Abstract

Comparative correlative (CC) constructions have received much attention in recent years. Major issues have been whether they involve special constructions and whether they have symmetric or asymmetric structures. Evidence from Romance suggests that they require special constructions and that they may be either symmetric or asymmetric. French has a single construction which is asymmetric for some speakers and symmetric for others. Spanish has two distinct constructions, one asymmetric and the other symmetric with quite different properties. The facts can be accommodated in a straightforward way within construction-based HPSG.

Introduction

Long neglected as part of the "periphery", comparative correlatives (CC) have been much studied recently.[↑] Culicover & Jackendoff (1999) propose (for English) that they are a special construction with a symmetric syntax and an asymmetric semantics. Borsley (2004) argues that they are one of a number of non-standard head-adjunct structures (in which the first clause is a syntactic adjunct). Den Dikken (2005) proposes a universal syntactic analysis of CCs as involving a subordinate (relative) clause adjoined to a main clause and claims that no special construction is needed.

We present here some new data from Romance languages showing that CCs require special constructions and that two syntactic patterns are available: an asymmetric pattern, as in English, Spanish (1a) or Italian (2a), and a symmetric pattern, as in Spanish (1b), or Italian (2b),

(1) Spanish
  a Cuanto más leo, (tanto) más entiendo
  how-much more I-read, (that-much) more I understand
  'The more I read, the more I understand'
  b Más leo (y) más entiendo
  more I-read (and) more I-understand
  'The more I read, the more I understand'

(2) Italian
  a Quanto più leggo, (tanto) più capisco
  how-much more I-read, (that-much) more I-understand
  'The more I read, the more I understand'

[↑] We want to thank for their comments the audience of the HPSG Conference, and especially Olivier Bonami, Danièle Godard, François Mouret, Petya Osenova, Carl Pollard, and Ivan Sag. We also thank for their judgements Paul Cappeau, Annie Delaveau, Marianne Desmets, Claire Blanche-Benveniste, Ángel Gallego, Brenda Laca, Sergio García, Oscar Garcia-Marchena, Jaume Mateu, Georges Rebuschi, Louisa Sadler, Marie-José Savelli, and Dan Van Raemdonck.

b Più leggo (e) più capisco
more I-read (and) more I-understand
'The more I read, the more I understand'

In contrast, French appears to have only one construction (3), but, depending on the speakers, it can be analysed as belonging to the symmetric or the asymmetric pattern.

(3) French Plus je lis (et) plus je comprends
more I read (and) more I understand
'The more I read, the more I understand'

We will look first at French and then consider Spanish. We will not discuss Italian, which does not seem to differ from Spanish in any substantial way.

1. The syntactic properties of French CC

1.1 The internal structure of each clause

In each clause, the fronted phrase can be AP, AdvP, NP or PP and must begin with a comparative form (*plus, moins, mieux, meilleur, moindre, pire*), or a predicative preposition (*en, de*):

(4) a [Plus brillante]$_{AP}$ est l' interprétation, [plus profond]$_{AP}$ est
more brilliant is the interpretation, more deep is
le ravissement de l' auditeur
the feelings of the listener
'The more brilliant the interpretation is, the deeper the listener's feelings are'

b [Plus vite]$_{AdvP}$ vous diagnostiquez, [meilleur médecin]$_{NP}$
more quickly you diagnose, better doctor
vous êtes
you are
'The faster you diagnose, the better a doctor you are'

c [Plus] tu te reposes, [en meilleure forme]$_{PP}$ tu seras à ton
more you you rest in better shape you will-be on your
retour
return
'The more you rest, the better, you feel when you return'

It cannot begin with a determiner (5a) or a non predicative preposition (5b):

(5) a *[Plus vite]$_{AdvP}$ vous diagnostiquez, [<u>un</u> meilleur médecin]$_{NP}$
more fast you diagnose, a better doctor
vous êtes
you are

b * [Plus] tu sors, [<u>avec</u> plus de gens]$_{PP}$ tu parles
more you go-out, with more of peole you talk

Fronted *plus* (or *moins*) can exhibit 'quantification at a distance' over an NP or AP, like other French degree adverbs (*combien, tant, beaucoup*...cf. Obenauer 1983) :

(6) a <u>Plus</u> l' interprétation est [brillante]$_{AP}$, <u>plus</u> le ravissement
more the interpretation is brilliant, more the feelings
est [profond]$_{AP}$
is deep
'The more brilliant the interpretation is, the deeper the listener's feelings are'

b [Moins d'argent]$_{NP}$ vous avez, [plus de mal]$_{NP}$ vous avez
less of money you have, more of trouble you have
pour vivre
for living
'The less money you have, the more trouble you have for living'

c <u>Moins</u> vous avez [d' argent]$_{NP}$, <u>plus</u> vous avez [de mal]$_{NP}$
less you have of money more you have of trouble
pour vivre
for living
'The less money you have, the more trouble you have for living'

