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The morphosemantics of Spanish indefinites*

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Abstract I analyze the Spanish indefinites *algún* and *algunos* as a paucal and a greater paucal determiner, respectively, contrary to the common assumption that views the former as singular and the latter as plural. I use Harbour's (2014) feature [±additive], and the possibility of repeating that feature, in order to do so. I propose a transparent word-internal compositional analysis of the two determiners, where *alg-* contributes [−additive] to both of them. I discuss consequences for the semantics of morphological plurality in nouns and for the analysis of ignorance implicatures.

Keywords: determiners, number, paucals, plurals, ignorance

1 Introduction

Previous work on Spanish indefinite determiners has focused on scope (Alonso-Ovalle and Menéndez-Benito (AO&MB) 2013; Martí 2007), ignorance effects (AO&MB 2010, 2011), contrasts between *unos* and *algunos* (Gutiérrez-Rexach 2001; Martí 2008), or *unos* and its group semantics (López Palma 2007). However, no previous discussion has elucidated the differences in number import between *algún* and *algunos*, which this paper sets out to do. The basic facts are as follows (cf. AO&MB 2010, 2011; Martí 2008):[1, 2]

(1) Hay alguna mosca en la sopa.
there.is ALGÚN.FEM fly in the soup
'There is one or a very small number of flies in my soup.'

(2) Hay algunas moscas en la sopa.
there.are ALGUNOS.FEM flies in the soup
'There are several flies in my soup.' (more flies than in (1))

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[1] Translations are approximate throughout.
[2] FEM = feminine.

Example (1) is true when there are one or a very small number of flies in the soup, where the upper boundary of this quantity is imprecise. In (2), on the other hand, there are more flies than in (1). Again, the upper boundary of this quantity is imprecise. If there were just two, perhaps three, flies in my soup, *algún* would be appropriate, but *algunos* wouldn't. If there were six or seven flies, *algunos* would be appropriate, but *algún* wouldn't.

I argue that the approximative number distinctions that some languages of the world make in their (pro)nominal domain, namely, between paucal and greater paucal, are actually observed in the Spanish data. I propose that plural morphology in *algunos* contributes the semantics of Harbour's (2014) [+additive] feature, and that *alg-* contributes [−additive] in both *algún* and *algunos*. I claim that all that the analysis requires is to import into the DP domain part of the technology already introduced by Harbour for number in the NP domain.

The remainder of the paper is organized as follows. I discuss the data in more detail in Section 2. In Section 3 I introduce Harbour's theory of number, and then my proposal. Some of the evidence that justifies it is in Section 4. In Section 5 I discuss a number of consequences of the analysis. Ignorance implicatures associated with *algún* but not with *algunos* are discussed in Section 6. Section 7 is the conclusion.

2 Data

Examples (3) and (4) show that *algún* is compatible with a non-singular interpretation (from AO&MB 2010):

(3) Mi coche tiene alguna abolladura.
my car has ALGÚN.FEM dent
'My car has one or a very small number of dents.'

(4) Juanito todavía tiene algún diente de leche.
Juanito still has ALGÚN tooth of milk
'Juanito still has one or a very small number of baby teeth.'

According to AO&MB (2010: 24) "[(3)] says that the speaker's car has some unspecified number of dents, and [(4)] indicates that Juanito has some baby teeth, but the speaker is not sure how many". That is, my car could have a (very small) number of dents, and Juanito could still have a (very small) number of baby teeth (one dent and one tooth are also possible). That the speaker expresses ignorance with respect to the number of dents and baby teeth is an additional aspect of the meaning of *algún*, but not of *algunos*, which I discuss in Section 6. Likewise, according to (5), based on Zamparelli (2007), Juan weighs a few more kilos than he should (or possibly just one):

(5) Juan pesa algún kilo de más.
Juan weighs ALGÚN kilo of more
'Juan weighs one or a very few more kilos than he should.'

The naturally occurring (6) and (7) clearly indicate the possibility of a non-singular reading for *algún*; (7) is particularly revealing because *los perros* (underlined) 'the dogs' is used in a subsequent sentence to refer back to *algún perro*:

(6) *La presencia de alguna mosca blanca no es importante, sólo cuando se trate de grandes colonias debería considerarse un problema.*
'The presence of one or a very small number of whiteflies is not important, it is only when there are big groups that a problem arises.' (http://www.ecoagricultor.com/tratamientos-ecologicos-pulgon-mosca-blanca-arana-cochinilla, retrieved on 9/7/2015)

(7) *Dos o tres veces el lejano ladrido de algún perro nos dio algo de esperanza, pero la noche cerrada no mostraba nada y los perros se callaban o estaban en otra dirección.*
'Two or three times the distant bark of one or a very small number of dogs gave us some hope, but the night was dark and didn't allow us to see anything and the dogs would stop barking or they were in a different direction.' (E. Che Guevara & A. Granados, *Viaje por Sudamérica*, 1992)

That *algunos* is not just plural is illustrated in (8), where it contrasts with "two":

(8) Boss: Hay algunas moscas en la sopa. (=(2))
there.are ALGUNOS flies in the soup
'There are several flies in my soup.'
Waiter: No, sólo hay dos/#cinco.
No only there.are two/five
'No, there are only two/#five.'

