

Non-Agreeing Degree Constructions

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Abstract

This paper deals with a construction, which we dub Non-Agreeing Degree (NAD) Constructions, with the distinguishing property that the agreement pattern between subjects and degree predicates is optionally disrupted, even in languages (like Spanish) where verbs commonly agree with their subjects. We show that the agreeing vs. non-agreeing alternation comes with important semantic differences for the interpretation of the degree construction. We provide a first systematic description of this type of constructions and postulate a formal syntactic and semantic analysis. We argue that NAD constructions are characterized by degree predicates that introduce a non-conventional nominal scale and by subjects that denote equally non-conventional units of measurement. We postulate an intensionalization process on the subject of NAD constructions that we capture via a general nominalization function.

1. Introduction

It is quite common for natural languages to be furnished with means of expressing whether an object has more or less of a certain property than some other object. In languages that have them, these properties, usually referred to as being *gradable*, are prototypically expressed by lexical items such as adjectives and adverbs. Such gradable expressions themselves may in turn be further modified by other types of *degree modifiers*, like those introduced by comparative and superlative morphology, adverbs like *much* and *very*, and so on.

No doubt prototypical degree constructions like adjectives and their projected functional structures provide the best opportunities to investigate how expressions of degree at large work in natural language. But gradability—understood informally as the linguistic correlate of our ability to conceptualize both vagueness and comparison—is not just a property of adjectives and adverbs. Indeed, although they have received much less attention in the literature on *degree expressions*, nominals may as well be used to express gradable properties. This is most clearly obvious with English examples like *Bill is a big stamp-collector* or *Bill is more of a stamp-collector than Liz*.

The mechanisms that underlie such non-canonical degree contexts remain largely understudied and mysterious. Thus, the broader goal of this paper is to shed further light into this lesser studied area of gradability by paying attention to a variety of degree constructions in which a degree modifier acts on an otherwise non-gradable noun.¹ In order to do so, we investigate a hitherto understudied phenomenon, one with the distinguishing grammatical feature of displaying a seeming agreement disruption between the subject and the main predicate of the clause even in languages where predicates must agree with their subjects. The following examples

¹ In footnote 13 we clarify exactly in what sense a noun might be gradable in the technical sense (Morzycki 2009).

provide a minimal pair illustrating the agreeing vs. non-agreeing contrast in Spanish, the latter being a Non-Agreeing Degree (henceforth, NAD) construction.²

- 1) a. Tres libros son {demasiados / suficientes}.
three books are too much.PL enough.PL
'Three books are too many / enough.'
- b. Tres libros es {demasiado / suficiente}.
three books is too much / enough
'Three books is too much enough.'

Example (1a) is an ordinary sentence with no agreement disruption, as subject and predicate agree in plural number marking. Its semantic interpretation simply states that three books count as too many books (for whatever purpose is relevant in the context). But also possible are variants like that in (1b), with what seems like a disrupted agreement pattern on the surface. Nevertheless, despite the mismatch in terms of the agreement between subject and predicate, the sentence is perfectly grammatical. Contrasts like those in (1) are ubiquitous among a large variety of languages, including Romance and Germanic families, but throughout the paper we focus on Spanish examples.

This type of constructions thus seemingly involves a systematic violation of a fundamental grammatical principle, namely subject-verb agreement. More important for us, however, is the fact that examples like that in (1b) are not fully semantically equivalent to (1a) but come instead with important truth-conditional differences. Intuitively, the sentence in (1a) states that an amount of three books exceeds (or is sufficient for) some (possibly under-specified) threshold of book amounts. But this may not be so for (1b). What counts as too much in this second case is largely under-specified: it could be virtually *any* property that may be sensibly predicated of its subject, *three books*. For instance, (1b) could refer to the fact that reading, writing, summarizing or reporting three books is too much (to meet certain criteria), that the weight of three books exceeds some contextually relevant limitation (e.g., they are too heavy to carry in a flimsy plastic bag), that the height of a stack of three books would be too much to (to fill in a gap in a bookshelf), etc.

While the truth-conditional differences between the minimally different (1a) and (1b) are fundamental, the semantic under-specification can nevertheless be reduced by providing an overt nominal complement to the degree predicates *demasiado / suficiente*. Consider (2). Notice that in (2a) not only the overt nominal complement must be formally identical to the nominal in subject position but degree expressions must also agree in number with the complement noun.³ In (2b), by contrast, there is not only lack of subject-verb agreement but the degree expression cannot be plural.

² In this paper all examples are given in present tense, but the claims and arguments we discuss are independent of this choice.

³ Note that the nominal complement of the degree head may also be a conceptual hyperonym of the noun in subject position.

- i) a. Tres novelas son demasiados libros (para leer en un mes).
three novels are too many.PL books to read in one month
'Three novels are too many books (to be read in one month).'
- b. Dos juguetes son suficientes regalos (para un niño de dos años).
two toys are enough.PL presents for a child of two years
'Two toys are enough presents (for a two year old child).'

- 2) a. Tres libros {son demasiados / suficientes libros}.
 three books are too many.PL enough.PL books
 ‘Three books are too many / enough books.’
 b. Tres libros es demasiado/ suficiente {peso, dinero, trabajo, esfuerzo, lectura}.
 three books is too much enough weight money work effort reading
 ‘Three books is too much / enough {weight, money, work, effort, reading}.’

Thus, generally speaking, the purely syntactic effects of the agreement disruptions observed in constructions like (1b) and (2b) seem to come along with very non-trivial consequences for their semantic interpretations, an effect that, to the best of our knowledge, is yet to be explained. For concreteness, throughout the rest of the paper we will refer to cases such as (1b) and (2b) as NAD constructions.

Notice that NAD constructions are not limited to expressions of excess and sufficiency, like those in (1b) and (2b), but in fact generalize quite broadly to a variety of other degree modifiers and may include other types of degree expressions such as equative, comparatives, superlatives and proportionals, as shown in (3).

- 3) a. En ajedrez dos torres es mejor (que una reina). *Comparatives*
 in chess two towers is better than a queen
 ‘In chess two towers is better than a queen.’
 b. Tres juguetes es lo mejor (que le puedes regalar). *Superlatives*
 three toys is the best that him can gift
 ‘Three toys is the best that you can gift him.’
 c. Cuatro pizzas pequeñas es lo mismo (que dos grandes). *Equatives*⁴
 four pizzas small.PL is the same as two big.PL
 ‘Four small pizzas is the same as two big ones.’
 d. Más de dos hijos es mucho. *Proportionals*⁵
 more than two children is much
 ‘More than two children is a lot.’

The main goal of this paper is twofold, one descriptive and one theoretical. Descriptively, we provide a first thorough investigation of the syntactic distribution as well as the accompanying semantic effects of NAD constructions, with a focus on predicates of excess and sufficiency. From a theoretical standpoint, our overarching goal is, in a nutshell, to investigate the syntactic and semantic principles that underlie alternations such as those in (1) and (2). More concretely, given this current state of affairs, the main question that we set to answer in this paper pertains to the syntax-semantic mapping puzzle raised by minimal pairs such as (1) and (2): how can the different semantic interpretations associated with these minimal pairs be accounted for? On the way to answering this question, we will also address the issue of agreement: how can the different agreement patterns observed in these minimal pairs be accounted for?

⁴ Later in the paper we will argue that NAD constructions constitute predicational copular clauses. In this sense, they are not to be confused with equative copular clauses.

⁵ The semantics of *mucho* ‘much’ presents some particular complications that we will largely ignore here. Most notably, statements with *mucho* (and *many/much* in English) are subject to systematic ambiguities between so-called absolute and proportional interpretations, and even a “reverse proportional” interpretation according to some authors. This semantic heterogeneity has led to a debate about whether and if so for which interpretations does *mucho* require to appeal to contextual factors and standards of comparison. For recent discussions, see Bale and Schwarz (2020), Dobrovie-Sorin and Giurgea (2021) and Romero (2021).

Foreshadowing the upcoming discussion, our main claims about NAD constructions are as follows. From a purely syntactic standpoint, the pairs (1a,b) and (2a,b) share the fact that they are degree predication sentences. However, semantically, they both perform different tasks. We suggest to follow the intuition that, when it comes to their semantic interpretation, NAD constructions like (1b) and (2b) are no different than other kinds or ordinary measuring constructions, such as (4). That is, the subject of a NAD construction introduces nominal expressions that may (*kilos*) or may not (*books*) be directly compatible with the dimension specified in the predicate.

- 4) Tres kilos es {demasiado / suficiente} peso.
 three kilos is too much enough weight
 ‘Three kilos is too much weight.’