In both clauses, the fronted constituent can be analysed as a filler, (as in English, cf. Ross 1967, Culicover and Jackendoff 1999, Borsley 2004), as shown by the possibility of an unbounded dependency, as in (7a), and by the possibility of stylistic nominal subject inversion, as in (7b), where '__' marks a gap :

(7) a <u>Plus</u> vous voulez avoir [de calme], [plus loin] il faut
more you want have of calm, more far it must
que vous alliez __
that you go
'The more quietness you want to-have, the further you have to go'

b Plus il voudra avoir de calme, [plus loin] devra
more he will-want have of calm more far will-have
partir __ Jean
go Jean
'The more quiteness he wants to have, the further Jean will have to go'

As in English, both clauses must be finite:

(8) a Je crains que plus je mange, plus je grossisse
I fear that more I eat more I get-fat
'I fear that the more I eat, the more I get fat'
b * Je crains de plus manger, plus grossir
I fear of more eat more get-fat

The internal structure of each clause is quite similar to what we find in English. However, French allows future morphology in the first clause, as shown in (7b), but does not allow a determiner before the comparative word.[1]

1.2. The relationship between the two clauses

As noted by Beck (1997), and Culicover & Jackendoff (1999) with regard to English, CC are interpreted like conditional sentences, which means that a sentence such as (3) can be paraphrased as 'Si je lis plus, alors je comprends plus' (If I read more, then I understand more).

We will call the first clause C1 and the second clause C2. These two clauses have a fixed ordering, like if-then clauses (cf Borsley 2004), but their syntax is quite different from that of conditional sentences.

First, as already noted, C1 can have future morphology (9a), which is not possible with an if-then clause (9b).

(9) a Plus Jean courra, plus il sera fatigué
more Jean will-run more he will-be tired
'The more Jean will run, the more he will be tired'
b *Si Jean courra, alors il sera fatigué
if Jean will-run then he will-be tired

Second, C2 cannot be an imperative or a question in CC (10a-b), whereas this is possible with an if-then clause (11):

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[1] As noted by Savelli, the item 'au' (which is an amalgam of the preposition *à* 'to' and the determiner *le* 'the') can precede the comparative in non standard varieties of French : *Au plus tu lis, au mieux tu comprends* (the more you read, the better you understand).

(10) a *Plus tu lis, plus apprends!
more you read more learn!
b *Plus tu lis, plus comprends-tu?
more you read more understand you
c Est-ce que plus on lit, plus on apprend?
is it that more one reads, more one learns?
'Is it the case that the more one reads, the more one learns?'

(11) a Si tu cours, alors ne te fatigue pas!
if you run then not you get-tired not
'If you run, don't get tired'
b Si Jean court, alors qui l' aidera?
if Jean runs then who him will-aid
'If Jean runs, who is going to help him?

The only way to ask a question is to embed the whole CC under an interrogative marker (*est-ce que*), as in (10c) (cf Savelli 1993). We do not want to discuss Beck's semantic analysis here, we simply want to add the constraint, using Ginzburg and Sag (2000)'s distinction between sentence types, that French CC clauses must be declarative clauses.

We are still left with the question of whether C1 is a subordinate clause or not in French. An answer to this question has been proposed by Den Dikken (2005) who claims that CC universally consist of a subordinate clause adjoined to a main clause. In his approach, C1 is analysed as a free relative clause, and the syntax of a CC is equivalent to something like: *However much I read, that much I understand*. As we show elsewehere (Abeillé and Borsley in prep), it is clear that C1 in French does not bear any similarity with a free relative. Free relatives in French must have the complementizer *que* after the fronted wh- element, and must have subjunctive morphology :

(12) a Où que tu ailles, je serai content,
where that you go-subj, I will-be happy
'Wherever you go, I will be happy'
b *Où tu ailles, je serai content
where you go-subj, I will-be happy
c *Où (que) tu vas, je serai content
where that you go-ind, I will-be happy

Den Dikken's answer is thus incorrect, but we still have to test whether C1 is some other kind of subordinate clause in French. For this, we use three syntactic tests: clitic subject inversion, extraction, and verbal mood. Clitic subject inversion is ruled out in subordinate clauses (13a), but it is possible in C1 (13b):

(13) a *Je pense que peut-être viendra-t- il
I think that maybe will-come he

b (Paul a peu de temps). Aussi plus vite commencera-t-il,
Paul has little of time so more fast will-begin he
plus vite aura-t- il fini
more fast will-have he finished
'Paul doesn't have much time. So the faster he starts, the faster he is done.'

