

Gender agreement on adverbs in Spanish

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Abstract

In this article we explore the exceptional gender agreement of the Spanish adverb mucho ('much'), when it modifies comparative adjectives inside DPs that contain a particular type of noun (as in mucha_{fem} mejor intención_{fem}, 'much better intention'). This phenomenon, which we describe in detail, raises crucial questions both about the mechanisms of agreement and about the nature of gender in a language such as Spanish. We will argue on the basis of our analysis that agreement is not semantically motivated, but blindly triggered by certain formal configurations. We will also argue that – at least in languages such as Spanish – gender information is scattered in two different positions inside the DP.

1. Introduction. Agreement and Gender from the theoretical point of view

One of the pervasive problems that linguistic theories must confront is the phenomenon known as *agreement*. Agreement is generally considered as a relation established between categories with a direct grammatical – and semantic – connection, for example, as a device to identify the grammatical dependencies between predicates and arguments or between operators and variables. In this article, we will discuss an agreement phenomenon found in Spanish which shows that an agreement relation can be established between categories with no direct grammatical or semantic connection. The empirical fact we will try to explain is the gender agreement relation that is established in examples like *su mucha mayor atención* ('her much_{fem} bigger attention_{fem}') between the adverb *mucho* ('much'), which is grammatically connected with the comparative adjective, and the feminine noun. We will show that this kind of phenomenon supports the hypothesis that agreement is a formal property that, at least sometimes, can be blindly imposed by some configurations,

irrespective of the grammatical and semantic connection of the categories involved.

The properties of gender as a grammatical category will also be explored in this paper. Its special nature can be seen, for example, when we compare it to number, a closely related grammatical category that frequently amalgamates with it morphologically. Number has a clear semantic correlation and the possible values of number are bounded cross-linguistically; languages have at most five number values – singular, dual, trial, paucal and plural –, and those values can be defined on the basis of an independently motivated system of privative features (Harbour 2007). As opposed to number, gender does not exhibit straightforward semantic correlations. In a language like Spanish, the fact that *mesa* ('table') belongs to the so-called feminine class, while the noun *reloj* ('clock') belongs to the masculine class, does not have any obvious semantic motivation. This has led many scholars to propose that gender is an idiosyncratic property of words which has to be stated for each lexical item separately (Alexiadou 2004). Vis-à-vis this semantic opacity, the number of gender classes that a language uses to classify nouns oscillates from zero – in English – to ten or more – for example, Luganda, a Bantu language, has ten arbitrarily defined classes. In this paper we will discuss to some extent the right way to represent gender syntactically inside the DP in a language such as Spanish, where most nouns are arbitrarily classified in a gender class. In fact, Spanish has two properties that make it relevant for the study of gender: this language marks gender with designated morphemes that indicate the gender class to which nouns belong – called desinences in the Romance linguistic tradition – and there is overt gender agreement between nouns and categories such as determiners or adjectives inside the DP.

2. The empirical phenomenon: exceptional agreement of the adverb *mucho*

The agreement phenomenon that constitutes the empirical basis of this paper is illustrated in (1). In these examples, the adverb, *mucho* ('much'), which is a modifier of the comparative adjectives *mejor* and *mayor* (see section 2.1), agrees with the noun head of the DP in feminine gender.

- (1) a. Esto lo he hecho con mucho mayor intención.
 this it_{ACC} have-1sg done with much-fem better intention-fem
 'I have done it with much better intention.'
- b. Has de poner mucho mayor atención.
 must-2sg of put much-fem bigger attention-fem
 'You must pay much more attention.'

This agreement pattern was first noticed in Spanish traditional grammar by Cuervo (1886-1893) with respect to the adverb *cuanto* ('how much'), (2).

- (2) ...se puede coligar cuánta mejor vida tiene en su casa...
 ...can-3sg be understood how-much-fem better life-fem has at
 home... [*apud* Octavio de Toledo & Sánchez López, *to appear*]

Three properties make the agreement pattern in (1) exceptional. The first one is that agreement usually reflects a direct grammatical dependency between the categories implied, which, in turn, has implications for the semantics of the structure. In (1), however, there is no direct grammatical dependency between the adverb *mucho* and the nouns *intención*, *atención*. Section 2.1 will show that the adverb modifies the comparative adjective and qualifies the comparison expressed by it. The second surprising property of the agreement pattern shown in (1) is that it is limited to gender agreement; number agreement between *mucho* and the noun is impossible, as we will see in 2.2. Finally, the agreement pattern in (1) is restricted to a particular (sub)class of nouns (section 2.2). Despite these peculiarities, this pattern of agreement is well-attested in Spanish. Native speakers judge ungrammatical the sentences in (3), where the adverb *mucho* does not show feminine gender agreement with the noun.¹

- (3) a. ??/* Hazlo con mucho mayor disposición.
 do-it with much-masc better disposition-fem
 b. ??/* Mostró una mucho mayor atención.
 showed-3sg a much-masc bigger attention-fem

2.1. The syntactic structure of *mucha mejor intención*

The goal of this section is to show that the structure of the constructions underlined in (1) is the one in (4a), where the adverb *mucho*, with the feminine ending *-a*, is an adverb that forms a constituent with the comparative adjective and measures the difference between the arguments introduced by the comparative degree with respect to the property denoted by the adjective. Empirical evidence supports the hypothesis that the structure of *mucha mejor intención* or *mucha mayor atención* is not the one depicted in (4b), where *mucha* is a quantifier that forms a constituent with the noun.

