

# Exceptional Scope: The Case of Spanish.

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## Abstract

Unlike run-of-the-mill quantifiers, indefinites can escape islands. Schwarzschild (2002) connects this behavior with domain restriction: in his analysis, indefinites are existential quantifiers that get apparent exceptional scope when their domain is restricted to a singleton. The Spanish indefinites *un* and *algún* provide an ideal testing ground for Schwarzschild's theory. Since *un* can be a singleton indefinite, but *algún* cannot (Alonso-Ovalle and Menéndez-Benito (in press)), we only expect *un* to have exceptional scope. This article tests this prediction experimentally by looking at the behavior of these indefinites in relative clauses and the antecedent of conditionals. The results yield a modulation of the predicted pattern: i) in relative clauses, *un* can have exceptional scope, but exceptional scope seems also available for *algún* to some extent; ii) in conditionals, exceptional scope is impossible for *algún*, but hard for *un*. These results are puzzling for most theories of indefinites, which remain silent about potential differences between islands, but we show that the pattern can be captured within a Hamblin semantics for indefinites (Kratzer and Shimoyama (2002)). Our proposal maintains Schwarzschild's core insight, but argues that syntactic environment plays a crucial role in determining the availability of exceptional scope.

*Key words:* Indefinites, Exceptional Scope, Hamblin Semantics

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## 1. Introduction.

The scopal behavior of indefinites has been an active topic of research in formal semantics at least since the early eighties.<sup>1</sup> By now, it is well-known that the scope of indefinites differs from the scope of run-of-the-mill quantifiers. Certain syntactic

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<sup>1</sup>See Fodor and Sag (1982); Farkas (1981); King (1988); Abusch (1994); Cresti (1995); Kratzer (1998); Matthewson (1999); Reinhart (1995, 1997); Ruys (1992) and Winter (1997), among others.

environments, known as “syntactic islands”, limit the scope of quantifiers. Relative clauses and the antecedent of conditionals are among them: as illustrated below, the sentence in (1a) cannot be paraphrased as in (1b), where the quantifier phrase *each of the six candidates* scopes out of the relative clause, and (2a) cannot be read as in (2b), where *each of the six candidates* scopes out of the conditional.

- (1) a. John read the paper that each of the six candidates had submitted.  
(Schwarzschild (2002))  
b. ≠ For each of the six candidates: John read the paper that she submitted.
- (2) a. If each of the six candidates submits a paper, then John will recuse himself.  
(Schwarzschild (2002))  
b. ≠ For each of the six candidates: if she submits a paper, then John will recuse himself.

The situation is different for indefinites like English *a* or *some*.<sup>2</sup> The classic examples in (3) show that *a* indefinites can be interpreted with “exceptional” scope, as if they had scoped out of an island: (3a) can convey that there is a particular poem by Pindar such that every student who recited it got a prize, and (3b) that the death of a particular friend of the speaker would have made her a millionaire.

- (3) a. John gave an A to every student who recited a difficult poem by Pindar.  
(Farkas, 1981)  
b. If a friend of mine had died in the fire, I would have inherited a fortune.  
(Fodor and Sag (1982))

Not all indefinites display the same scope patterns, though. Focusing just on English, we see that *a certain* resists narrow scope readings (Kratzer (1998); Hintikka (1986); Farkas (2002); Ionin (2008); Ionin, forthcoming), *at least n* indefinites resist exceptional wide scope (Liu (1997); Beghelli (1993); Kratzer (1998); Szabolcsi

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<sup>2</sup>See Fodor and Sag (1982); Farkas (1981); King (1988); Abusch (1994); Cresti (1995); Kratzer (1998); Matthewson (1999); Reinhart (1995, 1997); Ruys (1992) and Winter (1997), among others.

(1995)), and bare plurals can only have the narrowest possible scope. Recent cross-linguistic work shows that indefinites in other languages also differ with respect to their scope possibilities.<sup>3</sup> One of the challenges for the research on indefinite scope is then to understand what properties of indefinites correlate with the ability to have exceptional scope.