The intuition we pursue is that the semantic task of *three books* in (1b) and (2b) above is exactly the same as that of *three kilos* in (4): to state that three units of books (or kilos) exceed/are sufficient with respect to some contextually relevant threshold of weight. We propose to break down the division of labor that leads to this semantic interpretation of NAD constructions as involving the following ingredients:

- A nominal (possibly covert) such as *weight*, *money*, *work*, *effort*, etc., that contributes the required dimension along which to build a relevant scale.
- A degree head expressing some form of comparison to a degree, such as *too much* and *enough*. Importantly, and unlike other types of gradable predicates, these heads do not by themselves determine any specific dimension.
- A copula BE.
- A subject that provides a unit of measurement corresponding to the scale built upon the dimension contributed by the nominal.

We further propose that subjects of NAD constructions, if they are to provide such units of measurement, must be non-extensional, an intensionalization process that we propose to capture via a general nominalization function. The postulated predication over non-extensional subjects comes in turn with important additional consequences, which we discuss now. First, subjects of NAD constructions are underspecified for number, and thus agreement with the main predicates is rendered irrelevant. To see that this is so, consider (5) in comparison to (2b).

- 5) Tres libros son {demasiado / suficiente} {peso, dinero, trabajo, esfuerzo, lectura}.
 three books are too much enough weight money work effort reading
 ‘Three books are too much / enough {weight, money, work, effort, reading}.’

There are two important things to note out of this comparison: (i) plural or singular subject-verb agreement are both possible, and (ii) irrespective of the number morphology on the verbal form, there is no discernible semantic difference between the NAD construction in (2b) above and (5), thus conveying the same proposition. Concerning the former, notice that in (5) *only* the copula “agrees” in plural with the subject. The DegP complement of the copula instead shows no trace of such putative agreement process. This is typically not possible in Spanish, where predicative copular constructions require the copula and its complement to share phi-features,

as illustrated in (2a).⁶ Concerning the latter, these facts suggest that agreement in NAD constructions must be distinguished from the syntactic operation Agree (Chomsky 2000, 2001).

The second important piece of evidence suggesting that subjects of NAD constructions are non-extensional and unspecified for number is that they lack existential import: unlike (1a) or (2a), neither (1b), (2b), nor (5) express the existence of any three particular books such that they are too heavy. Instead, the subjects in the latter group of sentences convey “any three-book-entity” has such-and-such property.⁷

The remainder of the paper is organized as follows. Section 2 introduces the syntactic and semantic properties that characterize NAD constructions, such as the requirement of a degree predicate (with a copula BE, a degree head and a nominal complement) and a subject that provides a measuring unit used to locate a degree above or below a threshold on the basis of a scale whose dimension is provided by a nominal complement that may be optionally retrieved from context. Section 3 we first present the syntactic structure of predicational NAD constructions and, secondly, we discuss the semantic ingredients of the expression of excess and sufficiency. In this section the semantics of standard gradable predicates is compared to the semantics of degree heads in combination with plural nominal complements. Section 4 presents the semantic composition of NAD constructions both with an overt and a covert nominal complement. Finally, Section 5 concludes the paper.

2. Syntactic make-up of NADs and their semantic properties

This section provides a description of the syntactic distribution of the different components that make up NAD constructions. More concretely, we seek to answer the following two questions: (i) what kinds of predicates are involved in NAD constructions? (ii) What kinds of syntactic phrases may appear as subjects of NAD constructions? And (iii) what are the restrictions in each case?

2.1. Degree predicates

Generally speaking, predicates expressing some form of measurement or comparison, i.e. indicating degrees of difference or similarity, form good NAD constructions. This is true of the following constructions: comparatives, superlatives, equatives, proportional (see (3)), as well as expressions of excess and sufficiency, such as *be too much* or *be sufficient*, which are the ones we focus on in this paper, in the interest of space. We already have seen what such NAD

⁶ Identificational copular sentences do not abide by this rule, but as argued here, NAD constructions invariably involve predicational copular sentences. See discussion in Section 3.1 below.

⁷ Note that some authors may suggest that we should regard NAD constructions as instances of lexical polysemy, whereby nouns may contribute with two main senses to the truth-conditions of the sentence: an “individual” sense and a “degree” sense (see e.g. Rett 2014, 2018; cf. Brasoveanu 2009). We suggest to depart from such accounts on the grounds that (i) polysemous terms do not typically have additional effects on other types of grammatical processes (such as agreement), (ii) because they do not lend themselves easily to cases of co-predication (a hallmark of polysemous predicates; see discussion in Rett 2018); (iii) polysemy-based analyses would suffer of over-predictive power, as the distribution of NAD constructions, as we will see shortly, is heavily restricted to certain syntactic environments, even when semantically equivalent constructions are in principle available; and (iv) because if we were to invoke polysemy we would be missing a generalization, namely that NAD constructions constitute essentially measuring constructions with subjects acting as units of measurement. But to be clear, we are not claiming that nominals may not be polysemous and denote more than one sense, only that we believe the source of NAD constructions is not to be found there.

constructions look like in (1b) and (2b), characterized syntactically by a seemingly disrupted agreement pattern. For convenience, we repeat below example (2b):

- 2) b. Tres libros es {demasiado / suficiente} {peso, dinero, trabajo, esfuerzo, lectura}.
 three books is too much enough weight money work effort reading
 ‘Three books is too much / enough {weight, money, work, effort, reading}.’

We focus now on the properties and restrictions of the three pieces that make-up the predicate of this construction: the copula BE, the degree head and the nominal complement of the degree predicate.⁸

2.1.1 The copula

We begin first by noting that NAD constructions are strictly limited to (i) predication copular sentences with (ii) degree predicates that express some form of measurement or comparison. We can use the particular agreement patterns observed in NAD constructions to tease these properties apart. For one, predicates that do not involve any form of measurement or comparison are clearly ungrammatical in NAD configurations: only ordinary agreement patterns are attested in all the examples in (6):

- 6) a. Cinco defensas {*puede / pueden} frenar al equipo contrario.
 five defenders may may.PL stop DOM.the team rival
 ‘Five defenders may stop the rival team.’
 b. Tres coches mal aparcados {*bloqueó / bloquearon} la salida.
 three cars bad parked.PL blocked blocked.PL the exit
 ‘Three poorly parked cars may block the exit’
 c. Cinco artículos {*es / son necesarios} (para obtener la acreditación).
 five articles is are necessary.PL to obtain the accreditation
 ‘Five papers are required in order to obtain the accreditation’

It is important to remark that the limitations of the non-agreeing variants in (6) to form grammatical NAD constructions are exclusively syntactic. For instance, one could imagine that a NAD construction in (6a) could mean that an amount of defenders equal to five has the required ability to stop the rival team; similarly, the NAD variant of (6b) may conceivably express that an amount of three cars blocked the exit. Not only that, those meanings are perfectly expressible by means of *bona fide* NAD constructions, as exemplified in (7).

- 7) a. Cinco defensas es suficiente para frenar al equipo contrario.
 five defenders is sufficient to stop DOM.the team rival
 ‘Five defenders is enough to stop the rival team.’
 b. Tres coches mal aparcados fue suficiente para bloquear la salida
 three cars bad parked.PL was enough to block the exit
 ‘Three poorly parked cars was enough to block the exit’

However, the corresponding non-agreeing variants in (6) are all invariably ungrammatical. We take it, thus, that NAD constructions require predicates that overtly establish some form of

⁸ As we mentioned earlier, we will only focus on degree predicates of excess and sufficiency, like *demasiado* ‘too much’ and *suficiente* ‘enough’, but see examples in (3) to see that many so-called degree quantifiers may appear as part of the main predicate in NAD constructions.

measurement or comparison. In fact, some predicates actually are found to be *preferred* as NAD constructions in their most common uses. For instance, nouns that can be predicated directly of units of measurement—such as *distance*, *volume*, *weight*, etc.—yield better results as NAD constructions in spite of showing disrupted agreement, in contrast with ordinary agreeing counterparts.⁹ Consider the data in (8) and (9).

- 8) a. Tres casas es suficiente distancia.¹⁰
 three houses is enough distance
 ‘Three houses is enough distance.’
 b. *Tres casas son suficientes distancias.
 three houses are enough.PL distances
- 9) a. Dos pintas es suficiente volumen de cerveza.
 two pints is enough volume of beer
 ‘Two pints is enough volume of beer.’
 b. *Dos pintas son suficientes volúmenes de cerveza.
 two pints are enough.PL volumes of beer

It seems clear then that expressing some form of measurement/comparison is necessary, but as it turns out this is by no means sufficient. Consider predicates that directly express, as part of their lexical meaning, some measurement/comparison, such as *weigh*, etc. These types of predicates may form interesting semantic pairs with NAD constructions, as illustrated by the pair *be enough weight* viz-a-viz *weigh enough*; for instance, if *10kgs is enough weight* (for some purpose), then certainly *10kgs weighs enough* (for that same purpose). Nevertheless, this type of predicates are ruled out in NAD constructions.

