ON DEGREE MINIMIZERS IN SPANISH *

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ABSTRACT. The goal of this paper is to provide both a description and an explanation of the combination of minimizers (*ligeramente* 'slightly') with gradable adjectives in Spanish. According to Kennedy & McNally (2005) these elements are degree items that are sensitive to the scalar structure of adjectives and are combined with closed scale, minimum standard adjectives. Unexpected combinations, according to this semantics, are considered as cases of coercion. In this paper we propose that minimizers create derived adjectives. They are modifiers of the adjective's granularity, which allow the selection of the standard of comparison to take into account a greater number of degree distinctions. From this proposal, this article shows that unexpected combinations of *ligeramente* with gradable adjectives, such as *un cine ligeramente lleno* 'a slightly crowded cinema', can be explained without the need to propose that a coercion process affecting the scalar structure of the adjective takes place.

Keywords: degree modifier; minimizer; *ligeramente*; *slightly;* coercion; copular verbs; granularity

RESUMEN. El objetivo de este trabajo es proporcionar tanto una descripción como una explicación de la combinación de minimizadores del tipo de *ligeramente* con adjetivos graduables en español. Según Kennedy & McNally (2005) estos elementos son modificadores de grado sensibles a la estructura escalar de los adjetivos y se combinan con adjetivos de escalas cerradas y estándar mínimo. Las combinaciones inesperadas, según esta semántica, se tratan como casos de coacción escalar. En este trabajo se propone que los minimizadores de grado crean adjetivos derivados. Son modificadores de la granularidad del adjetivo, que permiten que la selección del estándar de comparación tenga en cuenta un mayor número de distinciones de grado. A partir de esta propuesta, este artículo muestra que las combinaciones inesperadas de *ligeramente* con adjetivos graduables, como *un cine ligeramente vacío*, pueden explicarse sin la necesidad de proponer que tiene lugar un proceso de coacción escalar.

Keywords: modificador de grado; minimizador; *ligeramente*; coacción; cópulas; granularidad; adjetivo graduable

1. Introduction

In this article we address one of the grammatical phenomena that has generally been considered in the literature as reflecting the scalar structure of adjectives: their combination with degree modifiers. Vaguely speaking, degree modifiers are expressions that combine with APs and indicate the degree to which the property expressed by the AP holds of its subject. Within this class, minimizers of the type of *ligeramente* 'slightly', *un poco/un poquito* 'a bit, a little', *algo* 'somewhat' express that the subject of predication possesses the property to a degree close to the minimum. These elements will be the object of study of this article

The syntactic and semantic properties of degree modifiers in combination with adjectives have been discussed in many papers (Neeleman, van De Koot & Doetjes 2004 review the main topics related to the syntactic-semantic composition of degree modifiers). On the one hand, it has been claimed that they are either heads or specifiers of a DegreeP or a MeasureP; on the other, it has also been discussed to which semantic parameter of the adjectives they are sensitive: their scalar structure, their standard, the granularity of the set of degrees denoted, some contextual open variables... In this second respect, the most widespread proposal is that degree modifiers operate on the scalar structure of adjectives, to the extent that the combination modifier+adjective is taken as a diagnosis of the scalar properties of the adjective. From this point of view, unexpected semantic combinations are treated as cases of *scalar coercion*. However, unexpected combinations are far from sporadic and show regular patterns. Our claim in this paper is that all these *regular* unexpected combinations can be accounted for from a non-coercion approach, leaving coercion as a last resort pragmatic device to resolve semantic mismatches.

Section 2 presents Kennedy & McNally's (2005) proposal on the semantics of minimizers, according to which these elements are sensitive to the presence of a minimum point in the scalar structure of adjectives. In this approach, cases of unexpected combinations, for example *ligeramente+closed scale-maximum standard adjectives* or *ligeramente+open scale adjectives,* are analyzed as cases of scalar coercion. In section 3 our proposal is presented, according to which minimizers build derived gradable adjectives with a more fine-grained set of degrees. The combination *ligeramente*+adjective is well formed if reasoning about small degree differences is informative. Informativeness arises when the comparison class introduced by the positive form of the adjective provides a standard that is non-arbitrary. Thus, an analysis of the relative/absolute distinction is needed that is independent of scale boundaries. Section 4 shows how this proposal can account for the combination of *ligeramente* with adjectives of different scalar structures and the additional readings obtained in each case. Finally, section 5 offers some conclusions and topics for future study.

2. Setting the scene

Since the work by Kennedy & McNally (2005), it is claimed that minimizers are degree elements generated as heads of the DegreeP or as MeasurePs in the functional structure of gradable adjectives (see Neeleman et al. 2004 for relevant antecedents to these proposals; we will not deal with comparative contexts in this paper).[1]

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[1] These two proposals reflect the ambiguity of minimizers (RAE-ASALE 2009: §13.16h ff.): *ligeramente grande ~ muy grande; ligeramente más grande ~ mucho más grande.*

(1)   a. La toalla está   ligeramente húmeda.
           the towel is$_{estar}$ slightly   wet
       'The towel is slightly wet'
       b. [$_{DegP}$ [$_{Deg'}$ [$_{Deg}$ ligeramente] [$_{AP}$ húmeda]]]

(2)   a. Esta toalla está ligeramente más húmeda que aquella
           this towel is$_{estar}$ slightly   more wet   than that
       'This towel is slightly wetter than that one'
       b. [$_{DegP}$ [$_{MeasP}$ ligeramente] [$_{Deg'}$ [$_{Deg'}$ [$_{Deg}$ más] [$_{AP}$ húmeda]] [$_{PP}$ que aquella]]]

Gradable adjectives are analyzed as measure functions[2] that express a *scale*, that is, a set of degrees *D* linearly ordered (with an increasing or decreasing relation) with respect to a dimension. Gradable adjectives are defined according to two semantic properties: a) their scalar structure, and b) the way in which the standard of comparison necessary to judge the applicability of the property expressed by the adjective to its argument is determined. With respect to (a), Kennedy & McNally (2005) classify the adjectives taking into account scale boundaries, (3). Scales can be closed or open; closed scales have maximum or minimum values or both (*upper closed adjectives*, *lower closed adjectives*, *totally closed adjectives*); on the other hand, *open scale adjectives* do not have these values.