If C2 is a main clause (and C1 an embedded clause), it is also expected that one can extract a complement out of C2 without extracting anything out of C1 (cf 14a). Extraction is indeed possible out of French CCs (cf 14a), but only out of both clauses simultaneously (14b):

(14) a C'est un livre, que si tu veux, je lirai __
it is a book that if you want I will-read

b C'est un livre que plus tu lis __, plus tu apprécies __
it is a book that more you read more you like
'It is a book that the more you read, the more you like'

c *C'est un livre dont plus tu le lis, plus tu te
it is a book of-which more you it read more you you
souviens __
remember

d *C'est un livre dont plus tu te souviens __, plus tu
it is a book of-which more you you remember more you
l' apprécies.
it like

If C2 is a main clause it is also expected that its verbal mood is selected (in embedded contexts) independently of the verbal mood of C1 (15b). We thus test CC embedded under a verb triggering the subjunctive mood (16). It is not possible to have the selected subjunctive form in C1 only (16a), which means that it is not the case that C1 is a main clause and C2 an embedded clause. With respect to subjunctive in C2, there is variation among speakers. Some speakers accept it only when there is also a subjunctive form in C1 as in (16c) (and reject 16b), while others can have subjunctive in C2 only as in (16b) (and reject 16c):

(15) a Il faudrait que l'on reçoive / *reçoit des aides
it must that one receives(subj / * ind) some help
'One should receive help'

b Il faudrait que si on en a besoin, on reçoive des aides
it must that if one of-it has-ind need one gets-subj some help
'One should, if one needs it, get help'

(16) a *Il faudrait que plus on en ait besoin, plus on
it must that more one of-it has-subj need more one
reçoit d' aides
gets-ind of help

b %Il faudrait que plus on en a besoin, plus on reçoive
it must that more one of-it has-ind need more one gets-subj
d'aides
of aids
'One would like that the more one needs it, the more help one gets.'

c %Il faudrait que plus on en ait besoin, plus on reçoive
it must that more one of-it has-subj need more one gets-subj
d'aides
of aids
'One would like that the more one needs it, the more help one gets'

We call speakers who require the same mood in both clauses speakers A, and those who don't speakers B. Speakers B may also accept the conjunction *et* between the two clauses in this context (although not all of them do). However**,** it is clear that (16b) cannot be analysed as a type of unlike coordination. It is true that one can coordinate a subjunctive clause and an indicative clause in French, as in the following example:

(17) a Jean a dit qu' il avait raison et qu' on aille
Jean has said that he has-ind right and that one goes-subj
au diable
to-the devil
'Jean said that he was right and that we should go to hell'

b Jean a dit qu'il avait raison
'Jean said that he was right'

c Jean a dit qu'on aille au diable
'Jean said that we should go to hell'

However, (17a) is only allowed because *dire* ('say') is a verb that takes both an indicative and a subjunctive complement clause in French (cf 17b, c). The situation is different with the French verb *falloir* ('must')**,** which only allows the subjunctive (cf 15). So we conclude that (16b) can only receive an asymmetric interpretation, with C1 as a subordinate clause and C2 as a main clause.

Some speakers (usually speakers B) also accept a clause with a fronted comparative as an adjunct clause, after an ordinary clause, outside CC constructions:

(18) %Ça risque d'empirer, plus le temps passe
'Things may get worse, the more time is passing'

In this case, as in the 'reversed' CC construction in English, it is clear that the second clause is a subordinate clause, while the first clause is just an ordinary main clause, with a comparative meaning but no comparative fronting.

Now let us return to speakers A. For them, as for all speakers, the conjunction *et* ('and') is optional, and each clause cannot stand alone as an independent clause. Thus, this is different from ordinary clausal coordination. Another difference from ordinary coordinate constructions (Savelli 1995) is that gapping is impossible:

(19) a Plus Paul lit Proust, (et) plus Marie lit Balzac.
'The more P reads Proust, the more M reads Balzac'

b *Plus Paul lit Proust (et) plus Marie Balzac
more Paul reads Proust, more Marie Balzac

If one analyzes gapped constituents as syntactic fragments (and thus non finite, cf. Culicover and Jackendoff 2005), one can capture this ungrammaticality by a contraint saying that in a CC each clause must be finite.

