What veracity does to imprecision. The case of Spanish *verdadero*

1   Introduction

Language is normally used with varying degrees of (im)precision, and we employ expressions in circumstances in which they would be considered to be false, strictly speaking. Slack regulators are expressions that serve to fix the amount of pragmatic slack that is afforded in judging an utterance 'close enough to true' in a concrete situation (in Lasersohn's (1999) terms). They can be grouped according to whether they increase or reduce the degree of allowed imprecision: hedges such as *loosely speaking* or *sorta* expand the set of permitted referents of an expression to normally ignorable ones (see Lakoff (1973); Anderson (2013) for *sorta*); other regulators such as *exactly* or *perfectly* shrink that set to those referents in the strict denotation of the modified predicate. This paper focuses on adjectives of veracity (*verdadero* 'true', *auténtico* 'authentic') in Spanish as belonging to the latter class of slack regulators. Specifically, I will argue they set the degree of precision of a context to its maximal value.

   The aim of this paper is to offer an analysis of adjectives of veracity that accounts for their modification of nouns in terms of imprecision regulation. Slack regulators are interesting because, as they signal the intended degree of precision in the use of an expression to describe a situation, they can be understood as part of a pragmatic mechanism. However, at they same time, they have influence in truth conditions and they must be thus part of compositional semantics. In other words, slack regulation stands in the border between semantics and pragmatics. In order to account for these facts, I will adopt Morzycki's (2011) framework, which reformulates the pragmatic-halos theory of imprecision of Lasersohn (1999) in terms of a Hamblin alternative semantics (Hamblin 1973). As a consequence, expressions denote sets of alternatives[1] whose size depends on the degree of precision of the context. This framework allows to directly compare and modify degrees along a single scale of imprecision.[2]

   This paper is organized as follows: section 2 presents the data on adjectives of veracity in Spanish and argues that they are slack regulators. In section 3, I provide the theoretical background of my proposal, which is formalized in section 4. Section 5 concludes.

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[1]   The alternatives in the denotation of an expression need not to be lexical items. In fact, the existence of slack regulators would not make sense if we had a lexical item for all the objects we can name imprecisely with an expression, as we would choose to use the precise word. As Anderson (2013) mentions, if there were a word for *sorta kick the ball* we would prefer to use it instead of introducing a hedge.

[2]   We are considering here vagueness and imprecision to be two different phenomena. Vagueness is commonly associated with expressions which involve uncertainty about where cut-off points in the denotation are located. For instance, *expensive* is a vague predicate because we can never be certain in any context of how expensive something must be to qualify as expensive. Imprecision, on the contrary, is a more general type of linguistic uncertainty (Pinkal 1995, Kennedy 2007, Sauerland and Stateva 2011).

2 Adjectives of veracity: interpretation and distribution

Adjectives of veracity such as Spanish *verdadero* 'true' or *auténtico* 'authentic', when in prenominal position, signal that the noun must be interpreted precisely. The natural interpretation of an example like (1) is that Paloma is an artist in a strict sense, this is to say that Paloma is not just someone who merely paints or works with her hands, but presents every quality the context associates with being an artist: creativity, originality, perspicacity, maybe success:

(1) Paloma es una verdadera artista[3].
     'Paloma is a true artist '

If *verdadero* forces the noun to be interpreted in a strict sense, there should not be nothing else apart from true artists in the set of alternative expressions *artista* denotes. This is borne out: (2a) is perfectly fine as *artista* can be interpreted in a loose sense and may also refer to a set of artists which are not artists in the strict sense (for example, Esther may be an artisan) or there may exist referents who are artists in a more precise sense (in this case, Carlos is more of an artist than Esther). However, these possibilities are excluded in (2b) as, by means of *verdadero*, *artista* must be interpreted maximally precisely.

(2) a. Esther es una artista, pero no en sentido estricto / pero Carlos lo es más.
        'Esther is an artist, but not in a strict sense / but Carlos is more of an artist than her'.
     b. Esther es una verdadera artista, #pero no en sentido estricto / #pero Carlos lo es más.
        'Esther is a true artist, but not in a strict sense / but Carlos is more of an artist than her'.

Under this framework, any expression denotes sets of alternatives (as will be elaborated on shortly) and, in this sense, is subject to imprecision. Slack regulators are then expected to present no semantic restrictions as for the expression they modify. Adjectives of veracity display the predicted behavior, as they combine with any kind of noun: count and mass nouns (3a), concrete and abstract nouns (3b), event nouns (3c), evaluative nouns (3d), etc.