(3)   a. Upper closed: una toalla seca 'a dry towel'
        ○-------●
       b. Lower closed: una toalla húmeda 'a wet towel'
        ●-------○
       c. Totally closed: un vaso lleno/vacío 'a full/empty glass'
        ●-------●
       d. Open scale: un niño alto/inteligente/gordo 'a high/smart/fat child'
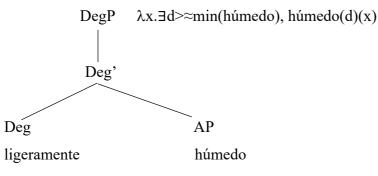   ○-------○

With respect to (b), adjectives can be classified as *relative* or *absolute* depending on how their standard of comparison is determined. In closed scale adjectives, the scalar boundary functions as a standard of comparison (absolute adjectives). Therefore, closed scale adjectives with maximal/minimal degrees have fixed minimal/maximal standards insensitive to context. For open scale adjectives, an arbitrary, context-sensitive standard must be established (relative adjectives).[3]

In this degree-based framework (Kennedy 1999, 2007), the measure function (*g*) expressed by the adjective G ($<d,<e,t>>$) is converted into a predicate of individuals by degree morphology (*pos* – positive degree), projected in its own functional projection DegreePhrase. Minimizers are the head of the DegP and denote functions from degree measure functions *g* to predicate of individuals, such that the degree assigned by *g* to x is above the scale minimum by a small amount ($>≈$), (4). This small amount is imprecisely measured in minimizers like *ligeramente-slightly*. The combination with absolute adjectives with minimal standards is shown in (5).

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[2] Kennedy & McNally (2005) treat gradable adjectives as relations between individuals and degrees (type $<d,<e,t>>$), as it is commonly assumed, and not as measure functions (type $<e,d>$). Kennedy (1999, 2007) are the original works where gradable adjectives are treated as measure functions.

[3] The standard in this case "is determined with respect to the domain of the adjective, i.e. based on the distribution in the class of objects, which constitute the comparison set in the respective context" (Kagan & Alexeyenko 2011: 325). An economy principle prioritizes the lexical meaning of adjectives in determining their absolute/relative character.

(4)   [[ligeramente]] λgλx.∃d>≈min(g), g(d)(x)
(5)   ligeramente húmedo (slightly wet)

       DegP   λx.∃d>≈min(húmedo), húmedo(d)(x)

       |

      Deg'

Deg   AP

ligeramente   húmedo

λgλx.∃d>≈min(g), g(d)(x)   λdλx.húmedo(d)(x)

Minimizers are semantically sensitive to that lexical property of adjectives related to the presence of a minimum degree point on their scalar structure (or to their character as absolute adjectives with minimum standards, also called partial absolute adjectives in the literature). They operate on that minimum degree/standard and return the meaning that the individual possesses the property in question in a degree that is slightly higher than that minimum point.

Therefore, it is predicted that minimizers combine naturally with absolute adjectives with minimal standards, (6).

(6)   a. ligeramente sucio, húmedo, abierto, curvado / slightly dirty, wet, open, curved
      b. La toalla está ligeramente húmeda.
         The towel is$_{estar}$ slightly wet.

Similarly, this approach predicts that minimizers cannot combine with absolute adjectives whose scales have maximal standards, as the examples in (7) show, and they cannot either combine with relative adjectives with open scales and arbitrary standards, (8).

(7)   a. *ligeramente limpio, seco, lleno, cerrado / *slightly clean, dry, full, closed
      b. *La jeringuilla/botella está ligeramente llena/limpia.
        *The syringe/bottle is$_{estar}$ slightly full/clean.
(8)   a. *ligeramente alto, profundo, barato / *slightly tall, deep, cheap
      b. *Juan es ligeramente alto. / *John is slightly tall.

In this kind of approach, sentences like (9) are unexpected and considered as cases of coercion. For example, Bogal-Albritten (2012) proposes that *slightly,* in examples like *Ms. Smith thought that the film was slightly long to interest,* introduces an EndPoint function coercing the open scale of the adjective into a closed scale (so, she proposes scalar coercion). The adjectives in (9) would be (partially) closed scale adjectives. Kagan & Alexeyenko (2011) claim that the Russian suffix *-ovat* ('somewhat') triggers relative to absolute coercion (*Etot restoran okazalsja dlja nas dorog-ovat-ym* 'This restaurant was slightly expensive for us' *caro-ovat-masc.instrumental*). From this point of view, *alto* and *gordo* in (9) are absolute adjectives since the standard is no longer context sensitive but a fixed standard determined by the PP introducing what is called a *functional standard.*

(9)   a. Esos tacones son ligeramente altos *para mí.*
       'These heels are_{ser} slightly tall *for me*'
       b. Juan es   ligeramente gordo *para entrar por ese agujero.*
         Juan is_{ser} slightly   fat   to   fit   into that hole
       'Juan is slightly fat to fit into that hole'

In these cases, the standard corresponds to the maximum degree that is suitable for a given function or purpose expressed by a PP (on functional standards see also Bylinina 2012; Solt 2012; Sassoon & van Rooij 2015). However, the presence of an explicit PP seems not to be necessary:

(10)   a. Posteriormente tomo porciones de la masa y hago *tortillas ligeramente gruesas*, pero pequeñas. (C. Monroy de Nemer, G. Montaño Humphrey: *Las Recetas de la Abuela*. México: Universidad Autónoma del Estado de México, 2001, CORPES XXI).
       'I then take portions of the dough and make *slightly thick*, but small, tortillas'
       b. Se sienta frente al hombre: unos cuarenta años, con gafas y pecoso, *ligeramente gordo* y con alopecia alarmante. (E. Urbizu, M. Gaztambide: *La caja 507*. Madrid: Ocho y Medio, 2007, CORPES XXI).
       'He sits opposite the man: about forty years old, with glasses and freckles, *slightly fat* and with alarming alopecia'
       c. …miradas inquisitivas, expresiones desdeñosas como de quien se preguntara qué hacía allí, expectativas soterradas, *rozamientos ligeramente largos,* intencionados o no... (A. Gala: *LA EXPOSICIÓN. Los invitados al jardín*. Barcelona: Planeta, 2002, CORPES XXI).
       '...inquisitive glances, dismissive expressions as if wondering what he was doing there, hidden expectations, *slightly long strokes*, intentional or not...'
       d. Con metro setenta y dos resultaba *ligeramente alto* en una época en la que en mi país la altura media masculina no llegaba al metro setenta (L. Llongeras: *Llongeras tal cual.* Barcelona: Planeta, 2001, CREA).
       'Since I was one meter seventy-two, I was *slightly tall* at a time when in my country the average male height was less than one meter seventy'

Moreover, note that the example in (11)a contrasts with (8)b, repeated here for convenience as (11)b. This contrast, unnoticed in the literature to the best of our knowledge, is associated to the *ser / estar* distinction and occurs systematically with *dimensional adjectives*. In this paper we will offer a joint explanation for well-behaved cases and also for the examples of the type in (9), (10) and those of (11), without resorting to coercion processes.

(11)   a. Tu niño está ligeramente alto. / b. *{Tu niño/Juan} es ligeramente alto.
       'Your son is_{estar} slightly tall'   'Your son is_{ser} slightly tall'

3. Proposal

As we have just claimed, our goal is to explain the expected and unexpected combinations between minimizers and adjectives without resorting to coercion. Our proposal is that minimizers are expressions that combine with gradable adjectives (G) and build derived gradable adjectives with a more fine-grained set of degrees. The combination *ligeramente*+G is well formed if reasoning about small degree differences is allowed by the nature of the comparison class introduced by the positive form of the

adjective. Minimizers zoom into the scale of the adjective and degrees previously not taken into account are brought into light.[4] The fine granularity introduced by *ligeramente* is informative when the comparison class provides a standard that is non-arbitrary. Informativeness, thus, is associated to the well-formedness of the sequence.

The following two subsections develop the two pillars of the analysis: a semantics for minimizers as granularity settlers (Sassoon & Zevakhina 2015; Sawada 2018) (2.1) and an analysis of the relative/absolute distinction independent of scale boundaries or context sensitivity (2.2).

3.1. The meaning of minimizers

We follow the proposals by Sassoon (2012) and Sassoon & Zevakhina (2015) that minimizers are granularity settlers. In their view, an adjective G is interpreted relative to a granularity level g, and the combination of minimizer + adjective is interpreted relative to a finer granularity level g_p.
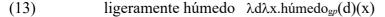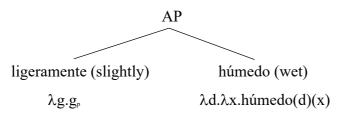
(12)   a. $[[G]]_g = \lambda d\lambda x.\ g(d)(x) \succ d_s$
      b. i. $[[\text{ligeramente G}]]_g = \lambda d\lambda x.g_p(d)(x) \succ d_s$
         ii. $[[\text{ligeramente}]]_g = \lambda g_{<d,<e,t>>}.g_p$, with the condition that the minimal standard for g_p is non-zero and greater than the minimal standard of the gradable adjective, g (where d_s represents a threshold external to the denotation of the adjective; Sawada 2018: 91)

Therefore, minimizers are modifiers of measure functions (type $<<d,<e,t>>,<d,<e,t>>>$)[5] that combine with gradable adjectives of any scalar type, and build derived gradable adjectives with a more fine-grained set of degrees. The denotation of a gradable adjective G and *ligeramente*+G are equivalent except for the level of granularity (Sassoon & Zevakhina 2015; Sawada 2018). Minimizers modify the scale varying the precision level such that a new standard for the denotation of the adjective can be set (see below) but they do not introduce new relations between degrees. This is why the denotation of G and *ligeramente*+G is the same in (12)a and b pace the precision level of the scale.

The derived gradable adjective results in a function from "minimized degrees" to sets of individuals.

(13)   ligeramente húmedo $\lambda d\lambda x.\text{húmedo}_{gp}(d)(x)$

AP

ligeramente (slightly)   húmedo (wet)

$\lambda g.g_p$ $\lambda d.\lambda x.\text{húmedo}(d)(x)$

Compared to the degrees in the original adjectival denotation, the degrees in the denotation of the derived adjective are fine grained, even to the point of discreteness. This allows the possibility of reasoning about very small degree differences (Kagan & Alexeyenko 2011; Bylinina 2012; Solt 2012). The degree minimizer

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[4] The term *granularity,* outside linguistics, is used to characterize the scale or level of detail in a set of data. The greater the granularity, the deeper the level of detail.
[5] In our view minimizers are scale adjusters in the sense of McNabb (2012), no true degree morphemes.

ligeramente/slightly has two associated meanings: small amount and imprecision (Sawada 2018), as also claimed in Kennedy & McNally's proposal.

In order to derive a predicate of individuals and the comparison to a standard, degree morphology is needed. We assume that the *pos* head introduces a comparison class (C) that, in combination with the dimension of the gradable adjective, fixes the minimum threshold that the degree assigned by the adjective to the individual must exceed. This comparison class is often left unexpressed,[6] particularly in the case of absolute adjectives (Fults 2006) but can be explicitly introduced in the syntax by a PP headed by *para* or *for*. These ideas will be further developed in the next section.