We conclude that the syntax of French CC is symmetric with respect to clitic inversion and to extraction, for all speakers. For A speakers, the syntax is completely symmetric and can be analysed as a subtype of coordinate phrase (with some specific constraints). For B speakers, the syntax is less symmetric: there can be syntactic asymmetry based on verbal mood, and the CC can be analysed as a subtype of head-adjunct phrase (with some specific constraints).

2. Spanish Comparative Correlatives

In Spanish, we find two distinct syntactic patterns for CC, more clearly than in French. We rely on Sánchez (2005)'s data for the asymmetric pattern, and on our informants for the symmetric pattern (which Sánchez ignores).

2.1. Internal structure of each clause

The fronted comparative begins with a comparative form (*más* 'more', *menos* 'less', *mejor* 'better', *menor* 'smaller', *mayor* 'bigger', *peor* 'worse') which can be premodified by *cuanto* 'how-much' (in C1), or *tanto* 'that-much' (in C2):[2]

[2] In the examples that follow *cuanto* 'how-much' and *tanto* 'that-much' show the required morpho-syntactic agreement.

(20) a (Cuantos) más libros leo, (tantas) más
(how-much-mpl) more books I-read (that-much-fpl) more
cosas entiendo
things I-understand
'The more books I read, the more things I understand'

b Cuanto más prescribas, [mejor médico]$_{NP}$ serás
how-much more you-prescribe better doctor you'll-be
'The more you prescribe, the better a doctor you will be'

The comparative phrase can begin with a preposition, but not with a determiner:

(21) a Cuanto más sales, [de mejor humor]$_{PP}$ te encuentras
how-much more you-go-out, of better mood you are
'The more you go out, the better you feel'

b *Cuanto más prescribas, [un mejor médico] serás
how-much more you-prescribe, a better doctor you'll-be

As in French and English, the fronted constituent can be analysed as extracted. It is indeed part of an unbounded dependency :

(22) Cuanto más uno quiere comprender, tanto más tiene
how-much more one wants learn that-much more has
que leer
that read
'The more one wants o understand, the more one has to read'

For *cuanto* and *tanto*, there are two options: they could be analysed as specifiers of comparatives, or as functional heads of each clause. The latter analysis is untenable, because it is clear that *cuanto* and *tanto* must occur inside the fronted comparative phrase. When the fronted phrase is a PP, they must occur after the Preposition:[3]

(23) a Con cuanta más gente hables, más vas a aprender
with how-much more people you-talk, more you-will-go to learn
'The more people you talk to, the more you will learn'

b *Cuanta con más gente hables, más vas a aprender
how-much with more people you-talk more you-will-go to learn

[3] Sanchez (2005) proposes that *tanto* is the functional head of the whole CC construction, taking C1 as a specifier and C2 as a complement. This analysis is untenable for the same reason.

c Cuanto más salgas, con tanta más gente
how-much more you-go-out with that much more people
hablarás
you-will-talk
'The more you go out, the more people you will talk to'

d *Cuanto más salgas, tanta con más gente
how-much more you-go-out, that-much with more people
hablarás
you-will- talk

We thus conclude that each clause in Spanish is a type of head-filler phrase, with a comparative phrase in the filler constituent. As in French and English, both clauses must be finite (24a). As in French, C1 can have future morphology (24b). C2 is normally a declarative clause. It may not be an imperative, but for some speakers it may be interrogative when C1 contains *cuanto*, and for some both clauses may be interrogative if *cuanto* is absent.

(24) a *Quisiera (cuanto) más leer, más comprender
I'd-like (how-much) more to-read more to-understand

b Cuanto más leerás, más entenderás
how-much more you-will-read more you-will-understand
'The more you read, the more you'll understand'

(25) a *Cuanto más comes, ¡más engorda!
how-much more you-eat, more you-get-fat-imp

b. %Cuanto más comes, ¿más engordas?
how-much more you-eat more you-get-fat
'The more you eat, the more you get fat?'

c. *¡Más come y más engorda!
more you-eat-imp and more you-get-fat-imp

d %¿Más comes y más engordas?
more you-eat and more you-get-fat
'The more you eat and the more you get fat?'

