

# Multi-headed comparatives in Portuguese

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## *Abstract*

*This paper aims at offering a global picture of the subtype of comparative constructions known as ‘multi-headed comparatives’ (from the fact that they exhibit more than one comparative operator in semantic interdependence). As a prerequisite to the fulfilment of his goal, an attempt will be made to clarify the scope of the notion ‘comparative construction’ and to draw a general typology of such constructions. The boundaries of the notion ‘comparative construction’ are defined by contrasting a “genuine” class of comparative constructions with others that hold some syntactic or semantic resemblance to them. Different typologies will be taken into consideration. As for multi-headed comparatives, even though different examples of these constructions have been identified in the scarce literature on the matter, the discussion on their syntactic patterns and meaning is still embryonic. This paper suggests that the expressive power of these comparatives, which seem to provide a particular strategy of information compression, is higher than has been assumed. Four sub-kinds of multi-headed comparatives are identified, based on meaning differences, namely: multi-headed comparatives with a distributive reading, multi-headed comparatives with a cumulative reading, multi-headed comparatives with a comparison of ‘ratios’ reading, and multi-headed comparatives with a comparison of differences reading. While resorting to some classic English examples, the object language will predominantly be Portuguese.*

## **1 On the notion ‘comparative construction’**

### *1.1 Introductory note*

Comparative constructions are a particularly complex kind of structure, which gave rise to several debates on their syntax and semantics, and on the syntax/semantics interface. In spite of the abundant discussion, a unanimous notion of ‘comparative construction’ can hardly be found. Instead, it covers diverse kinds of constructions, differing both syntactically and semantically.

Accordingly, a tentative clarification of the notion ‘comparative construction’ is called for.

Advantageously, it appears that most of the issues concerning the semantics of comparatives, which have been discussed mainly in relation with English and a few other languages, are not subject to significant cross-linguistic variation. As to multi-headed, apparently, the abundant discussion that has been produced on comparatives in general provides solid ground for the analysis of this less studied group. However, the challenging fact that multi-headed often appear to be at the edge of grammaticality has to be kept in mind. In (1), below, a normal and a multi-headed comparative are exemplified:

- (1) a. Last year, more students attended the party.  
 b. Newer generations of microchips contain more electronic switches on a smaller surface. (Hendriks 1992)

### 1.2 Restricting the notion of ‘comparative construction’

Traditional grammars classify as “comparative constructions” several kinds of structures, as shown by the following examples, provided by traditional grammars:

- (2) O facto, como acaba de se verificar, não tem importância.  
*the fact, as finishes of one verify, not has importance*  
 ‘The fact, just as verified, has no importance.’
- (3) Tanto o Pedro como o Paulo conhecem o lugar.  
*as much the Pedro as the Paulo know the place*  
 ‘Both Pedro and Paulo know the place.’
- (4) não só na grande imprensa como em vários escritores  
*not just in-the main press as in several writers*  
 ‘not just in main the press, but also in several writers’
- (5) a. O Eduardo agiu como eu [agi].  
*the Eduardo acted as I acted*  
 ‘Eduardo acted like me.’  
 b. A festa não foi tal como se dizia.  
*the party not was such as one said*  
 ‘The party was not as had been said.’
- (6) Começaste a correr que nem uma louca.  
*started to run that not-even a fool*  
 ‘You started to run like a fool.’

- (7) O Paulo é tão alto como o Pedro.  
*the Paulo is as tall as the Pedro*  
 ‘Paulo is as tall as Pedro.’

Clearly, this set includes constructions that differ syntactically and semantically, leading to obscurity concerning the scope coverage of the expression “comparative construction”. In example (2), *como* has the same interpretation as *conforme*, expressing a conformity between the states of affairs described by the linked constituents<sup>1</sup>. Examples (3) and (4) are of a different syntactic nature. In these cases, *tanto ... como* and *não só ... como* are correlative conjunctions, with the same meaning as the conjunctions *quer ... quer* and *e*, (3) being equivalent to (8a) or (8b):

- (8) a. **Quer** o Pedro **quer** o Paulo conhecem o lugar.  
*want the Pedro want the Paulo know the place*  
 ‘Both Pedro and Paulo know the place.’  
 b. O Pedro **e** o Paulo conhecem o lugar.  
*the Pedro and the Paulo know the place*  
 ‘Pedro and Paulo know the place.’

As for examples (5a-b), *como* is, arguably, a relative pronoun introducing an expression of manner. The syntactic structure of (5a) can be taken to be (9):

- (9) ...*agiu* [<sub>ADV/PP[+Manner]</sub> ∅ [<sub>NP</sub> ∅ [<sub>CP</sub> [*como*]<sub>i</sub> eu *agi* [<sub>ADV/PP[+Manner]</sub> e<sub>i</sub>]]]]  
*acted as I acted*

The same kind of interpretation is appropriate for (6), which has the same meaning as (10):

- (10) Começaste a correr da mesma forma que uma louca  
*started to run in-the same way that a fool*  
 ‘You started running like a fool (would run).’

According to this interpretation, the phrase *que nem uma louca* is a verbal adjunct, expressing manner. However, the same reading is obtained if one assumes that *que nem uma louca* expresses degree:

<sup>1</sup> According to Peres and Mória, *conforme* (and operators of the same class) connect a sentence and a relativized NP. For instance in [1a], below, *conforme* links the sentence *os deputados aprovaram a lei* [‘the representatives approved the law’] and the NP (*o que*) *se esperava* [‘(what) was expected’], the relative pronoun having the possibility of being lexically expressed, as shown by [1b]:  
 [1] a. Os deputados aprovaram a lei, conforme se esperava.  
 b. Os deputados aprovaram a lei, conforme o que se esperava.  
 (Peres and Mória 1995: 354)  
 ‘the representatives approved the law, as expected’

- (11) ...correr [<sub>XP[+degree]</sub>]  $\emptyset$  [<sub>CP</sub> [que] nem uma louca ~~correria~~ [<sub>XP[+deg]</sub> e<sub>i</sub>]]]  
*run that not-even a fool would-run*

According to this analysis, the sentence is interpreted as in (12), *que* being a relative pronoun of degree and *nem* the negative morpheme that occurs in sentences like (13):

- (12) começaste a correr num grau tal que nem  
*(you) started to run in-a degree such that not-even*  
 uma louca correria nesse grau  
*a fool would-run in-that degree*

- (13) Nem o Paulo veio.  
*not-even the Paulo came*  
 ‘Even Paulo didn’t come.’

(12) implies (14):

- (14) Começaste a correr mais do que uma louca (correria).  
*started to run more of-the what a fool would-run*  
 ‘You started to run faster than a fool.’

However, since the phrase *o que uma louca correria* [‘what a fool would run’] is supposed to express the fastest possible degree that a person can run, (14) conveys a contradiction. Hence, in order for the cooperative principle to be preserved, (12) cannot be assigned a literal interpretation, being instead interpreted as equivalent to (15):

- (15) Começaste a correr tanto como uma louca (correria).  
*(you) started to run as-much as a fool would-run*

In sum, as regards (6) – *começaste a correr que nem uma louca* –, the phrase *que nem uma louca* is either a constituent of manner or a constituent of degree. Considering European Portuguese, an argument in favour of the second hypothesis follows from the observation that constructions like (6) are not possible with all of the manner constituents at stake, but only when a scalar property is involved. By contrast, in Brazilian Portuguese, sentences as (16ab) are grammatical:

- (16) a. Ele fala que nem o pai dele.  
*he talks that not-even the father of-him*  
 ‘He talks like his father.’  
 b. Ele é brasileiro que nem eu.  
*he is Brazilian that not-even I*  
 ‘He is Brazilian just like me.’