- 10) a. Tres libros {es demasiado peso / *son demasiados pesos}.
 three books is too much weight are too many.PL weights
 ‘Three books is too much weight.’
 b. Tres libros pesan / *pesa demasiado.
 three books weigh weighs too much
 ‘Three books weigh too much.’
- 11) a. Tres horas {es demasiado tiempo / *son demasiados tiempos}.
 three hours is too much time are too many.PL times
 ‘Three hours is too much time.’

⁹ Notice that in cases where the measure nominal has dual life as a measure phrase and as a sortal noun, the resulting sentence with plural agreement is not ungrammatical, but its truth-conditions are different from its NAD counterpart.

- i) Tres kilos es demasiado peso.
 three kilos is too much weight
 ‘Three kilos is too much weight.’
 ii) Tres kilos son demasiados pesos.
 three kilos are too many.PL weights
 ‘Three kilos are too many weights.’

¹⁰ Remember that we take variants such as *Tres casas son suficiente distancia* ‘Three houses are enough distance’ to also constitute NAD constructions. See our discussion around (5) above. We limit ourselves here to the clearer cases such as those in (8a), but everything we have to say in terms of distribution applies to these variants with the plural copular verb as well.

- b. Tres horas duran/*dura demasiado tiempo.
 three hours last lasts too much time
 ‘Three hours last too long.’

In both (10) and (11) we find the same exact contrasting pattern. In the two (a) examples we find predication copular sentences where only the non-agreeing variant is grammatical. These are the baseline NAD constructions. Instead, the (b) cases involve a verbal predicate modified by the degree predicate of excess *demasiado* ‘too much’ expressing that its subject exceeds a certain threshold along the dimension determined by the verbal predicate itself, weight for (10) and time for (11). These only admit ordinary plural agreement patterns, which we take as evidence that they cannot form NAD constructions like the ones in the corresponding (a) variants, where the pattern is reversed. In other words verbal predicates like *pesar* ‘to weigh’ and *durar* ‘to last’ cannot partake in NAD constructions even though its nominal counterpart *peso* ‘weight’ and *tiempo* ‘time’ can.¹¹

Notice too that just like we saw earlier the semantic meanings intended in the NAD variants of (10a) and (11a) viz-a-viz the non-agreeing (b) examples are identical; i.e. the intended meanings of the non-agreeing (b) variants are not just coherent but expressible by means of the bona fide NAD constructions in the (a) examples—suggesting that the restrictions observed in (10) and (11) must be syntactic in nature. We must be careful, however, when assessing the semantic status of the two grammatical variants of pairs such as those presented in (10) and (11). Consider for clarity the following minimal pair, formed by the NAD construction in (10a) and the agreeing variant in (10b).

- 12) a. Tres libros es demasiado peso.
 three books is too much weight
 ‘Three books is too much weight.’
 b. Tres libros pesan demasiado.
 three books weigh too much
 ‘Three books weigh too much.’

The meaning difference between (12a) and (12b) is ostensible and thus the two sentences cannot be taken to be semantically analogous. (12a) states that, on a scale of weight, three books, *any* three books, exceed some contextually determined threshold of weight. (12b) instead states that there are some three books, say *b1*, *b2* and *b3* that weigh too much (either individually or jointly). Conceptually, (12a) is a statement about weight, using three-book objects as units, whereas (12b) is a statement about the weight of three books.

2.1.2 The degree head

We began this section by noting that NAD constructions are strictly limited to (i) predication copular sentences with (ii) degree predicates that express some form of measurement or

¹¹ The only possible counterexamples to this generalization that we could consider involve a few verbal predicates expressing sufficiency (like *bastar*, *alcanzar*, *llegar* ‘to be enough’) and excess (like *sobrar* ‘to be too much’).

i) ??Dos kilos de manzana {basta, alcanza, llega} / sobra para la compota.
 two kilos of apple is enough is too much for the compote
 ‘Two kilos of apple {suffice, is too much} to make compote’

We found more cross-speaker variation with these than with other NAD constructions, so we will not discuss them further in this paper. What seems to be interesting, at any rate, is that there seem to be some ill-understood differences across these types of verbal predicates.

comparison; the previous section provided plenty a reason in favor of (i). With respect to the degree expressions that may partake in NAD constructions, we mentioned in Section 1 (see (4)) that NAD constructions generalize quite broadly, and may also include expressions such as comparatives, superlatives, equatives and proportionals, besides the predicates of excess and sufficiency that focused on

There is an interesting limitation to note about the requirement to have a degree expression in NAD constructions. Most strikingly, such degree expressions must be overt; deleting it results in ungrammaticality, irrespective of the agreement pattern. Consider (13).¹²

- 13) a. Tres libros {es / son} *(demasiado / suficiente) peso.
 three books is are too much enough weight
 ‘Three books is / are too much / enough weight.’
 b. Tres coches {es / son} *(demasiado / suficiente) dinero.
 three cars is are too much enough money
 ‘Three cars is / are too much / enough money.’

The conclusion seems to be that NAD constructions do not admit a bare counterpart: the degree head must always include an overt degree expression. Note that this limitation also extends to measure verbal predicates such as *pesar* ‘to weigh’ and *costar* ‘to cost’, etc., as illustrated in (14).

- 14) a. Tres libros pesan *(demasiado / suficiente).
 three books weigh too much enough
 ‘Three books weigh too much / enough.’
 b. Tres coches cuestan *(demasiado / suficiente).
 three cars cost too much enough
 ‘Three cars cost too much / enough.’

2.1.3 Nominal complement

Characteristic of the NAD constructions is that they place virtually no restrictions on the type of nominal that may appear as complement to the degree predicate. Example (2b) above provides already a good array of different nominals (*peso* ‘weight’, *dinero* ‘money’, *trabajo* ‘work’, *esfuerzo* ‘effort’, *lectura* ‘reading’). Note that these nominals need not be either abstract or gradable, and thus also include sortal count nouns, such as *huerto* ‘garden’ or *ordenador* ‘computer’, as illustrated in (15).¹³

- 15) a. Tres hectáreas de tomate es demasiado huerto.
 three hectares of tomato is too much garden
 ‘Three hectares of tomatoes is too much garden.’

¹² It is possible to interpret sentences of the sort *Tres libros es peso* (lit. Three books is weight) and *Tres millones es dinero* (lit. Three millions is money) as conveying an emphatic meaning: ‘Three books is (a lot of) weight’ and ‘Three millions is a lot of money’, respectively. What such cases cannot mean is that three books have the property of having weight, or three millions have the property of being money. Similarly, such examples cannot be interpreted as meaning that three books count as a unit of weight, or that three millions count as a unit of money.

¹³ By “gradable noun” we mean those that admit degree readings when they are modified by size adjectives. For instance, *idiot* is said to be gradable because *big idiot* may mean *idiot to a great extent* (in addition to a physically big idiotic person). The nominal *garden* above lacks such degree interpretation when modified by *big* (see discussion in Morzicky 2009), but see Sassoon (2013) on nominal multidimensionality.

- b. Dos pantallas es suficiente ordenador.
 two screens is enough computer
 ‘Two screens is enough computer.’

While any nominal may partake in NAD constructions, no non-nominal may. For instance, one would imagine that adjectives, being the prototypical way to express a gradable property, would be grammatical in such contexts. They are not, however: simply swapping the nominal with an adjective results in ungrammaticality. Consider the minimal contrast in (16).

- 16) a. Tres libros es demasiado peso.
 three books is too much weight
 ‘Three books is too much weight.’
 b. *Tres libros es demasiado pesado.
 three books is too much heavy’

In fact, any such alternations lead to ungrammaticality. Moreover, with adjectival predicates, subjects must always agree with the copula, as shown in (17).

- 17) a. Tres libros son muy pesados.
 three books are very heavy.PL
 ‘Three books are very heavy.’
 b. Tres coches son demasiado caros.
 three cars are too expensive.PL
 ‘Three cars are too expensive.’

The rationale of these contrasts is the same as the ones considered earlier: adjectival predicates like *pesado* ‘heavy’ and *caro* ‘expensive’ may form ordinary agreeing predicative structures such as those in the agreeing variants of (17), which are in turn semantically equivalent (under the correct interpretation) to the corresponding NAD constructions (i.e. with nominal predicates such as *peso* ‘weight’ and *dinero* ‘money’, and a disrupted agreement; see (13)). As a consequence of this limitation, NAD constructions where the complement to the degree predicate is not explicitly provided (see e.g. (1b) above) are such that only a nominal expression may be recovered, but not an adjective.¹⁴

Summing up, the best NAD constructions are formed by predication copular sentences with some form of degree head, namely a head that expresses excess or sufficiency, and a nominal complement. NAD constructions may also take a possibly covert nominal as its complement. From a semantic perspective, NAD constructions provide a way to use ad hoc units of measurements.

