Some, Speaker Knowledge, and Subkinds^{*}

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Abstract. I provide an analysis of sentences with some combining with subkind-denoting NPs, such as Some plant is growing through the wall of my room. In such sentences, there is epistemic uncertainty concerning the subkind, but not concerning the actual witness of the claim. I make use of the semantics proposed by [AOMB10b] for the Spanish epistemic indefinite algún, combined with the polysemy of common nouns between being individual-denoting and subkind-denoting [Kri95, Kra08], to provide an analysis of such sentences.

Keywords: some, epistemic indefinites, kinds, subkinds

1 Introduction

The English determiner *some*, when combined with a singular noun phrase, seems to carry a meaning of speaker ignorance as to the witness of the existential claim being made [Bec99, Far02, AOMB03].

- (1) a. Some ball bearing in this pile is actually made of a different material from all the others. But they all look identical, so I can't tell which one./#Namely, that one there that's a different color from the others.
 - b. The hackers implanted a virus into some file on this computer. But there's no telling which file./#It's the file I'm pointing out to you right now.

In these cases, we can see that the speaker of the sentence cannot know who or what the referent of the *some* NP phrase is. Following such a phrase with an identifying statement (such as a 'namely, ...' statement) is infelicitous.

However, there are some cases of the use of *some*, exemplified in (2), where the meaning appears to be subtly different. The intuition about these cases is that the speaker's lack of knowledge in saying *some* P is not really connected to knowledge of which P is being referred to. Rather, the speaker does not know what *kind* of P the referent is.

- (2) a. I saw some contraption in the copy room this morning.
 - b. I came home to find some plant growing through a hole in my wall.
 - c. Doctor, some growth appeared on my arm. Should I be worried?

These cases, on the reading of interest here, cannot be paraphrased as meaning (for example) 'I saw a contraption in the copy room and I don't know which contraption it

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was'. Rather, the meaning seems to be something more like 'I saw a contraption in the copy room and I don't know what kind of contraption it was'; and similarly for the other examples in (2). This is not just a matter of knowing what the name of the contraption is; I will argue that *some* can be sensitive to a lack of knowledge of a name in the case when it is in construction with a human-denoting NP, but not when it combines with a thing- or subkind-denoting NP. I will postulate a denotation for some based on the semantics proposed by [AOMB10b] for Spanish algún. The two readings, the 'unknown entity' and the 'unknown kind' reading, come about via polysemy of the common noun. Following [Kri95] and [Kra08], I will propose that a noun like contraption can represent either a property of individual contraptions or a property of subkinds of contraption. I will then argue that *some* can quantify over either of these; it also has built into it a partitive semantics, accounting for the fact that some contraption is in the office will have the truth conditions that some part of a subkind of contraption is in the office (and not a subkind itself). Firstly, I discuss the type of epistemic uncertainty that holds when some is used, before turning to how [AOMB10b]'s semantics for algún can be used to model *some*.

2 Uncertainty about things and people

We know from examples like the following (from [AOMB03]) that *some* in English is not generally incompatible with ostension. That is, a sentence like (3) is acceptable even if you can 'point to' the professor in question.

(3) Look! Some professor is dancing lambada on his table! [AOMB03, (9)]

Some other epistemic uncertainty is targeted by *some* in (3). [AOMB03] suggest the professor's name, which is possible but not the only possibility, as (4) shows:

(4) Look! Some professor wearing a name badge saying 'John Smith' is dancing the lambada!¹

[AP10] discuss cross-linguistic variation in epistemic determiners of the *some* kind (for example, Spanish *algún*, German *irgendein*, Italian *un qualche*, Romanian *vreun*). There is cross-linguistic variation in whether examples like (3) are licensed; Spanish *algún*, for example, is not licit in examples like (3). However, in cases like (3) in English, which are licit, there appear to be a variety of identification modes which *some* could indicate uncertainty about. Possibly *some* is sensitive to all the ways that there are of 'knowing who' [BL86] or 'knowing what', argued to be contextually determined by [Alo01].

If this were the end of the story, the examples of the form I saw some contraption in the copy room, which are the ones which motivate this paper, would not be interesting. Some in such examples might just denote lack of knowledge of the name of the subkind of contraption. However, I will argue that when some combines with NPs which denote things, rather than people, the subtleties discussed above disappear. With things, 'differentiation' – being able to distinguish the witness of the claim from other things in the extension of the NP – is the only identification mode which is relevant for some. Having established diagnostics to show this, I will go on to show that the 'unknown subkind' reading patterns with 'unknown things' rather than 'unknown people'.