If *algunos* was semantically plural, the exchange in (8) with *dos* 'two' wouldn't be felicitous, because two is a plurality. It'd be just as infelicitous as it is when *algunas moscas* is replaced by the bare plural *moscas* (which, I claim later, is indeed semantically plural). With *cinco* 'five', the *algunos* exchange is infelicitous because there is no incompatibility between five and several. In (9), it is possible to specify how many books one bought at the fair, but not if the number of books is less than three (or four, for some speakers):[3]

[3] AO&MB (2011) discuss examples that seem incompatible with (8) and (9), such as (i):

(9)

Me	compré	algunos	libros	en	la	feria.
myself	bought	ALGUNOS	books	in	the	fair

En	concreto, #uno/#dos/$^{?}$tres/cuatro/cinco/seis/siete/ocho
in	concrete one/two/three/four/five/six/seven/eight

‘I bought myself several books at the fair. More specifically, #one/#two/$^{?}$three/four/five/six/seven/eight.’

3 Paucity

In this section I first introduce the basics of Harbour’s system (Section 3.1). I then use his feature [±additive] to account for the number distinction observed above between *algún* and *algunos* (Section 3.2).

3.1 Paucity in nouns

Natural languages make use of number categories that are encoded on pronouns or nouns, including singular, dual, trial, minimal, augmented, unit augmented, paucal, greater paucal, greater plural, global plural, or plural (see Corbett 2000 and Harbour 2014 for definitions and illustrations). Paucal and greater paucal occur in the pronoun system of, for example, Sursurunga, an Oceanic language of New Ireland (Corbett 2000: 26-30; Hutchinsson 1986). In addition to singular, dual and plural personal pronouns, this language distinguishes between instances where the referent of the pronoun is constituted by just a small number of individuals ((lesser) paucal) vs. instances where that referent comprises a few more individuals than that (greater paucal).

There are number systems that express no number distinctions at all (Pirahã), those that express what Sursurunga does, those that express singular, dual, trial, paucal and plural (Marshallese), and others. There are also a number of possibilities that are never attested. E.g., there are no languages that distinguish only singular, dual and paucal, or only paucal and plural. Indeed, there are Greenberg-style typological generalizations in this area: there is no trial without dual, no greater paucal without (lesser) paucal, no dual without singular, etc. See Harbour (2014) for more details.

(i)

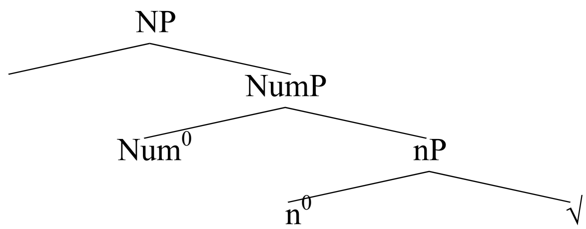
María	vive	con	algunos	estudiantes,	en	concreto,
María	lives	with	ALGUNOS	students	in	concrete
con	Pedro	y	con Juan.			
with	Pedro	and	with			

‘María lives with several students, more precisely, with Pedro and with Juan.’

(i) is odd for me and the speakers I’ve consulted—*algunos* requires a number greater than two. Given that *algunos* expresses an imprecise number, however, some data disagreement is predicted.

Harbour's account of this typology rests on the following assumptions: (a) the syntax of NP is as in (10); (b) n^0 structures roots into join-semilattices (cf. Link 1983); (c) three semantic features can appear in Num^0: [±additive], [±atomic], [±minimal]; (d) these features operate on the lattices provided by nP; (e) a parameter regulates whether the repetition of a particular feature in Num^0 is allowed; and (f) the semantic range of the cut of [±additive] is subject to social convention.

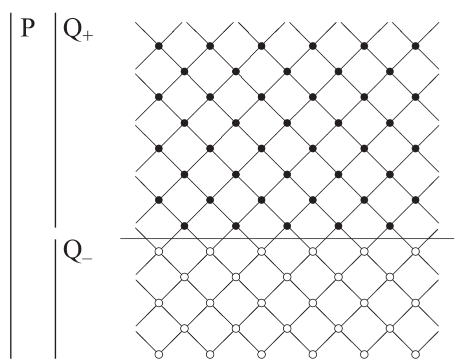
(10)



Together, these assumptions result in different meaning distinctions with respect to (pro)nominal number in a language and in the typology of attested number systems in the languages of the world. Let us see how paucals and greater paucals are derived in this system.

Consider the simplified (because there are no crossing lines) view of a join-semilattice in (11) (images from Harbour 2014); the atomic layer is at the bottom:

(11)



P designates the lattice. The subsection indicated as Q_+ (with the black dots) is the semantic contribution of [+additive], in (12):[4, 5]

[4] Q is a free variable, '$x \sqcup y$' is the join of x and y, '$Q \sqsubset P$' says that Q is a proper subpart of P. cf. Krifka's (1989, 1992) notion of cumulativity.

[5] (12) and (13) are modified versions of Harbour's proposal. Harbour expresses the relation of Q to P as a presupposition. I think (12) and (13) are preferable and the modifications don't seem to have major consequence for his account. Of course, Sauerland (2003) has proposed a presuppositional account of number. While a full comparison between Sauerland's proposal and

(12) $[[+\text{additive}]] = \lambda P \lambda x.\ Q(x)\ \&\ Q \sqsubset P\ \&\ \forall y\ (Q(y) \rightarrow Q(x \sqcup y))$

The feature [+additive] takes a set of individuals and returns a proper subset of it. Each member of this proper subset is such that, when joined with any other member of the subset, results in a member of the subset (this characteristic is called join-completeness). [+additive] returns a subsection of the lattice that is join-complete. Where the cut for [+additive] (i.e., the horizontal line in (11)) occurs can vary and is subject to social convention.

