). In the case of *de* comparatives, this ambiguity is not present: (84a) cannot be used to express the weak claim that the jump does not need to be higher than Juan's height; it can only mean that the jump is required to be less high than Juan.

(84) a. El salto debe ser menos alto de lo que
DEF.M.SG jump.M.SG must.PRS.3SG be.INF less high.M.SG DE DEF.N COMP
mide Juan
measure.PRS.3SG Juan
'The jump must be less high than Pedro's height'

b. ✓ LOW DEGP
The requirement is that the jump is not as high as Juan's height

c. ✘ HIGH DEGP
The minimum height of the jump does not have to be as high as Juan

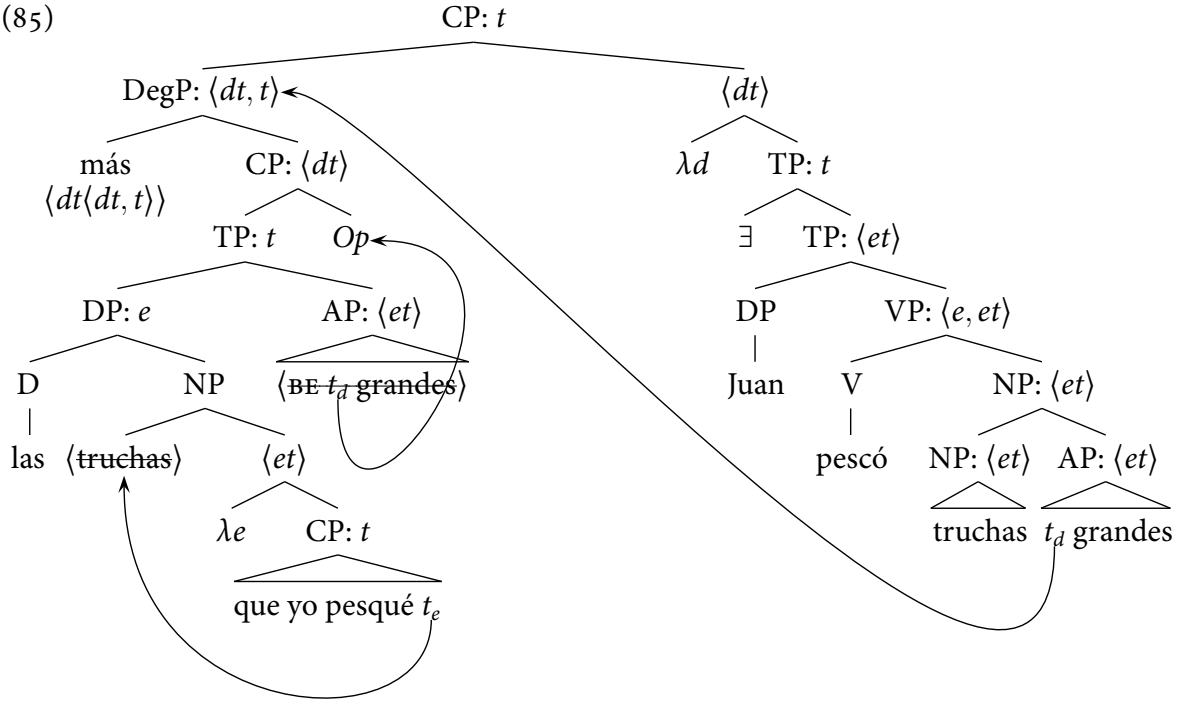
These facts are in line with the use of Restrict as the main mode of composing Degree Phrases with verbal predicates in *de* comparatives.

A second welcome prediction is that the contrast in (13) is captured.

(13) Pescó truchas más grandes { que / *de } las que pesqué yo
fish.PST.3SG trout.F.PL more big.F.PL QUE DE DEF.F.PL COMP fish.PST.1SG I
'(She) fished bigger trouts than I did'

Let us first clarify how the derivation of (13) proceeds with *que*. This is possible with our current assumptions about *que* comparatives by applying a number of LF movements (as in, e.g., Beck 2011).