¹ It must be noted that constructions without agreement of the type shown in (3) can be found in some corpora. Interestingly, all cases are found in textbooks and other pieces of academic writing (i), so that lack of agreement can be related to normative pressure. Crucially, when confronted with these data, native speakers consider the whole sentence ungrammatical.

(i) ...la mucho mayor amplitud de los tiempos prehistóricos sobre los históricos...
 ...the much-masc bigger length-fem of the time prehistorical over the historical...
 (V. M. Fernández Martínez, *Teoría y método de la arqueología*; CREA)

- (4) a. con [[[mucha] mayor] atención]
 b. con [[mucha] [mayor] atención]

As can be inferred from our previous discussion, *mucho*, as a lexical item, is ambiguous. It can be a weak quantifier modifying the noun inside the DP, as in *Tener [muchos libros]* ('to have many books'). In this case, *muchos* forms a constituent with the noun and regularly shows inflection in gender and number (*mucho*_{masc.sing} / *mucha*_{fem.sing} / *muchos*_{masc.pl} / *muchas*_{fem.pl}). However, *mucho* can also be a degree adverb which shares with the weak quantifier the property of containing a morphological constituent, the suffix *-o*, which can be used to express gender inflection. We will show in this section that the form *mucha* that we find in the cases under study here is the degree adverb.

The first piece of evidence that confirms that *mucha mejor intención* has the structure in (4a) has to do with the semantic compatibility of *mucho* and adjectives that denote scarcity, such as *escaso*. Consider the examples in (5). If *mucho* in (5a) modified the noun *atención*, thus behaving as a nominal quantifier, we should get a reading, assuming no stipulative interpretative rules, in which the amount of the entity denoted by the noun is abundant. The presence of an adjective like *escaso*, which indicates that the amount of attention paid by someone is scarce, should give rise to semantic incompatibility. We would expect (5a) to be, at least, pragmatically odd, contrary to fact. Note that this is exactly what happens in (5b), where *mucho* is a nominal quantifier.

- (5) a. su aún escasa pero sin embargo much-a mayor atención
 her still reduced but, however, much-fem bigger attention-fem
 b. # su aún escasa pero sin embargo much-a atención
 her still reduced but, however, much-fem attention-fem

If the structure of the fragment underlined in (5a) is the one represented in (4a), the semantic compatibility with adjectives like *escaso* is explained. *Mucho*, when combined with comparative adjectives, behaves like an adverb that measures the difference between the arguments of the comparative degree with respect to the property denoted by the adjective. So, in (5a), *mucho* measures the difference between the quantity of attention that someone pays now and the quantity of attention she paid before, and that is not incompatible with stating that the amount of attention is still reduced. As expected, if the comparative adjective is removed from the construction, forcing *mucho* to be interpreted as a nominal quantifier modifying the noun *atención*, semantic incompatibility arises, (5b).

Another piece of evidence showing that *mucho* is not a nominal quantifier in *mucha mayor intención*, and thus supporting the structure in (4a), has to do with the compatibility of *mucho* and certain indefinite determiners. As can be

seen in (6), when *mucho* acts as a weak quantifier modifying the noun inside the DP, it is incompatible with the indefinite determiner *un/una* ('a'). On the other hand, the example in (7) shows that there is no such incompatibility in the cases under study, which, again, supports the structure in (4a) for the underlined constituent.

- (6) a. Mostró mucha atención.
 showed-3sg much-fem attention-fem
 b. *Mostró **una** mucha atención.
 showed-3sg a-fem much-fem attention-fem
- (7) Mostró **una** mucha mayor atención.
 showed-3sg a-fem much-fem bigger attention-fem

Finally, standard constituency tests show independently that *mucho* can form a constituent with a comparative adjective. For example, sentences like those in (8) show that *much-a+comparative adjective* can form a constituent that is affected by movement.

- (8) a. Mucha mayor es la atención que muestra ahora.
 much-fem bigger is the attention-fem that is paying now
 b. ...mucha mayor es mi aversión al pus (*El País* [España],
 16/12/1980; CREA).
 ...much-fem bigger is my aversion-fem to pus

Thus, we conclude that the adverb *mucho* in constructions like *mucha mayor atención*, where it displays the feminine marking *-a*, modifies the comparative adjective, not the noun. The adverb and the noun are not linked by a direct grammatical dependency.

2.2. Conditions on the exceptional agreement of the adverb *mucho*

As we have previously mentioned, the agreement pattern found in *mucha mejor intención* only arises under certain conditions. These conditions, related to particular properties of the elements inside the DP, are discussed in this section.

First, the exceptional agreement of the adverb *mucho* is only possible if the feminine noun is singular. If the feminine noun is plural, the adverb *mucho* that modifies the comparative adjective displays the ending *-o*, and singular number: *Las escasas pero mucho mejores oportunidades que ofrecen* ('The few but much better opportunities that they offer'). Examples like (9) illustrate a different kind of structure where *mucho* is not interpreted as an adverb modifying the comparative adjective but a quantifier modifying the noun; thus, the interpretation of the DP in (9a) is 'with many and bigger abilities' (hence the semantic incompatibility of *Sus pocas pero muchas*

mayores capacidades, ‘Her few but many bigger abilities’ – cf. (5)). When there is plural agreement, the adverb *mucho* does not form a constituent with the comparative adjective, as the ungrammaticality of the example in (9b) shows (cf. (8)).