The investigation of the scope properties of indefinites has often relied on generalizations drawn on the basis of the researcher's own intuitions. Unfortunately, judgments in this area have proved to be extremely hard, as the history of the research on this topic illustrates (Fodor and Sag's seminal paper (Fodor and Sag (1982)), for instance, explicitly denied the existence of intermediate scope readings, only to be followed by a number of studies showing that these readings were in fact possible (see, among others, Farkas (1981) and King (1988).) Quite recently, however, some experimental work on indefinite scope has seen the light: Frazier and Bader (2007) discuss four experiments on the availability of reconstructed scope for three German indefinites (*ein*, *irgendein* and the existential generalized quantifier *mindestens ein*), Martí (2007) investigates the scope possibilities of the Spanish plural indefinite *algunos*, and Ionin (2008) and Ionin (forthcoming) the scopal properties of *a* vs. *a certain* indefinites.<sup>4</sup> The results of these studies highlight the need to carry out more experimental work to find out whether there are general reliable scopal patterns. The present work continues this line of research by investigating experimentally the scopal behavior of the Spanish indefinites *un* and *algún*, and discussing the theoretical implications of the results.

The starting point for this investigation is the proposal put forward in Schwarzschild (2002). On Schwarzschild's account, indefinites are existential quantifiers and get 'exceptional scope readings' when their domain is restricted to a singleton set. Spanish *un* and *algún* provide an ideal testing ground for Schwarzschild's theory. As shown in Alonso-Ovalle and Menéndez-Benito (2008b; in press), *un* can be a singleton indefinite, but *algún* cannot. Thus, on Schwarzschild's account, we expect exceptional scope to be possible for *un* but completely impossible for *algún* in all types of islands

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<sup>3</sup>See, for instance, Matthewson (1999) on Lilloet Salish, Farkas Farkas (2000) on Romanian, Yanovich (2005) on Russian, Lin (2004) and Kim (2004) on Mandarin Chinese, and Martí (2007) on Spanish.

<sup>4</sup>See Frazier and Bader (2007) for an overview of previous psycholinguistic studies on quantifier scope.

(sections 2.1–2.3).<sup>5</sup> We have tested this prediction experimentally by looking at the availability of exceptional scope readings for *un* and *algún* in two types of islands: relative clauses and the antecedent of conditionals (section 3). The experimental results yield a modulation of the predicted pattern: i) in relative clauses, exceptional scope is available for *un* (as expected), but it also available for *algún* to some extent; ii) in conditionals, exceptional scope is impossible for *algún* (as expected), but it also hard for *un* (contrary to expectations.) These results are puzzling for most theories of indefinites in the market, which remain silent about potential differences between islands.<sup>6</sup> In section 3, we aim to capture this challenging pattern within the Hamblin semantics for indefinites put forward in Kratzer and Shimoyama (2002). Our proposal maintains Schwarzschild’s core insight that domain restriction and exceptional scope are closely connected, but argues that the syntactic environment of the indefinite also plays a crucial role in determining the availability of exceptional scope.

## 2. Domain restriction and exceptional scope: *un* vs. *algún*.

In this section, we will set up the stage for the experiments presented in section 2.3. We will first summarize Schwarzschild (2002)’s theory (section 2.1.) and then discuss the behavior of *un* and *algún* in connection to that theory (section 2.2.)

### 2.1. Singleton indefinites.

Schwarzschild (2002) claims that the null hypothesis that indefinites are existential quantifiers can explain the ‘exceptional’ scopal behavior of indefinites. On this view, indefinites are like any other quantifiers in that i) their scope is limited by islands, and ii) their domain can be restricted. When the domain of an indefinite is maximally restricted to a singleton, its scope is neutralized and we get the illusion of exceptional scope. To see how this works, consider the following example:

- (4) Everyone at the party voted to watch a movie that Phil said was his favorite.  
(Schwarzschild (2002))

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<sup>5</sup>In this connection, see Zamparelli (2007), who claims that Italian *qualche*, a domain widener, cannot escape out of islands.