2.2. Subjects

We turn now to the question of what kinds of subjects may appear in NAD constructions. Without any doubt, QPs headed by cardinal numerals, either modified or not, make the best and most natural subjects, as illustrated in (18).

¹⁴ Adjectives are further discussed in Section 2.3 below.

- 18) ({Más de / Menos de / Unos}) cuatro libros es demasiado.
 more of less of some four books is too much
 ‘{More than / Less than / Some} four books is too much.’

In sharp contrast with how naturally such examples are construed, other existential as well as universal quantifiers cannot be subjects of NAD constructions.

- 19) a. *{Varios / Pocos / Algunos / Muchos / Unos} libros es suficiente.
 several few some many some books is enough
 b. *{La mayoría de / Ambos / Cada (uno de)} libros es demasiado.
 the majority of both each one of books is too much

If we look at definite determiners, it may appear at first glance that definite descriptions are also ruled out from appearing as subjects of NAD constructions. DPs headed by either the definite article or other definite demonstratives yield ungrammatical results as subjects of a degree predicate because they identify extensional entities.

- 20) *{Los / Estos / Aquellos} libros es suficiente.
 the.PL these those books is enough

Still, there are cases where definite descriptions may form good subjects of NAD constructions. This is especially apparent when the nominal inside the definite description is abstract, resulting in a denotation analogous to Moltmann’s (2004, 2009) *tropes*. Below we present relevant examples: (21a) shows that conjoined definite DPs must agree with the main predicate of the sentence, as indicated by the ungrammaticality of the non-agreeing variant. The critical example (21b) shows that with NAD constructions, agreement is not only preferred, but the ordinary agreeing variant is in fact ungrammatical.

- 21) a. La lectura y la presentación del libro {es / son} dos cosas diferentes.
 the reading and the presentation of the book is are two things different.PL
 ‘The reading and the presentation of the book are two different things.’
 b. La lectura y la presentación del libro {es / *son} demasiado trabajo.
 the reading and the presentation of the book is are too much work
 ‘The reading and the presentation of the book is too much work’

In a very similar type of variation on the trope-like definite DPs above, we find that nonfinite clauses may also appear in subject position of NAD constructions. The reasoning follows the one introduced above: we first show in (22a) below that conjoined nonfinite clauses trigger plural agreement with the main predicate, whereas in (22b) we point out how in the context of NAD constructions the agreement pattern is preserved.¹⁵

¹⁵ Note however that nonfinite clauses have their own differences with numeral QPs. For instance, as we saw above (see example (16b) vs. those in (17)), combinations of adjectival predicates and numeral QPs are ungrammatical in Spanish, but nonfinite clauses may appear in subject position of such predicates. For instance:

i) Leer y resumir un libro {es / *son} muy difícil.
 read and summarize a book is are very difficult
 ‘Reading and summarizing a book is very difficult’

We will set aside these issues in this paper and focus on subjects formed by QPs, as described above.

- 22) a. Leer y resumir un libro {*es / son} dos cosas diferentes.
 read and summarize a book is are two things different
 ‘Reading and summarizing a book are two different things.’
 b. Leer y resumir un libro {es / *son} demasiado trabajo.
 read and summarize a book is are too much work
 ‘Reading and summarizing a book is too much work.’

Summing up, we have observed that the best subjects that one may find in NAD constructions are either QPs formed by cardinal numerals, either modified or not, definite descriptions referring to abstract nouns (i.e. Moltmann’s 2004 application of tropes to semantics), as well as nonfinite clauses.

Before concluding the section, we would like to point out that there is yet one more type of subject that is allowed with a subset of NAD constructions. These are QPs and DPs introduced by the preposition *con* ‘with’, which combine with degree predicates whose head is a verb conveying sufficiency, such as *bastar*, *alcanzar*, *llegar* ‘to be enough’, or excess, such as *sobrar* ‘to exceed’. The preposition *con* may appear modifying numeral QPs, definite DPs and nonfinite clauses, that otherwise would be ungrammatical. Its most remarkable feature is its ability to rescue two types of statements. First, it may rescue cases where the source of the ungrammaticality lies in the type of subject employed, as in (19) and (20) above.

- 19’) *Con* {varios / pocos / algunos / muchos / unos} libros es suficiente.
 with several few some many some books is enough
 ‘{A variety / few / some / many / sm} books is enough.’
 20’) *Con* {los / estos / aquellos} libros es suficiente.
 with the.PL these those books is enough
 ‘{The / These / Those} books is enough.’

In addition, the preposition *con* may also rescue cases where sufficiency is lexically specified in a single verbal head, possibly as the result of spelling out the full degree predicate (see also footnote 11).¹⁶

- 23) a. *(*Con*) tres libros basta.
 with three books is enough
 ‘Three books suffices.’
 b. *(*Con*) dos kilos de manzana alcanza.
 with two kilos of apple suffices
 ‘Two kilos of apples is enough.’
 c. *(*Con*) ir al trabajo y sentarse en el despacho sobra.
 with go to.the work and sit in the office exceeds
 ‘Going to work and sitting in the office is more than enough.’

¹⁶ We would like to point out that a possible reason for the ubiquity of *con* headed subjects of NAD constructions could possibly be due to verbal elision of an infinitive.

- i) *Con* (recibir) pocas sesiones de fisio basta.
 with get few sessions of fisiotherapy suffices
 ‘Getting few PT sessions suffices.’
 ii) *Con* (echar) alguna manzana basta para dar sabor.
 with put some apple suffices to add flavor
 ‘Putting in some apple suffices to add some flavor.’

2.3 The semantic building blocks

So far, we have limited the discussion to introducing and commenting on the syntactic components and distribution of the different phrases partaking in NAD constructions. It is nevertheless important to note that the semantic effects observed are homogeneous across all these different manifestations of NAD constructions: the expression of a dimension, a degree and a unit of measurement are always required. Let us illustrate this with example (1), repeated for convenience.

- 1) a. Tres libros son {demasiados / suficientes}.
three books are too much.PL enough.PL
'Three books are {too many / enough}.'
b. Tres libros son {demasiados / suficientes}.
three books is too much.PL enough.PL
'Three books is {too much / enough}.'

We are interested in determining what the meaning of (1b) is and how it differs from its agreeing counterpart in (1a). The intuition we pursue is that, while statement (1a) is about books, (1b) is about something else: for a writer who signed a contract, it could be work, commitment, effort; for a pre-schooler who has to carry them it could be too much weight; for a B&N executive it could be too many to give away; for a struggling worker it could be too expensive to buy, etc. None of these possible interpretations are available in (1a).

This rampant under-specification provides a good hint as to what the semantic ingredients of NAD constructions might be. For good measure, consider first what the role of ordinary gradable adjectives is in sentences like *Jane is too tall*. The main predicate in such cases is no doubt the gradable predicate *tall* which expresses a relation between an (extensional) individual and a degree along some conventionally determined dimension. In this case, the dimension is *height*. Then, the predicate modifier *too* expresses that the degree provided by the adjective and that relates to the subject *Jane* exceeds a certain contextually provided threshold. With this in mind, consider now the following case, taken from (13b) above:

- 13)b. Tres coches es / son *(demasiado/ suficiente) dinero.
three cars is are too much enough money
'Three cars is / are too much / enough money.'

Clearly, we do not typically use cars to measure amounts of money, and yet that is precisely what the NAD construction in (13) expresses: that a cost-unit consisting of three cars exceeds a certain contextually determined threshold. This looks very similar to the task performed by ordinary gradable adjectives, but a closer look indicates that this result is achieved by different means. The semantic ingredients required to capture such an interpretation for (13) above seem to include three components:

- The source of a dimension. This is the role of the nominal complement that is mandatory in NAD constructions (either explicitly provided or recovered from the context). In (13) this is provided by the nominal *dinero* 'money'.
- A degree head like *demasiado* 'too much' and *suficiente* 'enough' (in addition to *mucho* 'much', comparative or superlative morphology, etc.). The role of this head is to introduce some form of comparison between a contextually provided degree, namely a threshold on the dimension provided by the nominal; and

- A subject that acts as a unit of measurement, i.e., a subject that provides the measure that must be interpreted on the scale built upon the dimension provided by the nominal.

In other words, the semantic task performed by the subject *tres coches* in sentence (13b) above is less like the type of relations between individuals and degrees that have been posited for adjectival gradable predicates, and more analogous to numeral QPs with nominals that conventionally (lexically) denote units of measurement. Of course, different degree heads may contribute different semantic roles or even require different analytic pieces. But the general semantic contribution of the three pieces required to capture the interpretation of NAD constructions that we mentioned above prevails across configurations. Thus, the difference between NAD constructions and sentences with standard gradable main predicates (such as adjectives) seems to be that while adjectives denote relations between extensional entities and degrees along a conventionally associated scale, nominal complements of the degree head in NAD constructions simply provide the *name* of the dimension that the degree head employs to express the threshold it denotes.