- (9) a. con sus muchas mayores capacidades
with her-pl many-fem-pl bigger-pl abilities-fem-pl
b. *Muchas mayores son sus capacidades.
many-fem-pl bigger-pl are her-pl abilities-fem-pl

Second, the exceptional agreement of *mucho* is only possible with adjectives in prenominal position, as the contrast in (10) shows. Postnominal adjectives are therefore excluded from this construction.

- (10) a. una mucha mayor prodigalidad
a much-fem bigger prodigality-fem
b. *una prodigalidad mucha mayor
a prodigality-fem much-fem bigger

However, the type of determiner that combines with the noun is not relevant for the agreement pattern under study. The exceptional agreement of *mucho* is found in indefinite NPs, (11a), definite NPs, (11b), and also in bare NPs – this is, numerically, the most frequent construction found in corpora, (11c).

- (11) a. Lo que queremos es una mucha mayor competencia en
what want-1pl is a-fem much-fem bigger competence-fem in
esos servicios (CREA Oral, México).
these services
b. ...la mucha mayor familiaridad del público
...the-fem much-fem bigger acquaintance-fem of-the public
com las ideas de Freud (S. Giner, *Teoría sociológica clásica*; CREA).
with the ideas of Freud
c. Tuvo mucha peor intención que en otras
had-3sg much-fem worse intention-fem than in other
ocasiones (ABC, 15/06/1989; CREA).
occasions

The exceptional agreement of *mucho* is possible not only with synthetic comparative adjectives but also with analytic comparatives:

- (12) a. ...son de mucha más fácil apropiación
...are-3pl of much-fem more easy appropriation-fem
(*Salud Pública de México*, 11-12/2003; CREA).

- b. ...tendrían una mucha más amplia distribución
 ...would.have-3pl a-fem much-fem more wide-fem distribution- fem
geográfica (*Revista Médica del Uruguay*, 08/2001; CREA).
 geographical-fem

What seems to be crucial for the construction is the type of noun that the adjective modifies. The agreement pattern we are describing is restricted to mass nouns, (13a), and what could be characterised in a loose sense as ‘abstract’ nouns, (13b). However, nouns that refer to animate entities and count nouns do not trigger the exceptional agreement of *mucho*. This is confirmed both by native speaker intuitions and in corpora, (14).²

- (13) a. Esta playa tiene mucha mejor **arena**.
 this beach has much-fem better sand-fem
 b. Ahora tengo mucha mejor **intención**.
 now have-1sg much-fem better intention-fem
- (14) a. Yo soy {mucho / *mucha} major **amiga** tuya.
 I am {much-masc / much-fem} better friend-fem of yours
 b. Esta es {mucho / *mucha} mejor **aspiradora**.
 this-fem is {much-masc / much-fem} better vacuum cleaner-fem.
 c. su única pero {mucho / *mucha} más valiosa
 her only but {much-masc / much-fem} more valuable
gargantilla
 necklace-fem

Although we will provide an explanation for this whole pattern in section 5.3, we will first concentrate, for the sake of clarity, in the distinction between animate and abstract nouns. When we consider the way in which the nature of gender in animate and abstract nouns is different, there is an intuition that we would like to capture in our analysis. The intuition is that gender in Spanish animate nouns has a direct and straightforward translation into a semantic notion: biological gender. Animate nouns with feminine gender typically correspond to female individuals and animate nouns with masculine gender denote males, in such a way that it can be said that gender in these nouns contributes to the semantic interpretation of the word.³ In a grammatical

² For some speakers the exceptional agreement of the adverb *mucho* extends to bare nouns in predicative position (especially in copular sentences of the type in 14b), independently of the class to which they belong. We will not analyse these data, but we would like to suggest that, for these speakers, this syntactic construction turns the noun into a mass noun.

³ Notice that we do not claim that gender in an animate noun straightforwardly represents the biological gender of the entity denoted – classified by biology as male or female. The reason is that Spanish, as other languages, has animate nouns fixed in masculine or feminine which are used to denote human entities irrespective

system where syntax feeds semantic and phonological interfaces, this amounts to saying that gender in animate nouns is interpretable at the semantic interface. In contrast, gender seems to be a purely arbitrary property in abstract nouns. To the best of our knowledge, there is no reason for a noun like *interés* ('interest') to be masculine, or for a noun like *gloria* ('glory') to be feminine, apart from possible historical – that is, accidental and idiosyncratic – reasons. This means that gender in an abstract noun does not contribute to the semantic interpretation of the word and is, therefore, not legible at the semantic interface. In section 4, we will develop a syntactic analysis for the exceptional agreement pattern of *mucho* which builds on and refines this general intuition. But, first, in section 3, we will discard a purely morphological explanation of the facts described.

3. Agreement of the adverb *mucho*: A syntactic or a morphological operation?

The fact that the exceptional agreement pattern of the adverb *mucho* is subject to very specific constraints could in principle suggest that the phenomenon has to be handled in a level other than syntax. Recall that the adverb *mucho* agrees in gender with a feminine noun inside the DP, but there is no grammatical dependency between the adverb and the noun and the agreement relation does not have any impact in the semantic component. For this reason, there is initial appeal in describing the agreement pattern as a case of what Distributed Morphology (DM; Halle & Marantz 1993) calls *post-syntactic operations* that take place in the morphological component, in the PF branch of the grammar. In this short section we will present the general guidelines of a possible analysis of this kind and our reason to reject any analysis of the exceptional agreement of *mucho* which is based on post-syntactic operations.