(14)   a. $[[_{Deg} \ pos]] = \lambda g \lambda C \lambda x.g(stnd(g)(C))(x)$
       b. $[[_{Deg} \ pos]] \ ([[ligeramente \ G]]) = \lambda C \lambda x. \ g_p(x) > d_{stnd(g_p)(C)}$
       c. The granularity level of g_p is higher than that of g. The function g_p has more degrees in its denotation than g.
(15)   a. ligeramente húmedo
       b. $[[_{Deg} \ pos]] \ ([[ligeramente \ húmedo]]) = \lambda C \lambda x.húmedo_{g_p} \ (x) > d_{stnd(húmedo_{g_p})(C)}$

Although in this paper we will not address the syntax of minimizers, evidence for this functional derivation comes from the possibility of combining degree elements, e.g. *muy* 'very', usually claimed to be generated as *pos* heads, with *ligeramente*+G.[7] Minimizers would be generated as modifiers of adjectives before *pos* is introduced in the structure.

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[6] In case C is left unexpressed, it will be syntactically materialized by PRO, with the meaning of a free variable interpreted by a variable assignment rule which will assign the free variable an index mapped to a contextually relevant set of individuals or set of counterparts (Heim and Kratzer 1998).

[7] As an anonymous reviewer points out an alternative explanation is to posit that the combination of *muy ligeramente* gives rise to complex minimizer which will rise to a more fine-grained granularity level than *ligeramente* alone. Note that the examples in the text contrast with *...la grabó con voz de falsete porque Moroder la había grabado en un tono ligeramente demasido alto para ella* 'she recorded it in a falsetto voice because Moroder had recorded it at a slightly too high pitch for her' (S Egan, ed. 2009, *Los discos del cambio,* p. 219) vs. *demasiado ligeramente alto.* If that would be the case, the examples in (16) could not be offered as an argument for the derivation in (14)-(15) and a whole rethinking of the arguments put in the paper would be needed. However, it does not seem to be the case that productive combinations such as *solo algo ligeramente* 'only somewhat slightly' can be considered complex forms. When considering comparative sentences, facts are more complex and need further investigation. Note that the linear order in comparative sentences between *más* 'more' and *ligeramente* 'slightly' seems to be the opposite (the speakers consulted offer unstable judgments). However, this is not the case with *tan* (as):

(i)   *Esta toalla estaba {ligeramente más / *más   ligeramente} húmeda que aquella.
         this towel   was_{estar} {more slightly /   slightly more}   wet than that
(ii)   Esta toalla estaba {tan ligeramente / *ligeramente tan} húmeda como aquella.
         this towel was_{estar} {as slightly /   slightly   as} wet   as   that one
         'This towel was as slightly damp as that one'

The reviewer points out that the examples in (i) and (ii) argue for a threshold sensitivity of minimizers. In particular she points out that in (i) the *que/than*-phrase would fix the minimal threshold as the standard value to which the minimizer is sensitive. She also points out that in (ii) the incompatibility of the minimizer with the comparative of equality *tan/as* would be explained if it is assumed that there is no measurement in the case of the comparison of equality and, therefore, no minimal threshold.

(16)   a. Esta toalla está {muy/algo}   ligeramente húmeda.
        this towel is$_{estar}$ {very/somewhat}   slightly   wet
        'This towel is very slightly wet; This towel is somewhat slightly damp'
    b. *Esta toalla está ligeramente {algo/muy}   húmeda.
        this towel is$_{estar}$ slightly   {somewhat/very} wet

(17)   a. [suelo] muy ligeramente adherente y muy ligeramente plástico (A.7.12, descripción del Cuadro 2; *Panel sobre suelos derivados de cenizas volcánicas de América latina,* 1969)
    '[floor] very slightly sticky and very slightly plastic'
        https://books.google.es/books?id=nMi1HgPHgOwC&pg=SL1-PA36-IA12&lpg=SL1-PA36-IA12&dq=%22muy+ligeramente%22&source=bl&ots=txApTaMdgV&sig=ACfU3U0fvsihJLqia6x7YHPgbHlgUd2GkQ&hl=es&sa=X&ved=2ahUKEwiy0eqToPTnAhWZBGMBHVbLD8EQ6AEwBXoECAsQAQ#v=onepage&q=%22muy%20ligeramente%22&f=false
    b. [complejos de colinas residuales] muy ligeramente inclinados (Ángel Priego et al., 2010, *Propuesta para la generación semiautomatizada de unidades de paisaje*)
    '[residual hill clusters] very slightly inclined'
        https://books.google.es/books?id=VaoA4Tg6mYEC&pg=PA60&lpg=PA60&dq=%22muy+ligeramente%22&source=bl&ots=BGpE5_duHX&sig=ACfU3U3jttofi9WFXbICtHwo3wIGlwZuYg&hl=es&sa=X&ved=2ahUKEwiy0eqToPTnAhWZBGMBHVbLD8EQ6AEwBnoECAcQAQ#v=onepage&q=%22muy%20ligeramente%22&f=false)

In our proposal, minimizers could not be generated as measure phrases either. Note that *ligeramente/slightly* is compatible with measure phrases.[8]

(18)   The material is slightly bend by 3 cm; The plane is slightly inclined by 10 degrees.[9]

(19)   a. Pude entonces acercarme a un tanque Sherman apostado al borde una colina, con su estrella blanca pintada en la panza y *ligeramente inclinado unos grados*. (Desde Normandía hasta Auswitchz, 2008, Blog En el camino, http://enel-camino.blogspot.com/2008/10/desde-normanda-hasta-auswitchz-utah.html)
    'I was then able to approach a Sherman tank stationed at the edge of a hill, with its white star painted on its belly and slightly tilted a few degrees'

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[8] Data in Spanish need further study. In the examples shown in the text the measure phrase is imprecise. If the measure phrase indicates a specific measurement, a pause intonation, reflected in the writing with a comma or parenthesis, is necessary.