(3) a. una verdadera casa / verdadera agua
        a true house / true water
     b. un auténtico policía / auténtica sabiduría
        a true policeman / true wisdom
     c. verdadera derrota, verdadera revolución
        true defeat, true revolution

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[3] Note that the indefinite article slightly changes the sense of the sentences. *Paloma es artista* (lit. 'P. is artist') simply states Paloma's occupation, while *Paloma es una artista* 'P. is an artist' adds an affective nuance to the statement (see Fernández Lagunilla 1983, i.a.).

      d. un auténtico idiota, una auténtica delicia /
          a real idiot, a true delight

This type of modifiers appear only in prenominal position in Spanish. Their modification is different from that of 'true' or 'authentic' in their literal sense —'not false'—, which are restricted to postnominal or predicative position. For instance, according to (4b), the pain Lucía felt is a real one, not imaginary; whereas for (4a), the pain is a true pain, an intense one, not simple discomfort or a twinge. The two senses can in fact appear in the same sentence, although the examples are not the most natural ones, probably due to some overlapping in the meanings of the two *verdaderos* (5). Postnominal *verdadero*'s distribution, on the contrary, is restricted to those entities that can be either true or false (6).

(4)   a. Lucía sintió verdadero dolor.
         'Lucía felt true pain'

      b. Lucía sintió dolor verdadero. / El dolor era verdadero.
         'Lucía felt real pain' / 'The pain was real'

(5)   [Verdadero [amor verdadero]].
     'True true love'

(6)   ??Un periodista verdadero. / ??una tortura verdadera.
     A real journalist (not a fake one) / A real torture (not a fake one)

Modification by adjectives of veracity in prenominal position in Spanish can thus be analyzed in terms of slack regulation. My proposal is that *verdadero* fixes the degree of precision of the context to its maximal value, and, consequently, the modified expression, whose set of alternatives has been maximally shrunk, is interpreted in a totally strict sense.

3   Background

I will adopt a framework developed by Morzycki (2011) for metalinguistic comparatives which allows degrees of imprecision to be directly compared. Lasersohn's (1999) pragmatic-halos theory of imprecision is recast in terms of a Hamblin-style alternative semantics (Hamblin 1973). For Morzycki (2011), the intuition behind metalinguistic comparatives is that they measure how precise a speaker is when using a particular word, i.e. they involve comparison of degrees of precision. What (7) does then is to compare the appropriateness of calling George a syntactician, rather than a semanticist.

(7)   George is more a syntactician than a semanticist. (Morzycki 2011)

In this proposal, the cross-categorial 'approximates' relation $\approx$ holds between two objects in the model if they are sufficiently similar. To determine whether two objects are similar, a standard of similarity and a context that provides the scale of similarity are required, as different contexts impose different similarity orderings. The standard of similarity is construed as a degree d, a real number in the interval [0,1].

(8) $\alpha \approx_{d,C} \beta$ iff, given the ordering imposed by the context C, α resembles β to (at least) the degree d and α and β are of the same type.

This similarity relation is the basis of denotations that reflect degrees of imprecision. The interpretation function is parameterized to a degree of precision and a context, $[\![.]\!]^{d,C}$, and denotations are partially ordered sets of alternatives ranging from the d-resembling alternative to the perfectly resembling one. An expression such as *dumb* thus denotes the set of alternatives that resemble *dumb* sufficiently (9a). When *dumb* is interpreted in the highest degree of precision, 1, it will denote the singleton set containing only *dumb* (9b); when it is interpreted in the lowest degree of precision, it will denote all the alternatives of the same semantic type (9c).

(9) a. $[\![dumb]\!]^{d,C} = \{f_{\langle e,t \rangle} : f \approx_{d,C} dumb\}$
     b. $[\![dumb]\!]^{1,C} = \{dumb\}$
     c. $[\![dumb]\!]^{0,C} = D_{\langle e,t \rangle}$

Accordingly, higher imprecision corresponds to a widening of a pragmatic halo, and higher precision to a narrowing of the denotation. To model pragmatic halos, Morzycki (2011) adopts Kratzer and Shimoyama's (2002) approach to Hamblin alternatives, according to which alternatives are part of the compositional semantics[4]. This sort of alternative framework requires some way of mapping a sentence denotation —a set of propositional alternatives— to a single proposition. Kratzer and Shimoyama (2002) assume an existential closure operation, which can take place at intermediate points of the tree as well as at the top:

(10) $[\![\exists \alpha]\!]^d = \lambda w.\exists p[p \in [\![\alpha]\!]^d \wedge p(w)]$

As such, degrees of imprecision are not available for composition and do not play a role in the semantic derivation. In order to have access to this scale, Morzycki (2011) introduces a typeshift PREC (11) in his system. PREC binds the degree of imprecision and makes it available as an argument. This typeshift applies as a last resort whenever there are certain type-theoretical or structural environments that require to make use of the imprecision scale, such as modification by *verdadero*, as I will propose in the following section.