The feature [−additive] also takes a set of individuals and returns a proper subset of it. Which subset that is is determined as follows: for not all members of this proper subset is it the case that, when joined with some other members of the subset, the result is a member of the subset. [−additive] returns a subsection of the lattice that is join-incomplete ($Q\_$ in (11)):

(13) $[[-\text{additive}]] = \lambda P \lambda x.\ Q(x)\ \&\ Q \sqsubset P\ \&\ \neg\forall y\ (Q(y) \rightarrow Q(x \sqcup y))$

[−additive] with a low cutting point results in a paucal meaning. How many individuals actually count as paucal in a given language is subject to social convention. It could be that all those plural individuals formed of one, two, three or four atoms do, or that those formed of two, three, four or five atoms do, etc. Examples discussed in Harbour include Koasati (Muskogean, USA), where the nouns that take a paucal suffix do so for more than 2 but less than 5 or 6 N; Yimas (Ramu-Lower Sepik, Papua New Guinea), where it is from 3 up to about 7 N, variable depending on contexts; and Boumaa Fijian (Austronesian, Fiji), where the paucal means ‘proportionately few’.[6]

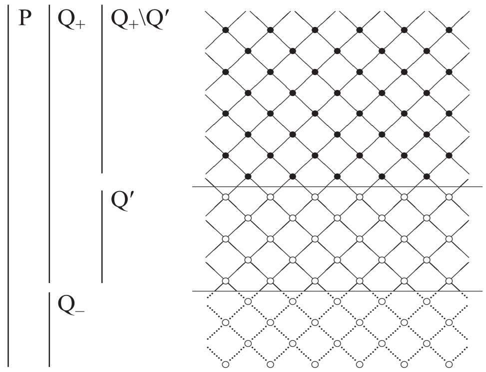
For greater paucals, recall that a parameter makes it possible to repeat a feature in Num^0. Not all combinations of values for a feature yield satisfiable results, however. The combination [+additive (−additive (P))], e.g., is unsatisfiable because it is not possible to find a join-complete region within a join-incomplete one. The combination [−additive (+additive (P))] is, and gives rise to a greater paucal meaning when the cut off point is low. We first obtain a join-complete subregion of a lattice, Q_+, and next we obtain a join-incomplete subregion of Q_+, Q’ (image from Harbour 2014):[7]

mine cannot be undertaken here, notice that in Harbour’s proposal the contribution of number is an entailment; what is presupposed is just ‘$Q(x)\ \&\ Q \sqsubset P$’.

[6] There are further constraints on the resulting semilattices (Harbour 2014: 196-7, 210-2).

[7] [+additive (+additive (P))] and [−additive (−additive (P))] are satisfiable but violate other constraints (Harbour 2014: 204-5). For more on [+additive (+additive (P))], see Section 5.

(14)

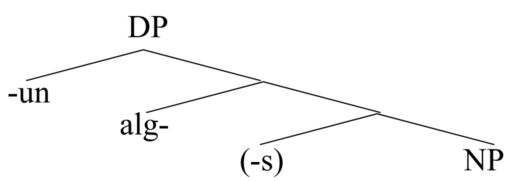


If a language exploits this option, it will have two approximative numbers. If the cut is low for both, then we have a language like Sursurunga, with a (lesser) paucal and a greater paucal. If the first cut is low and the second high, we have a language with a paucal and a greater plural, such as Mele-Fila (Austronesian, Vanuatu). Both cuts can be high, as in Warekena (Arawakan, Brazil/Venezuela), which distinguishes plurals from greater plurals from plurals of abundance.

3.2 Paucity in determiners

My proposal for the internal structure of *algún* and *algunos* is as follows:[8]

(15)



Alg- contributes [−additive] with a vague and low cut:

(16) $[\![\text{alg-}]\!] = [\![-\text{additive}]\!] = \lambda P \lambda x.\ Q(x)\ \&\ Q \sqsubseteq P\ \&\ \neg\forall y\ (Q(y) \rightarrow Q(x \sqcup y))$

I assume that -*un* is a generalized existential quantifier and has, as desired, the same semantics as the indefinite *un*:

(17) $[\![\text{-un}]\!] = \lambda R.\lambda S.\exists z\ R(z)\ \&\ S(z)$

Morphologically singular nouns, such as *mosca* 'fly', are semantically number-neutral and thus their denotation contains both atomic and plural individuals. Putting these pieces together in the order indicated in (15), we have:

[8] The morpheme -*o*-/-*a*- (*alguna*, *algunos*, *algunas*) marks gender agreement. It plays no role here.

(18) $[[\text{alg-}]]([[\text{mosca}]]) = \lambda x.\ Q(x)\ \&\ Q \sqsubset [[\text{mosca}]]\ \&\ \neg\forall y\ (Q(y) \rightarrow Q(x \sqcup y))$

(19) $[[\text{-un}]]([[\text{alg-}]]([[\text{mosca}]])) =$
$\lambda S.\exists z\ Q(z)\ \&\ Q \sqsubset [[\text{mosca}]]\ \&\ \neg\forall y\ (Q(y) \rightarrow Q(z \sqcup y))\ \&\ S(z)$

For (1), repeated here, this results, correctly, in the vague, approximative semantics of the paucal, in (21) (recall Q_ in (11)):

(20) Hay alguna mosca en la sopa. (=(1))
there.is ALGÚN.FEM fly in the soup
'There is one or a very few flies in my soup.'