(i)   El anillo recién descubierto está ligeramente inclinado, unos 27 grados, con respecto a los que todos conocemos. (Un anillo para gobernarlos a todos, 2008, Diario de Ciencia del IES Antonio de Mendoza, Alcalá la Real; http://diariodeciencia.blogspot.com/2009/10/un-anillo-para-gobernarlos-todos.html)
    'The newly discovered ring is slightly tilted, about 27 degrees, from what we all know'
(ii)   Es preferible orientar el cincel ligeramente inclinado (unos 45 grados) para evitar daños en la superficie de asiento. (Cómo reemplazar una mayólica, 2007, Blog Mujer Activa, http://www.decorailumina.com/tip-del-dia/%C2%BFcomo-reemplazar-una-mayolica.html)
    'It is preferable to direct the chisel slightly tilted (about 45 degrees) to avoid damage to the seating surface'

[9] Note however that *by*-phrases like the one used in the example could have a very different syntax than measure phrases.

b. El extremo superior de la pantalla está *ligeramente inclinado unos grados* hacia el público. (Ayer estuve en una sala 3D estupenda, Blog 3DMovies, de Jordi Alonso, 2007, https://3dcinema.wordpress.com/2009/10/23/ayer-estuve-en-una-sala-3d-estupenda/)
'The top of the screen is slightly tilted a few degrees towards the public'
c. El umbral es un madero (…) que se coloca horizontal, *ligeramente elevado unos centímetros* sobre el nivel del suelo. (De súbito ¡La vida!, 2017, Blog Chicuián y sus amigos, Armando Alvarado, http://nalochiquian.blogspot.com/2017/06/22-de-junio-de-subito-la-vida-folios-de.html)
'The sill is a piece of wood that (…) is placed horizontally, slightly raised a few centimeters above the ground'

3.2. Relative and absolute adjectives. Comparison classes.

As claimed in the previous section, following degree-based approaches to the semantics of adjectives, degree morphology (*pos*) is needed to convert the adjective into a predicate of individuals. *Pos* is a function that applies to a gradable property introduced by the adjective, to a Comparison class (C) and to an individual, such that the reference degree (that is, the degree to which the individual has the property) is equal to or greater than a standard degree. We follow Toledo & Sassoon in the idea that every gradable adjective is evaluated against a comparison class.[10]

(20) $[[_{Deg} \, pos]] = \lambda g \lambda C \lambda x . g(x) \geq M(g)(C)$

The standard degree is set by the function M, which takes gradable properties and comparison classes as arguments (based on Fults 2006: 134). The comparison class is the second argument of the M function introduced by *pos* and defines the set out of which the standard degree is calculated (Kennedy 1999; Fults 2006). The comparison class is introduced in the syntax, normally instantiated by a PP headed by *for* in English or *para* in Spanish (generated as Specifier of DegP); however, it can also be instantiated by a null pronoun C, as was mentioned above (Stanley 2000; Kennedy 2007).

Since every gradable adjective needs a class of comparison in order to be truthfully evaluated (following Toledo & Sassoon 2011), the relative/absolute distinction must be reformulated. According to Toledo & Sassoon (2011), the building up of different comparison classes determines the relative or absolute character of adjectives, a difference which is correlated in Spanish with the combination with the copulas *ser* and *estar*, as shown in Gumiel-Molina, Moreno-Quibén & Pérez-Jiménez (2015) (this idea will be elaborated below).

In relative adjectives, this comparison class can be any of infinitely many categories of the entity the adjective predicates of. It is a between-individuals comparison class. It is comprised of distinct individuals, each of one contributes with a value to the dimension expressed by the relative adjective. From this set an arbitrary value is fixed as the standard value of the dimension of the adjective.[11] The sentence in (21) will be

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[10] The formulas in (14)a and (20) are equivalent. We introduce this new formula to highlight the role of the comparison class C in selecting the standard, d_{stnd}, which in the former formula is somewhat opaque. Note that we follow Toledo & Sassoon ideas on the presence of comparison class component in the semantics of every gradable adjective but, as a reviewer points out, Toledo & Sassoon (2011: 145) argues for a different semantics for *pos*.

[11] Formally, in this case the comparison class is extensionally defined as the set of individuals y, such that y is P [P is the property defining the comparison class C] in the world of evaluation. This comparison class gives rise to an arbitrary distributional standard.

(i)   Comparison class=$\{y: P(y)\} = \lambda y . P(y)$

true if my son's height exceeds a standard arbitrary degree of height for the 8-year old individuals comprising the comparison class.

(21) Mi hijo de 8 años es   alto.
      my son of 8 years is$_{ser}$ tall
      'My 8-year-old son is tall'

On the other hand, absolute adjectives are evaluated with respect to a within-individual comparison class. This is a class of comparison comprised of counterparts of the adjective's subject (stages) manifesting different degrees of the property in question in different indices of evaluation (typical/normal alternative worlds); one of these degrees is considered the standard value.[12] In other words, a comparison is made between the referent of the subject of the predicate and the degrees of the property in question in different worlds or circumstances that are considered normal. The degrees of the dimension of the adjective are manifested through stages of the same individual across different circumstances. In (22), the comparison class for *lleno* 'full' and *húmedo* 'wet' is comprised of different counterparts of the predicate argument, *the restaurant/the towel*, as it is instantiated in different stages in every contextually salient typical world. The function M applies to this class and returns as its value one of the degrees of the gradable property. The fact that the degrees in question are manifested through stages of a single individual has the consequence that the standard degree selected by M will count as maximal or minimal for this individual (depending on the referent and the property expressed) since it won't be difficult to check whether the relation between the individual and the degree holds; that is, the standard is a class-maximal or class-minimal standard value, not defined in scalar terms.