 $^{^1\}mathrm{We}$ assume that name badges are perfectly reliable. Some is still licensed even in that situation.

Prima facie, 'picking out' seems to be the identification mode for thing-denoting NPs as opposed to human-denoting NPs, as the below examples show.²

- (5) a. Some professor is dancing the lambada!
 - b. I saw some guy hanging about outside.
- (6) a. ??Some statue is in the middle of the square. [looking at it]b. ??There's some letter in my mailbox. [looking at it]

Being able to 'pick out' the referent appears to delicense *some* with thing-denoting NPs in (6). One could argue that this simply represents there being many more means of 'knowing' applicable to humans than to things; so for example humans have names while things generally don't. However, even when things have names, *some* does not seem to be able to target uncertainty about the name, as the below examples show.

- (7) Two diplomats from Peru are delegates to a conference you are at. One is a man and one a woman. You see them both several times, and know that they're both from Peru, but never catch their names.
 - a. At dinner, I was sat across from a/some delegate from Peru.
- (8) You are lost. You know that the city you're in has only two squares. You keep coming across both squares. You can tell them apart because one has a fountain and the other doesn't, but you can't see any street signs. You end up in the fountainless square in the city. Your friend phones you:
 - a. A: Where are you?
 - B: I'm in a/?#some square in the city.

Some appears able to signify lack of knowledge of the name in (7), but not easily in (8), even though city squares do usually have names. Given these data, I propose that the epistemic condition which *some* is sensitive to, when in construction with a thingdenoting NP, is uniformly that in (9). This will delicense *some* in situations like (8), where the speaker *can* differentiate the city squares, even though he does not know their names.³

(9) Differentiation condition on 'some NP_{thing}' A speaker uses 'some NP_{thing}' to signal that she could not, if presented with the extension of NP, 'pick out' the witness of the existential claim.

 $^{^2 {\}rm The}$ examples in (6) are marginal rather than fully unacceptable, for reasons I will discuss in section 4.

³This 'differentiation' condition is subtly different from ostension, being able to 'point at' the referent. Ostension can't be exactly what is at play, because of the felicity of examples like:

 ⁽i) [A has been drugged and kidnapped; he wakes up, looks around, and exclaims:] I'm trapped in some subway station!

Here, the poor kidnappee can point at the subway station perfectly well; what he is not in a position to do is distinguish the one he's in from other things in the extension of 'subway station'.

I do not want to speculate here about precisely how the contrast between humandenoting and thing-denoting NPs is to be modeled. An obvious way would be to posit homophony (or polysemy) between two *somes*, one which selects a [+human] argument and one which does not. That is an unattractively unparsimonious solution and hopefully further work can shed light on whether and how the two *somes* can be unified. That the distinction should be grammatically encoded, however (rather than following from some general constraint on epistemic relations towards people versus towards things), seems to be supported by contrasts like that between (7) and (8). For present purposes, it suffices to note that the contrast does exist.

3 Modeling the epistemic condition

How can we model in the semantics the 'differentiation' condition given in (9)? One way is that developed by [AOMB10b] for the Spanish indefinite determiner *algún*. *Algún* carries with it an implicature of speaker lack of knowledge, seemingly similar to the 'unknown entity' readings of English *some* discussed above. For example, asking a speaker to identify the referent of *algún* NP is an infelicitous conversational contribution, as shown in (10) ([AOMB10b]'s (8)).

(10)	a.	Juan tiene que estar en alguna habitación de la casa.	
		Juan has to be in ALGUNA room of the house	
		'Juan must be in a room of the house.'	
	b.	#¿En cuál?	
		in which	
		('In which one?')	

These contrast with examples where the determiner un is used. In such cases, there is no epistemic uncertainty, as shown in (11) ([AOMB10b]'s (10)).

(11)	a.	Juan tiene que estar en una habitación de la casa.
		Juan has to be in UNA room of the house
		'Juan must be in a room of the house.'
	b.	¿En cuál?
		in which
		'In which one?'