(21) [[Hay alguna mosca en la sopa]] =
$\exists z\ Q(z)\ \&\ Q \sqsubset [[\text{mosca}]]\ \&\ \neg\forall y\ (Q(y) \rightarrow Q(z \sqcup y))\ \&\ [[\text{en\_la\_sopa}]](z)$

Notice that we ensure that atoms are included in the semantics of *algún* because of the complement completeness constraint (Harbour 2014: 197), which says that the complement of Q_ must be join-complete:

(22) P is join-complete iff $\forall x,y\ (P(x)\ \&\ P(y) \rightarrow P(x \sqcup y))$
(i.e., the sum of any two elements of P is in P)

That is, I assume the complement of any Q_ is a possible value for Q_+. If atoms were excluded, the complement of Q_ would not be join-complete. Complement completeness also excludes other unwanted cuts (see Harbour 2014).

I assume that the -*s* of *algunos*, as well as the -*s* of morphologically plural nouns, contributes [+additive]:

(23) $[[\text{-s}_{\text{algunos}}]] = [[\text{-s}_{\text{noun}}]] = [[\text{+additive}]] =$
$\lambda P \lambda x.\ Q(x)\ \&\ Q \sqsubset P\ \&\ \forall y\ (Q(y) \rightarrow Q(x \sqcup y))$

(24) $[[\text{moscas}]] = [[\text{+additive}]]([[\text{mosca}]]) =$
$\lambda x.\ Q(x)\ \&\ Q \sqsubset [[\text{mosca}]]\ \&\ \forall y\ (Q(y) \rightarrow Q(x \sqcup y))$

I also assume that the cut for [+additive] when it appears within NP (N-[+additive]) is the lowest cut that satisfies it; i.e., it removes just the atomic layer. I assume that the cut for [+additive] when it appears with D (D-[+additive]) is vague and low. Crucially, the meaning for *alg*- in *algunos* is still [−additive], and the meaning of -*un*- is still as before, as the null hypothesis dictates, given that *alg*- and -*un*- are part of both *algún* and *algunos*. Continuing up the tree, we have:

(25) $[[\text{-s}_{\text{algunos}}]]([[\text{moscas}]]) = [[\text{+additive}]]([[\text{moscas}]]) =$
$\lambda x.\ Q(x)\ \&\ Q \sqsubset [[\text{moscas}]]\ \&\ \forall y\ (Q(y) \rightarrow Q(x \sqcup y))$

(26) [[alg-]]([[-$s_{algunos}$]]([[moscas]])) = [[−additive]]([[-$s_{algunos}$]]([[moscas]])) =
$\lambda x.\ Q(x)\ \&\ Q \sqsubset \{x: R(x)\ \&\ R \sqsubset [[moscas]]\ \&\ \forall v\ (R(v) \rightarrow R(x \sqcup v))\}\ \&$
$\neg \forall y\ (Q(y) \rightarrow Q(x \sqcup y))$

(27) [[-un-]] ([[alg-]]([[-$s_{algunos}$]]([[moscas]]))) =
$\lambda S. \exists z\ Q(z)\ \&\ Q \sqsubset \{x: R(x)\ \&\ R \sqsubset [[moscas]]\ \&\ \forall v\ (R(v) \rightarrow R(x \sqcup v))\}\ \&$
$\neg \forall y\ (Q(y) \rightarrow Q(z \sqcup y))]\ \&\ S(z)$

(26) is a set of individuals. It contains all of those individuals for which the following is true: they are part of a join-incomplete proper subsection of a join-complete subsection of the lattice obtained by the cut introduced by D-[+additive] (recall Q' in (14)). This, in turn, is a proper subsection of the lattice obtained by the cut introduced by N-[+additive]. (27) says that, given a VP, there is an individual in that join-incomplete subsection of the lattice that VPs. This results, correctly, in a greater paucal meaning for (2) (repeated) in (29):

(28)

Hay	algunas	moscas	en	la	sopa.	(=(2))
there.are	ALGUNOS.FEM	flies	in	the	soup	

'There are several flies in my soup.'

(29) [[hay algunas moscas en la sopa]] =
$= \exists z\ Q(z)\ \&\ Q \sqsubset \{x: R(x)\ \&\ R \sqsubset [[moscas]]\ \&\ \forall v\ (R(v) \rightarrow R(x \sqcup v))\}\ \&\ \neg \forall y$
$(Q(y) \rightarrow Q(z \sqcup y))]\ \&\ [[en\_la\_sopa]](z)$

Thus, *algún* and *algunos* are paucals because they both contain *alg*-. *Algún* is a lesser paucal because of *alg*-. *Algunos* is a greater paucal because it adds -*s* to *alg*. *Un* (and *unos*; see below) is not a paucal because it doesn't contain *alg*-. And both *algún* and *algunos* are existential quantifiers because they both contain -*un*-. What the proposal assumes in order to achieve these results is the following: (a) *alg*- is [−additive] (with an imprecise and low cut); (b) -*un*- is an existential generalized quantifier; (c) -$s_{algunos}$ is [+additive] (with an imprecise and low cut); (d) -s_{noun} is [+additive] (with the most minimal cut that satisfies it); (e) morphologically singular nouns are semantically number-neutral. Assumption (a) is at the core of my proposal and assumption (b) is the null hypothesis. Evidence for (c) and (d) is provided in Section 4. Assumptions (d) and (e) are further discussed in Section 5.[9]

[9] This account of both *algún* and *algunos* needs to be supplemented with an account of their not-many/all implicature, probably in the terms of a classical scalar implicature. On implicatures, see Section 6.

