GRADABLE BARE PPS AND THE SYNTAX-SEMANTICS INTERFACE
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Goals.
We develop a formal account of the syntactic and semantic properties of Spanish adnominal PP modifiers headed by sin (‘without’) where the preposition selects for a singular or plural bare noun as complement — henceforth sin-PPs —, (1). Specifically, we investigate: a) the syntactic-semantic properties of pseudo-incorporation, and b) the interaction between countability, degree quantification and negation in these structures.

(1) un cinturón sin hebilla (lit. ‘a belt without clasp’), un hombre sin corbata (lit. ‘a man without tie’) -- una habitación sin luz (lit. ‘a room without light’), un problema sin importancia (lit. ‘a problem without importance’) -- una piel sin arrugas (lit. ‘a skin without spots’), una tierra sin piedras (lit. ‘a lot without stones’)

Syntactic and semantic properties of sin-PPs. Initial questions.
Sin-PPs have some properties that distinguish them from PPs where the complement of sin is a DP. First, sin-PPs express a characterizing property of an individual (in the sense of Bosque 1986); therefore, only those modifiers indicating that the property is intended to characterize the individual are possible, (2). Second, although they are productive structures (Grønn et al. 2010, Le Bruyn et al. 2011), some sin-PPs have a stereotypical meaning, (3). Third, the property denoted by the PP can be graded depending on the part-structure of the N complement of P (Oltra-Massuet & Pérez-Jiménez 2011), (4). Only if the complement of sin is a singular non-count noun or a bare plural, (4a), the PP allows degree intensification by muy. The resulting quantified PP contrasts with PPs headed by sin that select for a quantified NP headed by mucho, see (5),(6).

(2) una habitación sin luz a las 5 (lit. ‘a room without light at 5 p.m.’) can only be interpreted with a characterizing reading: ‘a room where, from 5 p.m. on, there is not enough light’, but not with a reading like ‘a room where light was lacking at 5 p.m. yesterday’

(3) un tipo sin sangre (lit. ‘a man without blood’, i.e. ‘a cold fish’)

(4) a. sin + {non-count singular noun / bare plural}: gradable PP, un tipo muy sin sangre (lit. ‘a man very without blood’), una habitación muy sin luz (lit. ‘a room very without light’), una piel muy sin granos (lit. ‘a skin very without spots’).
   b. sin + count singular noun: non gradable P, *un cinturón muy sin hebilla (lit. ‘a belt very without clasp’), *un hombre muy sin corbata (lit. ‘a man very without tie’)

(5) a. una habitación muy sin luz (lit. ‘a room very without light’ ≈ ‘a very lightless room’)  
   b. una habitación sin mucha luz (lit. ‘a room without much light’)

(6) a. un tipo muy sin sangre (lit. ‘a man very without blood’ non-lit. ‘a cold fish’) - b. un tipo sin mucha sangre (lit. ‘a man without much blood’) - lacks stereotypical meaning

This set of properties poses the following questions: a) How can a characterizing property meaning be compositionally mapped from the syntax of these PPs? b) How can the relation between countability of the nominal and gradability of the PP be established? c) Are muy sin and sin mucho truth-conditionally different? If so, how?

Proposal. The characterizing meaning of sin-PPs derives from the pseudo-incorporation of a property-denoting bare NP onto a null verb have. Sin-PPs can be coerced into gradable properties as long as the bare noun has cumulative reference. Graded sin-PPs (muy sin N) differ from sin+QP (sin mucho N) in that in the latter there is neither coercion nor pseudo-incorporation of a bare noun.

The syntax of characterizing properties: The null verb ‘have’. We propose to analyze sin in (1) as in (7). We decompose sin into a verbal configuration headed by a null verb have, a node encoding negation, and a little p node assigning category to the structure and introducing the external argument (cinturón, habitación, etc., in (1))

(7) [p [Neg ⊨ [v[have [NP]]]]]

With respect to the definition and properties of have, we follow the proposal in Espinal & McNally (2011) — henceforth EM — for verbal structures like tener/llevar corbata (lit. ‘have/wear tie’): a) have introduces an asymmetrical coexistence relation between a possessor and the possessed and has as part of its semantics a characterizing meaning; b) it lacks an internal argument and selects for a bare NP as complement. We provide evidence that sin selects for an NP (not a DP with a null D) in (1): first, the bare noun always has narrow scope with respect to negation, contrary to what happens when the complement of sin is an indefinite DP, (8); second, secondary predicates are not compatible with bare nouns, (9), which suggests that bare nouns do not introduce discourse referents
to token individuals, but denote properties; third, nominal modifiers are only allowed if they specify the kind of object the noun describes, but not if they are modifiers of individuals, (10).