(22) a. El restaurante está lleno.
         the restaurant is$_{estar}$ full
       'The restaurant is crowded'
      b. La toalla está húmeda.
         the towel is$_{estar}$ wet

This proposal captures the apparent context insensitivity of absolute adjectives: one of the stages in the denotation provides the standard membership. A threshold that must be crossed or an endpoint that must be reached in order to count in the denotation of the adjective. In this case, the transition into the denotation of the absolute adjective is not arbitrary but depends on the referent of the subject the adjective is a predicate of. It is not a minimal/maximal degree point calculated on a context-independent scale either, but a within-the-individual minimal or maximal point.

As mentioned above, Gumiel-Molina, Moreno-Quibén & Pérez-Jiménez (2015) claim that the nature of the comparison class of the adjective determines the selection of the copula *ser* or *estar* in Spanish. Adjectives evaluated with respect to a between-

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[12] In this case the comparison class introduced by pos is intensionally defined as in (i), where w′ ranges over world-time pairs. A is an accessibility relation that, given a world w, relates w to worlds w′ which are normal or where all the things that normally hold hold (Asher & Morreau 1995) (P is the property defining the elements in the comparison class).
(i)   Comparison class = λs.∀w′[[w′Aw][x is R(ealized) as s at w′& {P(x) or x is related to P} at s in w′]]
Given a world, the function in (i) returns the set of stages/counterparts such that for every accessible typical world w′, the individual x has a realization s, and x normally {manifests/is/is related to} P at s in w′. This comparison class is established within the individual x, the argument of the predicate.

individuals comparison class (relative adjectives) combine with the copula *ser*. Adjectives evaluated with respect to a within-individuals comparison class (absolute adjectives) combine with the copular verb *estar*.[13] As claimed by these authors, if the comparison class is built up in the syntax, every gradable adjective is expected to be a variable behavior adjective, relative or absolute, hence combining with the copulas *ser* or *estar*. In (23)a the sentence with *ser* means something like "Juan is agile compared with other individuals with whom he shares some property, for example, being 60-year-old men", whereas the sentence with *estar*, (23)b, roughly means that "Juan is agile compared with other stages or circumstances, for example he is in recovery from a health problem". Most gradable adjectives, (24), show this variable behavior.

(23) a. Juan es ágil.
          Juan is$_{ser}$ agile
      b. Juan está ágil.
          Juan is$_{estar}$ agile
(24) alegre 'happy', alto 'tall', bajo 'short', cauto 'cautious', cuidadoso 'careful', feliz 'happy', feo 'ugly', delgado 'thin', flaco 'thin', gordo 'fat', grande 'big'/'tall', hermoso 'beautiful', húmedo 'humid'/'damp', inquieto 'restless'/'worried'/'lively', joven 'young', libre 'free-spirited'/'free', nervioso 'excitable'/'nervous', pequeño 'small', orgulloso 'proud', fiel 'loyal', etc.

Only perfective adjectives, as those in (25), which express as part of their root meaning the result state of a process in which the subject is involved, show a restricted behavior as absolute adjectives, combining only with *estar*:

(25) absorto 'absorbed'/'captivated', borracho 'drunk', cansado 'tired', contento 'happy', desnudo 'naked', descalzo 'barefoot', encinta 'pregnant', enfadado 'angry', enfermo 'sick', exhausto 'exhausted', harto 'fed up', lleno 'full', maltrecho 'beaten up', mojado 'wet', muerto 'dead', perplejo 'perplexed', quieto 'still', satisfecho 'satisfied', solo 'alone', vivo 'alive', etc.

To conclude this section, we have the paradigm in (26) of combination of gradable adjectives with *ser* an *estar* in Spanish:

(26) a. La toalla está húmeda. (absolute adjective, class minima standard)
          'The towel is$_{estar}$ wet'
      b. La jeringuilla/botella está llena. (absolute adjective, class maxima standard)
          'The syringe/bottle is$_{estar}$ full'
      c. Juan es alto/gordo. (relative adjective, distributional arbitrary standard)
          'Juan is$_{ser}$ tall/fat'
      d. Tu niño está alto/gordo. (absolute adjective, class minima standard[14])
          'Your son is$_{estar}$ alto/fat'

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[13] Toledo & Sassoon (2011) establish a relation between the individual/stage level distinction and the relative/absolute distinction in the adjectival domain. Adjectives that encode unstable properties of referents (stage level) give rise by default to an interpretation which is based on their set of stages (within-individual comparison class). Adjectives that encode relatively stable properties (individual level) give rise by default to an interpretation based on a set of individuals: between-individuals comparison class.

[14] Adjectives with open scales behave as class-minima standard adjectives when interpreted as absolute in combination with *estar* (see Gumiel-Molina, Moreno-Quibén & Pérez-Jiménez 2015).

We are now in a position to explain the data paradigm of minimizers + gradable adjectives in Spanish.

4. Accounting for the paradigm

As claimed above, the combination of *pos* with derived adjectives will be well-formed if reasoning about small differences is allowed by the nature of the comparison class introduced in the derivation by *pos*. Stages in the comparison class allow crispier judgements and small differences can be traced. This reasoning about small differences is only felicitous if informative. Reasoning about small degree differences is informative when the comparison class introduced by *pos* makes the selected standard non-arbitrary (Solt 2011, 2012). If the standard of comparison does not allow reasoning about small differences to be informative, then the combination of *ligeramente* + adjective will be infelicitous. This will be the clue to account for the paradigm in (27), and also for the bad-behaved cases repeated here as (28), without claiming that there is a change in the scalar structure of the adjective, or in its relative/absolute character.