4 Evidence for [+additive] in nouns and in *algunos*

Regarding (c) above, evidence that the semantic contribution of -s_{algunos} is [+additive] comes from the consideration of *pluralia tantum* nouns such as *gafas* 'glasses', that is, of nouns which are formally, but not semantically, plural. *Algunas gafas*, where *algunos* is combined with such a noun, entails the existence of several pairs of glasses. [+additive] cannot come from *gafas*, for *pluralia tantum* nouns are not semantically plural.

Evidence that *gafas* is, in fact, semantically singular, comes from its combination with other indefinites, like *unos*: importantly, *unas gafas*, as López Palma (2007: 253) notes, entails the existence of just one pair of glasses.[10]

Thus, semantic plurality can only come from *algunos*. If [+additive] is a crucial ingredient of greater paucality, if *alg*- is not [+additive] (this would give the wrong semantics for *algún*), and if -*un*- is not [+additive], then -s_{algunos} must be [+additive]. Because **alguna gafas* is impossible, we further conclude that -s_{algunos} is also a number agreement marker.

Thus, we have here a complex relationship between form and meaning in the case of -*s*: it contributes [+additive] in the case of *algunos* (and in the case of regular nouns, i.e., nouns that are not *pluralia tantum*; see below); in addition, it is a marker of number agreement in *algunos* (and *unos*; see footnote 10).

Let us reason our way to assumption (d), namely, that morphologically plural nouns are [+additive] (or, equivalently in my proposal, semantically plural). Recall, first, that *algún NP VP* is compatible with there being just one NP VP, so we need atomic individuals in the denotation of *mosca* 'fly'. Because *algún* is also compatible with there being more than one fly, we need non-atomic individuals too. If these are contributed directly by the NP, *alg*- can simply be [−additive] and the account of its paucality is straightforwardly imported from Harbour, as in Section 3.2. For this account of *algún* to work, then, the denotation of nouns like *mosca* (i.e., count nouns that are morphologically unmarked for number) must contain both plural and singular individuals.

This, in turn, makes it natural to assume that nouns like *moscas* (i.e., count nouns that are morphologically marked for number) denote sets of plural individuals. That is, that [[-$s_{\text{regular-noun}}$]] is the same as [[-s_{algunos}]], i.e., [+additive] (with a difference in where the cut is). But there is, in fact, evidence that this must be the case: because *unas moscas* is plural (i.e., *unas moscas* entails the existence of a plurality of flies), and *unos* is not (since *unas gafas* is not), the only source of plurality there is -$s_{\text{regular-noun}}$.

[10] What this means for the semantics of *unos*, and for -s_{unos} in particular, is interesting too. My hypothesis is that -s_{unos} is just a number agreement marker, with no semantics; cf. **una gafas*.

5 The interpretation of number morphology in nouns

One important consequence of the above proposal, then, is that morphologically plural nouns are semantically additive/plural, and morphologically unmarked/singular nouns are semantically number-neutral. The issue of how exactly number semantics is mapped to number marking is a long-standing issue that is still controversial and requires further discussion. The place to begin discussing it is, I believe, Sauerland (2003), since a proposal about the semantics of both morphologically number-marked nouns and morphologically number-marked determiners is made there.

Sauerland (2003) proposes a general, presuppositional theory of number for the determiner-nominal domain and thus the proposal I make in this paper needs to be carefully contrasted with it. While, for reasons of space, this is a task that cannot be fully undertaken here, I would like to argue that my proposal seems better suited for the account of *algún* and *algunos*. One of the crucial assumptions in Sauerland's theory is that there is only one syntactic location for the interpretation of number in this domain (ϕP, above every projection related to the noun and the determiner). It is here that features such as [Sg] and [Pl] are interpreted; everything in the determiner or nominal domains that "looks" plural (i.e., -*s* on nouns in English), is a mark of agreement with ϕ. While in principle it is possible to formulate the right semantics for paucal and greater paucal features in ϕ, a morphologically-transparent account of *algún* and *algunos* (i.e., one that tries to explain why *alg*- is part of both, and how -s_{algunos} affects meaning) necessitates more than one location for the interpretation of number. Given the semantic plurality of *unas moscas*, the semantic singularity of *unas gafas* and the semantic plurality of *algunas gafas*, we need to say that a marker of plurality in the noun domain is interpreted there (since *moscas* is to blame for plurality in *unas moscas*), and that a marker of plurality in *algunos* is interpreted there (since *algunos* is to blame for plurality in *algunas gafas*). Importantly, if my account is right, *alg*-, and not just (some instances of) -*s*, spells out number-related meaning too—that's a second locus of number semantics just for the D domain.