(85)



The truth-conditions derived for (85) are the following, which seem to be in place:

(86) $[\![(13)_{\text{QUE}}]\!] = \exists x[pescó(Juan, x) \wedge truchas(x) \wedge \text{MAX}(\lambda n.\mu_{\text{SIZE}}(x) \geq n) > \text{MAX}(\lambda n'.\exists y[pescó(yo, y) \wedge truchas(y) \wedge \mu_{\text{SIZE}}(y) \geq n'])]$

As argued before, *que* comparatives do not involve free relatives, but headed relatives with a sometimes silent head. In the example above, the denotation of the standard corresponds to the set of degrees d such that I fished d-sized trouts. This is a good input for the clausal comparative marker in (37a), but it is unusable for the degree comparative marker in (42), as required by *de* comparatives.

The current analysis provides a new insight for the ungrammaticality of (13) in terms of semantic ill-formedness. Recall that non-neuter φ-morphology on the relative pronoun requires the selection of the silent measuring operator MANY_{μ}, which in turn maps entities to cardinalities. As a consequence, when the standard of the comparison is introduced by a relative pronoun showing plural morphology, the dimension of the measuring operator is set to quantity. What this means is that in (13), the *de*-variant would involve comparison across two dimensions–size and quantity.

(87) $[\![(13)_{\text{DE}}]\!] = \exists x[pescó(Juan, x) \wedge truchas(x) \wedge \text{MAX}(\lambda n.\mu_{\text{SIZE}}(x) \geq n) > \text{MAX}(\lambda n'.\exists y[pescó(yo, y) \wedge truchas(y) \wedge |y| \geq n'])]$

This is a case of incommensurable comparison, that is, a comparison constructed from gradable predicates that measure along distinct dimensions. Given our semantic assumptions, degrees can only be compared if and only if they belong to the same scale, so that they can be ordered with respect to each other. It is therefore impossible to carry out a comparison between degrees that belong in different dimension because they are not ordered, rendering them incomparable. This kind of ban on incommensurability is "a signature property" of ordinary comparatives (Morzycki 2011). If incommensurable comparison is not allowed in natural languages (outside, perhaps, of

metalinguistic comparatives), the ill-formedness of (13) with *de* does not come as a surprise. Further evidence for incommensurability comes from the fact that phrasal attributive comparatives with *de* are possible, at least for some speakers, if the noun modified by the numeral is a measure noun that relates to the same dimension of the restrictor. The kind of adjectives these constructions allow is quite limited, since the dimension of the noun has to belong to the same dimension of the gradable predicate (e.g., "long" and "meters" in the dimension LENGTH, "heavy" and "kilos" in the dimension WEIGHT, etc.); otherwise the construction is not possible.

(88) a. Una caja más larga de un { metro / *sofa }
INDF.F.SG box.F.SG more long.F.PL DE one meter couch
'A box longer than one {meter / *couch}'

b. Una piedra más pesada de dos { kilos / *personas }
INDF.F.SG stone.F.SG more heavy.F.SG DE two kilos people
'A stone heavier than 100 {kilos / *people}'

The same constructions are not freely available with a noun in the restrictor position, and although rare they are not completely unattested. The following are two such cases.

(89) a. Se halla a muchísima más distancia de tres dias de viaje
REFL be.PRS.3SG to very much more distance.F.SG DE three days of journey
'It is much further than a three days' journey'

b. El helicóptero puede llevar más peso de cinco toneladas
DEF.M.SG helicopter.M.SG can.PST.3SG carry.INF more weight.M.SG DE five tons
'The helicopter can carry more weight than (just) five tons'

The following examples show a similar case. Here *de* comparatives appear with a headed relative clause where the head refers directly to the scale that the adjective is interpreted in (as in "fast" and "speed", etc.). This type of examples are also rare, but not unattested.