<sup>6</sup>See, among others, Reinhart (1995); Kratzer (1998); Winter (1997) and Matthewson (1999).

Assuming that *a movie that Phil said was his favorite* is an existential quantifier, and that it remains *in-situ*, the sentence in (4) will be true if and only if for every individual  $x$  that was at the party, there is a movie that Phil said was his favorite and that  $x$  voted to watch. Suppose that Phil said that “Casablanca” was his favorite movie. Then, the domain of the indefinite in (4) will be the singleton below:

(5) {“Casablanca”}

Given this, (4) will be true if and only if for every individual  $x$  that was at the party there is a movie in the set in (5) which  $x$  voted to watch. In other words, (4) will be true if and only if there is a particular movie that everyone in the party voted to watch. Restricting the domain of the indefinite to a singleton results in scope neutralization.

Of course there are examples where an indefinite has exceptional scope but its domain is not overtly restricted to a singleton. Consider, for instance, the sentence in (6):

(6) Everyone at the party voted to watch a movie that Phil liked.

(Schwarzschild (2002))

If Phil likes more than one movie, the set of movies that Phil likes is not a singleton. However, exceptional scope seems available for this example, which can be interpreted as talking about a particular movie. How come? On Schwarzschild’s view, the answer to this question has to do with a property of natural language quantifiers which is by no means specific to indefinites: It is well-known that the domain of quantifiers can be contextually restricted. When uttering, for instance, the sentence in (7a), we do not mean to talk about everybody in the whole world, but rather about all the individuals with a contextually relevant property (say, all individuals that were at my birthday party yesterday.) In what follows, we will use subset selection functions (functions that select a subset from a set) to model contextual domain restrictions.<sup>7</sup> We will as-

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<sup>7</sup>An anonymous reviewer wonders whether we find this type of function in other domains. As von Stechow (2000) points out, subset selection functions are well-established in the semantics of adjectival modification (they correspond to substantive adjectives.) Subset selection functions of type  $\langle\langle s, t \rangle, \langle s, t \rangle\rangle$  have been also invoked in the analysis of non-monotonic conditionals (see Lewis (1973)). For discussion of properties of these functions, see von Stechow (2000). The analysis of indeterminate phrases presented in Kratzer (2003) and Kratzer (2005) also makes use of subset selection functions.

sume that quantificational determiners introduce free variables ranging over functions of type  $\langle\langle e, t \rangle, \langle e, t \rangle\rangle$ . Then, the interpretation of the universal quantifier in (7a) can be represented as in (7b). In the context given,  $f$  might be a function that maps a set of individuals  $A$  to the subset of  $A$  consisting of individuals that came to the party.

- (7) a. Everyone had a great time.  
 b.  $\lambda f.\lambda P.\forall x[f_{\langle et, et \rangle}(\mathbf{person})(x) \rightarrow P(x)]$

Indefinite noun phrases, like other quantifiers, are amenable to contextual restrictions. The truth-conditions of the sentence in (6), for instance, will be represented as in (8). That is, the sentence in (6) will be true if and only if for every  $x$  that belongs to the subset of people at the party picked out by the subset selection function  $f$  (introduced by the universal quantifier), there is a movie  $y$  that Phil liked in the subset of movies selected by the subset selection function  $f'$  (introduced by the indefinite.)

- (8)  $\forall x[f_{\langle et, et \rangle}(\mathbf{at-the-party})(x) \rightarrow \exists y[f'_{\langle et, et \rangle}(\mathbf{movie})(y) \ \& \ \mathbf{liked}(\mathbf{Phil}, y) \ \& \ \mathbf{voted}(x, y)]]$

Assume now that  $f'$  is the function that maps the set of movies that Phil liked to the singleton in (5). The indefinite in (6) will then be a singleton indefinite. The sentence in (6) will be true in that particular context if and only if there is a particular movie (namely, “Casablanca”) that everyone at the party voted to watch. As before, the scope of the indefinite is neutralized.<sup>8</sup>