This fact suggests that in the Brazilian variety *que nem* has been reanalyzed, being interpreted as a unique constituent behaving like a relative pronoun of manner, equivalent to *como* ('like'):

- (17) *fala* [<sub>ADV/PP[+manner]</sub>]  $\emptyset$  [<sub>NP</sub>  $\emptyset$  [<sub>CP</sub> [ *que-nem*]<sub>i</sub> *o* *pai* *dele*  
*speaks* *like* *the* *father* *of-his*  
~~*fala*~~ [<sub>ADV/PP[+manner]</sub> *e<sub>i</sub>* ] ] ] ]  
*speaks*

This analysis is not defensible for European Portuguese, since *que nem* may replace *como* when this morpheme is a relative pronoun of degree, but not when it is a relative pronoun of manner. Therefore, I assume that in European Portuguese (6) expresses a comparison of degrees<sup>2</sup>. The comparison of degrees is also expressed by constructions like (7) – *o Paulo é tão alto como o Pedro* –, as well as (18a), a comparative of superiority, or (18b), a comparative of inferiority:

- (18) a. *A inflação foi mais alta do que se previa.*  
*the inflation was more high of-the what one expected*  
 'The inflation was higher than expected.'  
 b. *O rio está menos poluído do que estava há dois anos.*  
*the river is less polluted of-the what was there-is*  
*two years*  
 'The river is less polluted than it was two years ago.'

In contemporary literature, as a rule, only constructions that express comparison of degrees (the term 'degree' identifying a point in a scale<sup>3</sup>) are classified as "comparative constructions"<sup>4</sup>.

<sup>2</sup> Another kind of construction that raises doubts about whether it expresses comparison of degrees or likeliness is exemplified by [2]:

[2] *Sentia-se livre como um passarinho.*  
*(he) was-feeling-himself free like a bird*

On one reading, *livre como um passarinho* is equivalent to *as free as a bird*, while on the other reading it is equivalent to *free, just like a bird*. Only in the first reading does [2] express comparison of degrees.

<sup>3</sup> Kennedy 1997 provides the following definition of 'scale':

«I will define a scale as a dense, linearly ordered set of points, or "degrees" where the ordering is relativized to a DIMENSION. [...] a dimension corresponds to a gradable property such as *height, length, speed, density, beauty*, etc., and provides a means of differentiating one scale from another.»

<sup>4</sup> However, see Moltmann 1992 for a similar treatment of constructions that express comparison of degrees and constructions with *different* and *same*, which also convey comparison, though not comparison of degrees.

However, there are other constructions whose meanings involve comparison of degrees and are not classified as “comparative constructions”. For instance:

- (19) a. A Ana é a rapariga mais alta da turma dela.  
*the Ana is the girl more tall of-the class of-hers*  
 ‘Ana is the tallest girl of her class.’  
 b. A Ana é {alta, altíssima} para a idade dela.  
*the Ana is {tall, very tall} for the age of-hers*  
 ‘Ana is {tall, very tall} for her age.’

Both (19a) as (19b) involve a comparison of the degree of tallness of Ana and other degrees: those of her colleagues, in (19a), and the pattern of tallness for people of Ana’s age, in (19b).

In an attempt to achieve a more accurate definition of “comparative construction”, Peres (p.c. and course notes since 1999), proposes that this notion be defined in terms of the combination of three factors: (i) some notion of comparison between entities with regard to one or more properties, (ii) a degree value, and (iii) subordination. The two first items concern the meaning of the constructions, while the last one is of a syntactic nature, amounting to saying that the construction contains a subordinate clause (usually referred to as the *than*-clause).

According to these criteria, (19a-b) are not comparative constructions inasmuch as they do not involve a subordinate clause, though their meaning includes comparison and degree. For the same reason, constructions like (20a-c), which include a predicate expressing an ordering of degrees, and constructions like (20d), with multiplicatives, are not classified as ‘comparative constructions’, since none of them involve a subordinate clause:

- (20) a. Ele achou que esta hipótese era preferível à outra.  
*he thought that this hypothesis was preferable to-the other*  
 ‘He thought this hypothesis was preferable to the other one.’  
 b. Antes ter um acordo provisório do que continuar em guerra.  
*before have an agreement provisory of-the what continue in war*  
 ‘A temporary agreement is better than continuing at war.’  
 c. A inflação duplicou.  
*the inflation doubled*  
 d. Paguei o dobro de ti.  
*paid the double of you*  
 ‘I paid twice as much as you did.’

By contrast, according to the criteria defined in Peres 1998, (21) and (22a-c) can be classified as ‘comparative constructions’, given that they involve a *than*-clause and they convey a comparison of degrees:

- (21) A inflação mais do que duplicou.  
*the inflation more of-the what doubled*  
‘The inflation more than doubled.’
- (22) a. Paguei o dobro do que tu pagaste.  
*paid the double of-the what you paid*  
‘I paid double what you did.’
- b. Paguei duas vezes o que tu pagaste.  
*paid two times the what you paid*  
‘I paid double what you did.’
- c. Pagaste metade do que eu paguei.  
*paid half of-the what I paid*  
‘You paid half what I did.’
- d. O Paulo ganha o mesmo que a Ana (ganha).  
*the Paulo earns the same that the Ana (earns)*  
‘Paulo earns as much as Ana.’

Regarding (22d), the comparison of degrees emerges because *to earn* is a scalar predicate; that is, its meaning necessarily involves the consideration of a scale, and a point therein which is identified by the complement of the verb. If the predicate is not scalar, the comparison of degrees may not be available at all, as exemplified by (23a), or it may not be the only interpretation, as exemplified by (23b-c):

- (23) a. O Paulo seguiu o mesmo caminho que nós.  
*the Paulo followed the same trend that we*  
‘Paulo followed the same trend that we did.’
- b. O Paulo leu o mesmo que a Ana.  
*the Paulo read the same that the Ana*  
‘Paulo read the same as Ana.’
- c. O Paulo tem os mesmos alunos que a Ana.  
*the Paulo has the same students that the Ana*  
‘Paulo has the same students as Ana.’

On one interpretation, (23b) means that Paulo and Ana performed the same amount of reading, while on another interpretation (the preferred one), it

means that they read the same stuff. The same kind of ambiguity emerges in (23c), which may either involve a comparison of the numbers of Paulo's and Ana's students, or mean that everyone who is a student of Ana's is also a student of Paulo's. Only the first interpretation involves comparison of degrees, namely points on a (numerical) scale.

### 1.3 Borderline cases

Given the restriction of the concept of comparative construction outlined in 1.2, there are still several constructions whose classification as comparative is not straightforward. Some examples are:

- (24) Mais do que criticar, é preciso ajudar.  
*more of-the what criticize is needed to-help*  
'Help is what is needed, rather than criticism.'
- (25) Mais do que uma professora, a Ana era uma amiga.  
*more of-the what a teacher the Ana was a friend*  
'More than a teacher, Ana was a friend.'
- (26) Não fez mais do que cumprir o seu dever.  
*not did more of-the what fulfil the his duty*  
'He did nothing but fulfil his duty.'