The intuition that gender is interpretable in animate nouns, while it is an idiosyncratic non-interpretable property in abstract nouns, can be captured in the DM framework by the Feature Disjointness Hypothesis (Marantz 1995): constituents without syntactic or semantic information – for example, conjugation markers – are introduced after syntax, as Dissociated Morphemes (Oltra 1999). In this way, it could be claimed that gender in animate nouns is introduced as a syntactic feature, legible at the semantic component, LF, while in abstract nouns it is a dissociated morpheme inserted after syntax. If we additionally assume an operation of feature copying that takes place in the PF branch, that is, after syntax (as proposed in Embick & Noyer 2001), the different behaviour of animate nouns and abstract nouns with respect to the agreement pattern we are considering follows. A DM analysis would claim

of their biological gender: *víctima*, 'victim', *bebé*, 'baby', *persona*, 'person', etc. Our proposal is more general and is detached from world knowledge considerations: with this class of nouns lexical gender is interpreted as inclusion in a kind which has biological gender.

that the gender value of a noun like *atención*, which is feminine, is copied in PF onto the adverb *mucho* (*mucha mayor atención*), ignoring syntactic constituency. This operation is not syntactic, and, therefore, it is not expected to behave like syntactic agreement. It is a PF operation that can only be applied to elements introduced in PF, and, therefore, cannot target gender of animate nouns, because this feature is introduced in the syntactic component (hence, the ungrammaticality of **mucha mejor amiga*).

Presumably, it could be argued that this feature copying operation in PF is restricted to specific domains, for example, morphophonological domains where prosodic units are defined. This could capture the fact that the adverb *mucho* gets feminine marking only if it is in prenominal position. Current models of the syntax-prosody mapping (see Dehé & Samek-Lodovici 2007 for an overview) predict that a Noun-Adjective sequence is parsed into two prosodic domains (if this order is derived via NP movement inside the DP, as we assume following Cinque 2005). Therefore, in examples with postnominal adjectives like (10b) – **Una prodigalidad mucha mayor* –, the adverb *mucho* and the noun will always be in different morphophonological domains, and therefore the feature copying operation cannot take place between them. However, in Adjective-Noun sequences, prenominal adjectives can be parsed in the same prosodic domain as the head noun, and, therefore, feature copying may apply.

We don't go into further details here, but we note that the main characteristics of the phenomenon can be straightforwardly explained with operations that were independently proposed in DM. Empirical reasons, however, lead us to reject this kind of analysis. Consider the contrast in (15).

- (15) a. [Mucha mayor] fue [la atención mostrada]
 much-fem bigger was the attention-fem paid
 b. [La atención mostrada] fue [{mucho / *mucha} mayor]
 the attention-fem paid was {much-masc / much-fem} bigger

In this kind of structures, the agreement relation between *mucho* and the feminine noun can take place if the complex *mucho+adjective* appears in precopular position, (15a); it is impossible if the complex *mucho+adjective* appears in postcopular position, (15b). Notice that in the DM kind of analysis sketched above, this agreement relation is conceived as feature copying after syntax, in the PF branch of the grammar, so, to explain the contrast in (15), it must be assumed that in (15a) the group *mucho+adjective* and the feminine noun belong to the same morphophonological domain at some point and, after this domain is defined, movement of the group *mucho+adjective* takes place. However, some questions arise. What could trigger the movement of what seems to be a syntactic constituent in the morphological component? Why should the elements moved form a syntactic constituent – as it is the case –, and not a phonological or a morphological constituent? Leaving aside the

problems raised by these questions, the purely morphological explanation we outlined above would have to appeal to a different and stipulative definition of the morphophonological domains in (15a) and (15b) that makes feature copying possible in the first case and impossible in the second one.

The fact that syntactic constituency and purely syntactic operations, like movement, seem to be crucial to explain the agreement pattern of the adverb *mucho* in structures like (15a) constitutes our main reason to reject a purely morphological analysis of the kind outlined in this section. In the remainder of the paper, we will explore a syntactic explanation for the exceptional agreement of the adverb *mucho*.⁴

4. Exceptional agreement in syntax and the nature of gender in the DP

4.1. Agreement as a syntactic process and the interpretability of gender

In this section, a purely syntactic analysis for the pattern of agreement exhibited by the adverb *mucho* will be developed. We will take as our point of departure the hypothesis that there is no level other than syntax where information about the gender of nouns can be inserted, irrespective of the kind of noun involved (abstract vs. animate).

However, this theoretical position must capture the basic intuition about gender presented in section 2, namely that gender in animate nouns provides information that is legible in the semantic component, while gender in abstract nouns does not. To capture this intuition, we make the following assumption about the interpretability of features in the syntactic configuration, (16).

- (16) Every feature is interpretable at least in one position in the functional sequence.

The existence of purely non-interpretable features, such as Case (Chomsky 2004), is problematic for a model where, by assumption, syntax is a system designed to feed two independent interface levels with relevant information (about this problem, see Pesetsky & Torrego 2001, Svenonius 2007). The hypothesis presented in (16) does not have this problem to the extent that it does not presuppose that uninterpretable features are introduced in the derivation without value. Under the assumption in (16) it is possible that a feature is introduced with a value but in a domain inside the functional sequence where it cannot be interpreted, in such a way that the constituent containing the feature needs to move to another functional domain where it can be interpreted. As we will see shortly, we will contend that this is the case

⁴ Our claim is that (15) poses serious problems for any post-syntactic explanation of the phenomenon under investigation, and that, given that the syntactic configuration is what matters in (15), a syntactic explanation is called for. However, we will not pursue an analysis of (15) here.

with gender in some classes of nouns. Notice, also, that the principle in (16) is also compatible with a more standard minimalist implementation where the lexical gender feature of some nouns is introduced without value and requires movement to the determiner domain to become valued.