[AOMB10b] propose that algún is a standard existential quantifier, taking a restrictor and a scope; as is *un*. However, both of these determiners also combine with a subset selection function f. The purpose of these subset selection functions is to restrict the domain of the quantifier to some subset, following proposals by [Sch02]. [AOMB10b] propose that algún places a presuppositional restriction on the function in question: it is an antisingleton function. Un does not do this. Below is a definition of an antisingleton subset selector function, and [AOMB10b]'s definitions of un and algún ([AOMB10b]'s (50, 54)).⁴

(12) Let f be a function which takes a set X and returns a subset of X. f is an antisingleton function iff, for all X in the domain of f, |f(X)| > 1.

⁴Following [AOMB10b], and [HK98], I place presuppositional restrictions on the well-formedness of an expression between the colon and the period.

$$\begin{array}{ll} (13) & \text{a.} & \llbracket \mathrm{un} \rrbracket = \lambda f_{\langle \mathrm{et,et} \rangle} \lambda P_{\langle \mathrm{e,t} \rangle} \lambda Q_{\langle \mathrm{e,t} \rangle} \exists x [f(P)(x) \& Q(x)] \\ & \text{b.} & \llbracket \mathrm{algún} \rrbracket = \lambda f \lambda P \lambda Q : \mathrm{antisingleton}(f) \exists x [f(P)(x) \& Q(x)] \end{array}$$

[AOMB10b] argue that $alg\acute{u}n$ is in pragmatic competition with un. Un can in principle allow for an exhaustivity inference to be drawn; a speaker hearing (11) could, potentially, believe that the subset of rooms being quantified over is a singleton set. $Alg\acute{u}n$, with its extra presupposition, precludes this possibility; on hearing a sentence like (10), the listener deduces that the speaker avoided using un specifically to avoid the possibility that the listener could draw the inference that the speaker was restricting the domain of rooms to a singleton set. Given this reasoning, it follows that $alg\acute{u}n$ is used to indicate that the speaker is actively unable to restrict the domain of rooms to a singleton set; that is, the speaker does not know which room Juan is in.

[AOMB10b, 16f.] argue that the 'antisingleton' presupposition is justified as algún cannot combine with NPs which must denote singleton sets, as in 'Juan bought un/#algún book that was the most expensive in the bookstore.' This seems also to be true of English examples such as Mary bought a/?#some ring that was the most expensive in the jeweler's. This 'antisingleton' presupposition can also, I argue, model the 'differentiation' constraint on English some, at least when some pairs with thing-denoting NPs. So, as a preliminary move, we can take over [AOMB10b]'s definition of algún to some:

(14) $[some] = \lambda f_{\langle et, et \rangle} \lambda P_{\langle e, t \rangle} \lambda Q_{\langle e, t \rangle} : antisingleton(f) \exists x [f(P)(x) \& Q(x)]$

4 Kinds and subkinds

Having proposed this definition for *some*, I turn to the 'unknown subkind' reading of *some NP*. As noted above, the initial contrast in e.g. (2b), repeated as (15) below, would not be surprising if subkinds patterned with 'people' with respect to their combination with *some*, rather than 'things'.

(15) There's some plant growing through the wall of my room.

In this section, I will argue that subkind-denoting NPs do, however, generally pattern with 'things' in combination with *some*. The argument consists in showing that being able to distinguish subkinds from one another is sufficient to de-license *some*, even if other epistemic uncertainties (e.g. the name) remain. To show this, we turn to the following examples.

(16) Able to distinguish subkinds

Katniss, having grown up on her wits, is intimately familiar with all the plants in her district, and how they can be used for medicinal purposes. She's never had any formal schooling or parental teaching of herbal lore, though, so she doesn't know any of their names. She applies one to heal Gale's burns. Gale: What's that?

Katniss: A/?#some plant that's good at soothing burns.

(17) Unable to distinguish subkinds

Katniss is in the Hunger Games Arena, far from home, where there are new types of plant that she's never seen before. She discovers through experimentation that one type is good for healing burns. She applies it to heal Rue's burns. Rue: What's that?

Katniss: A/some plant that's good at soothing burns.

Here, the crucial point is that, in (16), Katniss is able to differentiate subkinds from each other, and categorize the entities (the actual plants) into each subkind, as appropriate. Even if she doesn't know the subkinds' *names*, *some* is still not licensed. However, if Katniss cannot differentiate the subkinds with certainty, as in (17), *some* on the subkind reading is again licensed.