Though these constructions have the typical structure of comparatives, it is not clear that they express comparison of degrees or, at least, which is the scale involved in their meaning.

As regards (24a), the sentence is equivalent to (27), which does not involve comparison of degrees:

- (27) Ao invés de criticar, é preciso ajudar.  
*Instead of to-criticize is needed to help*  
'Instead of criticizing, one needs to help.'

However, it is arguable that (24) does express a comparison of degrees, conveying the information that the need to help is superior to the need to criticize. Since the situations of helping and criticizing can be seen as mutually exclusive, (24) allows the implicature that there is no need to criticize (i.e., the degree of the need to criticize is null); hence, the equivalence between (24) and (27).

As for (25), it does not, obviously, express a comparison between degrees of "teacherhood" and *friendship*, since the meanings of the nouns *teacher* and *friend* don't involve degree. However, (25) expresses a comparison of degrees of similarity. That is, the sentence means that Ana's behavior was more similar to the behavior pattern of a friend than to the one of a teacher.

Hence, (25) is a case of ‘comparison of deviation’ (cf. Kennedy 1997): the distance between Ana’s behavior and the behavior pattern of a teacher is compared to the distance between Ana’s behavior and the behavior pattern of a friend.

Finally, it is less clear that a case like (26) also involves comparison of degrees. One possibility<sup>5</sup> is to consider that a scale of situations is involved, (26) expressing the information that what the speaker did is not a more specific situation than the one described by *cumprir o seu dever* (‘fulfil his duty’). On the other hand, it might be considered that (26) does not express comparison of degrees, and that *more* holds the same meaning it has in sentences as (28a-b):

- (28) a. Só trouxe estes livros, mas tenho mais.  
*only brought these books but have more*  
‘I brought only these books, but I have some others.’
- b. Queres mais café?  
*want more coffee*  
‘Do you want some more coffee?’

Given that (26) is equivalent to (29) below, it might be claimed that the latter equally does not express a comparison of degrees:

- (29) Não fiz nada além de cumprir o meu dever.  
*not did anything beyond of fulfil the my duty*  
‘I did nothing else than fulfil my duty.’

In conclusion, it might be argued that (26) expresses a comparison of degrees of specificity of situations, as it might be argued that it does not involve degree comparison. It is hard to decide in favour of one or the other of the hypotheses, since both of them seem to ultimately lead to the same interpretation.

## 2 Typologies of comparative constructions

Traditionally, an association is made between the degree of adjectives and comparative constructions, a division being established between ‘comparatives of superiority’, ‘comparatives of inferiority’ and ‘comparatives of equality’. However, comparative constructions are not limited to the degree of adjectives, as revealed by different typologies of such constructions that have a broader coverage.

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<sup>5</sup>I owe this suggestion to J. Peres (p.c.).

### 2.1 *Nominal, adjectival and other comparatives*

Often, a distinction is observed between ‘nominal comparatives’, as (30), and ‘adjectival comparatives’, as (31):

(30) O Paulo escreveu mais livros do que a Ana (escreveu).  
*the Paulo wrote more books of-the what the Ana (wrote)*  
‘Paulo wrote more books than Ana.’

(31) O Paulo é mais alto do que a Ana.  
*the Paulo is more tall of-the what the Ana*  
‘Paulo is taller than Ana.’

This distinction reflects the fact that constructions as (30) involve comparison of cardinal numerals<sup>6</sup>, while in adjectival comparatives scales are considered that may be non-digital. In addition to nouns and adjectives, also verbs and adverbs may enter in comparative constructions, provided they identify a gradable property:

(32) A Maria trabalhou mais do que a Ana.  
*the Maria worked more of-the what the Ana*  
‘Maria worked harder than Ana.’

(33) Ele vê a Ana mais frequentemente do que eu.  
*he sees the Ana more frequently of-the what I*  
‘He meets Ana more frequently than I do.’

### 2.2 *Discourse vs non-discourse comparatives*

Comparative constructions must have two terms of comparison, which are degree values. One degree, the first term of comparison, is defined by comparison to the other degree, the second term of comparison. This second degree can be identified by the *than*-clause, as exemplified in (34), or it may be provided by the common ground or the context, as exemplified in (35a-c), in which case the structures are called ‘discourse comparatives’:

(34) Hoje está mais frio do que ontem.  
*today is more cold of-the what yesterday*  
‘Today, is colder than yesterday.’

(35) a. Hoje está mais frio.  
*today is more cold*  
‘It is colder today.’

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<sup>6</sup> Other nominal comparatives, with mass nouns or other non-countable nouns, do not involve comparison of cardinals, but of other units of measure.

- b. O preço é muito alto. Há dois anos, era mais baixo.  
*the price is very high is two years was more low*  
 ‘The price is too high. Two years ago, it was lower.’
- c. Se formos pela auto-estrada, chegamos mais cedo.  
*if go by-the highway arrive more soon*  
 ‘If we take the highway, we will arrive sooner.’

In both these sub-kinds of comparatives, the difference between the compared degrees can be identified by a measure phrase, as in (36a-b), in which case constructions are called ‘differential comparatives’:

- (36) a. O Paulo é **dez centímetros** mais alto do que a Ana.  
*the Paulo is ten centimeters more tall of-the what the Ana*  
 ‘Paulo is ten centimeters taller than Ana.’
- b. Preciso de uma prateleira **trinta centímetros** maior.  
*need of a shelf thirty centimeters longer*  
 ‘I need a shelf thirty centimeters longer.’

### 2.3 Phrasal and clausal comparatives

Several authors<sup>7</sup> set a division between ‘clausal comparatives’ and ‘phrasal comparatives’, depending on whether *than* introduces a sentence or a non-sentential phrase. According to this classification, (37a) would be a clausal comparative and (37b) would be a phrasal comparative:

- (37) a. O Canadá é maior do que a Austrália.  
*the Canada is bigger of-the what the Australia*  
 ‘Canada is bigger than Australia.’
- b. Ele é mais novo do que parece.  
*he is more young of-the what seems*  
 ‘He is younger than he looks.’

This division, which regards the syntactic nature of the constituent that follows *than*, would become unmotivated if it could be proven that in so-called ‘phrasal comparatives’ *than* is followed by an elliptical sentence.

Of course, an analysis under which *than* always introduces a sentence, elliptical or not, is preferable to the alternative view that sometimes *than* introduces a sentence and other times introduces another syntactic constituent. However, several arguments were presented in favour of a split between phrasal and clausal comparatives. The main arguments regard: (i) the distri-

<sup>7</sup>Cf., among others, Hoeksema 1983, Napoli 1983, Hendriks 1995, Kennedy 1997.

bution of NPIs and *N*-phrases; (ii) the distribution of reflexive pronouns; (iii) *wh*- extraction; (iv) (with respect to some phrasal comparatives) the unavailability of equivalent clausal comparatives. The observation of Portuguese data on the basis of such arguments leads to the conclusion that the division between clausal and phrasal comparatives is not effective in this language (although in other languages it may be operative).