Being these the main semantic components of NAD constructions, the copula BE that appears in such sentences denotes the *identity function* for $\langle et \rangle$ functions: the function of type $\langle\langle et \rangle, \langle et \rangle\rangle$ that maps any $\langle et \rangle$ function to itself.

In what follows we will assume this proposed characterization and take for granted that subjects of NAD constructions are semantically interpreted as providing a measuring unit, used to locate a degree on the basis of a scale whose dimension is provided by a nominal scale that may optionally be retrieved from the context.

3. Baseline analysis

In this section we lay out the syntactic and semantic foundations of that we will later in section 4 use to provide a formal account of NAD constructions.

3.1 The structure of predicational copular sentences

The data under study in this paper, dubbed as NAD constructions, show specific syntactic properties the most relevant of which is that they are predicational copular sentences.¹⁷ Syntactically, in copular sentences the predication is claimed to be mediated by the projection of a functional head Pred (Bowers 1993; Svenonius 1994; Adger & Ramchand 2003; and others), as represented in (24).

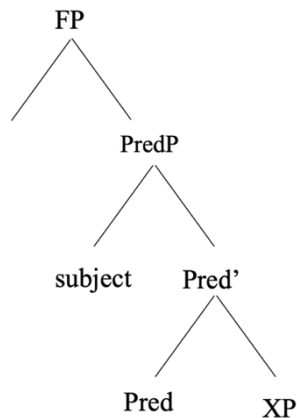
¹⁷ Recall that copular sentences have been traditionally divided into predicational (i) and non-predicational ones, the latter including equative (i.e., identity) (ii), identificational (iii) and specificational sentences (iv).

- | | | |
|------|-------------------------------|--------------------------------------------|
| i) | Mark is a doctor. | <i>predicational</i> |
| ii) | Samuel Clemens is Mark Twain. | <i>non-predicational: equative</i> |
| iii) | That's Mark. | <i>non-predicational: identificational</i> |
| iv) | The problem is Mark. | <i>non-predicational: specificational</i> |

Note also that, according to Higgins (1973), the subject and predicate of these four types of copular sentences are assumed to have different referential properties.

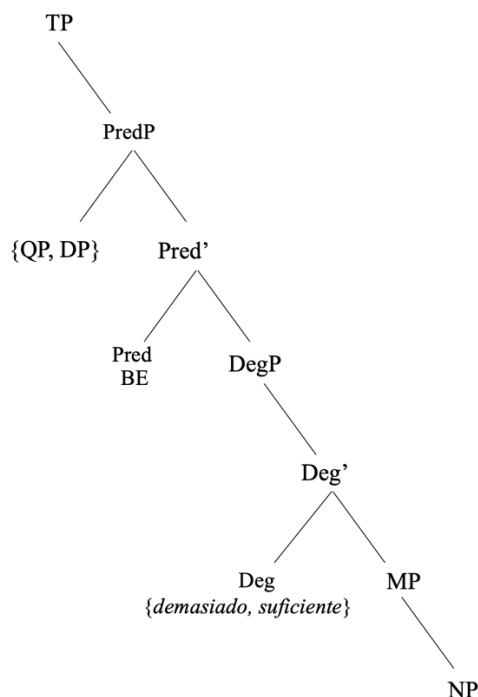
v)	Type	Subject	Predicate
	Predicational	referential	predicational
	Identity	referential	referential
	Identificational	referential	identificational
	Specificational	superscriptional	specificational

24) Syntactic structure of predicational copular sentences.



In the specific case of NAD constructions the Pred head corresponds to the copular verb BE, which will move to the head of the FP responsible for Tense. The predicate XP, which in regular predicational copular sentences may either correspond to nouns, adjectives or prepositions, in the specific case of NAD constructions must be a Degree Phrase containing an NP that introduces a nominal scale (through the mediation of a required Measure Phrase). Finally, the subject of NAD constructions must be a QP with a (modified) cardinal head or (non-extensional) DP (as exemplified in Section 2.2). This means that the predication characteristic of NAD constructions is uniformly represented as in (25).

25) Basic structure of NAD constructions



3.2 The basic semantics of sufficiency and excess

In this section we focus on the contrast between gradable phenomena expressed by means of adjectives and by means of nominal scales.

3.2.1 Adjectival predicates and degree modifiers

A common way to capture gradable phenomena in natural languages is to assume that certain expressions, such as adjectives, degree modifiers, etc. contain degree arguments that are lexically associated with scales.¹⁸ Degrees provide a direct way of representing how much of something an object has. For our purposes, we will assume that degrees are primitives, atomic types in the model (of type d).¹⁹ In this type of approach, gradable adjectives are typically expressed as relations between individuals and degrees, (26a). The value of the degree argument can also be additionally utilized by degree morphology (such as the comparative morpheme *-er*, degree modifiers like *very*, etc.) to impose further restrictions on its interpretation. Bare gradable adjectives, i.e. with no such overt degree morphology, are often proposed to combine first with a null degree morpheme POS, for “positive form” (originally introduced by von Stechow 1984), (26b):

- 26) a. $\llbracket \text{tall} \rrbracket = \lambda d . \lambda x . \text{tall}(x) = d$
 b. $\llbracket \text{POS} \rrbracket^c = \lambda G_{\langle d, et \rangle} . \lambda x_e . \exists d [G(x) = (d) \wedge d > ST^c(G)]$

The morpheme POS serves a double function: it allows the whole AP to be predicated of an individual and it relates the degree argument of the adjective to an appropriate contextually supplied standard of comparison.²⁰ Such standard of comparison is usually understood as an average, a prototypical value or the norm that is expected on the dimension provided by the gradable predicate.²¹ This is typically computed on the basis of the comparison class identified in the context. Consider a sentence like (27):

27) Jane is tall.

If Jane happens to be a third grader, then the comparison class to properly compute the truth conditions of (26) will help determine what is the standard or typical height of third graders, disregarding other individuals. With these ingredients we can now represent the meaning of (27) above as follows:

- 28) $\llbracket (27) \rrbracket^c = \exists d [\text{tall}'(\text{jane}') = d \wedge d > ST^c(\text{tall}')]$

Excess and sufficiency expressions like *too* and *enough* express something slightly different, however: they express that the degree of an individual on some scale is not above or below what is standard, prototypical or a norm, but some other conventionally determined threshold. Both standards and thresholds are most often underspecified and vague, and can thus be questioned, disagreed with, etc. But there are some intuitive differences between them as well. Consider the examples in (28).

¹⁸ For early uses of degree semantics applied to gradable predicates see Seuren (1973), Cresswell (1976), Klein (1980, 1991), von Stechow (1984), Heim (1985), Bierwisch (1989), a.o. See Morcyccki 2016 for a gentle introduction to modification and degree semantics.

¹⁹ Degrees come very handy in order to construct scales, tuples $\langle D_{\Delta_i}, \geq_{\Delta_i} \rangle$ including a set of degrees D_{Δ_i} along some dimension Δ and an ordering relation \geq_{Δ_i} . The ordering \geq is non-strict and thus it is also transitive, antisymmetric, and reflexive. A scale is then defined as a set of degrees with ordering relation \geq that is linear and dense.

²⁰ We represent this context dependency by introducing a parameter c on the interpretation function with the superscript c , as in $\llbracket \cdot \rrbracket^c$.

²¹ The reasons to adopt POS have to do with compositional transparency and the fact that in some languages positive forms are morphologically marked (e.g. Mandarin; see Sybesma 1999).

- 29) a. Jane is too tall.
b. Jane is tall enough.

These examples, while still vague and underspecified, locate the source of their vagueness on a notion different than the standard of comparison. The statements simply assert that Jane exceeds or does not reach a certain threshold that may but need not coincide with the standard. That standards and thresholds may be different is supported by contrasts such as those illustrated in (30).

- 30) a. #Jane is tall_{ST} {but not tall_{ST} / she's tall_{ST} in fact}.
b. Jane is tall_{ST} {but not too tall_{TH} / too tall_{TH} in fact}.
c. Jane is tall_{ST} {but not tall_{TH} enough / tall_{TH} enough in fact}.

Only the first example yields a contradiction, since Jane cannot be both tall and not tall (not at least without further qualifications). This shows that unmodified positive adjectives rely on fixing a comparison class to be interpretable, since otherwise they would lack the means to find a suitable standard. But the follow-ups in examples in (30b,c) above do not rely on a comparison class. We must only determine whether Jane exceeds or not the relevant threshold.