I now turn to an analysis of common nouns which will allow us to derive the 'unknown subkind' reading. Nouns like *plant* appear to be polysemous between denoting individual plants and subkinds of plants, as shown in (18):

(18) That plant {was watered yesterday/is widespread}.

I will summarize a means of achieving this polysemy compositionally, proposed by [Kri95] and [Kra08]. We start from the assumption that a kind, for example the kind PLANT, is no more than the mereological sum of all plants in the world. See e.g. [Chi98, 349]: 'It seems natural to identify a kind in any given world (or situation) with the totality of its instances.'⁵ [Kra08] argues that the noun root $\sqrt{\text{plant}}$ denotes this sum of all plants, which I will notate with Σ Plant. This root is not pronounced alone, however. The word *plant* which we actually pronounce includes a classifier, which in English is silent. There are two classifiers in English: one combines with a kind and returns a property of individuals which are parts of the kind; the other combines with a kind and returns a property of subkinds of the kind. (19), (20) show how this works. 'II' is the part relation, as in [Lin83].

(19) (Kratzer's (2), adapted)

- a. $[\sqrt{\text{plant}}] = \Sigma \text{Plant}$
- b. $\llbracket CL_{ind} \rrbracket = \lambda x \lambda y.kind(x) \& individual(y) \& y \Pi x$ (takes a kind and returns the property of being an individal member of that kind)
- c. $[[CL_{kind}]] = \lambda x \lambda y.kind(x) \& kind(y) \& y \Pi x$
 - (takes a kind and returns the property of being a subkind of that kind)

In (20), we see how this system can provide a subkind reading for a DP like *that plant*. The NP formed by the combination of the root $\sqrt{\text{plant}}$ and the classifier CL_{kind} is pronounced as *plant*.

a. DP D NP that $CL_{kind} \sqrt{plant}$

(20)

⁵In fact, Chierchia argues that kinds are not entity-type, type e, but individual concept type, type $\langle s, e \rangle$ – a function from situations to entities. Here, I work with a fully extensional semantics, and so treat kinds simply as the entities which would, in a fuller treatment, be the result of applying a Chierchia-type kind to the world (or situation) of evaluation w_0 .

- b. Function Application on $[CL_{kind}]$ and $[\sqrt{plant}]$: $\lambda y.kind(\Sigma Plant) \& kind(y) \& y\Pi(\Sigma Plant)$ $= \lambda y.kind(y) \& y\Pi(\Sigma Plant)^6$
- c. $\llbracket \text{that} \rrbracket = \lambda P_{\langle \mathbf{e}, \mathbf{t} \rangle} . \iota x [P(x)]^7$
- d. Function Application on (b) and (c): $\iota x[\operatorname{kind}(x) \& x \Pi(\Sigma \operatorname{Plant})]$ 'The contextually salient subkind of plant'

The word *plant* can either denote the property of being an individual plant, or the property of being a subkind of plant. Given this, it is not surprising that *some* might combine with *plant* and yield an 'unknown kind' reading, rather than lack of certainty as to the witness of the existential claim. In a sentence like *Some plant is growing through my wall*, we want *some* to make an existential claim about a plant, the witness to which claim the speaker might well be able to distinguish from other members of [[plant]]; and at the same time express speaker ignorance about the *kind* of plant. Below is a revised proposal for the denotation of *some*, based on [AOMB10b]'s proposal for *alqún*, but with a crucial underlined addition.

(21) $[\![\text{some}]\!] = \lambda f_{\langle \text{et,et} \rangle} \lambda P_{\langle \text{e,t} \rangle} \lambda Q_{\langle \text{e,t} \rangle} : \text{antisingleton}(f) . \exists x [(f(P))(x) \& \exists y [y \Pi x \& Q(y)]]$

In this denotation, the quantifier's scope, Q, is not applied to the x that the restrictor P applies to. Rather, there is a subpart of x which Q applies to. So some P is a Q means that there is a part of a P that is a Q. The work done by the underlined addition is to allow some to felicitously combine with kind-type arguments, but to end up quantifying, not over subkinds themselves, but over instantiations of subkinds (here equated with parts of those subkinds). If we apply this some to a noun root combined with CL_{kind} , we get the reading that is at issue here, as shown below. For perspicuity, I have indicated some places where I replace lambda-abstraction notation for properties (understood extensionally as sets of entities) with set notation, as the lambda notation for the set of subkinds in (23a) is not very transparent when embedded in a larger expression such as (23b).