(8) *un hombre sin [amante/amantes] ('a man without lover/lovers') – unambiguous: 'there are no lovers at all'; *un hombre sin una amante 'a man without a lover' – ambiguous: a) 'there is no lover', b) 'there is a specific lover that the man lacks'  
(9) No puedo trabajar sin [*luz encendida/la luz encendida] ('I cannot work without the light on')  
(10) No puedo trabajar sin [luz natural/*luz que entra por la ventana a las doce] ('I cannot work without natural light/light coming through the window at 12 o’clock')

**Pseudo-incorporation.** We further assume, also following EM, that at the VP level in (7), a compositional rule combines the nominal with the verb as a modifier. The combination have+bare NP is interpreted as a complex predicate characterizing the external argument. That is, we argue for a pseudo-incorporation process whereby the bare NP functions as a predicate modifier (Dayal 2011) (contra Grønn’s et al. 2010 analysis of bare PPs headed by sin/without, where the bare noun selected by the preposition is existentially bound). Since the complement of have is an NP, no syntactic incorporation sensu strict takes place, so the NP stays in situ. This pseudo-incorporation process explains cases like (3) because, as it is well known, the meaning of incorporated structures may be non-compositional.

**Gradability and negation in sin-PPs.** As for the semantic mapping of (7), we simplify EM’s proposal and apply it to the denotation of sin as sketched in (11).

(11) a. [[sin]] = λN.q0.λx.q0.¬[[HAVE-N](x)]  
    b. [[una habitación sin luz]] = λQ.q0.∃x.[room](x) ∧ ¬[[HAVE-light](x) ∧ Q(x)]

We take the property of lacking N to be coercible into a gradable predicate in Spanish, which is why it allows intensification by muy, as shown in (12), where >>! should read “exceeds to a large extent” and std stand is a function that takes a predicate and returns the standard of this predicate in a certain context (Kennedy 2007).

(12) [[muy sin luz]] = λx.q0.¬[[HAVE-light](x)] >>! std.[HAVE-light])

To account for the paradigm in (4), we propose that sin-PPs can be graded as long as we can imagine situations in which it might be significant to evoke a set of degrees of N-lacking. This explains why the availability of such gradable PPs is highly context dependent; muy sin volumen (lit. ‘very without volume’) is acceptable if it describes hair, but not if it describes a sphere, because we can imagine degrees of volume-lacking when it comes to hair, but not to a sphere, which by definition cannot lack volume. Count nouns such as corbata (‘tie’) can pseudo-incorporate into the light verb, but they cannot participate in a graded PP because singular count nouns are quantized expressions (Krilka 1986), so tie-lacking makes a property that can be either true or false, but considering a set of degrees of this property is not possible (it would involve deconstructing the tie into parts that are not ties themselves).

**‘muy sin N’ vs. ‘sin mucho N’**. Now we can account for the contrast in (5). In (5b) there is no coercion of a PP denotation into a gradable predicate. Rather, intensification is applied to a mass noun, (13a), which is gradable because it is a cumulative expression (Doetjes 2008). We assume that mucha (‘a lot of’) introduces the function μ, which maps (dense) individuals to measures (Rett 2008), and that there is a >>! relation with a standard (as in muy ‘very’, (12)). Note that mucha luz is not a bare noun, but a QP, of type <et,t>, which combines with sin, as shown in (13b).

(13) a. [[mucha luz]] = λQ.q0.∃x.[light](x) ∧ μ(x) >>! std.[μ(light)] ∧ Q(x)]  
    b. [[sin mucha luz]] = λQ.q0.¬∃x.[light](x) ∧ μ(x) >>! std.[μ(light)] ∧ HAVE (X)(y)]

This proposal can also account for the contrast in (6). Whereas in (6a) pseudo-incorporation results in a stereotypical meaning, the lack of pseudo-incorporation in (6b), where the complement of sin is a QP, yields a compositional meaning, (13b).

**References**