Let us assume then that interpreting (29a,b) requires comparing Jane's degree of tallness to some contextually supported threshold TH^C . Given that we are interest in upper (for *too*) and lower (for *enough*) bounds, we determine two context dependent boundaries, TH^C_{max} and TH^C_{min} . We propose the following lexical entries for *too* and *enough* (which we take to be identical to *demasiado* and *suficiente* in Spanish):²²

- 31) a. $\llbracket too \rrbracket^c = \lambda R_{\langle d,et \rangle} . \lambda x_e . \exists d [R(x) = d \wedge d > TH^C_{max}(R)]$
b. $\llbracket enough \rrbracket^c = \lambda R_{\langle d,et \rangle} . \lambda x_e . \exists d [R(x) = d \wedge d \geq TH^C_{min}(R)]$

Essentially, *too* means “more (than)” and *enough* just means “not less (than)”. The difference is that the comparison is not relative to a standard (as with bare adjectives) or some other linguistically determined degree (as with comparatives). Instead, the comparison is done relative to some conventionally (or possibly conversationally) determined threshold.

We can now see how two expressions such as *too tall* and *tall enough* are interpreted relative to different threshold degrees: a maximal threshold for *too* and a minimal threshold for *enough*. We illustrate this by providing the interpretations of the two sentences in (29) above.

- 32) a. $\llbracket (29a) \rrbracket^c = \exists d [tall(jane') = d \wedge d > TH^C_{max}(tall')]$
b. $\llbracket (29b) \rrbracket^c = \exists d [tall'(jane') = d \wedge d \geq TH^C_{min}(tall')]$

So far, we have focused on examples where sufficiency and excess degree expressions directly modify an adjective. But it is quite common to find nominals modified by degree expressions as well. This is the goal of the next section.

3.2.2 Degree heads and nominals scales

Consider once again our example (2a) repeated below:

²²We ignore here the question of whether expressions of excess and sufficiency lexically convey a modal component, as well as the fact that they optionally take clausal complements. For a recent discussion, see Grano (2022).

- 2) a. Tres libros son {demasiados / suficientes} libros.
 three books are too many.PL enough.PL books
 ‘Three books are {too many / enough} books.’

Under the assumption that ordinary nominals typically denote (extensional) properties, we face a problem if we try to combine *too* and *enough* directly with an ordinary property like *books*, since the lexical entries provided in (31) are tailored to combine with gradable predicates. A usual reaction to this state of affairs is to posit some type of phonologically null syntactic structure that nevertheless acts as a semantic glue between the degree predicate and the NP, in this case by introducing a degree argument and linking it to the nominal predicate.²³ Following the syntactic structure introduced in (25) above, we will call this projection a Measure Phrase, whose head *M* takes a nominal argument of a predicative type and turns it into a gradable predicate, as the formula in (33) expresses.²⁴

$$33) \llbracket M \rrbracket^g = \lambda P_{\langle et \rangle} . \lambda n_d . \lambda x_e . P(x) \wedge \mu_{\Delta}(x) = n$$

The semantic task of *M* is thus to take an ordinary property of individuals, such as the denotation of an ordinary nominal like *books*, and introduce a degree variable *d* that can later be used up by other degree predicates and modifiers, such as *demasiados* and *suficientes*. When applied to some individual, *M* will produce a set of degrees that represents their corresponding amount along some scale. The determination of the scale and its dimension, although context dependent, is not entirely unconstrained, however. In the case of plural nominals, as is the case with (2a) above, the relevant dimension of the scale is invariably a cardinality one, and the dimension is fixed simply to express a scale of a numbers of individuals, $|x| = n$ (see e.g. Rett 2014, Solt 2009; 2015, Wellwood 2019 a.o.).²⁵ Composing the meaning of (2a) up to the level of Pred’ looks as follows (where “*” corresponds to Link’s 1983 pluralizing operator).

- 34) a. $\llbracket NP \rrbracket = \lambda x_e . *book'(x)$
 b. $\llbracket MP \rrbracket = \llbracket M \rrbracket(\llbracket NP \rrbracket) = \lambda n_d . \lambda x_e . *book'(x) \wedge |x| = n$
 c. $\llbracket Pred' \rrbracket = \llbracket BE \rrbracket(\llbracket DegP \rrbracket(\llbracket MP \rrbracket)) = \lambda x_e . \exists d[*book'(x) \wedge |x| = d \wedge d \geq TH^C_{\{max/min\}}(|x|)]$

In order to interpret the numeral QP in subject position, we will adopt the view that numerals express nominal modifiers, as defended at length by Ionin and Matushansky (2006, 2018) (see also Bylinina & Nouwen 2020), yielding the following denotation for the full QP.²⁶

²³ The idea that a covert operand mediates between NPs and degree predicates of various sorts has a long pedigree, going back at least to Kayne’s (2005) null functional nouns NUMBER and AMOUNT. In a similar fashion, Schwarzschild (2006) poses a syntactic null head *Mon* (which stands for “monotonicity”) connecting quantity words to nominal expressions by introducing a dimension of measurement.

²⁴ This is not the only possibility. Another common strategy is to simply provide (at least) some nominals with a degree argument of their own, such that the meaning of some noun *N* would mimic that of gradable predicates: $\llbracket N \rrbracket = \lambda d . \lambda x . N(x) = d$ (see e.g. Morzicky 2009). Yet another option would be to have *M* denote an ordinary relation between individuals and degrees and adopt a new rule of composition that allows to combine the two directly (such as e.g. Solt’s 2015 Degree Argument Introduction, modeled after Kratzer’s 1996 Variable Identification).

²⁵ Many languages realize this division morphophonologically: while *many* in English only applies to plural (countable) entities and expresses numerosity or cardinality, *much* applies to mass (uncountable) entities and expresses an amount of some substance (as in *much wine*) or even an abstract concept (as in *much love*).

²⁶ The full definition is slightly more complicated, as it requires a means of counting where, for some numeral *n*, all and only *n* many individuals are counted. For recent discussion see Champollion (2017), Ionin & Matushansky (2018), Rothstein (2019), among others.

$$35) \llbracket \text{tres libros} \rrbracket = \lambda x_e . *book'(x) \wedge |x| = 3$$

We now have two predicates, PredP and QP of type $\langle e, t \rangle$ that cannot, without further assumptions, combine in the usual way via Function Application. Here we will simply assume Partee's (1987) lifting operation A, that shifts the type of an $\langle e, t \rangle$ predicate into a generalized quantifier (type $\langle \langle e, t \rangle, t \rangle$), introducing existential quantification on the way.

$$36) \llbracket A \rrbracket = \lambda \alpha_{\langle e, t \rangle} . \lambda \beta_{\langle e, t \rangle} . \exists x_e [\alpha(x) \wedge \beta(x)]$$

The resulting composition of (2a) after this lifting operation has applied over the subject is as follows:

$$\begin{aligned} 37) \text{ a. } \llbracket QP \rrbracket &= \llbracket A \rrbracket (\llbracket QP \rrbracket) = \lambda \beta_{\langle e, t \rangle} . \exists x_e [\lambda x_e . *book'(x) \wedge |x| = 3 (x) \wedge \beta(x)] \\ \text{ b. } \llbracket \text{PredP} \rrbracket &= \llbracket A \rrbracket (\llbracket \text{tres libros} \rrbracket) (\llbracket \{ \text{demasiados/suficientes} \} M \text{ libros} \rrbracket) = \\ &\quad \exists x [*book'(x) \wedge |x| = 3 \wedge \exists d [*book'(x) \wedge |x| = d \wedge d \geq TH_{\{ \text{max/min} \}}^C (*book'(x))]] = \\ &\quad \exists x [*book'(x) \wedge |x| = 3 \wedge 3 \geq TH_{\{ \text{max/min} \}}^C (|x|)] \end{aligned}$$

The resulting denotation of (2a), with its proposed logical form in (37b) expresses that there is a cardinality of three books exceeds or is close to some contextually determined threshold of book quantities. To be sure, the only available interpretation is one where three books count as *too many / enough books*; no other interpretation is possible.

The meaning composition of (1a) would parallel the derivation in (37) with the only difference that the nominal complement of the degree head appears to be elided.

$$38) [\text{PredP} [\text{QP tres libros}] [\text{Pred}' \text{son} [\text{DegP} \{ \text{demasiados/suficientes} \} [\text{MP} M [\text{NP} \text{libros}]]]]]$$

Note that the difference with adjectival constructions (see Section 3.2.1) is quite apparent. Adjectives require of contextually supplied information at two different levels in order to be successfully interpreted: they require a comparison class and a standard of comparison. For example, in order to interpret *Jane is tall* in (27), we first noted that the standard (average) of tallness varies depending on whether our comparison class is comprised of NBA players or 10 year-old children. Nominals in constructions like (1a) and (2a) do not show the same dependency on neither comparison classes. There is no relevant subset of books to be detected nor standards of comparison. There is again no notion of what counts as an “average” number of books. Instead, the interpretation of (1a) and (2a) relies crucially on the notion of threshold, but this is crucially not associated with the nominal itself, but with the degree predicates *tooenough*. (Similar observations apply to the constructions discussed in (3) above.)