(90) a. Conducía más rápido de la velocidad que estaba
drive.PST.IMPFV.3SG more fast.ADV DE DEF.F.SG speed.F.SG COMP be.PST.IMPFV.3SG
permitida
allow.PTCP.F.SG
'She was driving faster than the speed limit that was allowed'

b. Fue más caro del precio que pedía el
be.PST.PRF more expensive.M.SG DE.DEF.M.SG price.M.SG COMP ask.PST.IMPFV DEF.M.SG
fabricante
manufacturer.M.SG
'It was more expensive than the price that the manufacturer was asking'

Thus, what looked like a syntactic restriction on *de* comparatives is here derived as a semantic restriction, as a ban on cross-dimensional comparison.[23]

7 Extensions and further issues

If the present analysis is on the right track, then Spanish *de* comparatives involve a special type of comparison which is subject to both syntactic and semantic restrictions. In this section, I discuss where within the cross-linguistic landscape of comparative constructions *de*-comparatives may be placed. Before closing, I will also point to some further issues that arise as a consequence of my analysis.

7.1 Cross-linguistic significance

The combination of syntactic and semantic well-formedness conditions Spanish *de*-comparatives are subject to points to a hitherto unnoticed locus of cross-linguistic variation. With respect to the typology of standard morphemes, the literature so far has taken the main axis of cross-linguistic variation to be syntactic. For languages that display more than one standard morpheme it has been argued that the choice depends solely on the phrasal *vs.* clausal nature of the standard; i.e. on its syntactic size. This is the case for Greek (Merchant 2009), Russian (Pancheva 2006) and Hungarian (Wunderlich 2001), a.o. The distinguishing property of these languages is that they syntactically discriminate between true phrasal comparatives and reduced clausal comparatives: in true phrasal comparatives, the standard is nominal, a DP, whereas in reduced comparatives all the material from the CP in the standard is removed, except the DP that is being compared to its associate. In languages like the ones mentioned above, reduced clausal comparatives differ from phrasal comparatives in the DP standard, whose case marking reveals its true clausal nature and, crucially, on the standard morpheme. Below in (91) I illustrate with Hungarian (examples from Wunderlich 2001).

(91) a. *Phrasal comparative*
Anna érkedes-ebb volt [Péter-nél]
Anna interesting-more was Peter.ADESS
'Anna was more interesting than Peter'

23 A further contrast between *de* and *que* comparatives involves the ability to host expletive negation (Sánchez López 1999, Aranovich 2007):

(i) Juan era antes más simpático que (no) ahora
Juan be.PST.3SG before more nice.M.SG QUE not now
'Before Juan was nicer than now'

(ii) Juan era antes más simpático de lo que (*no) es ahora
Juan be.PST.3SG before more nice.M.SG DE DEF.N COMP not

The source of the contrast seems to be syntactic since the expletive negative particle *no* is, by definition, not interpreted. Thus, the current analysis would be compatible with an account where the selectional restrictions of the preposition play a role in the distribution of negative expletives.

b. *Reduced clausal comparatives* (cf. (91c))
Anna érkedes-ebb mint [Péter]
Anna interesting-more than Peter
'Anna was more interesting than Peter'

c. *Clausal comparative*
Anna érkedes-ebb mint [a-milyen érdekes Péter volt]
Anna interesting-more than REL.WHAT.KIND interesting Peter was
'Anna was more interesting than Peter was'

In languages with a single standard morpheme, phrasal and reduced clausal comparatives, if available, are surface-identical (cf. English).

Spanish is Hungarian-like in that more than one standard morphemes coexist within a single language.[24] The difference between *de* and *que* comparatives in Spanish, however, does not track the differences found in languages like Hungarian. Even though *de* comparatives are always phrasal, it is not possible to form just any phrasal comparative with *de* (see §4). As was argued earlier, the restriction on the kind of standards that *de* comparatives admit is partially established by certain semantic criteria as well: concretely, the standard of the comparison must denote a definite description of a degree. To my knowledge, none of the languages previously discussed in the comparatives literature have been noted to impose a semantic restriction that the comparison be to a degree.