2.2 The relationship between the two clauses

In Spanish, two different CC constructions can be identified: the first one (with *cuanto*) disallows *y* ('and') insertion and displays asymmetry in mood or extraction, while the second one (without *cuanto*) permits *y*-insertion and requires syntactic similarities between the two clauses (same mood, and parallel extraction):

(26) a Cuanto más leo (*y) (tanto) más entiendo
how-much more I-read (*and) (that-much) more I-understand
'The more I read, the more I understand.'

b Más leo (y) más entiendo
more I-read (and) more I-understand

The *cuanto* clause is a subordinate clause, and can be used outside the CC as an ordinary adjunct clause in (27a). A plain comparative clause (with a fronted comparative but without *cuanto*) cannot (27b):

(27) a Entiendo más, cuanto más leo
I-understand more how-much more I-read
'I understand more, the more I read'
b *Entiendo más, más leo
I-understand more more I-read

Different verbal moods can occur in the asymmetric pattern (ex. (28a) is from Sánchez 2005), whilst the same mood is required in both clauses in the symmetric pattern (ex. 28b).

(28) a Es posible que cuantos más libros {lees/leas}
is possible that how-much more books you-read (ind/subj)
más {*sabes/sepas} del asunto.
more you-know (*ind/subj) of-the subject
'It is possible that the more books you read, the more you know on the subject'
b Es posible que más libros {*lees/leas} y más {*sabes/sepas} del asunto.
'It is possible that the more books you read, the more you know on the subject'

Extraction is posible out of C2 only, but not out of C1 only in the asymmetric pattern (ex. (29a,b) are from Sánchez 2005).

(29) a. Dime de quién$_i$ [[cuanto más lo conoces] menos
tell-me of whom how-much more him you-know less
te fías __ $_i$]
you-trust
'Tell me whom the more you know him, the less you trust'
b. *Dime a quién$_i$ [[cuanto más conoces __ $_i$] menos te fías
tell-me to whom how-much more you-know less you trust
de él]
of him

In contrast, extraction is not possible out of one clause only in the symmetric pattern (30a, b), but it is possible out of both clauses simultaneously (30c):

(30) a. *Dime de quién$_i$ más lo conoces y menos te fías __ $_i$
tell-me of whom more him you-know and less you trust

b. *Dime a quién$_i$ más conoces __ $_i$ y menos te fías de él
tell-me to whom more you-know and less you trust of him

c Este es [un tipo de aceite]$_i$ del que más uno compra __ $_i$
this is a type of oil of which more one buys
y más utiliza __ $_i$ en las ensaladas
and more one uses in the salads
'This is a type of oil which the more one buys, the more one uses in the salads'

We conclude that the symmetric CC in Spanish (without *cuanto*) is a non standard type of coordinate construction, and the asymmetric CC (with *cuanto*) is a non standard type of subordinate construction, with the *cuanto*-clause being the subordinate clause.

There are further differences between the two patterns. The order of both clauses is fixed with the symmetric pattern (for a given meaning) but, for some speakers, it is freer with the asymmetric pattern:

(31) a %(Tanto) más entiendo, cuanto más leo
that-much more I-read how-much more I-understand
'I understand more, the more I read'

b %Más me parezco a Scarlett Johansson,
more myself I-resemble to SJ,
cuanto más me maquillo
how-much more myself I-make-up
'I resemble more Scarlett Johansson, the more I make up'

Another difference is semantic. In the symmetric pattern the proposition denoted by C1 cannot be cancelled out, whereas in the asymmetric pattern it can:

(32) a. Más me maquillo y más me parezco a
more myself I-make-up and more myself I-resemble to
Scarlet Johanson (# pero no me maquillo)
SJ (but not myself I-make-up)
'The more I make up, the more I resemble Scarlet Johanson (#but I don't make up)'

b. Cuanto más me maquillo, más me parezco a
how-much more myself I-make-up more myself I-resemble to
Scarlet Johanson (pero no me maquillo)
SJ (but not myself I-make-up)
'The more I make up, the more I resemble Scarlet Johanson (but I don't make up)'

We conclude that Spanish has two CC patterns available: an asymmetric construction and a symmetric one, which differ both syntactically and semantically.

3. An HPSG Analysis

3.1. The internal structure of each clause

We rely on an EDGE feature (cf. Bonami et al. 2004), which is part of SYNSEM and has two values LEFT and RIGHT (each with their own *left* and *right* values). We define a LEFT feature [CORREL *string*] to identify the comparative correlative forms in the lexicon, and to percolate the information on the left edge of the clause. We define the EDGE feature principle as a default principle (which can be violated by specific constructions such as CC):

(33) EDGE feature Principle:

$$\text{phrase} \Rightarrow \begin{bmatrix} \text{SYNSEM} & \begin{bmatrix} \text{LEFT} & / [1] \\ \text{RIGHT} & / [2] \end{bmatrix} \\ \text{DAUGHTERS} & < [\text{LEFT} / [1]], \ldots [\text{RIGHT} / [2]] > \end{bmatrix}$$