While this difference between nominal and adjectival predicates might seem too obvious to mention, a caveat is in order here. The dimension of the nominal scale is set by the joint action of the context and information provided by the nominal. In the case of plural count nouns, the associated scales invariably range over quantities of things, i.e. the corresponding dimension is always set to express cardinalities, and thus fixing such scales does not require much contextual support. This is so because on a scale of book quantities, 3 books rank higher than 2 books, which rank higher than 1 book, and so on, and little to no context manipulation will be able to alter those facts. In other words, from a conceptual point of view, what counts as *n*-many entities is a rather restricted notion.

In the next section we deal with the remaining goal: the semantic composition of NAD constructions.

4. Semantic composition of NAD constructions

Let us now consider the meaning of (2b).

- 2) b. Tres libros es {demasiado / suficiente} {peso, dinero, trabajo, esfuerzo, lectura}.
 three books is too much enough weight money work effort reading
 ‘Three books is too much / enough {weight, money, work, effort, reading}.’

Here the complement nouns are neither countable nor plural. Often times we find cases where determining what counts as more N is actually almost completely context dependent. In other words, unlike adjectives nominals do not carry any conventionally associated dimension, and thus it must be retrieved from elsewhere. NAD constructions fall squarely within this category, as illustrated by the examples in (1b)), repeated below.

- 1) b. Tres libros es {demasiado / suficiente}.
 three books is too much enough
 ‘Three books is too much / enough.’

Take for instance the case of ‘money’ in (2b). What makes three book entities count as ‘too much / enough money’? We have well established units of measurement for scales along the dimension of cost/money (say dollars or euros), but clearly (2b) (and by extension (1b)) is not deploying those units of measurement. Instead, the role of ‘money’ is to determine some aspect of cost of which three books can be meaningfully say to determine one such unit of measurement. While this is relatively apparent in the case of money, things get quickly much vaguer and more underspecified with other types of (typically abstract) nouns, such as ‘work’ or ‘effort’. In what sense do we mean that ‘three books’ counts as *d*-much / *d*-enough on a scale build upon the dimension of ‘work’? There is no single answer to this question, and different contexts will support different interpretations. For the proofreader, it will mean that three books exceed some threshold of proof-reading work (or are sufficient with respect to it), for the author the dimension will be set according to a dimension of amount of work in terms of book-writing, and so on. In a way, any sense that falls within the denotational space of a nominal and can be meaningfully said to be part of its conceptual space might be exploited in order to build an *ad hoc* dimension.²⁷ And this is, we argue, precisely the main *raison d’être* of NAD constructions: to provide the means of constructing scales built upon *ad hoc* dimensions. In the next paragraphs we explain how to capture the semantic properties of NAD constructions with our current assumptions.

In examples such as (2b) the semantic role of the two nominals is always the same: N1 (the subject) provides some unit of measurement that is located along a scale built upon the dimension provided by N2. At the end of the day, the only limitations to the pair of nominals we find in NAD constructions have to do with notional or conceptual considerations about what makes sense to be predicated of what: while it may be sensible to use physical books to measure

²⁷ Another way to state this is that any *quale* in the denotational space of the nominal may be picked up to provide the relevant dimension. If *writing* is a quale of *book*, we may use the latter to determine a unit of measurement of the former: “Three books is too much writing”. See Pustejovsky (1995) and much subsequent work for the formalization of qualia information in the lexicon.

weight (or even time, by considering the time it takes to read a book), it may not be so natural to use books to measure viscosity, electric charge and what not.

With these considerations in mind, composing the meaning of (2b) for a complement noun such as *peso* ‘weight’ up to the level of Pred’ looks as follows:

- 39) a. $\llbracket \text{NP} \rrbracket = \lambda x_e . \text{weight}'(x)$
 b. $\llbracket \text{MP} \rrbracket = \llbracket \text{M} \rrbracket (\llbracket \text{NP} \rrbracket) = \lambda n_d . \lambda x_e . \text{weight}'(x) \wedge \mu_{\text{weight}}(x) = n$
 c. $\llbracket \text{Pred}' \rrbracket = \llbracket \text{BE} \rrbracket (\llbracket \text{DegP} \rrbracket (\llbracket \text{MP} \rrbracket)) =$
 $\lambda x_e . \exists d [\text{weight}'(x) \wedge \mu_{\text{weight}}(x) = d \wedge d \geq \text{TH}_{\{\text{max/min}\}}^C (\text{weight}')]]$

Now, recall that a sentence such as (40a), to which we assign the structure in (40b) would not be appropriately represented by means of the logical form in (40c).

- 40) a. Tres libros es {demasiado / suficiente} peso.
 b. $[_{\text{PredP}} [_{\text{QP}} \text{tres libros}] [_{\text{Pred}'} \text{es} [_{\text{DegP}} \{ \text{demasiado / suficiente} \} [_{\text{MP}} \text{M} [_{\text{NP}} \text{peso}]]]]]]]$
 c. $\llbracket (40b) \rrbracket = \exists x [* \text{book}'(x) \wedge |x| = 3 \wedge \exists d [\mu_{\text{weight}}(x) = d \wedge d \geq \text{TH}_{\{\text{max/min}\}}^C (\text{weight}')]]]$

The above truth-conditions fail to capture a fundamental aspect of the semantics of NAD constructions. Formulas like (40c) miss a general point, since (40a) is not a statement about *books*: it is a statement about *weight*, using books as weight units. This is in full parallel to statements such as *Three kilos is too much weight*: it is not a statement about (any particular) kilos, it is a statement about weight. The interpretation in (40c) fails to capture this fundamental property of NAD constructions. Note also that the NAD construction in (40a) does not entail the existence of any three particular books whose weight exceeds (or is sufficient for) a certain threshold. In short, (40c) does not account for the fact that *three books* is not interpreted as a referring, predicating or quantifying over individuals, but instead the QP *three books* is used as unit of weight measurement.

We suggest that the solution to this problem requires treating the subject of NAD constructions non-extensionally. The idea is simple: subjects of NAD constructions cannot simply denote fully extensional objects, but instead denote nominalized functions (à la Chierchia 1984, McNally 1997). Consider the definition in (41).

- 41) If α is a 2-place predicative expression, $\downarrow \alpha$ is a singular term, its corresponding entity correlate.

Here “ \downarrow ” denotes a nominalization operator in its most general form, taking a predicate as its argument and returning an entity-correlate of such property.²⁸ Applied to the subject of (40a), the nominalization of *three books* is the entity correlate of the property that something holds

²⁸Unlike in Chierchia (1998), $\downarrow f$ is defined for all $f \in D_{(\sigma, t)}$, so they can but need not be kinds: this is important since, although not all properties have corresponding kinds, nothing precludes them from having entity-correlates. This is because, what counts as a kind depends on idiosyncratic properties of the world; i.e. while collecting all lion specimens under the kind LION may look reasonable, in Chierchia’s words, “being a broken old shoe that Leo left behind” is unlikely to belong to a “class” of objects. Nevertheless, entity correlates are formal objects, abstractions of properties with no a priori ontological commitments; as long as we are able to find (or make up on the fly) a referent for them, they shall not fail to refer (they are, in this sense, not very different from tropes, degrees, and other abstract objects typically employed in semantic analysis). In other words, kinds are simply a proper subclass of the entity correlates of properties. For discussion on this point, see McNally (1997, 2009).

when it is three books. Since that something is three books, that something shares all qualities of three-book individuals (and has none of non-three-book individuals).²⁹

$$42) \downarrow \llbracket \text{tres libros} \rrbracket = \downarrow (\lambda x_e . * \text{book}'(x) \wedge |x| = 3)$$

What is crucial about this proposal is that subjects of NAD constructions do not denote or quantify over ordinary token entities. Rather, they denote or quantify over something more abstract, some form of higher order entity, which McNally (1997) modeled formally as a *nominalized function* (also sometimes called an *entity correlate of a property*, as expressed in (41)) drawing from Chierchia and Turner's (1988) property theoretic semantics.³⁰

With this in mind the resulting composition of (2b), represented in (43), after this *nominalization* operation has applied over the subject is as follows:

$$43) \text{ a. } \llbracket \text{QP} \rrbracket = \downarrow (\lambda x_e . * \text{book}'(x) \wedge |x| = 3) \\ \text{ b. } \llbracket \text{PredP} \rrbracket = \downarrow \llbracket \text{tres libros} \rrbracket (\llbracket \{\text{demasiado} / \text{suficiente}\} \text{ M peso} \rrbracket) = \\ \exists d [\mu_{\text{weight}}(\downarrow (\lambda x_e . * \text{book}'(x) \wedge |x| = 3)) = d \wedge d \geq \text{TH}_{\{\text{max/min}\}}^C (\text{weight}')]$$

Feeding an entity correlate to the degree predicate we obtain a statement about weight, not about books and, moreover, we avoid making incorrect existential claims about books. The denotation of (43b) then amounts to saying that the weight of the entity correlate of the property of being three books is at least as great as some contextually determined weight threshold. In other words, we use books as units of weight, as desired.