Combining the intuition about the interpretative difference between gender in animate and in abstract nouns with the hypothesis in (16), we propose that gender in animate nouns is interpretable inside the NP, but gender in abstract nouns is not interpretable inside that projection. Therefore, there must be another projection inside the DP architecture where gender is interpretable in the case of abstract nouns. The two immediate questions that must be answered at this point are: What is this higher projection? What is responsible for this dual nature of gender?

4.2. *The structure of the DP*

To answer these questions, let us first make explicit our assumptions about the internal structure of the DP. We basically follow the proposal in Cinque (2005). According to Cinque, the universal structural hierarchy in (17) can derive, with a minimal number of assumptions, all and only the possible word orders inside the DP for the known natural languages.

(17) Determiner > Number > Adjective > Noun

We introduce in this hierarchy some additional projections, (18). First, on a par with NumberP (NumP), we introduce GenderP (GenP) in the Determiner domain. As functional projections dominating the adjective and specifying the degree information associated with it we introduce MeasureP and DegreeP (DegP). Finally, inside the Noun domain, we propose the existence of a ClassifierP which also introduces in the structure information about gender.

(18) [_{DP} D [_{NumP} Num [_{GenP} Gen [_{MeasureP} Measure [_{DegP} Deg [_{AP} A [_{NP} N [_{ClassifierP} Class]]]]]]]]]]]]

Some of these projections have been argued for independently in the literature and are considered standard in almost every study on DP structure. This is the case of DegP, which could even be decomposed into two independent heads (Corver 1997). The proposal of a MeasureP on top of DegP and the hypothesis that gender information is scattered in two places inside the DP are central to our explanation of the exceptional agreement of *mucho*, and therefore will be explicitly motivated in the next two subsections.

4.2.1. *Degree phrases and measure phrases*

The fact that measurability is a semantic category that cross-cuts morphological distinctions has already been noted in the literature (Kennedy & McNally 2005). Here we will focus on the combination of measure phrases with comparative adjectives. Consider (19) (19a, from Kennedy & McNally 2005).

- (19) a. Yao is 5 feet taller than Julian.
 b. Yao es 5 pies más alto que Julian.

The phrase *5 feet/5 pies* measures the difference in height between the compared objects. In Kennedy & McNally's (*ibidem*) words, the measure phrase restricts a "differential argument introduced by the comparative morpheme that denotes the difference (in height, in this case) between the arguments of the comparative". That is, the phrase *5 feet* is semantically linked to the comparative degree. From here it follows that, conceived as a syntactic category, MeasureP has to dominate DegP. In a parallel fashion, *mucho* behaves as a measure phrase in *mucho más alto*. What *mucho* means in this context is that the difference in height between the (implicitly or explicitly) compared objects is big. *Mucho* restricts the differential argument introduced by the comparative morpheme that denotes the difference (with respect to a concrete property: height) between the arguments of the comparative.

So far, we have shown that *mucho* is semantically a measure phrase, but there is also evidence that it projects onto an independent syntactic constituent that we will label MeasureP, following Svenonius' (*to appear*) work on adpositions. This node is a designated locus to introduce measure information. Notice that *mucho* is incompatible with other constituents that introduce this semantic notion, (20).

- (20) a. dos metros más alto
 two meters more tall
 b. mucho más alto
 much more tall
 c. *dos metros mucho más alto
 two meters much more tall

The incompatibility between *dos metros* and *mucho*, and hence the ungrammaticality of (20c), is straightforwardly explained if the two elements are competing for the same syntactic position, that is, MeasureP. We propose that the structure of *mucho más alto* ('much more tall') is the one represented in (21).

- (21) [_{MeasureP} *mucho* [_{DegP} *más* [_{AP} *alto*]]]

4.2.2. Two loci for gender information in the DP

As we said above, we propose that gender information is present in two different projections inside the (extended) DP structure. The intuition behind this proposal is that gender behaves the way it does precisely because it has a dual role inside the DP. Gender information is present both inside the NP (in ClassifierP), as a lexical property selected by every nominal item – which

could (but need not) contribute to its semantic interpretation –, and in the determiner domain (codified in GenP), as a property of the whole DP. At this level, gender is visible in the semantic component because it helps establishing semantic relations between the DP and other elements in discourse, such as, for example, coreference relations. We will assume, then, that gender information is always interpretable at the DP level (that is, in GenP). The dual nature of gender is visible in some constructions where the gender information of the NP and the gender information of the DP do not coincide. Consider the examples in (22).

- (22) a. El niño es un plasta.
 the boy-masc is a-masc substance
 ‘the boy is an annoyance’.
 b. El niño es un rata.
 the boy-masc is a-masc rat
 ‘the boy is extremely greedy’.

Interestingly, the nouns *plasta* (‘substance’), and *rata* (‘rat’) are feminine as lexical items: *la plasta*, *la rata*. However, in these constructions, where the NPs *plasta* and *rata* behave as predicates, the masculine gender of the predicative DP (*un plasta*, *un rata*) is determined by the gender of the referential DP it is predicated of (*el niño*), and is therefore distinct from the gender of the NP that it contains. Within our proposal, in the DPs *un rata*, *un plasta*, the ClassifierP selected by the nouns *rata* and *plasta* encodes feminine gender information while the GenP encodes masculine gender information, as imposed by the relation established with the DP *el niño*.⁵

The position of ClassifierP with respect to NP, (23), can be determined by independent principles of selection: given that a particular lexical item selects a particular gender class, ClassifierP must be the complement of NP and not the other way round.