That said, there are reasons to believe that such semantic restrictions are not exclusive to Spanish. An interesting comparison point for Spanish *de*-comparatives might a type of clausal comparative in Japanese. Japanese, like English, has two constructions that, on the surface at least, seem to reflect a phrasal/clausal distinction (examples from Sudo 2015).

(92) a. *Phrasal comparative*
John-wa [Mary] –yori kasikoi
John.TOP Mary –than smart
'John is smarter than Mary'

b. *Clausal comparative*
John-wa [Mary-ga kitaisita] –yori kasikoi
John.TOP Mary.NOM expected –than smart
'John is smarter than Mary expected'

Observing that Japanese clausal comparatives in (92b) do not quite behave like English run-of-the-mill clausal comparatives (see Beck et al. 2004 and Sudo 2015 for discussion), recent studies (Hayashishita 2009, Bhatt and Takahashi 2011, Shimoyama 2012) have claimed that Japanese clausal comparatives motivate a new kind of clausal comparative. Other authors (Beck et al. 2004, Oda

24 In this respect, Spanish should be added to the list of languages that lend support to recent claims that genuinely phrasal comparatives do exist in natural languages (cf. Bhatt and Takahashi 2011 on Hindi-Urdu). Moreover, as shown by Beck et al. (2010), Bhatt and Takahashi (2011) and others, different semantics for the comparative markers make different predictions about the kind of interpretations that we might expect from each comparative construction, as it has also been shown to be the case in this paper.

2008, Kennedy 2009, Sudo 2015) have argued instead that Japanese clausal comparatives show properties characteristic of complex DP constructions, treating the complement of *yori* as a DP rather than a CP. For instance, Sudo (2015) argues that the underlying structure of so-called clausal comparatives like (92b) contains a hidden nominal that is deleted under identity conditions.

(93) John-wa [Mary-ga kitaisita **kasikosa**] –yori **kasikoi** [cf. (92b)]
John.TOP Mary.NOM expected smartness –than smart
'John is smarter than the smartness Mary expected'

Sudo (2015) attributes the ungrammaticality of certain comparative constructions in Japanese to the fact that none of the possible underlying structures are grammatical themselves. That is, a clausal comparative like (94) is argued to be grammatical because one of the underlying phrasal comparatives, namely (95a), which involves a measure noun, is acceptable.

(94) John-wa [Bill-ga manga-o yonda] –yori takusan shoosetsu-o yonda
John.TOP Bill.NOM comic.ACC read –than many novel.ACC read
'John read more novels than Bill read comics'

(95) a. John-wa [Bill-ga manga-o yonda **ryoo**] –yori takusan shoosetsu-o yonda
John.TOP Bill.NOM comic.ACC read amount –than many novel.ACC read
'John read more novels than the amount of comics that Bill read'

b. *John-wa [Bill-ga manga-o yonda **shoosetsu**] –yori takusan shoosetsu-o
John.TOP Bill.NOM comic.ACC read novel –than many novel.ACC
yonda
read
Intended: 'John read more novels than the novels that Bill read comics'

The rationale of this analysis resembles the explanation we offered above for examples like (88)–(90). In both cases, these DPs involve degree/measure nouns, nouns that are intrinsically related to some scale (like the nouns *amount, size, height, weight* etc.). Although Sudo (2015) does not provide a semantic analysis of the Japanese facts, he does provide good syntactic evidence that the hidden nominal must be present. Thus, Japanese provides at least one case where the well-formedness of a comparative construction relies on both syntactic and semantic considerations; in the best case scenario, the analysis provided here may apply there as well.[25]

7.2 Odd ends

As is well known, comparatives with *de* do not easily allow comparison between quantities of two different objects. This is reflected by the impossibility of forming *de* comparatives with headed relative clauses as standards, a restrictions which is sometimes referred to as the Single Sortal requirement.