My proposal follows Bennett (1974), Chierchia (1998), Farkas and de Swart (2010), Harbour (2014), among others, in the idea that the morphological plural feature is semantically interpreted as plural. On the other hand, Krifka (1989), Lasersohn (1998, 2011), Sauerland (2003), Sauerland et al. (2005), Spector (2007), and others, propose that that feature is not semantically plural (because it is not interpreted at all, or because morphologically marked plural nouns denote sets that contain both atomic and non-atomic individuals, or because they have a naïve semantics). A related question is what semantics the morphologically unmarked/singular is given.

While, as Farkas and de Swart (2010) argue, an approach that treats the morphologically marked plural as making a semantic contribution captures better the fact that, cross-linguistically, languages with a singular/plural contrast morphologically mark the plural, not the singular, there are nevertheless well-known problems with the proposal I am advocating here. For example, downward-entailing contexts, among others, are well known for raising problems (Farkas and de Swart 2010; Lasersohn 1988; Schwarzschild 1996 and others). Consider (30):

(30) No students came to the party.

This sentence is true only if there wasn't a single student who came to the party, and false even if only one student came to the party. However, if morphologically plural nouns denote sets of plural individuals only, the truth-conditions of (30) come out wrong: the meaning of the sentence is not that there are no pluralities of students who came (this is true if one student came). There are a number of solutions to this problem, of different scope, including a different semantics for downward-entailing quantifiers (as in Chierchia 1998, though see Lasersohn 2011), or a pragmatic account as to why "inclusive" interpretations of the plural (i.e., where they allow atomic reference) are obligatory in these contexts, as in Farkas and de Swart 2010. My account entails that at least one of these solutions has to be right.

Going back to my account for *algunos*, an additional consequence of my proposal is that *algunas moscas* is "doubly" additive: there is D-[+additive] and N-[+additive] in it. In relation to this, consider that Harbour (2014: 205) argues that the axiom of extension ({a, a} = {a}) bans combinations such as [+additive (+additive (P))]. I suggest that because the two instances of [+additive] in *algunas moscas* come from different sources (one from the noun, the other from the determiner), this constraint is not violated. This might be, indeed, the explanation for the fact that *unos* can be "pluralized" with *cuantos* (or, possibly, with *pocos* 'few', as in *unos pocos*), whereas *algunos* cannot, as illustrated in (31):

(31)	unas gafas	'one pair of glasses'
	unas cuantas gafas	'several pairs of glasses'
	algunas gafas	'several pairs of glasses'
	*algunas cuantas gafas	

We can explain (31) if -$s_{cuantos}$ = [+additive], *cuantos* (or *pocos*) is part of the determiner domain and Harbour's extensionality axiom applies within domains, not across domains. That is, the determiner domain of *algunas cuantas gafas* would contain [+additive (+additive (P))] within a single domain.

That the -s_{noun} of regular, non-*pluralia-tantum* nouns contributes [+additive] means it is possible that the plurality of Spanish regular nouns is solely the result of [+additive], not of [−atomic]. We could assume that -$s_{algunos}$ contributed [+additive] and that -s_{noun} contributed [−atomic], but this is more costly than saying that -s_{noun} and -$s_{algunos}$ are, semantically and morphologically, the same. Notice that the results of [+additive] and [−atomic] for nouns are indistinguishable if the cut for N-[+additive] is the lowest possible.

Finally, in Martí 2008, I argued that both *unos* and *algunos* are semantically plural. The more complete set of facts considered here, however, leads to a revision of that claim. The decompositional spirit of the account provided there survives in the present account; note that a syntactic domain for the interpretation of determiner number was also hypothesized in that work. I leave a full-fledged consideration of all the facts discussed in the earlier work, however, for another occasion—they are partly independent of number semantics. It will also be necessary to consider López Palma's (2007) results for *unos* in the future.

6 Ignorance

Algún triggers ignorance implicatures[11] about number and/or identity (AO&MB 2010). *Algunos*, on the other hand, does not (AO&MB 2011). In this section I demonstrate that AO&MB's account of the ignorance implicature of *algún* cannot be maintained if *algún* has the paucal semantics argued for here. Their account of the lack of such implicatures with *algunos*, on the other hand, can (though see footnote 14). Consider (32):

(32)	Pedro	se	compró	algún	libro	en	la	feria.
	Pedro	himself	bought	ALGÚN	book	in	the	fair

'Pedro bought himself one or a very small number of books at the fair.'

By using *algún* in (32), the speaker signals that she does not know which book or books Pedro bought himself at the fair, or how many (though she does know it is one or a very small number). It is thus inappropriate for the hearer to ask back which or how many books he bought. As expected for an implicature, this ignorance component disappears in downward-entailing contexts.

AO&MB (2010, 2011) propose that *algún* and *algunos* introduce a requirement such that their domain cannot be a singleton set. In their proposal, the meaning of *algún* is as in (33), where the anti-singleton requirement is modeled using a subset selection function 'f':

(33) $[[\text{algún (P)}]] = \lambda S\text{: anti-singl(f)}.\exists z\ (f(P))(z)\ \&\ S(z)$

The truth-conditions for a sentence like (32) are in (34), for books b_1, b_2 and b_3:

[11] And indifference implicatures, but I put indifference aside here.