- (23) [_{NP} N [_{ClassifierP} Classifier]]

As for the position of GenP inside the determiner domain, usual considerations about morpheme order based on the Mirror Principle (Baker 1985) determine that it must be a projection lower than NumberP. Notice that

⁵ The empirical data in Portuguese are different from those in Spanish. For example, sentences such as (22) are ungrammatical in Portuguese, as an anonymous referee points us (**O miúdo é um besta* vs. *El niño es un bestia*). Notice also that gender agreement is not necessary to establish a predicative relation between two DPs, and with some nouns, gender agreement is not possible (cf. *Juan es una maravilla*). However, our proposal is that, when gender agreement is possible as in *El niño es un plata*, *El niño es un rata*, the connection between lexical gender (the Classifier) and referential gender (gender in the determiner domain) is interrupted because the denotation of the noun is not used to identify the referent of the DP.

in languages where there are separate morphemes for gender and number, such as Spanish, gender is internal to number (*niñ-_{O_{gender}}-_{S_{number}}*, ‘boys’).

5. Explaining the agreement paradigm of the adverb *mucho*

Let us see now how the tools which have been introduced in the previous sections help us to explain the exceptional agreement of the adverb *mucho*. In 5.1, the agreement properties of *mucho* with abstract and animate nouns will be considered. In 5.2, the fact that plural number blocks the exceptional agreement of *mucho* will be accounted for. In section 5.3, we will explore the connection between the count/mass distinction and the agreement properties of the adverb *mucho* in the construction under consideration.

5.1 The contrast between abstract and animate nouns

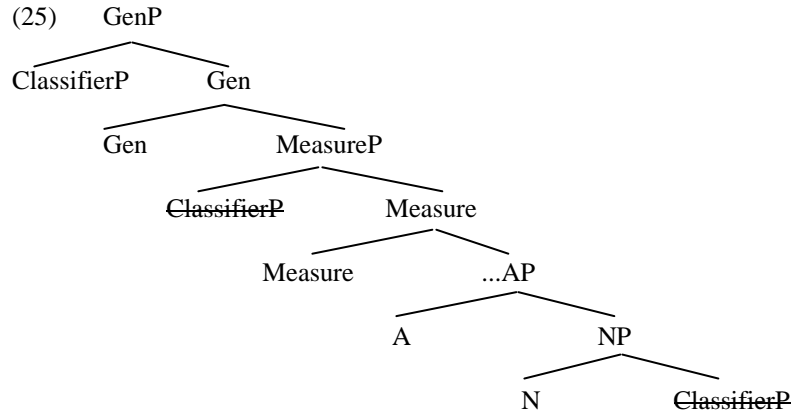
As it was shown in (13a) and (14a) – repeated here as (24a,b) –, the adverb *mucho* exhibits feminine marking when combined with abstract nouns. Animate nouns do not trigger gender agreement of the adverb *mucho*. Recall that there is no grammatical dependency between *mucho* and the noun. The adverb *mucho* is semantically related to the degree component of the comparative adjective.

- (24) a. Ahora yo tengo { *mucho / mucha } mejor **intención**.
 Now I have { *much-masc / much-fem } better intention-fem
 b. Yo soy { mucho / *mucha } mejor **amiga** tuya.
 I am { much-masc / *much-fem } better friend-fem of yours

Our proposal is that, in abstract nouns like *intención*, the lexical gender information expressed by the classifier in the ClassifierP is not interpretable in the nominal domain, because it does not provide any semantic information about the noun. However, as we discussed in section 4.2.2, gender is always semantically relevant in the DP domain. Therefore, for the classifier to be interpretable, it has to move away from the nominal domain and integrate in the determiner domain, where it becomes semantically relevant as part of the information used to determine the referentiality of the whole DP. In other words, the classifier in abstract nouns is not interpretable in its base position, in the nominal domain, but it becomes semantically relevant in GenP, in the determiner domain.⁶ Therefore, we propose that, in the case of abstract nouns, ClassifierP moves from the noun domain to GenP, in the determiner domain.

⁶ Remember that, as we said in the discussion concerning the hypothesis in (16), this operation is also implementable within a minimalist system where uninterpretable features may be introduced without value in one position in the syntactic structure and get value in a different position – assuming that agreement can only take place after movement (as in the minimalist literature previous to 2004) – by saying that

This movement has to cross over the adjective – cf. the structure in (17) –, and it is in this crucial point of the derivation where the exceptional agreement of *mucho* is triggered. Our proposal is that ClassifierP has to stop at the specifier of MeasureP because the adjectival domain contains a weak phase. We argue that the adjectival domain becomes a weak phase after merge of MeasureP. Therefore, ClassifierP cannot move to GenderP in one single movement because it is contained inside the domain of this weak phase. It stops first at the edge of the adjectival phase. The proposal is, thus, that MeasureP constitutes the edge of the adjectival weak phase, so that ClassifierP is forced to merge as the specifier of this projection in its way to the GenP, (25).⁷



The claim that the adjectival domain in (25) forms a weak phase can be supported in two ways. First, the formal properties of the adjective qualify to define it as a weak phase. As Baker (2008) shows, adjectives universally lack person features, but, as it is visible in languages such as Spanish, Italian or Portuguese, they have gender and number phi-features. Therefore, adjectives contain phi-features, but not a complete set of them. This makes them qualify as weak phases, by the same logic that has led to the suggestion that determiners constitute weak phases (Chomsky 2001: 14).