## 2.2. *Un vs. algún.*

The Spanish indefinites *un* and *algún* contrast with respect to whether they can range over singleton domains (Alonso-Ovalle and Menéndez-Benito, 2008b, in press). Consider, for instance, the sentence in (9) below:

- (9) Juan compró { un / † algún } libro que resultó ser el más caro de  
 Juan bought { UN / ALGÚN } book that happened to be the most expensive in  
 la librería.  
 the bookstore

<sup>8</sup>Schwarzschild’s theory also covers cases of exceptional scope where the indefinite is interpreted with respect to a higher quantifier, with which it covaries (‘intermediate readings’). In what follows, we will leave those readings aside.

‘Juan bought a book that happened to be the most expensive one in the bookstore.’

Since there can only be one book that turned out to be the most expensive one in the bookstore, the extension of the noun phrase that the indefinite combines with is a singleton. The version of the sentence in (9) with *un* is perfectly acceptable, showing that the domain of *un* can be reduced to a singleton set. The version with *algún*, however, is deviant. Unlike *un*, *algún* does not tolerate singleton domains.

The sentence in (10) below makes the same point. Since there can only be one candidate that is the most incompetent among the ones that applied, the indefinite in (10) ranges over a singleton domain.<sup>9</sup> As expected, the version of the sentence in (10) with *un* is perfectly appropriate, but the version with *algún* is deviant.<sup>10</sup>

- (10) Pedro contrató a { un / # algún } candidato que era el más incompetente de  
Pedro hired a { UN / ALGÚN } candidate that was the most incompetent of  
los que se presentaron.  
the ones that SE applied  
‘Pedro hired a candidate that was be the most incompetent of the ones that  
applied.’

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<sup>9</sup>Note that that the relative clauses in these examples are restrictive. First, there is no intonational break, unlike the case of non-restrictive clauses. Second, unlike non-restrictive relative clauses, the relative clauses in these examples do not have to be speaker-oriented (Potts, 2003), as shown by the example below:

- (i) Juan piensa que María habló con una chica que sale con Samuel (pero la chica en cuestión  
Juan believes that María spoke with UNA girl that goes out with Samuel (but the girl in question  
sale con Marcos.)  
goes out with Marcos

Note also that while in these examples the domain of *un* is a singleton, *un* cannot combine with nouns whose extension is known to be a singleton, as illustrated below (Heim, 1991; Percus, 2006). The contrast between between the sentences below is explored in Schwarz et al. (forthcoming).

- (1) (i) # Subí a una montaña más alta de Massachusetts.  
I climbed to a mountain most tall in Massachusetts  
‘I climbed a tallest mountain in Massachusetts.’  
(ii) Subí a una montaña que es la más alta de Massachusetts.  
I climbed to a mountain that is the most tall in Massachusetts  
‘I climbed a mountain that is the tallest of Massachusetts.’

<sup>10</sup>Thanks to Chris Potts for pointing out this type of example to us.

In section 2.1, we used subset selection functions to capture the contextual domain restrictions of quantifiers. Once we assume that quantificational determiners take subset selection functions as arguments, we can impose constraints on the possible values of those functions to capture the requirements that the determiners impose on their domain of quantification. In our case, following Alonso-Ovalle and Menéndez-Benito (in press), we will assume that *algún* requires the function that it introduces to pick out a set containing more than one element, as illustrated below:<sup>11</sup>

- (11) a.  $\llbracket \text{algún} \rrbracket = \lambda f_{\langle e, t, et \rangle} \lambda P_{\langle e, t \rangle} \lambda Q_{\langle e, t \rangle} : \mathbf{antisingleton}(f). \exists x[f(P)(x) \ \& \ Q(x)]$   
 b. Where for any  $f$  of type  $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$  and any  $P$  of type  $\langle e, t \rangle$ ,  
 $f$  is an anti-singleton subset selection function ( $\mathbf{anti-singleton}(f)$ ) iff  $f(P)$  is *not* a singleton.