Concerning the first issue, Hoeksema 1983 observes that in Dutch the NPI *ook maar* may occur in clausal, but not in phrasal comparatives<sup>8</sup>:

- (38) a. Wim was minder vervelend dan ook maar iemand  
*Wim was less unfeeling than at all someone*  
 voor hem was geweest  
*before him had been*
- b. \*Wim is gevaarlijker dan ook maar iemand  
*Wim is less dangerous than at all someone*

According to Giannakidou 1998, the same situation is found in Greek, where *kanenas* may occur in clausal, but not in phrasal comparatives:

- (39) I Roxani etreske telika grigorotera poti  
*the Roxane ran finally faster than*  
 perimene kanenas  
*expected anybody*  
 ‘Finally, Roxane did run faster than anybody expected.’
- (40) \*I Roxani etreske grigorotera apo kanenan  
*the Roxane ran faster than anybody*

In Portuguese, the distribution of NPIs and *N*-phrases does not sustain the division in this language between clausal and phrasal comparatives. In fact, NPIs hardly occur in comparative constructions and *N*-phrases may occur in both kinds of comparatives:

- (41) a. Ele sentia-se tão cansado como nunca se tinha  
*he felt-himself so tired as never himself had*  
 sentido até então.  
*felt until then*  
 ‘He was feeling so tired as he had never felt before.’

<sup>8</sup> However, Hendriks 1995 gives examples of phrasal comparatives with the NPI *ook maar*:

[3] Onze vorige dekaan heeft meer mensen tegen zich in het harnas gejaagd dan ook maar enige dekaan voor hem (Hendriks 1995: 35)  
 ‘our former dean has more people against him than any dean at all before him’

- b. Ele correu como nunca.  
*he ran as never*  
'He ran faster than ever before.'

Another argument used to support the distinction between phrasal and clausal comparatives follows from the observation that reflexive pronouns may occur in the first kind of comparatives, but not in clausal comparatives:

- (42) a. No man is stronger than himself.  
b. \*No man is stronger than himself is.

Regarding Portuguese, this argument equally does not sustain the phrasal/clausal comparatives division, given that reflexive pronouns may occur in both kinds of comparatives:

- (43) Nenhum homem faz mais pelos outros do que  
*no man does more for-the others of-the what*  
por si próprio.  
*for him self*
- (44) Nenhum homem faz mais pelos outros do que  
*no man does more for-the others of-the what*  
faz por si próprio.  
*does for him self*  
'No man does more for others than he does for himself.'

The argument that *wh*- extraction is possible in phrasal comparatives, but not in clausal comparatives, is shown by the following contrast, from Corver 1990:

- (45) a. Who<sub>i</sub> is John taller than t<sub>i</sub>?  
b. \*Who<sub>i</sub> is John taller than t<sub>i</sub> is?

Contrary to what is observed in English *wh*- extraction is impossible, in Portuguese, in both kinds of comparatives:

- (46) \*Quem<sub>i</sub> é o João mais alto do que t<sub>i</sub> (é)?  
*whom is the João more tall of-the what (is)*

The last of the above mentioned arguments addresses the fact that some phrasal comparatives do not have a corresponding clausal comparative with the same meaning, as observed in the following examples:

- (47) a. Mary ran faster than the world record. (Pinkham 1985, 112)  
b. He didn't get older than 23 years. (Heim 1985, 16)

Under the assumption that ellipses only occur under identity, these examples are not liable to be analysed as clausal comparatives, since the *than*-clause cannot exhibit the same predicate as the main clause. If, on the other hand, this requisite of ellipsis under identity is not assumed, the constructions under consideration can be analysed as clausal comparatives, the structure underlying the last example being (48a), according to Bresnan 1973 or (48b), according to Heim 1985:

- (48) a. He didn't get older than how old 23 years = x much old  
 b. He didn't get older than how old 23 years is.

However, as Hendriks observes:

«[...] an example which yields evidence against both accounts is (24a). In Bresnan's analysis [...] the equation sign must be distinguished from the verb *be* not only for semantic but also for syntactic reasons, in order to explain the difference in acceptability between (24a) and (24b).

- (24) a. \*John is taller than six feet is.  
 b. John is taller than Pete is.

Since overt *be* is not acceptable in comparatives like (24a), and would not be acceptable in (21) [(48b)] either, it is unlikely that *be* is present in these sentences at an underlying level of representation. Thus, (22b) [(48b)] is unlikely as the underlying clausal source of (21). Moreover, if *be* must be distinguished from '=', the *than*-clause in (22c) [(48a)] lacks a finite verb and hence cannot be considered a true clause.»

(Hendriks 1995: 18)

Therefore, the hypothesis that comparatives like (46a-b) have sentential structure is, at least, a matter of debate. As regards Portuguese, however, equivalent constructions are not acceptable. However, in cases like the following, the claim that the *than*-clause contains a predicate is not evident:

- (49) Ele não gasta mais do que o exclusivamente necessário.  
*he not spend more of-the what the exclusively necessary*  
 'He doesn't spend more money than the minimum necessary.'  
 b. Ele gastou mais do que o suficiente.  
*he spent more of-the what the enough*  
 'He spent more money than enough.'

Obviously, if these constructions have a predicate in the *than*-clause, such predicate is not identical to the main one. Nevertheless, it could be argued that even in these cases the *than*-clause has a sentential structure, which includes a form of the verb *to be*. As shown by the following examples, the lexical realization of this verb is not completely excluded:

- (50) a. ?Ele não gasta mais do que for o exclusivamente necessário.  
*he not spend more-of-the what is the exclusively necessary*  
 b. ?Ele gastou mais do que possivelmente seria o suficiente.  
*he spent more-of-the what possibly would be the enough*

Therefore, the arguments presented to maintain the opposition between phrasal and clausal comparatives apparently are not valid for Portuguese. Accordingly, it seems reasonable to assume that a division between phrasal and clausal comparatives can be dispensed with in Portuguese, favoring the claim that in all cases there is sentential structure in the *than*-clause or *as*-clause.

#### 2.4 Simple comparatives and multi-headed comparatives

Usually, comparative constructions only have one comparative morpheme, but constructions with more than one comparative morpheme, named “multiheaded comparatives”<sup>9</sup>, are also possible, though they are rarely used and natural examples are hard to find. These are some examples of multi-headed comparatives:

- (51) «Mais homens compram cada vez mais produtos de cuidados pessoais» (*EXPRESSO, Economia e Internacional*, 28-08-2004, 10)  
*more men buy each time more products of care personal*  
 ‘More men buy always more products of personal care.’
- (52) «Correr bem tecnicamente é correr mais depressa com menos riscos.»<sup>10</sup>  
*to run well technically is to run more fast with less risks*  
 ‘Technically, to run well is to run faster with less risks.’
- (53) No airline saves you more money in more ways than Delta.  
 (Chomsky 1981)
- (54) Newer generations of microchips contain more electronic switches on a smaller surface.  
 (Hendriks 1992)
- (55) More goods are carried faster. (Hendriks and Hoop 2001)

<sup>9</sup> The expression “multi-headed comparatives” does not refer to coordinations of simple comparatives, as in the following example:

[4] Atualmente, há mais estudantes e mais universidades.  
*nowadays exist more students and more universities*  
 ‘Nowadays, there are more students and more universities.’