The comparative forms in CC are specifiers or adjuncts to various categories (like other degree quantifiers) with a MOD feature selecting a scalar predicate (cf. Abeillé and Godard 2003), and a special feature [LEFT CORREL *compar*].We thus have the following forms for the adverb *plus* ('the more') and the predicative adjective *meilleur* ('the better') :

(34) a Lexical entry for correlative *plus*

$$\begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{adverb} \\ \text{MOD [CONT RELS } \{..[\textit{scalar - rel}]..\}\text{]} \end{bmatrix} \\ \text{LEFT} & [\text{CORREL } \textit{compar}] \end{bmatrix}$$

b Lexical entry for correlative *meilleur*

$$\begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{adjective} \\ \text{PRED} & + \end{bmatrix} \\ \text{LEFT} & [\text{CORREL } \textit{compar}] \end{bmatrix}$$

Other forms (with the same CORREL feature) are also defined for the specifier *plus* and the attributive adjective.[4]

We assume that the conjunction (*et*) and the predicative prepositions

4 For an HPSG analysis of quantification at a distance, see Abeillé et al. 2005.

inherit the LEFT CORREL feature from their complement.[5]

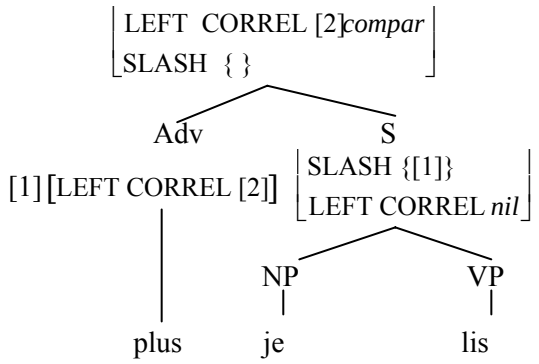
We also assume that comparative adverbs, like other French adverbs, can appear as complements in the ARG-ST list of the verb (cf Abeillé & Godard 2003) thanks to the Extended Argument Conservation Principle:

(35) Extended Argument conservation principle :

$$\textit{verb} \Rightarrow \begin{bmatrix} \text{HEAD}[0] \\ \text{VAL}\begin{bmatrix} \text{SUBJ} < [1] > \\ \text{COMPS}[2] + [3] - \text{list}(\textit{non - canon}) \end{bmatrix} \\ \text{ARG - ST} < [1] > + [2] + [3]\text{list}([\text{MOD}[\text{HEAD}[0]]]) \end{bmatrix}$$

Comparative adverbs can thus be extracted like ordinary complements.

We thus have the following representation for the first clause in (1) :



In Spanish, the comparative forms (e.g., *más* 'more') are similarly analysed as adverbs or specifiers, with a feature LEFT CORREL *compar*. As adverbs, they appear in the ARG-ST list of the verb and thus can be extracted. The markers *cuanto* 'how much' and *tanto* 'that much' are analysed as specifiers with two specific LEFT CORREL values. They both select a comparative phrase (by their SPEC feature), and are also (optionally) selected by the comparative forms (via their SPR features). We thus have the following lexical entries (with the sign 'v' for 'or'):

(36) a Lexical entry for correlative *más*

$$\begin{bmatrix} \text{HEAD [MOD [CONT RELS } \{...[\textit{scalar - rel}]...\}] \\ \text{VAL [SPR } < ([\text{FORM } \textit{cuanto} \text{ v } \textit{tanto}]) >] \\ \text{LEFT [CORREL } \textit{compar}] \end{bmatrix}$$

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[5] We follow Abeillé 2003, 2005 in analysing coordinate conjunctions as weak syntactic heads with a CONJ feature.

b Lexical entry for correlative *cuanto*

$$\begin{bmatrix} \text{HEAD [FORM } \textit{cuanto}\text{]} \\ \text{SPEC} \begin{bmatrix} \text{HEAD} \neq \textit{prep} \\ \text{LEFT [CORREL } \textit{compar}\text{]} \end{bmatrix} \\ \text{LEFT [CORREL } \textit{cuanto}\text{]} \end{bmatrix}$$

c Lexical entry for correlative *tanto*

$$\begin{bmatrix} \text{HEAD [FORM } \textit{tanto}\text{]} \\ \text{SPEC} \begin{bmatrix} \text{HEAD} \neq \textit{prep} \\ \text{LEFT [CORREL } \textit{compar}\text{]} \end{bmatrix} \\ \text{LEFT [CORREL } \textit{tanto}\text{]} \end{bmatrix}$$

The ungrammaticality of examples (23b,d) above is captured by the ban on prepositional phrases in the SPEC features of *cuanto* and *tanto*. Other entries are needed for the use of these forms as determiners (with obligatory agreement with the following Noun).