In contrast, we will assume that *un* does not impose any requirement on the subset selection function that it introduces:

(12)  $\llbracket \text{un} \rrbracket = \lambda f_{\langle e, t, et \rangle} \lambda P_{\langle e, t \rangle} \lambda Q_{\langle e, t \rangle}. \exists x[f(P)(x) \ \& \ Q(x)]$

Since *un* is compatible with singleton domains but *algún* is not, Schwarzschild’s account predicts that only *un* will be able to get exceptional scope. In the next section we present an off-line study designed to test this prediction in two types of islands: relative clauses and the antecedent of conditionals.

### 2.3. Testing the Prediction: Un vs. algún in relative clauses and conditionals.

#### 2.3.1. Participants.

Twenty-four undergraduate students at the Universidad de Castilla La Mancha (Spain) participated in the experiment. All of them were native speakers of Iberian Spanish and

<sup>11</sup>The definition of an antisingleton subset selection function is based upon the definition of a singleton subset selection function presented in von Stechow (1999). Of course, other domain constraints may be possible. As an anonymous reviewer points out, certain indefinites have been argued to widen the domain (Kadmon and Landman (1993); Kratzer (2003); Chierchia (2006).) Domain widening would correspond to the requirement that  $f$  be interpreted as an identity function. For the sake of concreteness, we are assuming that the antisingleton constraint is a presupposition on the value of the subset selection function. We follow here the standard interpretation of pronominal  $\phi$ -features in the formal semantics literature, which assumes that they contribute a presupposition about the possible referent of pronouns (Cooper (1983); Dowty and Jacobson (1989); Sauerland (2003); Heim and Kratzer (1998).) The function in (11a) is partial. Following the notation in Heim and Kratzer (1998), the expression right before the colon indicates the definedness condition.



- b. Condition 2: El profesor López ha enviado al concurso de redacción todos los trabajos que le entregó un estudiante suyo.  
The professor López has sent to-the contest of writing all the papers that to-him gave UN student of-his  
'Professor López has sent to the writing contest all papers that a student of his gave him.'

All experimental items were preceded by a paragraph — the same for the two conditions of any given item — describing the context in which the sentences had to be judged by the subjects. The scenario corresponding to the item in (14) is provided below:

- (15) El profesor López ha enviado al concurso de redacción todos los trabajos que le entregó su alumno favorito, y no ha enviado ninguno de los trabajos que le entregaron sus otros alumnos.

'Professor López has sent to the writing context all the papers that his favorite student gave him, and he has not sent any of the other papers that the rest of his students gave him.'

All the scenarios made the corresponding target sentence true on the wide scope reading of the indefinite (exceptional scope), and false on the narrow scope reading. Consider for instance the sentences in (14) above. On the wide scope reading of the indefinite, the sentences in (14) are true if and only if there is at least one student of López all whose papers López sent to the contest. They are therefore true in the scenario in (15), since López sent to the contest all papers by his favorite student. On the narrow scope reading of the indefinite, the sentences in (14) are true if and only if López sent to the contest all papers that his students had given him. The scenario in (15) does not meet this condition, since López only sent to the contest the papers of one of his students. Under this reading, the sentences in (14a) are false.

Between the scenario and the target sentence, subjects were presented with a question asking whether the sentence was an appropriate description of the preceding context. Subjects were asked to answer by circling either 'yes' or 'no'.

- (16) ¿Crees que la oración siguiente es una descripción apropiada de esta situación?

Sí / No.

‘Do you think the following sentence is an appropriate description of this situation? Yes / No.’

*Subexperiment 1B: conditionals.* Subexperiment 1B tested twelve conditional sentences that had an indefinite in their antecedent. In the first version (condition 1) the antecedent of the conditional contained *algún*, and in the second version (condition 2), *un*. Again, half of the items with *algún* featured the partitive version *alguno de los*, and half of the items with *un*, its partitive version *uno de los*, and all indefinite noun phrases contained a possessive pronoun anaphoric to the subject of the sentence. A sample item is provided below:

- (17) a. Condition 1: Si Pedro envía algún artículo suyo, conseguirá la beca.  
If Pedro sends ALGÚN paper of-his, will get the grant.
- b. Condition 2: Si Pedro envía un artículo suyo, conseguirá la beca.  
If Pedro sends UN paper of-his, will get the grant.  
‘If Pedro sends a paper of his, he will get the grant.’