(11) $[\![\text{PREC } \alpha]\!]^d = \lambda d'.[\![\alpha]\!]^{d'}$

4 Proposal

4.1 Detour: *verdaderamente* with adjectives

In order to determine what *verdadero* quantifies over, I will first observe the behavior of its adverbial counterpart *verdaderamente* 'truly' with adjectives. I

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[4] This idea connects metalinguistic comparatives with work on focus (e.g. Rooth 1992).

will assume a degree approach to gradability (Kennedy 1999 i.a.), according to which degrees are part of the ontology, and gradable predicates include a degree argument in their structure and are of type $\langle d, \langle e, t \rangle \rangle$ (Cresswell 1976, von Stechow 1984)[5]. The degree argument is to be bound by an overt degree operator (comparative, degree modifiers) or by a null degree operator POS for the positive form. Syntactically, gradable adjectives project an extended functional structure headed by degree morphology (Abney 1987, Kennedy 1999, i.a.):

(12)

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        DegP
        /  \
      Deg   AP
      POS   tall
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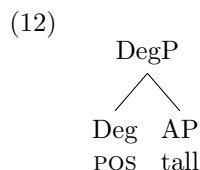
Verdaderamente, when combined with adjectives[6], is a degree modifier and, as such, it occupies the degree head in the structure, as incompatibility with other degree morphology shows (13). It patterns with other maximality modifiers *completamente* 'completely' or *perfectamente* 'perfectly', which fix the degree of the property denoted by the adjective to a high or maximal value.

(13) a. *Inma es más verdaderamente alta que Marina.
          'Inma is more really tall than Marina.'

      b. #Inma es verdaderamente más alta que Marina.
          'Inma is really taller than Marina.' [evidential reading]

      c. *Inma es {completamente / muy} verdaderamente alta.
          'Inma is completely / very / really tall.'

      d. Inma es verdaderamente {*completamente / #muy /} alta.
          'Inma is really completely / very / tall.'

(14) a. El vaso está {completamente / perfectamente / verdaderamente} lleno, #pero podría estarlo más.
          'The glass is completely / perfectly / truly full, but it can be fuller'

I will assume that *verdaderamente* and *verdadero* are instances of the same lexical item. As such, I will consider *verdadero* a degree modifier. The difference will lie in the type of degrees they quantify over: whereas the former is sensitive to the degree of a property that holds of an individual, the latter cares about degrees of imprecision in the use of a nominal expression.

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[5] Gradable adjectives have been alternatively analyzed as measure functions $\langle e, d \rangle$ (Bartsch and Vennemann 1973, Kennedy 1999). Although I do not adopt the measure function analysis, nothing in my proposal hinges on this decision.

[6] *Verdaderamente*, as well as in English *really*, has at least two readings depending on its position: an evidential one affecting propositions (*verdaderamente₁*) and a degree one modifying adjectives (*verdaderamente₂*) (see Kennedy and Mcnally 2005:370). I will focus on the latter.

(i) Verdaderamente₁ estaba verdaderamente₂ satisfecha con el trabajo.
     'I really was really satisfied with the work.'

4.2 Modification by *verdadero*

As mentioned in section 2, adjectives of veracity can be analyzed as modifiers fixing the degree of precision in a context to its maximum value. This intuition can be formalized as follows: the standard of similarity is construed as a degree d, a real number in the interval $[0,1]$, so what *verdadero* does is to set the value of d to its maximum, i.e. 1. As a degree modifier, *verdadero* takes an expression of type $\langle d, \langle e, st \rangle \rangle$ and returns a property ($\langle e, st \rangle$), which applies to an individual in a particular world or context.

(15) $[\![verdadero]\!] = \lambda P_{\langle d, \langle e, st \rangle \rangle} \lambda x \lambda w. \exists d'[d' = 1 \wedge P(d')(x)(w)]$

However, *verdadero* modifies nouns and these do not have degree arguments as adjectives have. As lack of degree morphology (16) and other tests prove (see Constantinescu 2011), nouns do not seem to be lexically associated with a scale onto which they map their arguments. If this is so, there should be a type mismatch between *verdadero* and the noun it modifies.

(16)   a.   * John is more idiot / idioter than Grace.

   b.   * very man / idiot / artist.