For French B speakers and for Spanish asymmetric CC we define a special type of adjunct clause (with a specific MOD feature):

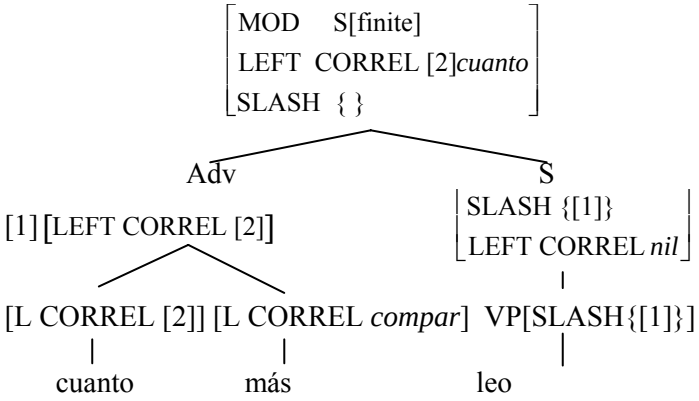
(37) a French B speakers

$$\textit{compar-clause} \rightarrow \begin{bmatrix} \text{SYNSEM} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{finite} \\ \text{MOD (S[} \textit{finite}\text{])} \end{bmatrix} \\ \text{LEFT CORREL } \textit{compar} \end{bmatrix} \\ \text{HD - DTR} < \text{[HEAD MOD non]} > \end{bmatrix}$$

b *cuanto*-clause $\rightarrow$

$$\begin{bmatrix} \text{SYNSEM} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{finite} \\ \text{MOD S[} \textit{finite}\text{]} \end{bmatrix} \\ \text{LEFT CORREL } \textit{cuanto} \end{bmatrix} \\ \text{HD - DTR} < \text{[HEAD MOD non]} > \end{bmatrix}$$

We thus have the following representation for the first clause in (2a):



3.2. The two types of CC constructions

We follow Borsley (2004) in assuming that CC belong to a family of specific correlative constructions which inherit from more general constructions of the language. Correlative constructions can be defined as binary clauses, each clause starting with a correlative phrase. We define a general (binary) correlative-clause type, that is suitable for CC and also for other correlative constructions, such as *as-so* constructions in English (cf Borsley 2004):[6]

(38) *correl-clause* →. *declar*-clause &

$$\begin{bmatrix} \text{SYNSEM} & \begin{bmatrix} \text{HEAD } \textit{finite} \\ \text{LEFT CORREL nil} \end{bmatrix} \\ \text{DAUGHTERS} & < [\text{LEFT CORREL} \neq \text{nil}], [\text{LEFT CORREL} \neq \text{nil}] > \end{bmatrix}$$

This is a subtype of declarative clause, with two daughters with a non *nil* LEFT CORREL feature, and no passing up of the LEFT CORREL value of the Daughters.

CC inherit from the general syntax of correlative constructions. French and Spanish data show that CC have two subtypes:

• symmetric CC, which inherits from coordinate phrases (Spanish and French A speakers)

• asymmetric CC, which inherits from head-adjunct phrases (Spanish and French B speakers)

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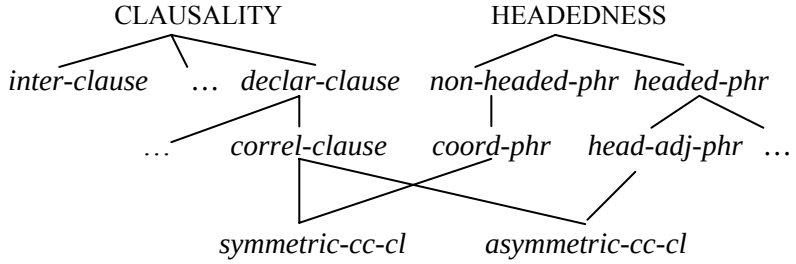
6 We include here constructions such as *if … then* clauses in English, or *tantôt … tantôt* constructions in French. We do not include Hindi type correlatives, which differ from our constructions in at least three properties: only the first clause is introduced by a correlative word, it is mobile and it is also optional (cf Pollard and Sag 1994).