<sup>10</sup> Sentence extracted from a corpus available at <http://www.linguateca.pt/ACDC>.

This kind of comparative constructions has not been extensively discussed in the literature and its limits remain to be understood. The next section will be dedicated to multi-headed comparatives, trying to shed some light on such constructions.

### 3 Multi-headed comparatives

Constructions with more than one comparative morpheme are rarely used and informants cast serious doubt on the grammaticality of some examples. At least in part, this may be due not only to the fact that comparatives of this kind are harder to process than constructions with just one comparative morpheme but also to the possibility of expressing the meaning of multi-headed comparatives by other means. Therefore, this kind of construction belongs in a grey area lying between grammatical and ungrammatical constructions, providing a domain for investigating the boundaries of grammar with respect to comparative constructions.

Not only is the acceptability of multi-headed comparatives sometimes subject to doubt but also the meaning they express is not always clear. Von Stechow 1984 provides a description of this kind of construction, claiming that the truth conditions of multi-headed comparatives are equivalent to the truth conditions of a coordination of simple comparatives. Hence, according to this author, the truth conditions of (56a) are as in (56b):

- (56) a. More silly lectures have been given by more boring professors than I would have expected. (Chomsky 1981)
- b. The number of silly lectures given by boring professors is greater than the number of silly lectures such that I expected them to be given by boring professors
- and*
- the number of boring professors who gave silly lectures is greater than the number of boring professors such that I expected them to give boring lectures. (von Stechow 1984)

This description of the truth conditions of multi-headed comparatives is also assumed by Hendriks 1992, who considers examples identical to (56a) and also (57a), claiming that its interpretation is as in (57b):

- (57) a. John made more people prettier than I thought he would. (Williams 1975, *apud* Hendriks 1992)
- b. The number of people that John made prettier is greater than the number of people that I thought John would make prettier
- and*

the degree of prettiness of the people that John made prettier is greater on reference time than on some earlier point of time.  
(Hendriks 1992)

Hence, from the scarce literature on the semantics of multi-headed comparatives, the assumption emerges that the interpretation of this kind of constructions is identical to a conjunction of simple comparatives, leading von Stechow 1984 to conclude that “the treatment of multi-head comparative constructions offers no new insight into the semantics of comparison” (p. 47).

However, the assumption that all multi-headed comparatives express a unique kind of meaning can be questioned, on the basis of the meanings conveyed by multi-headed comparatives like the following:

- (58) John made **more** people **prettier than** I thought he would.  
(59) a. **More** silly lectures have been given by **more** boring professors **than** I would have expected.  
b. Nowadays, **less** land produces **more** corn **than** ever before.  
(von Stechow 1984)  
(60) Mary was always a little **more** aggressive **than** her brother. But now she’s much **more** aggressive **than** he is **than** she was before.  
(Napoli 1983)

These constructions differ not only syntactically, but also in the kind of meaning they convey. In what follows, the claim will be made that these sentences exemplify the following readings that multi-headed comparatives may express:

- (i) a **distributive reading**, exemplified by (58);  
(ii) a **cumulative reading**, exemplified by (59a-b);  
(iii) a **comparison of ratios reading**, arguably, one of the readings of (59b);  
(iv) **comparison of differences reading**, exemplified by (60).

### *3.1 Comparison of absolute values and comparison of ratios*

One kind of reading that multi-headed comparatives may express is illustrated by the following example:

- (61) Na última década, a Espanha teve mais anos com  
*in-the last decade the Spain had more years with*  
pluviosidade mais baixa do que a média dos últimos  
*rain more low of-the what the average of-the last*  
cem anos do que Portugal.  
*one hundred years of-the what Portugal*  
‘Over the last ten years, Spain had more years with less rain than the average of the last one hundred years than Portugal had.’

This sentence expresses a comparison of two (numerical) figures. The property that is being measured is that of being a year with less rain than the average of the last one hundred years, and sentence (61) expresses the information that, during the last decade, Spain had more years with such property than Portugal had.

In this example, one of the comparative morphemes is part of a noun modifier, and the other one applies to this modified noun:

- (62) na última década, a Espanha teve mais [anos com pluviosidade mais baixa do que; a média dos últimos cem anos [foi x<sub>i</sub>]] do que; Portugal [~~teve y<sub>i</sub> anos com pluviosidade mais baixa do que a média dos últimos cem anos [foi x<sub>j</sub>]]  
*over the last ten years, Spain had more years with less rain than the average of the last one hundred years [was x<sub>i</sub>] than Portugal [~~had y<sub>i</sub> years with less rain than the average of the last one hundred years [was x<sub>j</sub>]]~~*~~

Hence, though more complex, (61) expresses the same kind of meaning as (63), a simple comparative, both sentences conveying a comparison between the cardinals of two sets:

- (63) na última década, a Espanha teve mais [anos de seca] do que; Portugal [~~teve x<sub>i</sub> anos de seca~~]  
*over the last ten years, Spain had more [years of dryness] than Portugal [~~had x<sub>i</sub> years of dryness~~]*

The same kind of reading is available in syntactically different multiheaded comparatives. Such is the case of (64) and (65):

- (64) Este ano, a vacina tornou mais resistentes à gripe  
*this year the vaccine made more resistant to-the flu*  
 mais pessoas do que o ano passado.  
*more persons of-the what the last year*  
 ‘This year, the vaccine made more people more resistant to the flu than last year.’
- (65) Eles querem que mais empresas paguem menos IRC.  
*they want that more companies pay less IRC*  
 ‘They want more enterprises to pay less IRC.’

These sentences also express a comparison between two cardinals. That is, (64) and (65) are interpreted as (66) and (67), respectively:

- (66) the number of  $x$ , such that  $x$  is a person and this year the vaccine made  $x$  more resistant to the flu than  $x$  was, is superior to the number of  $y$ , such that  $y$  is a person and last year the vaccine made  $y$  more resistant to the flu than  $y$  was
- (67) they want the number of enterprises  $x$ , such that  $x$  has to pay less IRC than  $x$  used to pay, to be superior to the number of enterprises  $y$ , such that  $y$  has to pay less IRS that  $y$  used to pay

Thus, in the examples under consideration, two sets of entities that have a given property are considered and the cardinals of these sets are compared. The label ‘distributive reading’ suggested above for the interpretation of this kind of multi-headed comparatives derives from the fact that the relevant property applies to each member of the compared sets.

A different kind of reading is observed in the following examples:

- (68) [GIVEN INFORMATION: last year,  $n$  professors published  $m$  papers]  
Este ano, MENOS professores publicaram MAIS artigos.  
*this year less professors published more papers*

This sentence conveys two independent instances of comparison. That is, its meaning involves the counting of professors and the counting of papers that are linked by the relation *to publish*, expressing the following information (in a given context, where the set of professors is part of the common ground of knowledge):

- (69) the total amount of professors that published papers this year is lower than the total amount of professors that published papers last year  
and  
the total amount of papers that professors published this year is higher than the total amount of papers that professors published last year

Hence, (68) has the ‘cumulative reading’<sup>11</sup>, that Scha 1984 observed in (70a), according to which (70b) is a paraphrase of (70a) (cf. Scha 1984: 146-147):

- (70) a. 600 Dutch firms have 5000 American computers.  
b. The number of Dutch firms which have an American computer is 600, and the number of American computers possessed by a Dutch firm is 500.