25 Ultimately, everything hinges on (*i*) the DP status of Japanese comparatives like (92b) and on (*ii*) being able to ascribe a *d*-type denotation to headed relative clauses in Japanese. An in-depth exploration of the connection between Spanish *de* comparative constructions and Japanese *yori* clausal comparatives will have to wait, however, until a future occasion.

(96) *Pedro pescó más truchas de las sardinas que pesqué yo
Pedro fish.PST.3SG more trout.F.PL DE DEF.F.PL sardine.F.PL COMP fish.PST.1SG I
'Pedro fished more trouts than I fished sardines'

The main issue with (96) comes from the contradictory evidence in the literature with respect to whether the Single Sortal requirement applies across the board. While the ungrammaticality of (96) is uncontroversial, sentences where the head is present but identical to the restrictor of the comparative marker are acceptable for some speakers, as illustrated by the following pair of conflicting judgements from Sáez del Álamo (1999, 1133) and Gutiérrez Ordóñez (1994a, 38) respectively.

(97) a. Me vinieron este año más desgracias de las
1SG.DAT come.PST.3PL DEM.M.SG year.M.SG more misfortune.F.PL DE DEF.F.PL
desgracias que he soportado en toda mi vida.
misfortune.F.PL COMP AUX.PRS.1SG endure.PTCP in all my life
'This year I have suffered more misfortunes that all the misfortunes I have endured in my whole life.'

b. *Compré más libros de los libros que compraste tú
buy.PST.1SG more book.M.PL DE DEF.M.PL book.M.PL COMP buy.PST.3SG you
'I bought more books than the books you bought'

It is difficult to determine what lies behind this variability. The present analysis rules out (96) in the syntax, by assuming that the sentence contains a free relative, which are headless by nature. If so, it could be that the different behavior of the cases in (97) reflects simply a preference for NP-ellipsis, in that some speakers are more accepting of lack of elision where it would ordinarily happen. In such case, we might expect these speakers to be more charitable with overtness in other similar environments, e.g. with comparative deletion. However, the issue is further confounded by the fact that *cuanto* and [D *que*] clusters can be relative pronouns as well (see §6.2). This type of syntactic rationale would explain the ungrammaticality of (96) and (97b), but is at odds with the grammaticality of (97a).

One could alternatively think that the ill-formedness of (96) is not syntactic, but semantic. For comparison, recall (90b), a case where *de* comparative appears with a headed relative clause whose head refers directly to the same scale of the adjective.

(90b) Fue más caro del precio que pedía el
be.PST.PRF more expensive.M.SG DE.DEF.M.SG price.M.SG COMP ask.PST.IMPFV DEF.M.SG
fabricante
manufacturer.M.SG
'It was more expensive than the price that the manufacturer was asking'

The same kind of configuration obtains with so-called Degree Neuter Relatives, formed by a modi-

fied gradable predicate and the neuter definite determiner *lo* (cf. (33) and (34) above).[26]

(98) La mesa es más larga de lo ancha que es
DEF.F.SG table.F.SG be.PRS.3SG more long.F.SG DE DEF.N wide.F.SG COMP be.PRS.3SG
la puerta
DEF.F.SG door.F.SG
Lit.: 'The table is longer than how wide the door is'

In view of the ill-formedness of (96) and the availability of examples like (90b) (repeated above) and (98), it would seem that what *de* comparatives require is not so much a certain kind of relative clause construction, but a semantic condition that both the restrictor of *más* and the standard denote in the same dimension–as this effectively allows the two degrees to be ordered with respect to each other and avoid issues of incommensurable comparison. If so, the ill-formedness of (96) would follow from the fact that "quantities of trouts" and "quantities of sardines" belong to different scales, whereas (90b)/(98) simply establish a comparison between different degrees in the same scale, along the dimensions of speed and distance. Then, the rarity of cases like (90b)/(98) could derive from the fact that noun-adjective and adjective-adjective pairs referring to the same scale (e.g. 'speed'/'fast' and 'width'/'length') are themselves scarce. The problem with this semantic explanation is, of course, that the ungrammaticality of (97b) is left unexplained.