(27)   a. La   toalla está   ligeramente húmeda. (absolute A, class minima standard)
              'The towel is$_{estar}$ slightly   wet'
        b. *La jeringuilla/botella está ligeramente llena. (absolute A, class-maxima stnd)[15]
              the syringe/bottle   is$_{estar}$ slightly   full
        c. *Juan es   ligeramente alto/gordo. (relative A, distributional arbitrary stnd)
              Juan   is$_{ser}$ slightly   tall/fat
        d. Tu   niño está ligeramente alto/gordo. (absolute A, class-minima stnd)
              your son is$_{estar}$ slightly   alto/fat
(28)   a. Esos   tacones son   ligeramente altos para mí.[16]
           'These   heels   are$_{ser}$ slightly   tall for me'
        b. Juan es   ligeramente gordo para entrar por ese agujero.
           'Juan is$_{ser}$ slightly   fat   to   fit   into that hole'

4.1. Absolute, class-minima standard adjectives

As we have already shown, minimizers are compatible (what means grammatical and informative) with absolute class-minima-standard adjectives.

(29)   a. Para quitar el polvo de los cuadros al óleo usa un paño ligeramente húmedo.
           (Q. Morales et al. *Los trucos de España Directo*. Barcelona: Planeta, 2008,
           CORPES XXI)
           'To remove dust from oil paintings, use a slightly damp cloth'
        b. Ahí estaba Christopher, (…) con sus ojos y su boca ligeramente abiertos. (E
           Lindo, *Una palabra tuya*. Madrid: Seix Barral, 2005, CORPES XXI)
           'There was Christopher, (...) with his eyes and his mouth slightly open'

The combination of *ligeramente* with these adjectives is entirely natural in our proposal, since, for these adjectives a point near zero provides a natural transition to enter the denotation of the adjective. This point provides the denotation minimum. The minimizer increases the number of endpoints that can act as natural transitions: stages

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[15] It must be noted that this sentence is acceptable for one of the reviewers. Possibly, the possibility of accommodating a functional standard in the sentence interpretation is always available to speakers. See the following footnote.

[16] Functional standards are of course compatible with absolute adjectives: *Esta silla está ligeramente inclinada para mí* 'This chair is slightly tilted for me'.

of the subject with few drops of water set the modified minimum standard (an existential interpretation obtains, there is some wetness in the towel).

(30) La toalla está ligeramente húmeda.
      'The towel is$_{estar}$ slightly   wet'
      wet$_g$ (towel) $\succ$ d$_{stnd(wet_{gp})(C)}$ $\wedge$ C = {s: s is a stage of the towel at normal circumstances}

What the formula says is that the degree in which something can be slightly wet is greater than the minimum standard, d$_{stnd(wet_{gp})(C)}$, but it can be a minimal difference from the minimum standard. The fact that there are more degrees than can be selected as standard makes it possible that things that didn't count as wet, now count as *slightly wet*.

4.2. Absolute, class-maxima standard adjectives

On the contrary, when *ligeramente* combines with absolute adjectives with maximum-standards, ill-formed sentences are obtained, as the example in (31) shows (remember footnote 16).

(31) *La jeringuilla / La botella está   ligeramente llena.
       the syringe /   the bottle is$_{estar}$ slightly   full

In this case, the transition into the denotation of the adjective is provided by a class-maximal point. Our claim is that small distances are not informative with maximum standards: small distances cannot be felicitously measured from an origin point whose location is maximum. Since the reason why these examples are not well-formed is uninformativeness, we expect to find examples in which these adjectives can co-occur with *ligeramente* if they are informative in the sense that crispness and small differences can be detected: [17]

(32) a. He'd lean his head back, his eyes slightly closed [apud Solt 2011b].
      b. Todas las partes de la cabeza deben estar relajadas: (…) boca ligeramente cerrada "sin tensión". (P Pons Geis: *Tercera edad, actividad física y salud. Teoría y práctica*. Barcelona: Paidotribo, 2001, CORPES XXI)
      'All parts of the head should be relaxed: (...) mouth slightly closed without tension'

In cases like (31), the overt modification of a *for* phrase of the kind in (33) makes the examples well-formed. Remember that the denotation of *ligeramente* gives us an adjectival meaning whose degrees are much more fine-grained. The contribution of the *within-individual* CC introduced by *for/para* (adding new stages of the referent to the class) triggers a relocation of the standard in one of the more fine-grained degrees, making then the examples informative because there is more room to reason about small amounts. The excess reading of these examples comes naturally if the maximal element is the reference point to calculate the meaning of the minimizer.

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[17] On the contrary, long distances can be measured because they are informative, as shown by the combination with *muy* 'very':

(i)   La jeringuilla / La botella está muy llena.
         the syringe /   the   bottle is$_{estar}$ very full

(33)   La copa está ligeramente llena [PP para ser   de vino].
       the cup is_estar slightly   full   to be_ser of wine
       'The cup is slightly full for a cup of wine'
       El restaurante está   ligeramente lleno [PP para ser   martes].
       the restaurant is_estar   slightly   full   to be_ser Tuesday
       'The restaurant is slightly crowded for a Tuesday'

Judge-dependent *for*-phrases also give good results, as shown in (34).

(34)   a. La copa de vino está ligeramente   llena [PP para mí].
          'The cup of wine is_estar slightly   full   for   me'
       b. El   restaurante está ligeramente lleno [PP para mi gusto].
          the   restaurant is_estar slightly   full   for my taste
          'The restaurant is more crowded than I'd like to'

According to Bylinina (2012, 2014, 2016) these sentences are evaluated with respect to a functional standard, whose denotation is in (35): the standard is the maximum degree compatible with the requirements of the situation in terms of objectives, desires, goals of a judge, etc.

(35)   Functional Standard= $\max\{d:\exists w_{Acc}[P(x)^w = d]\}$
       "The maximum degree compatible with the normal (hence the accessibility condition Acc) requirements of the situation."

The within-individual comparison class is formed by stages of the referent of the subject evaluated in terms of the taste/perception of the judge. It is the PP that allows the formation of a comparison class based on the requirements of the situation as perceived by the experiencer or the judge. The more fined-grained degrees introduced by *ligeramente* allow the relocation of the standard in one of them. Note that the functional standard favors an 'excessive reading' so that for example (34)b means something like "The restaurant is much more crowded than I'd like to".