 $^{^{6}}$ I abbreviate by removing from the truth conditions the restriction on Σ Plant that it be a kind. I simply assume from now on that CL_{kind} combines only with kinds, without writing it explicitly into its denotation.

 $^{^{7}}$ I am ignoring the deictic contribution of *that* here and simply identifying it with *the*.

b.
$$\begin{split} & [\![\mathrm{DP}]\!] = \lambda Q. \exists x [(f(\lambda y. \mathrm{kind}(y) \& y \Pi(\Sigma \mathrm{Plant}))(x)) \& \exists z [z \Pi x \& Q(z)]] \\ &= \lambda Q. \exists x [x \in f(\{\Sigma \mathrm{Ivy}, \Sigma \mathrm{Creeper}, \Sigma \mathrm{Rhododendron}, \ldots\}) \& \exists z [z \Pi x \& z \in Q]] \\ & (\mathrm{using \ set \ notation}) \\ & \mathrm{Presupposition: \ antisingleton}(f) \end{split}$$

(24) [[some plant is growing through my wall]] = ∃x[(f(λy.kind(y) & yΠ(ΣPlant))(x)) & ∃z[zΠx & growsInWall(z)]]
'There is some subkind of plants x, and there is something z that is a part of that subkind of plants, and z is growing through my wall, and the speaker wants to signal that the set of subkinds of plants to which x belongs is not a singleton.'

The pragmatic effect of (24) is such that there is no signal that the speaker does not know which plant is at issue. It is not the case that the speaker is signaling that she cannot narrow the set of plants down to a singleton set. Rather, she is signaling that she is not whittling the set of subkinds of plant ({ Σ Ivy, Σ Creeper, Σ Rhododendron, ...}) down to a singleton. We use the same reasoning as used by [AOMB10b] to analyze *algún*: on hearing *some plant*, the listener deduces that the speaker chose *some* (rather than *a*, which has no anti-singleton presupposition) in order to signal that she actively could not restrict the set of possible subkinds that the plant could fall into to a singleton set.

This analysis also predicts the marginal (not fully ungrammatical) status of sentences like ?? There's some statue in the town square (while looking at the statue). Such sentences are good exactly to the extent that we can imagine uncertainty about the subkind involved; that is, they are good to the extent that statue can mean kind of statue (see [Car77] for discussion of which nouns can easily receive a kind reading).

5 Some with individuals

In cases like *some file is infected*, there does seem to be an epistemic effect concerning individuals, very much parallel to Spanish *algún*. Do we need yet more *somes* in English; one to combine with properties of kinds, and one combining with properties of individuals? I will argue that this is not the case. There is only one *some* (at least when it combines with thing-denoting NPs), with the semantics given above. Below, I show the result of combining this *some* with a property of individuals, another possible meaning for a common noun.



(in set notation)

⁸Again, I abbreviate by omitting the statement that Σ File is a kind.

- c. $\begin{bmatrix} DP \end{bmatrix} = \lambda Q \exists x [(f(\lambda y.individual(y) \& y\Pi(\Sigma File)))(x) \& \exists z [z\Pi x \& Q(z)] \\ = \lambda Q \exists x [x \in f(\{file_1, file_2, file_3, \ldots\}) \& \exists z [z\Pi x \& z \in Q]] \\ (in set notation) \\ Presupposition: antisingleton(f) \end{bmatrix}$
- (26) [[some file is infected]] = ∃x[(f(λy.individual(y) & yΠ(ΣFile)))(x) & ∃z[zΠx & infected(z)]]
 'There is some individual x which is a mereological part of the file-kind (i.e. x is a file), and there is a z which is a mereological part of x, and z is infected, and the speaker wants to signal that the set of individual files to which x belongs is not a singleton.'

If we say there is an individual x which is a file, and a z such that $z\Pi x$, then – because x is an individual and so has no proper mereological parts – z must be an improper mereological part of x, that is, z = x. The semantics then is precisely equivalent to the semantics proposed by [AOMB10b] for *algún*. A sentence like *some file is infected* means that there is an x which is a member of a subset of individual files, and x is infected, and the speaker wishes to signal that the subset of individual files is not a singleton set; that is, the speaker cannot specify which files is the witness to the existential claim. We therefore derive both the 'unknown individual' and 'unknown kind' readings with the same denotation for *some*.