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<sup>11</sup>I owe this observation to J. Peres (p.c.)

Sentence (68) is a discourse comparative. Some speakers have more difficulty in accepting multi-headed comparatives with the same kind of meaning, but with the *than*-clause realized, as (71):

- (71) Este ano, MAIS países enviaram MAIS soldados para o  
*this year more countries sent more soldiers to*  
*the*  
 Iraque do que em qualquer outra altura.  
*Iraq of-the what at any other time*  
 ‘This year, MORE countries sent MORE soldiers to Iraq than any other time.’

Concerning the syntax of this kind of construction, a possible analysis states that the relative pronoun links two variables<sup>12</sup>, the *than*-clause identifying the number of countries that sent soldiers to Iraq and the number of soldiers that were sent:

- (72) este ano, MAIS países enviaram MAIS soldados para o Iraque do que<sub>i,j</sub> ~~x<sub>i</sub> países enviaram y<sub>j</sub> soldados para o Iraque~~ em qualquer outra altura  
*this year, MORE countries sent MORE soldiers to Iraq than x<sub>i</sub>-countries sent y<sub>j</sub> soldiers to Iraq* any other time

The constructions (68) and (71) involve comparison of amounts (cardinal numbers or other). Von Stechow 1984 provides an example with mass nouns:

- (73) Nowadays, less land produces more corn than ever before.

According to this author, the truth conditions of (73) are (74):

- (74) «the amount of land which produces corn is smaller than the amount of land which produced corn ever before  
*and*  
 the amount of corn produced by land is larger than the amount of corn produced ever before» (von Stechow 1984: 46-47)

<sup>12</sup> I owe this suggestion to J. Peres (p.c.). The syntax of multi-headed comparatives is highly unexplored in the literature. Chomsky 1981 (p. 81) says that, in [7], the *than*-clause has “split antecedents”:

[7] [More silly lectures] have been given by [more boring professors] than – I would have expected.

Von Stechow 1984 assumes that the entire structure determining the interpretation of [7] is [8]:

[8] more silly lectures [than I would have expected that silly lectures would be given by boring professors] have been given by more boring professors [than I would have expected that silly lectures would be given by boring professors]

The first *than*-clause would identify the expected number of silly lectures given by boring professors, the second *than*-clause identifying the expected number of boring professors who would give silly lectures.

Therefore, (73) is also equivalent to a coordination of simple comparatives, the relative pronoun linking two variables:

- (75) nowadays, less land produces more corn than *wh<sub>i,j</sub>* [~~*x<sub>i</sub>-land produced y<sub>j</sub>-corn*~~] ever before

However, (73) may also be interpreted as conveying a comparison of degrees of productivity, meaning that nowadays the productivity of land is higher than ever before. In this interpretation, the terms of comparison are values of the *ratio* ‘land producing / corn produced’. This reading is entailed by (74), but not the other way round. In fact, suppose that during one particular period of time no corn is produced (because, for instance, the farmers decided to produce another cereal). In such situation, (74) would be false, but (73), in the reading of comparison of degrees of productivity, could be true. Hence, the cumulative reading, which corresponds to the truth conditions (74), and this reading of comparison of *ratios* are not equivalent.

In (73), the comparative morphemes occur in the subject and object NPs.<sup>13</sup> A syntactically different example that also conveys comparison of *ratios* is (76), one comparative morpheme occurring in the object NP, the other one in an adjunct:

- (76) «O que têm em vista é que os dois partidos com maior votação obtenham mais lugares com menos votos, tornando mais fácil a obtenção da maioria absoluta»<sup>14</sup>  
 ‘What they have in mind is that the two larger parties obtain more representatives with less votes, thus making it easier to obtain the absolute majority.’

Sentence (76) expresses a desire of the two major parties: they want to have more representatives than they have presently, even with less votes:

- (77) ... obtenham mais lugares [do que<sub>i</sub> obtiveram *x<sub>i</sub>-lugares*]  
           *obtain more places [of-the what obtained *x<sub>i</sub>-places*]*  
           com menos votos [do que<sub>i</sub> tiveram *x<sub>i</sub>-votos*] ...  
           *with less votes [of-the what had *x<sub>i</sub>-votes*]*

<sup>13</sup>Another example is:

«[...] um cada vez menor número de títulos [≡ livros] ocupa cada vez mais espaço nos planos das editoras [...]» (Expresso, 30 Dec. 2005, 27)

‘An increasingly smaller number of books occupies more and more space in the plans of the editors.’

This sentence does not mean that there are always less books and more space dedicated to books. What it expresses is that the number of books that occupy a certain space is always smaller. Hence, the sentence expresses a change in the value ‘number of books per unit of space’.

<sup>14</sup>Sentence extracted from a corpus available at <http://www.linguateca.pt/ACDC>.

Such interpretation implies a change in the *ratio* ‘number of votes / number of representatives’: in the desired situation, the number of votes that are needed to increase the number of representatives is lower than the number of votes that are needed presently. Therefore, also in this analysis, a comparison of *ratios* is conveyed.

Nevertheless, it could be argued that this comparison of *ratios* is not an independent reading, but an entailment that follows from the cumulative reading, this one being the only reading that (76) allows. In other words, the sentence expresses two comparisons of cardinals : (i) a comparison involving the number of votes that were obtained and the number of votes obtained in a different situation; and (ii) a comparison involving the number of representatives that were obtained and the number of representatives obtained in a different situation. This interpretation entails a change in the *ratio* number of votes / number of representatives.

Hence, the issue whether the comparison of *ratios* reading is different from other readings of multi-headed comparatives or an entailment that follows from some of them remains open. Hopefully, the analysis of multiheaded comparatives of other syntactic kinds will shed some light on this matter. In this respect, consider sentence (78), ambiguous between (79a) and (79b):

- (78) Com as novas regras, para o partido eleger mais um deputado nas próximas eleições, precisa(rá) de ter mais 50.000 votos (do que agora).  
 ‘With the new rules, in order for the party to obtain one more representative in the next election, it will need to have 50.000 more votes (than now)’
- (79) a. Com as novas regras, para o partido eleger mais um deputado nas próximas eleições, precisará de ter mais 50.000 votos do que agora [~~precisaria~~ [~~de ter~~]].  
 ‘With the new rules, in order for the party to obtain one more representative in the next election, it will need to have 50.000 more votes (than now) [~~it would need~~ [~~to have~~]]’
- b. Com as novas regras, para o partido eleger mais um deputado nas próximas eleições, precisará de ter mais 50.000 votos do que agora (teve).  
 ‘With the new rules, in order for the party to obtain one more representative in the next election, it will need to have 50.000 more votes (than now) [~~it had~~]

(79a) expresses a comparison of *ratios*, meaning that, with the new rules, the number of votes needed to elect each representative is larger than the previous one. On the other hand, (79b) has a purely cumulative reading (not entailing a

comparison of *ratios*), expressing two independent comparisons: one between numbers of votes and another one between numbers of representatives.

### 3.2 Comparison of differences

The last kind of multi-headed comparatives to be considered expresses a **comparison of differences**. That is, these multi-headed comparatives express the information that the difference between two given points in some scale, say *a* and *b*, is larger than the difference between two other points in the same scale, say *c* and *d*.