In (32)-(34), however, no coercion takes place: First, the scalar structure is not modified; it is still a closed scale. Second, the adjective is an absolute one with and without *ligeramente*, as its combination with *estar* shows. Third, the standard for the adjective is class-maxima, hence the excessive reading.

4.3. Variable behavior adjectives + ser*, relative adjectives*

Relative adjectives have arbitrary, distributional standards chosen from a between-individuals comparison class. They don't combine naturally with *ligeramente*, (36), since the arbitrary nature of the distributional standard associated with them makes impossible (=uninformative) referring to small degree differences.

(36)   *Juan es   ligeramente {alto/gordo/bajo/delgado}.
       Juan is_ser slighlty   tall/fat/short/thin

However, a functional standard introduced by a *for*-phrase can reduce the arbitrariness.

(37)   a. Juan es ligeramente gordo [$_{pp}$ para entrar en el   agujero].
Juan is$_{ser}$ slightly   fat   to   fit   into the hole
'Juan is slightly fat to fit into the hole'
b. …la bambalina es ligeramente estrecha para las medidas del paso. (Proyecto de Palio de Ntra. Sra. del Carmen, Hermandad del Carmen, https://www.hermandaddelcarmen.es/proyecto-palio/)
'the backdrop is slightly narrow for the measurements of the float'

The *for*-phrase eliminates the arbitrariness of the standard due to the choice of a comparison class based on the requirements of the situation (in (37)a, a goal: The goal of trying to fit into the hole); this allows, once *pos* is introduced, the reasoning about small degrees denoted by *ligeramente* in an informative way. When the PP is non-explicit but the comparison class is made clear by the context, as in the examples in (10), the combination *ligeramente*+relative adjective is informative and natural.

In all these cases there is no coercion. The standard for the adjective in (37) is non-arbitrary (what means that is non-distributionally calculated) but the scale is still open. Similarly, the adjective is relative, the property is evaluated with respect to a between individuals comparison class (against Bylinina 2012) as shown by the fact that the copula is *ser*.

The small differences introduced by *ligeramente* and the choice of the comparison class giving rise to a functional standard favor the interpretation in which a small difference is an excess incompatible with the requirements of the situation introduced by this functional standard (see Kagan & Alexenyenko 2011).

4.4. Variable behavior adjectives + estar; absolute adjectives

When adjectives like *tall, fat* combine with the copula *estar* they are absolute adjectives. The implicit comparison class is based within-an-individual; it contains stages of the referent of the subject. The standard of measurement is specific, non-arbitrary.

(38)   Juan está   alto/gordo/bajo/delgado.
'Juan is$_{estar}$ tall/fat/short/thin'

The prediction is then that the adjective can combine with *ligeramente* in this case:

(39)   Juan está   ligeramente alto/gordo/bajo/delgado.
'Juan is$_{estar}$ slightly   tall/fat/short/thin'

Note that there is no excessive-reading flavor in these sentences (*Él está ligeramente gordo* need not mean *he is slightly too fat*). We take this as an indication that there is no functional standard here and the adjective has simply been constructed as a partial absolute adjective.

5. Conclusions and further investigations

In this paper we have investigated the semantics of degree minimizers in Spanish, taking *ligeramente* as case study. We have argued that this degree expression builds derived gradable adjectives from gradable adjectives, with a more fine-grained set of degrees. Semantically, it is a granularity shifter. The finer granularity introduced by *ligeramente* allows reasoning about small degree differences once the derived adjective is combined with *pos*. This reasoning is only informative, hence, felicitous, when the

standard provided by the comparison class introduced by the pos morpheme is non-arbitrary.

Class-minimum standard adjectives (absolute) provide non-arbitrary standards by means of natural transitions, endpoints which are denotation minima and combine naturally with minimizers. Class-maximal standard adjectives (absolute) provide non-arbitrary standards that are maximal elements. Reasoning about small differences of degrees is not possible with maximal elements unless a functional standard is introduced by means of an explicit comparison class or a judge dependent assertion. Combination of minimizers with relative adjectives (inside the NP and also in predicative contexts with *ser*) is possible when an explicit comparison class provides a functional standard that reduces the arbitrariness of the regular arbitrary standard. Variable behavior adjectives when combined with *estar* assimilate to class-minima standard adjectives. They receive an existential interpretation and don't get an excessive reading with *ligeramente*. Crucially no coercion process takes place in any case. Absolute gradable adjectives remain absolute when combined with *ligeramente* (they combine with *estar* in copular sentences). Relative adjectives remain relative when combined with *ligeramente* (they combine with *ser* in copular sentences).

The fact that the functional standard is obtained in the syntax predicts that it must be possible to obtain the excessive reading they produce with any kind of adjectives, even with class-minima standard adjectives that naturally combines with *ligeramente.* Nicely, this is exactly what happens. What (40)a means is that clothes' humidity exceeds the maximal degree compatible with the situation of putting them into the wardrobe (but the degree is not excessive, for example, for being ironed)[18].

(40)   La ropa   está   ligeramente húmeda para guardar.
          the clothing is_estar slightly   wet   to   keep
          'The clothes are slightly damp to put them into the wardrobe'

To finish, some interesting questions are left for future research. First, how to account for the combination of minimizers with non-scalar predicates:

(41)   Láminas de pasta ligeramente rectangulares
          sheets   of pasta slightly   rectangular
          'slightly rectangular pasta sheets'

Second, it is necessary to determine what the role of the ordering of degrees in the scale is to account for contrasts like the following:

(42)   a. Andrés es   ligeramente cobarde para trabajar de policía.
             Andrés is_ser slightly   coward to   work   as policeman
             'Andrés is slightly coward to work as a policeman'
          b. ??Andrés es ligeramente valiente para trabajar de policía
             Andrés   is_ser slightly   brave   to   work   as policeman
             ?? 'Andrés is slightly brave to work as a policeman'

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