The resulting state of affairs is one where, either way, one of the two sentences in (97) is left unexplained. Moreover, choices of one or other strategy comes with consequences that deserve more discussion than space limitations permit here, so I will leave these questions open.[27]

A final issue that this paper is leaving open pertains the semantic contribution of the two comparative markers. In accordance to the vast majority of the literature, I have assumed throughout that *que* and *de* are semantically vacuous. Because of this choice, the unique compatibility of *de* with $más_{\text{DEGREE}}$ is a matter of a two step process: first the preposition *de* c-selects for a nominal complement which, in turn, denotes a definite description of degrees and thus can only provide a suitable input for $más_{\text{DEGREE}}$, but not $más_{\text{CLAUSAL}}$. A similar reasoning accounts for the unique compatibility of the *que* standard morpheme with $más_{\text{CLAUSAL}}$. Nevertheless, recent works in the literature have suggested that *than* in English should be in fact interpreted (cf. Alrenga et al. 2012, Alrenga and Kennedy 2014, Wellwood 2015). From a cross-linguistic perspective, this is certainly a promising venue: as Alrenga et al. (2012) emphasize, languages that morphologically mark a phrasal/clausal distinction usually do so by means of different standard morphemes, and yet assuming that these morphemes are semantically vacuous forces us to have ambiguous comparative markers whose different exponents are never reflected morphologically. On the other hand, assuming that *que* and *de* are semantically bleached is better understood from the perspective of their syntactic distribution, and thus tailoring their semantic to operate on degree constructions would lead to systematic

26 What is important to know about Degree Neuter Relatives for our current purposes is that they are nominal (e.g. Rivero 1981, Bosque and Moreno 1990) and denote degrees (e.g. Gutiérrez-Rexach 1999, 2014). Their exact internal composition is still a matter subject to discussion and I will not discuss it here (but see Mendia 2018).

27 For instance, a syntactic account of the ill-formedness of (96) would additionally have to explain why (90b), with a measure noun, is acceptable. Similarly, the semantic account faces the non-trivial task of explaining why "quantities of trouts" and "quantities of sardines" belong to different scales since, after all, this type of comparisons are ubiquitous, not only in Spanish, but across languages.

ambiguities in this respect. The question remains open, and my hope is that the results reported in this paper will help future work on the division of labor between comparative markers and standard morphemes.

8 Conclusion

This paper examined two types of comparative constructions in Spanish, differentiated on the surface by the morpheme that introduces the standard of comparison. This standard morpheme can either be the complementizer *que* ("that") or the preposition *de* ("of" or "from"). The main descriptive difference between the two standard morphemes is the highly restricted distribution of *de* when compared to *que*. It was argued that (*i*) comparatives introduced by *de* always express comparison to a degree, and so, the standard of comparison is always, in all these cases, an object whose denotation must be of type *d*; and (*ii*) *de* comparatives can only take nominal standards (DPs, Number/Measure Phrases), and so they always constitute phrasal comparatives. A formal analysis was provided that captured these generalizations and made further welcome empirical predictions, e.g. the consistent low scope of *de*-comparatives.

The analysis has interesting consequences for the overall landscape of comparative semantics. For one, comparison to a degree is a very common phenomenon, found in most languages which express comparisons with dedicated constructions. Similarly, it is very common to find languages that, lacking a dedicated morpheme to specify the standard of comparison, utilize more than one morpheme that already exists in the language. This paper argued that Spanish displays a division of labor between two morphemes that has not been noted before in the literature: the criteria for picking one or other standard marker depend on syntactic as well as semantic properties. By identifying this new axis of cross-linguistic variation, the paper contributes to our understanding of the semantics of comparatives, as well as the different strategies that natural languages have available to form comparative constructions.

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