As before, the experimental items were preceded by a context describing a situation that made the target sentence true under the wide scope reading of the indefinite, and false under its narrow scope reading. A sample context corresponding to the item above follows:

- (18) El Ministerio de Educación concede una beca a todos los investigadores que hayan publicado un artículo en una revista extranjera. Para solicitar la beca, es necesario enviar el artículo al comité de selección. Pedro tiene varios artículos publicados, pero sólo uno de ellos está publicado en una revista extranjera.
- ‘The Education Ministry awards a grant to all researchers who have published an article in a journal abroad. To apply for the grant, it is required to send the article to the selection committee. Pedro has published several articles, but only one of them is published in an international journal.’

Under its narrow scope interpretation, the sentences in (17) are true only in case that Pedro will get the grant if he sends any of his papers. Under its wide scope inter-

pretation, the sentence is true if and only if Pedro gets the grant if he sends at least one of his papers. Since only one of Pedro’s papers qualifies for the grant, the sentences in (17) are true in the scenario in (18) only under their wide scope reading, and false under their narrow scope reading.

As before, subjects were presented with a question asking whether the target sentence was an appropriate description of the preceding context.

The experimental materials were fully counterbalanced: For each experiment, two lists were constructed so that each subject saw each experimental item in only one condition. The twenty-four experimental items were interspersed with a set of twenty-four fillers.

The experimental materials were preceded by a set of instructions, in which subjects were asked to read the contexts carefully and to follow their first intuition when answering questions. As practice, before completing the questionnaire, the subjects were asked whether the sentence in (19) was appropriate in a context forcing a sloppy reading (in which Pedro told his own mom about the discussion) and in a context forcing a strict reading (in which Pedro told María’s mom about the discussion.)

- (19) María habló de la discusión con su madre, y Pedro también.  
 María talked DE the discussion with her Mom, and Pedro too.  
 ‘María talked about the discussion with her Mom, and Pedro too.’

### 2.3.3. Results.

Table 1 shows the average percentage of ‘yes’ responses in each condition of subexperiment 1A (*algún* and *un* in relative clauses.) A t-test was conducted to check whether the differences in means between the experimental conditions can be attributed to the experimental manipulation at a statistically significant level. The results confirm that the difference between the two conditions was significant by subjects (  $t(23) = 6.245, p < .001$  ) and items (  $t(11) = 9.993, p < .001$  )

Condition	C1: <i>algún</i>	C2: <i>un</i>
% of ‘yes’ answers	35	86

Table 1: *Algún* vs. *un* in relative clauses.

Table 2 shows the average percentage of ‘yes’ responses in each condition of subex-

periment 1B (*algún* and *un* in conditionals.) The difference between conditions was also significant by subjects (  $t(23) = 4.460, p < .001$  ) and items (  $t(11) = 4.615, p < .001$  )<sup>15</sup>

Condition	C1: <i>algún</i>	C2: <i>un</i>
% of 'yes' answers	0.1	32

Table 2: *Algún* vs. *un* in conditionals.

#### 2.3.4. Discussion.

When interpreting the results, we will take a positive answer to the question of whether the sentence was an appropriate description of a given context to indicate that the sentence was true in the context. Since our contexts block the narrow scope reading, a positive answer tells us that the wide scope reading (i.e., the exceptional scope reading) is available for the sentence in question.

Recall what the predictions of the initial hypothesis are: according to Schwarzschild, indefinites can only get exceptional scope when their domain is a singleton. In section 2.2, we have argued that *un* can be a singleton indefinite but *algún* cannot. Thus, we would expect exceptional scope readings to be available for *un* but not for *algún* in both relative clauses and conditionals. That means that in both subexperiments we should get a significant difference between *un* and *algún*, with a very low percentage of 'yes' responses for *algún* and a high percentage of 'yes' responses for *un*. Table 3 summarizes these predictions.