6 Notes on plurality

Consider the semantics for a sentence like *some contraption is in the office* (on the 'unknown kind' reading).

(27) [[some contraption is in the office]] = $\exists x [(f(\lambda y. kind(y) \& y\Pi(\Sigma Contraption))(x)) \& \exists z [z\Pi x \& inTheOffice(z)]]$

Let us say that one choice of contraption is 'hole punch'. Then we could have, for example, the situation where $\exists z[z\Pi(\Sigma \text{HolePunch}) \& \text{ inTheOffice}(z)]$ is true as one verifying instance of (27). We do not actually have any requirement that z in (27) be atomic, despite the singular morphology on the noun *contraption*. On the basis of the following examples, I suggest that in fact the 'unknown-kind' reading of *some* is indeed number-neutral.

- (28) A: What's this warehouse for?B: There's some contraption in there. There are shelves upon shelves of the things, all the same. I don't know what they are, though.
- (29) [I take a delivery of 100 plants, but they are not the type I ordered; they are all the same type of plant, but I don't recognize what type.]
 A: Did you get the plants you ordered?
 B: They did deliver some plant. I have 100 of the things clogging up the office. But I've no idea what they are, they're not what I ordered.

Some can range over pluralities; the restriction on cases like (28), is that all the things in the plurality belong to the same subkind. If this is not the case, then the examples above become sharply bad.

- (30) A: What's this warehouse for?B: #There's some contraption in there. Three shelves for three different things, but I don't know what any of them are.
- (31) [I take a delivery of 100 plants, not the type I ordered, and not all the same type of plant; I don't recognize any of the types of plants.]
 A: Did you get the plants you ordered?
 B: #They did deliver some plant.

These examples suggest that the semantics for *some* proposed here is on the right track; on the 'unknown kind' reading, *some* NP is number-neutral with respect to the *entities* quantified over, but makes reference to one specific subkind of the denotation of the NP. Note that *some file is infected*, the individual reading, is not number-neutral with respect to entities in the same way:

(32) Some file is infected. I don't know which one/#which ones.

The (unknown) referent of some file cannot be plural. However, this is accounted for by the semantics of the individual classifier CL_{ind} , which, when combined with a root like $\sqrt{\text{file}}$, returns a set of *individual* files. Some file is infected asserts that there is (some part of) some member of that set which is infected. We thereby achieve the result that some file is infected only makes reference to individuals, in contrast with the 'unknown kind' reading of a phrase like some plant.

7 Conclusion

I have argued that the 'unknown individual' meaning of *some file is infected* and the 'unknown subkind' reading of *some contraption is in the office* can be accounted for by a unitary analysis of *some*, whose denotation includes a partitive semantics allowing it to combine with properties of kinds. The ambiguity is not a property of *some* itself, but rather due to the polysemy of noun phrases like *plant, contraption* between subkind-type readings and individual-type readings, following [Kri95] and [Kra08].

Various questions remain. For example, does *some* with plural NPs (as in *some files are infected, namely these ones*), which has no epistemic effect, admit of the same analysis as *some* with singular NPs? [AOMB10a] propose an analysis of Spanish *algunos* (the plural form of *algún*), which also does not have an epistemic effect, where the antisingleton constraint is retained in the denotation but the epistemic effect is not present.⁹ Whether the account can be transplanted to English is a question I leave for future work.

Furthermore, the question raised in section 2 concerning the source of the difference between *some* when paired with human-denoting NPs and thing-denoting NPs remains open. This 'split' does not seem to be cross-linguistic – for example, algún is

⁹ [AOMB10a] assume a number-neutral semantics for plural, in which case the set {John, Mary, John+Mary} can be the subset of 'students' picked out by 'algunos students'. Crucially, while this set contains only one plural individual (John+Mary), the set is not a singleton, and so is licit as the domain of algunos. It is possible, then, for the speaker to not narrow down the set of students to a singleton set and yet have only one witness (here, John and Mary) in mind. Algunos is then predicted not to have an epistemic effect. See [AOMB10a] for the full details.

not felicitous in [AOMB03]'s 'lambada professor' example. That these splits are not reproducible across languages seems to indicate that the nature of the constraint is grammatical, rather than a 'deeper' (mental/cognitive) constraint on epistemic relations. Cross-linguistic work will be crucial here (see [AP10] for an overview). I leave these as open questions, however.

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