This kind of information may be stated by a predicative expression like *to be higher (larger)/lower* applied to the lexical expression *the difference*, as follows:

- (80) O déficit de 2005 foi mais elevado do que o de 2004  
*the deficit of 2005 was more high of-the what the of 2004*  
e a diferença foi superior à que se previa.  
*and the difference was larger to-the that one expected*  
'The deficit of 2005 was higher than the one of 2004 and the  
difference was larger than expected.'

However, the same kind of meaning may be expressed by multi-headed comparative constructions, as shown by the following examples<sup>15</sup>:

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<sup>15</sup>The comparison of differences is also involved in comparative conditionals (also called 'comparative correlatives') as the following:

[9] Cada vez mais há menos crianças.  
*each time more are less children*

[10] A inflação sobe cada vez mais.  
*the inflation increases each time more*

[9] means that the number of children is each (relevant) time smaller and that each decrease value is always larger than the previous one. That is, in one counting, the number of children decreased from *n* to *n'*, the difference between *n* and *n'* being *m*; in the next counting, the number of children decreased from *m* to *m'*, the difference between *m* and *m'* being larger than the difference between *n* and *n'*. Similarly, [10] means that every year (or other unit of time) the inflation increases and it increases more than it did during the previous year. That is, if in one year the inflation increased two points (for instance, from 8% to 10%), the next year, it increased more than two points.

However, these sentences might be interpreted as not expressing this comparison of differences. In such case, [9] expresses only the information that the number of children is always decreasing and [10] expresses only the information that the inflation is always increasing, even if every year it has the same increase (for instance, in the first year the inflation increased from 3% to 4%, and in the following year it increased from 4% to 5%, and so on).

- (81) a. O déficit de 2005 foi mais elevado do que o de 2004  
*the deficit of 2005 was more high of-the what the of 2004*  
 e foi-o ainda mais do que estava previsto.  
*and was-it even more of-the what was expected*
- b. O déficit de 2005 foi mais elevado do que o de 2004,  
*the deficit of 2005 was more high of-the what the of 2004*  
ainda mais do que estava previsto.  
*even more of-the what was expected*  
 ‘The deficit of 2005 was higher than the 2004 one and the  
 difference went beyond the predictions.’
- (82) (?) O déficit de 2005 foi ainda mais elevado do que o de  
*the deficit of 2005 was even more high of-the what the of*  
 2004 do que estava previsto.  
*2004 of-the what was expected*  
 ‘The deficit of 2005 was higher than the 2004 one and the  
 difference went beyond the predictions.’

(81a-b) are coordinate constructions, each member of the coordination exhibiting one comparative morpheme. The predication *mais elevado do que o de 2004* (‘larger than the one of 2004’) is recovered in the second member of the coordination, either by a pronoun, in (81a), or by an empty category, in (81b). Therefore, the underlined sentence of (81b) involves the computation of two comparative morphemes and ellipsis of a comparative predication:

- (83) o déficit de 2005 foi mais elevado do  
*the deficit of 2005 was more high of-the*  
 que o de 2004,  
*what the of 2004*  
 ainda mais [mais elevado do que o de 2004] do que  
*even more [more high of-the what the of 2004] of-the what*  
 estava previsto  
*was expected*

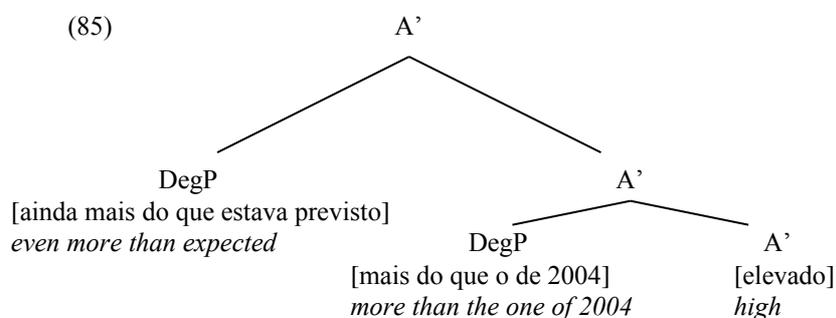
As for (82), arguably, it also involves two comparative morphemes, though only one of them is lexically expressed:

- (84) o déficit de 2005 foi ainda mais [mais elevado  
*the deficit of 2005 was even more [more high*  
 do que o de 2004] do que estava previsto  
*of-the what the of 2004] of-the what was expected*

One of these comparative morphemes is associated with the *than*-clause *do que o de 2004*, the other one with the *than*-clause *do que estava previsto*.

(81a-b) and (82) express the same meaning, though they are syntactically different. In (81a-b), the predication *mais elevado do que o de 2004* is recovered by a pronoun or an empty category, while in (82) this predication is not recovered, instead being expressed in the sentence. Constructions as (82) are harder to process than constructions as (81a-b) and some speakers doubt their acceptability. However, the syntactic structure of (81b) is not significantly different from that of (82).

In order to better grasp the syntactic formation of (82), consider the following simplified representation:



Notice the following steps:

(i) the *than*-clause *do que o de 2004* is extraposed:

(86) [<sub>A'</sub> [<sub>DegP</sub> ainda mais do que estava previsto] [[<sub>A'</sub> [<sub>DegP</sub> mais –] elevado] [do que o de 2004]]]

(ii) the *than*-clause *do que estava previsto* is extraposed:

(87) [<sub>A'</sub> [<sub>DegP</sub> ainda mais –] [[<sub>A'</sub> [<sub>DegP</sub> mais –] elevado] [do que o de 2004]] [do que estava previsto ]]

(iii) one of the comparative morphemes is dropped, by haplology:

(88) [<sub>A'</sub> [<sub>DegP</sub> ainda ~~mais~~ –] [[<sub>A'</sub> [<sub>DegP</sub> mais –] elevado] [do que o de 2004]] [do que estava previsto ]]

As for the syntactic structure of (81b) – *o déficit de 2005 foi maior do que o de 2004, ainda mais do que estava previsto* (‘the deficit of 2005 was larger than the one of 2004, even more than was expected’) –, it will be similar to (85), with the difference that the lower A' – the one to which the DegP [*ainda mais do que estava previsto*] is adjoined – is occupied by an empty category, which recovers from discourse the predication *mais elevado do que estava previsto* (‘larger than expected’).

Despite this similarity, examples like (81b), with ellipsis of a predication, which is recovered from discourse, sound more natural than examples like (82), which have haplology of one of the comparative morphemes.

Two differences between this kind of multi-headed comparatives with ellipsis and the one with haplology show that the grammar imposes more restrictions on constructions with haplology than on those with ellipsis. One concerns the kind of comparative morphemes that can enter the construction. The other concerns the presence of measure phrases.