The semantic properties of the adjective are also relevant here. As it is well-known, one of the reasons to claim that vP is a phase in the verbal domain is that under this head a complete argument structure is introduced, and, therefore, the structure receives, so to speak, a propositional reading at the LF interface. In a parallel fashion, adjectives also assign theta roles

the classifier of some nouns is selected with an unvalued gender feature which gets valued in GenP.

⁷ Other movements of ClassifierP may be necessary for independent reasons, but we will leave this question aside here. We will also remain silent about the way the adjectival agreement is satisfied.

(Bolinger 1967; see also Hinterhoelzl 2006 for the idea that every predicate introduces a phase of its own). Moreover, if we follow Zwarts (1992) and Kennedy & McNally (2005) in their claim that gradable adjectives select as arguments an individual x and a degree d (whose value is determined by the degree morphology; i.e. the semantic contribution of the degree morpheme is to saturate the d argument of the adjective) we could conclude that the adjectival phase is not defined until these arguments are introduced, that is, at the level of MeasureP.

To sum up, our proposal is that MeasureP constitutes the edge of the adjectival weak phase, so that ClassifierP is forced to merge as the specifier of this projection in its way to GenP, (26). Notice that in this classical spec-head configuration, the classifier is in a position to provide a value for the inflectional suffix of the adverb *mucho*, thus triggering exceptional agreement on the adverb. Remember that the adverb *mucho*, as opposed to other adverbs, such as *mu*y ('very'), morphologically contains a position for this suffix, which is the morphological locus of gender inflection.

(26) [_{MeasureP} ClassifierP_[feminine] [_{Measure} *much-a* [_{DegP...}]]]

Now we can explain why agreement is not possible in the case of animate nouns, (27).

- (27) a. mucho mejor amiga
 much-masc better friend-fem
 b. *mucho mejor amiga
 much-fem better friend-fem

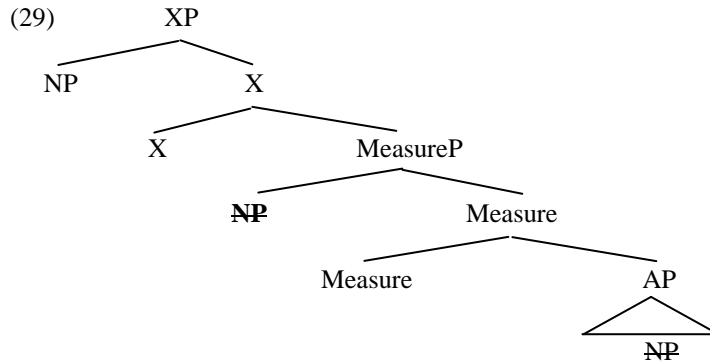
As we saw in section 2, gender in animate nouns provides semantic information. This means that the classifier is interpretable in the noun domain when the noun is animate, so there is no reason for ClassifierP to move to GenP. Therefore, ClassP will not stop in the specifier of MeasureP, which is a necessary condition to trigger agreement of the adverb *mucho*.

We can also explain why the exceptional agreement of *mucho* is only triggered in prenominal position. If the adjective modified by *mucho* is postnominal, feminine marking on the adverb is impossible, as (28) shows.

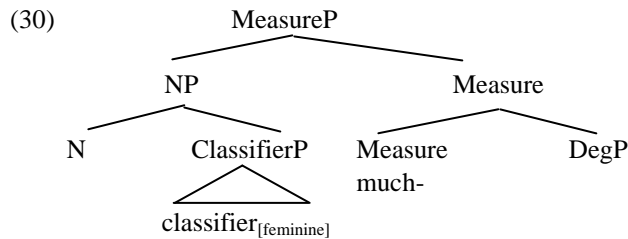
- (28) a. atención mucho mayor
 attention-fem much-masc bigger
 b. *atención mucha mayor
 attention-fem much-fem bigger

This restriction can also be derived from our proposal. We follow Cinque's (2005) analysis of the order N-A as derived from the basic order

A-N by movement of the NP to a position higher than the adjective. Let's assume that this position is the specifier of XP, a functional projection structurally higher than AP and the heads defining the adjectival phase. In its way to XP, the NP will stop in the specifier position of MeasureP to escape the domain of the adjectival phase, as shown in (29).



This movement of the NP carries the ClassP. However, in this case, as illustrated in (30), the ClassifierP (which carries the information that the noun is feminine) is buried inside the specifier of MeasureP, protected by the NP layer. This prevents the agreement relation between the classifier and the head of the MeasureP *mucho*. Therefore, whenever the complex *mucho+adjective* appears in postnominal position, the exceptional agreement of *mucho* will not be triggered because ClassifierP moves by taking a 'free ride' inside the NP.



In a nutshell, our analysis is that what is descriptively referred to as gender information is scattered inside the DP in two places: in the noun domain, as lexically selected gender, and in the determiner domain. When the lexical gender does not contribute to the semantics of the noun, it needs to integrate as part of the determiner domain. In that case, ClassifierP needs to move to the determiner domain and, therefore, will have to get outside the adjectival phase. On its way to this higher domain, ClassifierP stops at the specifier of MeasureP, where the agreement with the adverb *mucho* is forced. This agreement is not triggered, as far as we can see, by any semantic requisite of the lexical pieces involved. It is blindly forced by a particular structural

configuration. This structural configuration is blocked if the lexical gender information moves as part of the NP, which explains why the exceptional agreement of *mucho* is never displayed when the complex *mucho+adjective* appears in postnominal position. At this point, the next question which must be answered is why plural number blocks the exceptional agreement of the adverb *mucho*.