(34) The speaker believes (B_S) $\exists z\ z \in f(\{b_1, b_2, b_3\})$ & bought(z)(Pedro)

The possible assertions expressed by (34), depending on the choice of non-singleton domain, are as follows:

(35) A1: $B_S\ \exists z\ z \in \{b_1, b_2\}$ & bought(z)(Pedro)
A2: $B_S\ \exists z\ z \in \{b_1, b_3\}$ & bought(z)(Pedro)
A3: $B_S\ \exists z\ z \in \{b_2, b_3\}$ & bought(z)(Pedro)
A4: $B_S\ \exists z\ z \in \{b_1, b_2, b_3\}$ & bought(z)(Pedro)

Thus, one possible assertion expressed by our sentence is that the speaker believes that Pedro bought b_1 or b_2 at the fair (A1). Following Kratzer and Shimoyama (2002), AO&MB propose that, upon hearing a sentence with *algún*, the hearer asks why the speaker chose an indefinite with an anti-singleton requirement, and concludes, Gricely, that she must have done so because choosing a singleton domain would not have been conducive to truth. We thus need to consider the singleton competitors to (34), listed in (36):

(36) C1: $B_S\ \exists z\ z \in \{b_1\}$ & bought(z)(Pedro)
C2: $B_S\ \exists z\ z \in \{b_2\}$ & bought(z)(Pedro)
C3: $B_S\ \exists z\ z \in \{b_3\}$ & bought(z)(Pedro)

The hearer concludes that the speaker believes that there is a book that Pedro bought at the fair ((34)), and that it is not the case that any of the singleton-domain competitors are true; i.e., the speaker does not believe that (i.e., does not know if) Pedro bought b_1 (C1), and the speaker does not know if Pedro bought b_2 (C2), and the speaker does not know if Pedro bought b_3 (C3). This entails that the speaker does not know which book(s) Pedro bought. Crucially, the singleton competitors can be false while the possible assertions are true—that is, none of the singleton competitors expresses the same proposition as any of the possible assertions (even if, e.g., C1 entails A1, since A1 does not entail C1).[12, 13]

To see the effects that the new semantics for *algún* proposed in Section 3.2 has, consider (37). (37) combines the paucal semantics for *algún* with AO&MB's anti-singleton requirement. The meaning expressed by (32) is now (38):

(37) [[algún (P)]] =
λS: anti-singl(f).$\exists z\ (f(Q))(z)\ \&\ Q \sqsubset P\ \&\ \neg\forall y\ (Q(y) \rightarrow Q(z \sqcup y))\ \&\ S(z)$

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[12] AO&MB (2010) propose a slightly different analysis for number ignorance implicatures, which I don't discuss here.
[13] AO&MB (2010) develop slightly different accounts for cases where *algún* is embedded under necessity modals vs. possibility modals. They extend their account to (superficially) unmodalized sentences by assuming a covert modal operator with a doxastic semantics.

(38) $B_S\ \exists z\ z \in f(\{b_1, b_2, b_3, b_1{+}b_2, b_1{+}b_3, b_2{+}b_3, b_1{+}b_2{+}b_3\})\ \&\ \text{bought}\ (z)(\text{Pedro})$

Some of the possible assertions expressed by (38) are as follows:

(39) A1: $B_S\ \exists z\ z \in \{b_1, b_2\}\ \&\ \text{bought}(z)(\text{Pedro})$
A2: $B_S\ \exists z\ z \in \{b_1, b_1{+}b_2\}\ \&\ \text{bought}(z)(\text{Pedro})$
A3: $B_S\ \exists z\ z \in \{b_2, b_1{+}b_2\}\ \&\ \text{bought}(z)(\text{Pedro})$
A4: $B_S\ \exists z\ z \in \{b_3, b_2{+}b_3\}\ \&\ \text{bought}(z)(\text{Pedro})$
A5: $B_S\ \exists z\ z \in \{b_1{+}b_2, b_1{+}b_2{+}b_3\}\ \&\ \text{bought}(z)(\text{Pedro})$
A6: $B_S\ \exists z\ z \in \{b_1{+}b_3, b_1{+}b_2{+}b_3\}\ \&\ \text{bought}(z)(\text{Pedro})$
A7: $B_S\ \exists z\ z \in \{b_2{+}b_3, b_1{+}b_2{+}b_3\}\ \&\ \text{bought}(z)(\text{Pedro})$
A8: $B_S\ \exists z\ z \in \{b_1{+}b_3, b_1{+}b_2, b_2{+}b_3\}\ \&\ \text{bought}(z)(\text{Pedro})$…

The hearer again asks why the speaker chose to assert (38), with an anti-singleton requirement, and then reasons that she did so because no singleton domain would have been conducive to truth. The singleton competitor assertions are in (40):

(40) C1: $B_S\ \exists z\ z \in \{b_1\}\ \&\ \text{bought}(z)(\text{Pedro})$
C2: $B_S\ \exists z\ z \in \{b_2\}\ \&\ \text{bought}(z)(\text{Pedro})$
C3: $B_S\ \exists z\ z \in \{b_3\}\ \&\ \text{bought}(z)(\text{Pedro})$
C4: $B_S\ \exists z\ z \in \{b_1{+}b_2\}\ \&\ \text{bought}(z)(\text{Pedro})$
C5: $B_S\ \exists z\ z \in \{b_1{+}b_3\}\ \&\ \text{bought}(z)(\text{Pedro})$
C6: $B_S\ \exists z\ z \in \{b_2{+}b_3\}\ \&\ \text{bought}(z)(\text{Pedro})$
C7: $B_S\ \exists z\ z \in \{b_1{+}b_2{+}b_3\}\ \&\ \text{bought}(z)(\text{Pedro})$