Regarding the comparative morphemes that can enter multi-headed comparatives with the comparison of differences reading, in constructions with haplology, the lexically realized comparative morpheme can express superiority or inferiority. However, the only available interpretation is the one where the hidden comparative morpheme is the one of superiority:

- (89) a. o Rio de Janeiro é uma cidade muito [~~mais~~ / \*~~menos~~] mais perigosa do que Lisboa do que eu pensava  
 ‘Rio de Janeiro is a city much [~~more~~ / \*~~less~~] more dangerous than Lisbon than I thought’
- b. Lisboa é uma cidade muito [mais / \*menos] menos perigosa do que o Rio de Janeiro do que eu pensava  
 ‘Lisbon is a city much [more / \*less] less dangerous than Rio de Janeiro than I thought’

By contrast, in constructions with ellipsis, where one of the comparative morphemes is recovered from discourse, there are no restrictions as to the hidden and the lexically realized comparative morphemes, all combinations being possible:

Comparative morphemes		Example
Realized	anaphorically recovered	
mais (‘more’)	mais	(90)
menos (‘less’)	mais	(91)
tanto (‘as much’)	mais	(92)
mais	menos	(93)
menos	menos	(94)
tanto	menos	(95)

- (90) o déficit de 2005 foi mais elevado do que o de 2004, (aliás,) mais [~~mais elevado do que o de 2004~~] do que estava previsto  
 ‘the deficit of 2005 was higher than the one of 2004, (indeed,) more [~~higher than the one of 2004~~] than expected’

- (91) a Ana continua a ter mais amigos do que o Paulo, embora menos [~~mais amigos do que o Paulo~~] do que tinha quando se casaram  
 ‘Ana still has more friends than Paulo, although less [~~more friends than Paulo~~] than she had when they got married’
- (92) o défice de 2005 foi, de facto, mais elevado do que o de 2004, mas não tanto [~~mais elevado do que o de 2004~~] como tinha sido anunciado  
 ‘the deficit of 2005 was, in fact, higher than the one of 2004, but not as much [~~higher than the one of 2004~~] as had been announced’
- (93) de facto, a minha impressora é menos eficiente do que a tua, (e) mais [~~menos eficiente do que a tua~~] do que me tinhas dito  
 ‘in fact, my printer is less efficient than yours, (and) more [less efficient than yours] than you had told me’
- (94) o ar de Lisboa está menos poluído do que o ano passado, mas menos [~~menos poluído do que o ano passado~~] do que era desejável  
 ‘the air of Lisbon is less polluted than last year, but less [~~less polluted than last year~~] than would be desirable’
- (95) este ano, a fábrica conseguiu poluir menos o rio, mas não [~~conseguiu poluir menos o rio~~] tanto quanto tinha prometido  
 ‘this year, the factory managed to pollute the river in a smaller scale, but not [~~polluted less the river~~] as much as it had promised’

The other difference mentioned above between constructions with haplology and those with ellipsis regards the occurrence of measure phrases. Their presence is optional in the constructions with ellipsis, but not in the haplology cases. In fact, constructions with haplology are acceptable if they involve an intensifier or a multiplicative measure phrase, as shown by (96a) and (97a), but they become harder to accept if no measure phrase is present, as shown by (96b) and (97b):

- (96) a. o défice de 2005 foi {**bastante, ainda**} mais elevado do que o de 2004 do que estava previsto  
 ‘the deficit of 2005 was {much, even} higher than the one of 2004 than expected’
- b. (?)O défice de 2005 foi mais elevado do que o de 2004 do que estava previsto.  
 ‘The deficit of 2005 was higher than the one of 2004 than expected.’

- (97) a. A Antárctida é **cem vezes** mais fria do que Portugal do que eu pensava.<sup>16</sup>  
 ‘The Antarctic is one hundred times colder than Portugal than I thought.’  
 b. (?)A Antárctida é mais fria do que Portugal do que eu pensava.  
 ‘The Antarctic is colder than Portugal than I thought.’

Moreover, if, instead of an intensifier or a multiplicative, a different, more specific, measure phrase is selected, the constructions become harder to accept:

- (98) a. ?A gasolina está mais € 0,50 **mais** cara do que o gasóleo do que estava há um ano.  
 ‘Petrol is more € 0,50 **more** expensive than fuel than it was a year ago.’  
 b. ?Ela está mais 3 cm **mais** alta do que o irmão do que estava há dois anos.  
 ‘She is 3 cm taller than her brother than she was two years ago.’

By contrast, multi-headed comparatives with ellipsis are acceptable even without measure phrases – as shown by (90)-(95) above –, and the presence of measure phrases like *n cm* is accepted as easily as the presence of intensifiers or multiplicatives:

- (99) a. a gasolina está este ano mais cara do que o gasóleo; mais € 0,50  
 [~~mais cara do que o gasóleo~~] do que estava o ano passado  
 ‘this year, petrol is more expensive than fuel; € 0,50 more [~~more expensive than fuel~~] than last year’  
 b. a gasolina está este ano mais cara do que o gasóleo; {muito mais, quase duas vezes mais} [~~mais cara do que o gasóleo~~] do que estava o ano passado  
 ‘this year, petrol is more expensive than fuel, {much more, almost twice more } [~~more expensive than fuel~~] than last year’

<sup>16</sup>These examples are from adjectival comparatives, but the constructions are also possible in nominal comparatives, as well as in comparatives where the DegP is associated with a verb or an adverb:

- [14] a. ele tem hoje {**muito, duas vezes**} menos amigos do que a mulher do que tinha há dez anos  
 ‘he has {much, twice} less friends than his wife than he had ten years ago’  
 b. Este ano, a inflação subiu **muito** mais do que a média da União Europeia do que o ano passado.  
 ‘This year, the inflation raised much more than the average in the European Union than it had last year.’  
 c. Ele vai **muito** mais depressa do que é permitido por lei do que eu vou.  
 ‘He is driving much faster than allowed than I am.’

- (100) a. ela está mais alta do que o irmão; mais 3 cm [~~mais alta do que o irmão~~] do que estava há dois anos.  
'she is taller than her brother, 3 cm more [~~taller than her brother~~] than two years ago'
- b. ela está mais alta do que o irmão; muito mais [~~mais alta do que o irmão~~] do que estava há dois anos.  
'she is taller than her brother, quite more [~~taller than her brother~~] than two years ago'

In summary, there seems to be a scale of acceptability concerning multiheaded comparatives that express comparison of differences: those with ellipsis are more acceptable than those with haplology, and, among the latter, those that have an intensifier or a multiplicative are more easily accepted than those with a different kind of measure phrase or without measure phrases.

#### **4 Concluding remarks**

Contrary to the usual assumption, not all constructions with more than one comparative operator have the same kind of truth conditions. In fact, four possible readings of multi-headed comparatives were identified: distributive reading, cumulative reading, comparison of *ratios* reading and comparison of differences reading.

The comparison of differences reading is expressed by constructions with a particular syntactic configuration, with a sort of recursiveness of the comparative operators. However, this case of comparison of differences aside, there is not a one to one correspondence between the readings that multiheaded comparatives may express and syntactic structures. In fact, different readings were observed in the same syntactic configuration and the same reading is displayed by different syntactic structures.

Apart from the meaning conveyed by multi-headed comparatives, which in some cases may be felt as obscure, the acceptability of this kind of constructions is not always taken for granted. In fact, discourse multi-headed comparatives sound much better than those whose interpretation is made within sentential limits. Probably this is due to processing of linguistic information system rather than to purely grammatical reasons. Either way, the grammar allows, to a greater or lesser extent, the construction of multi-headed comparatives, a kind of structure that highly compresses information and thus is harder to interpret than other constructions.

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