But, in this framework, when an expression is not interpreted totally precisely, its denotation consists of a set of alternatives, which are ordered with respect to each other by the $\approx$ relation (17). The number of alternatives allowed in the denotation (or halo) of an expression in a context is determined by the degree of precision of that particular context (18). In the sense that alternatives can be understood as points in a general scale of imprecision, the denotation of any expression is gradable.

(17) $[\![artista]\!]^{d,C} = \{ f_{\langle e,t \rangle} : f \approx_{d,C} \textbf{artist} \}$

(18)   a. $[\![artista]\!]^{0.9,C} = \{\text{artist, creator, author}\}$

   b. $[\![artista]\!]^{0.8,C} = \{\text{artist, creator, author, artisan, designer}\}$

The denotation of *artista* is thus a set of alternatives of type $\langle e, t \rangle$ ordered by the $\approx$ relation. This scale of imprecision is what provides a degree argument that can be targeted by slack regulators such as *verdadero*. As mentioned in section 3, typeshift PREC (11) is required to make the degree of imprecision available for composition. However, PREC cannot apply to a *set* of properties by pointwise functional application because PREC does not denote itself any set. Before PREC can apply to the denotation of the predicate, existential closure turns the set of alternative properties into one property (19). Then PREC to turn this property into something of type $\langle d, \langle e, st \rangle \rangle$ (20):

(19) $[\![\exists \; artista]\!]^{d} = \lambda x \lambda w \; . \; \exists f \in [\![artista]\!]^{d} \wedge f(x)(w)$

(20) $[\![\text{PREC} \; \exists \; artista]\!]^{d} = \lambda d'. \; [\![\exists \; artista]\!]^{d'} = \lambda d' \lambda x \lambda w. \exists f \in [\![artista]\!]^{d'} \wedge f(x)(w)$

Now *verdadero* can apply to the noun (21). The result is the property of being an *artista* in its maximally precise sense in the given context, as *verdadero* fixes the degree of precision of being an artist to its maximal value, 1.

(21) $[\![verdadero \text{ PREC } \exists \ artista]\!]^d = \lambda x \lambda w. \exists d'[d' = 1 \wedge \exists f \in [\![artista]\!]^{d'} \wedge f(x)(w)]$

Using the noun modified by *verdadero* with a degree of precision lower than required produces in fact infelicitous utterances. Imagine a context where you are in your French class and the teacher asks you to write a composition. (22a) would be felicitous, while (22b) would be considered inappropriate, as not having a pen is not a problem in a strict sense in that context where other students can lend you one.

(22) a. Tengo un problema: me he dejado el boli en casa.
      'I have a problem: I forgot my pen at home.'

      b. #Tengo un verdadero problema: me he dejado el boli en casa.
      'I have a real problem: I forgot my pen at home.'

As the degree of precision is maximal, no other referents with a higher degree of precision are possible. This explains the infelicitousness of example in (2b), where Carlos is said to be more of an artist than Esther, who already is a true artist. The scale of imprecision is a general one, and the same for all expressions. Because of this fact, *verdadero* shows no restriction in the type of noun it modifies. This also accounts for the absence of incommensurability effects in metalinguistic comparisons (*Clarence is more tall than boring*) (Morzycki 2011).

5   Conclusion and further issues

Alternative semantics has been shown to be useful to formalize the imprecise use of language and the phenomena of slack regulation. It also brings together two manifestations of uncertainty in language —vagueness and imprecision— by associating them to gradability along different scales —lexical and imprecision. The proposal made here assumes the basis of the analysis of metalinguistic comparatives (Morzycki 2011) and *sorta* (Anderson 2013) and applies them to related modifiers, such as adjectives of veracity in Spanish. *Verdadero* has been argued to be an imprecision regulator setting the degree of precision of the context to its maximal value.

The analysis may be extended to other related degree modifiers, such as *completa(mente)* and *perfecta(mente)*. When combined with expressions associated with a lexical scale, such as adjectives and some verbs, they behave as regular degree modifiers (*The glass is completely / perfectly full*; *The army completely destroyed the city*). But whenever no lexical scale is available, they target the imprecision scale of the modified expression. This is the case with nouns and some verbs (*She is a true artist*; *Mary perfectly convinced John*). This suggests

that there may be two types of gradability in language (Morzycki 2011), and developing this idea would contribute to a better understanding of scalarity across grammatical categories and the difference between vagueness and imprecision.

Further research must evaluate the convenience of introducing evidentiality in the analysis. Evidential accounts of related modifiers (Constantinescu 2011 for English adjectives of veracity, Bochnak to appear for Washo *šemu*) focus on the speaker's belief that the modified predicate holds in the actual world and in every world in her doxastic model. However, they do not consider the possibility of having gradable denotations.

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