Extending this analysis to NAD constructions with null nominal complements (see (1b)) would then seem to be an easy and straightforward exercise. Assume first a contextually determined phonologically null nominal predicate DIM_C , complement to the head M.

$$44) \text{ a. } [\text{PredP} [\text{QP tres libros}] [\text{Pred}' \text{ es } [\text{DegP} \{\text{demasiado} / \text{suficiente}\} [\text{MP M } [\text{NP } \text{peso}]]]]] \\ \text{ b. } [\text{PredP} [\text{QP tres libros}] [\text{Pred}' \text{ es } [\text{DegP} \{\text{demasiado} / \text{suficiente}\} [\text{MP M } [\text{NP } \text{DIM}_C]]]]]$$

The reasons for positing syntactic elision here as well are mainly two: (i) as we have discussed in previous sections, only nominals are allowed in NAD constructions; and (ii) semantically, we need a nominal that provides the name of the relevant dimension. We write DIM_C to remind us of this dimension-setting role of the nominal. When combined with M, the whole Measure

²⁹ One argument in favor of treating subjects of NAD constructions as nominalized functions comes from other syntactic contexts where nominalized functions have been argued to be involved that also show, at least in some cases, the same type of *sui generis* agreement patterns observed with NAD constructions. Paramount to McNally's (1997) arguments is the fact that nominalized functions can appear as pivots in existential sentences. Numeral QPs like the ones that more commonly occupy the subject position of NAD constructions also may appear in such positions and, in some cases, the same agreement disruption is observed (all examples below have been extracted from Corpus of Contemporary American English; accessed 10/10/2022).

i) a. This goes to show that there is two Americas.

b. There is three guys with cameras in the kitchen window.

c. When you move the knee, there is four different ligaments that hold it in place.

³⁰ The motivation for Chierchia and Turner (1988) was that we can ascribe properties to other properties. They capture this by turning properties-as-functions (which correspond to their predicative uses) into their entity correlates (corresponding to their uses as arguments to other predicates), thereby "nominalizing" them.

McNally (1997) proposed that any NP with a predicative use (as demonstrated by their ability to appear as the pivots in existential sentences and in predicative positions of copular sentences) could be interpreted as a nominalized function. McNally treated numerals very close to the way we do, as introducing cardinality restrictions on the denotation of NPs (but she did so by appealing to their instantiated discourse references).

Phrase will have the formal properties of any gradable scale, i.e. it will be a relation between degrees and individuals, but one where the dimension is not set conventionally (lexically), but instead compositionally, by combining together M and its nominal complement.

As far as we can tell, the nominalization operation here postulated is the only operation that may have an impact on the agreement patterns of the nominal. Thus, if we were to interpret subject QPs as other types of discontinuous individuals, such as groups (Landman 1989a, 1989b), agreement patterns would remain unaccounted for. (The same goes for other types of extracting individuals out of properties, such as choice functions, the epsilon operator, and so on).

Recall that NAD constructions show these properties irrespective of agreement. Consider (13), repeated here for convenience.

- 13) a. Tres libros es / son *(demasiado / suficiente) peso.
 three books is are too much enough weight
 ‘Three books is / are too much / enough weight.’
 b. Tres coches es / son *(demasiado / suficiente) dinero.
 three cars is are too much enough money
 ‘Three cars is / are too much / enough money.’

The way we account for these facts is the following: once the subject has been nominalized within PredP, it moves to Spec,TP, as standardly hypothesized for Spanish subjects, where both the cardinal QP or its nominalization may agree with the copula, also moved to T⁰, thus suggesting that subject-verb agreement in these cases is purely morphophonological.³¹

To sum up, in this section we have argued what the derivation of NAD constructions is, no matter whether the nominal in complement position of the degree head is overt or covert. We have shown that the meaning of NAD constructions is heavily underspecified, and without further contextual aids, there is no telling what the relevant scale is. This is so because any aspect of being a book, or any possible relation to being a book that may be brought by invoking the name ‘book’ can be retrieved to and utilized as the relevant dimension to fix the scale. It could be that any unit of a number of books is too heavy, or too expensive, or too much to keep up with, etc. This interpretation is in turn completely devoid of any commitment to the existence of three books, and in fact any plurality of three books would be taken to exceed (or be sufficient with respect to) the set threshold. These are fundamentally evaluative scales that rely on the multiple senses that are attributed to the interpretation of lexical nominals.

5. Conclusion

This paper presents an analysis of a construction with a unique agreement pattern, which we dubbed Non-Agreeing Degree constructions. These constructions involve (i) an overt degree predicate, such a *demasiado* ‘too’, *suficiente* ‘enough’, a comparative, a superlative, a proportional *mucho* ‘much’, etc., in a predication copular sentence; (ii) a nominal complement to the degree head that provides the relevant dimension for the scale that the degree predicate acts on, and (iii) a nominalized property in subject position, denoting the entity correlate of such

³¹ See Cyrino and Espinal (2015, 2020) for arguments in support of the hypothesis that agreement in Romance must not be necessarily considered a phenomenon of narrow syntax and that morphophonological agreement is also relevant in this group of languages.

property and acting semantically as a unit of measurement on the scale determined by the nominal.

Regarding them this way sheds light on a number of key properties of NAD constructions: it helps us make better sense of the observed agreement pattern, since nominalized functions are known to trigger this type of seeming disrupted agreement in other environments (such as existential sentences, see footnote 29). It also helps us understand, at least partially, the heavy limitations we observe on the type of subjects that NAD constructions admit, since these must be able to nominalize. Finally, we can also see why adjectives cannot form good NAD constructions. Adjectives denote relations between individuals and degrees and, crucially, come with a dimension conventionally associated to their lexical meaning, which in turn require fixed units of measurement and purely extensional subjects. In this sense, adjectives *place* individuals on a scale by attributing them a degree along a dimension. NAD constructions instead *use* individuals to exemplify a degree on a scale along the required dimension.

In a sense, NAD constructions are the means offered by natural languages to use *ad hoc* units of measurements on scales that have heavily underspecified dimensions, in the sense that any property that can meaningfully be related to the nominal in the Measure Phrase may act as a proper dimension.

In fact, a prediction of the analysis presented here is that any construction leading to such non-conventional ways of measurement should be possible, as long as the DP or QP in subject of the NAD construction is allowed a nominalized interpretation. Moreover, since this is the only well-forming requirement of NAD constructions, we also expect this type of non-conventional measurement constructions to be available irrespective of number agreement between subject and copular verb (see footnote 31 and some discussion around it with special reference to Romance languages). This prediction is born out. First, the analysis of NAD constructions discussed in this paper seamlessly extends to NAD constructions with nonfinite subjects, which have long been argued to have nominalized interpretations (as first discussed by Chierchia 1984). The analysis argued for in the present paper has the additional benefit of capturing the following truth-conditional equivalence (where DIM represents the contextually supplied nominal providing the relevant dimension).

- 45) a. Leer el Quijote es suficiente.
 read the Quijote is enough
 ‘To read El Quijote is enough.’
 b. La lectura del Quijote es suficiente.
 the reading of.the Quijote is enough
 ‘The reading of El Quijote is enough.’
 c. $\exists d [\mu_{\text{DIM}}(\downarrow \lambda_{\text{ev}} . \text{read}(e) \wedge \text{Th}(e) = \text{EQ}) = d \wedge d > \text{TH}_{\min}^{\text{C}}(\text{DIM}^{\text{C}})]$

In its most general terms, the semantic interpretation of the sentences in (45) aligns squarely with that of NAD constructions: these are measurement constructions where a contextually supplied (here elided) nominal provides the name of a relevant dimension, and the subjects provide a non-conventional unit of measurement.

Generally speaking, we typically measure weight with kilos and not with books: deploying dedicated conventional units of measurement such as kilos is the ordinary mechanism present in natural languages to determine how much we have of something. The main take-away of this paper is that natural languages allow additionally for constructions of measurement that do not rely on conventional units of measurement. In fact, the cases of NAD constructions discussed here are

relevant not only for constructions of measurement, but also as an investigation of the different ways in which natural languages may build scales that do not rely on conventionally determined, lexically based scales, as is the case with adjectives. In the analysis of NAD constructions discussed in this paper, scales are built by simply mentioning (or else by contextually recovering) the name of a dimension, and then using an abstract object, an intensionalized entity, as a unit of measurement on that scale. The result is not only semantically sound and conceptually unproblematic, but also expressible in a variety of natural languages through NAD constructions, as we argued for and illustrated on the basis of Spanish examples.

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