We thus define the following clause hierarchy:

(39)



We now consider the two subtypes of cc-clauses. The symmetric subtype inherits from coordinate phrases. We assume that coordinate phrases are n-ary non-headed phrases with a (optional) conjunction inside one (or more) conjunct(s), and shared features between mother and daughters. A simplified version of the constraints on coordinate phrases is the following :[7]

(40) a Coordinate-phrase $\rightarrow$ $\begin{bmatrix} \text{SYNSEM CONJ nil} \\ \text{DTRS} \quad \text{list([CONJ nil])} + \text{list([CONJ [0]} \neq \text{nil])} \end{bmatrix}$

b Coordinate-phrase $\rightarrow$ non-headed-phrase &

$$\begin{bmatrix} \text{SYNSEM} \begin{bmatrix} \text{HEAD [1]} \\ \text{SLASH [2]} \end{bmatrix} \\ \text{DTRS} \quad \text{list}\left(\begin{bmatrix} \text{HEAD [1]} \\ \text{SLASH [2]} \end{bmatrix}\right) \end{bmatrix}$$

Constraint (40a) defines the coordinate phrase as n-ary, with any number of conjuncts without a conjunction, and any number of conjuncts with one (and the same) conjunction. Constraint (40b) defines two distributive features : HEAD and SLASH, and imposes morphosyntactic identiy and extraction identity between all conjuncts.

CC clauses inherit from correl-clauses and can be defined as follows for French (with 'v' meaning 'or'):

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7 For a reformulation with captures non identity between the conjuncts, see for example Sag (2002).

(41) a French A speakers :

symmetric-cc-cl → *correl-cl & coord-phr &*

$$[\text{DTRS} <[\text{LEFT CORREL compar}], \begin{bmatrix}\text{CONJ nil v et}\\ \text{LEFT CORREL } \textit{compar}\end{bmatrix}>$$

b French B speakers :

asymmetric-cc-cl → *correl-cl & head-adjunct-phr &*

$$\begin{bmatrix}\text{HD - DTR [0]}\\ \text{DTRS} \quad < \begin{bmatrix}\text{LEFT CORREL } \textit{compar}\\ \text{SLASH [1]}\end{bmatrix}, [0] \begin{bmatrix}\text{CONJ nil v et}\\ \text{LEFT CORREL } \textit{compar}\\ \text{SLASH [1]}\end{bmatrix}\end{bmatrix}$$

c French B speakers :

asymmetric-cc-cl → NON-HD-DTR precedes HD-DTR

Constraint (41a) defines the symmetric type of CC (for A speakers) : it inherits from coordinate phrases, and has an optional conjunction *et* (‘and’) in the second conjunct. Constraint (41b) defines the asymmetric type of CC (for B speakers) : it inherits from head-adjunct phrases, and the second clause is the Head daughter, with an optional conjunction *et* (‘and’). The constraint on similarity of extraction (cf examples 15 above) is captured by identity value of the SLASH feature of each daughter. Constraint (41c) imposes that in the asymmetric construction, the head daughter is always the second daughter.

Spanish has two subtypes of CC clauses with very similar descriptions :

(42) a *symmetric-cc-cl* → *correl-cl & coord-phr &*

$$[\text{DTRS} <[\text{LEFT CORREL compar}], \begin{bmatrix}\text{CONJ nil v y}\\ \text{LEFT CORREL } \textit{compar}\end{bmatrix}>$$

b *asymmetric-cc-cl* → *correl-cl & hd-adjunct-phr &*

$$\begin{bmatrix}\text{HD - DTR [0]}\\ \text{DTRS} \quad < [\text{LEFT CORREL } \textit{cuanto}], [0][\text{LEFT CORREL } \textit{tanto} \text{ v nil}]\end{bmatrix}$$

Constraint (42a) defines the symmetric type of CC in Spanish: it inherits from coordinate phrases, and has an optional conjunction *y* (‘and’) in the second conjunct. Constraint (42b) defines the asymmetric type of CC in Spanish: it

inherits from head-adjunct phrases, and the second clause is the Head daughter. The *cuanto* element is obligatory in C1 and with an optional *tanto* element.

Conclusions

Comparative correlatives (CC) inherit from other constructions in each language but require specific constructions. Two syntactic patterns are clearly available for Spanish, a symmetric one (with the conjunction *y*) which can be analysed as a particular case of a coordinate construction, and an asymmetric one (with the specifier *cuanto*) which can be analysed as a particular case of a subordinate construction (like English CC). French only has one CC construction, which behaves as a symmetric construction (with the conjunction *et*), but with, for some speakers, a few asymmetric properties.

We conclude that two different syntactic patterns are needed for CC constructions crosslinguistically (contra Den Dikken 2005). Their semantics remains to be investigated.

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