The problem is that most of the competitor assertions in (40) cannot be false, since they are equivalent to at least one of the possible assertions in (39). For example, C1 is equivalent to A2. That's because C1 entails A2 (since p entails $p \vee q$), and A2 entails C1 (since C1 is true if the first disjunct in A2 is true, and the second disjunct in A2 entails the first disjunct). Likewise, C2 is equivalent to A3, C3 is equivalent to A4, C4 is equivalent to A5, C5 is equivalent to A6, and C6 is equivalent to A7. The only competitor assertion that can be false is C7—this correctly derives a not-many/all implicature, but no identity (or number) ignorance implicature is generated here. Thus, the proposal made in this paper regarding the number semantics of *algún* entails that AO&MB's account of its ignorance implicatures cannot be maintained.

AO&MB (2011) assume that the domain of *algunos* is formed of atoms and non-atoms. While I have argued here that the domain of this determiner is formed of non-atoms only, AO&MB demonstrate in their paper that the lack of implicatures with *algunos* follows in either case.[14] For completeness, I now repeat that account here. The meaning for *algunos* that combines its greater paucal semantics and AO&MB's anti-singleton requirement is in (41):

(41) $[[\text{algunos (P)}]] = \lambda S\text{: anti-singl}(f).$
$\exists z\ (f(Q))(z)\ \&\ Q\sqsubseteq\{x\text{: } R(x)\ \&\ R\sqsubseteq P\ \&\ \forall v\ (R(v)\rightarrow R(x\sqcup v))\}\ \&$
$\neg\forall y\ (Q(y)\rightarrow Q(z\sqcup y))]\ \&\ S(z)$

(42) Pedro se compró algunos libros en la feria.
Pedro SE bought ALGUNOS books in the fair
'Pedro bought himself several books at the fair.'

(43) $B_S\ \exists z\ \ z\in f(\{b_1+b_2+b_3,\ b_1+b_2+b_4,\ b_1+b_2+b_5,\ b_2+b_3+b_4,\ b_2+b_3+b_5,\ldots,$
$b_1+b_2+b_4+b_5,\ldots,\ b1+b_2+b_3+b_4+b_5\})\ \&\ \text{bought}(z)(\text{Pedro})$

(44) A1: $B_S\ \exists z\ z\in\{b_1+b_2+b_3,\ b_1+b_2+b_4\}\ \&\ \text{bought}(z)(\text{Pedro})$
A2: $B_S\ \exists z\ z\in\{b_1+b_2+b_3,\ b_1+b_2+b_3+b_5\}\ \&\ \text{bought}(z)(\text{Pedro})$
A3: $B_S\ \exists z\ z\in\{b_2+b_3+b_4+b_5,\ b_1+b_2+b_3+b_4+b_5\}\ \&\ \text{bought}(z)(\text{Pedro})$
A4: $B_S\ \exists z\ z\in\{b_1+b_2+b_3+b_5,\ b_1+b_2+b_3+b_4+b_5\}\ \&\ \text{bought}(z)(\text{Pedro})\ldots$

The hearer will again conclude that all of the singleton competitors to the possible assertions in (44), some of which are in (45), are false:

(45) C1: $B_S\ \exists z\ z\in\{b_1+b_2+b_3\}\ \&\ \text{bought}(z)(\text{Pedro})$
C2: $B_S\ \exists z\ z\in\{b_1+b_2+b_4\}\ \&\ \text{bought}(z)(\text{Pedro})$
C3: $B_S\ \exists z\ z\in\{b_1+b_2+b_5\}\ \&\ \text{bought}(z)(\text{Pedro})$
C4: $B_S\ \exists z\ z\in\{b_2+b_3+b_4\}\ \&\ \text{bought}(z)(\text{Pedro})$
C5: $B_S\ \exists z\ z\in\{b_2+b_3+b_4+b_5\}\ \&\ \text{bought}(z)(\text{Pedro})$
C6: $B_S\ \exists z\ z\in\{b_1+b_2+b_3+b_4+b_5\}\ \&\ \text{bought}(z)(\text{Pedro})\ldots$

It is not possible for C1-C5 in (45) to be false, since they are equivalent to at least one of the possible assertions in (44)—this is reminiscent of the problem raised by paucal *algún* above, except that here it is not a problem, since *algunos* does not trigger ignorance implicatures (it is appropriate to ask which (or how many) books Pedro bought at the fair after a speaker utters (42)).

[14] Though the latter makes wrong predictions for sentences with collective predicates, such as *form a circle*, since it predicts such sentences to generate an ignorance implicature about groups, as AO&MB (2011: 231-3) show.

7 Conclusion

In this paper I have argued that paucity occurs in the determiner domain. I have provided an analysis that transparently relates the paucal semantics of the Spanish indefinites *algún* and *algunos* to their form. I argued that *alg-* contributes Harbour's (2014) [−additive] to both of them, and that -s_{algunos} contributes his [+additive]. I also argued that plural morphology in regular nouns is interpreted as plural, and briefly discussed some of the issues that this raises. Finally, I showed that AO&MB's account of the ignorance implicatures of *algún* cannot be maintained under the new paucal semantics argued for here for this indefinite.

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