5.2. Why not number agreement?

As we saw in 2.2, the exceptional behaviour of the adverb *mucho* is limited to gender agreement. A construction such as (31) is ungrammatical if *mucho* has to be interpreted as a modifier of the comparative adjective because number agreement between *mucho* and the noun is impossible.

- (31) # muchas mayores atenciones
 much-fem-pl bigger-pl attentions-fem

The reason for this asymmetry between number and gender is due to the fact that number, unlike gender, is not lexically selected by nouns.⁸ Typically, nouns belong to a gender class but do not belong to a number class. In our analysis, this means that there is no number information inside the noun domain. Number is codified in the form of a NumberP (Ritter 1991), structurally higher than the adjectival projections, (see (17) above, partially reproduced here as (32)). If we consider the configuration in (32), it can be observed that NumberP, being hierarchically higher than MeasureP, will never land in the specifier of this category as a consequence of a possible movement operation, assuming that lowering movements are forbidden in the syntactic component. Therefore NumberP will be unable to trigger number agreement in the adverb *mucho*.

- (32) [NumP Num [GenP Gen [MeasureP *much-* [DegP...]]]]

5.3. Extending the analysis to all noun classes

Up to this point we have concentrated on two subclasses of nouns: animate and abstract. However, as we have seen previously, all count nouns, not only animate nouns, disallow the exceptional agreement of *mucho*, while all mass nouns, including abstract nouns, force it. The question is, of course, how our

⁸ The case of *pluralia tantum* nouns, i.e. nouns which only have a plural form, comes to mind as a possible counterexample. However, empirically, we observe that many *pluralia tantum* nouns are collectives, such as *viveres* ('supplies'), so that the presence of plural is motivated by the meaning and is not an idiosyncratic property of the noun. As for those nouns which do not denote collectives, such as *pantalones* ('trousers'), the observational generalisation is that they are increasingly regularised in normal speech to the singular form: *pantalón*. These phenomena confirm, we believe, that number is not used to mark arbitrarily a noun class, unlike gender.

analysis can account for this wider pattern. Our answer is that the classifier can be semantically relevant not only because it provides information about biological gender, but also because it can be interpreted in LF as information related to the count/mass distinction (cfr. Borer 2005). Borer argues that classifiers provide mereological information that defines count nouns (that is, the classifier provides information about the minimal portion of an object that qualifies as an individual of that kind). The mass reading of nouns is obtained by default at LF, according to Borer, in absence of positive information about countability (in a parallel way, the atelic reading of an event is a default reading that arises in the absence of the relevant telicity head). Our particular proposal is that the classifier can be given at LF two different translations which are relevant to classify different kinds of nouns: biological gender or mereological information relevant for count nouns.

From the proposal that the classifier can be translated into these two notions at LF, the wider difference observed above follows. The classifier is interpretable inside the NP in the case of animate nouns, which are typically count nouns, both because it provides information about the biological gender of the denoted entity and because it gives information about the minimal portion of the entity that counts as an individual.⁹ In the case of non-animate count nouns, which also disallow the exceptional agreement of the adverb *mucho* (cfr. 14), the classifier does not provide information about biological gender, but it is still interpretable inside the NP because it gives mereological information about the entity denoted. Therefore, ClassifierP does not need to move away from the NP in these two (sub)classes of nouns and exceptional agreement is never triggered with them. In contrast, abstract nouns and, more generally, mass nouns will always trigger exceptional agreement of *mucho* because the classifier in ClassifierP is never interpretable inside the NP. Here the classifier does not provide information about biological gender, nor about the mass reading of the noun, which is a default interpretation, following Borer. With this class of nouns, therefore, the ClassifierP is left with only one option, which is to become part of the determiner domain. A consequence of the movement needed for ClassifierP to integrate in the determiner domain is that agreement of *mucho* is triggered.

⁹ However, not all animate nouns are count nouns in Spanish. There is at least one case, the noun *gente* ('people'), which behaves as a mass noun with respect to its referential properties and its combination with adjectives such as *medio* ('half') and *entero* ('whole'). *Gente* disallows the exceptional agreement of *mucho* (**mucho-a más interesante gente*, 'much-fem more interesting people-fem'), which shows that mass nouns which are animate also contain a ClassifierP interpretable *in situ*. Notice that this case shows that the two criteria identified in this paper are independent from each other and none of them can be reduced to the other.

6. Final remarks and conclusions

The analysis that we have proposed for the phenomenon studied in this paper conceives of agreement as a purely formal operation which applies blindly once a given syntactic configuration obtains. In those cases where a constituent needs to land in a specifier position because it is crossing a (weak) island, even though there is no independent semantic motivation for agreement to take place, the configuration is such that the head agrees with the specifier. This situation is reminiscent of the case studied in Torrego (1984), where extraction of an interrogative pronoun from a sequence of subordinated sentences triggers subject-verb inversion in the subordinate sentences, even though they are not semantically interrogatives. We have also shown that agreement operations should not be handled by post-syntactic rules, such as those proposed in Distributed Morphology.

As for the nature of gender, we have proposed that gender information is scattered in two different positions inside the DP: inside the noun domain and in the determiner area. This dual nature could, in principle, be a promising starting point to analyse systematic mismatches inside the DP domain between inflectional suffixes of the noun and the gender exhibited by the determiner.

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