	Relative Clauses	Conditionals
<i>un</i>	yes	yes
<i>algún</i>	no	no

Table 3: Predictions of the proposal in Schwarzschild (2002).

Our experiment, however, yields a somewhat different pattern. While exceptional

<sup>15</sup>An analysis of variance (ANOVA) test looking at both experiments together revealed a significant main effect of *un* vs. *algún* ( $F(1,23) = 59.213, p < .001, \eta^2 = .71$ ), a significant main effect of syntactic environments (conditionals vs. relative clauses) ( $F(1,23) = 49.286, p < .001, \eta^2 = .68$ ) and a significant interaction ( $F(1,23) = 6.273, p < .05, \eta^2 = .21$ ). Of course, the by-items analysis is of limited use here, since the items were not minimal variants of one another.

scope is significantly more available for *un* than for *algún* in both subexperiments, the pattern departs from Schwarzschild’s predictions in two respects. First, while exceptional scope is significantly more available for *un* than for *algún* in both subexperiments, *algún* still gets a 35% of ‘yes’ responses in the relative clause experiment (vs. 0% of ‘yes’ responses in conditionals.) This suggests that, in relative clauses, exceptional scope readings are available for this indefinite to some extent (assuming that they are not would amount to disregarding a third of our data as experimental ‘slop’.) Second, there is a big *numerical* difference between conditionals and relative clauses: the percentage of ‘yes’ responses is much lower in relative clauses than in conditionals for both types of indefinites, suggesting that exceptional scope seems hard for *un* in relative clauses. Table 4 summarizes these findings.<sup>16</sup>

	Relative Clauses	Conditionals
<i>un</i>	yes	hard
<i>algún</i>	yes	no

Table 4: Experiment 1 results.

The difference between relative clauses and conditionals shown in Table 4 is surprising, both for our initial hypothesis, and for most well-known theories of exceptional scope<sup>17</sup>, which are designed to capture the behavior of indefinites that exhibit the same scopal properties across islands. In the next section, we will put forward an account of this puzzling contrast that makes crucial use of the Hamblin semantics for indefinites presented in Kratzer and Shimoyama (2002).

### 3. A Hamblin style analysis for *un* and *algún*.

In the Kratzer and Shimoyama (2002) analysis, indefinites introduce sets of alternatives that expand until they meet a suitable operator. In what follows, we will present an

<sup>16</sup>Interestingly, Martí (2007) argues that the scope of *algunos*, the plural version of *algún*, is constrained by a wide range of syntactic islands. The data that she presents suggests that wide scope readings are harder for *algunos* in conditionals. This might reflect the same type of difference that we find for *algún*. Similarly, Ionin (forthcoming) presents the results of an experiment that tests the availability of narrow, intermediate, and widest possible scope for *a certain* and *a* indefinites in relative clauses and conditionals and reports that there numerically more acceptances of widest-scope readings of *a*-indefinites out of relative clauses than out of conditionals, although the difference was not replicated in the case of intermediate scope readings.

<sup>17</sup>See, among others, Reinhart (1995); Kratzer (1998); Winter (1997) and Matthewson (1999).

account of our experimental pattern based on this set-up. The main pieces of the analysis are the following: (i) both *un* and *algún* are Hamblin indefinites; (ii) conditionals introduce universal quantification over the alternatives introduced in their consequent (as argued in Alonso-Ovalle (2006)), which blocks exceptional scope readings; (iii) relative clauses do not block alternative expansion and, thus, allow for exceptional scope, and (iv) *un* can introduce a singleton set of alternatives, but *algún* cannot.

We will first introduce the core features of Kratzer and Shimoyama (2002)’s framework (3.1) and then discuss how the behavior of *un* and *algún* in conditionals and relative clauses can be accounted for within this framework (3.2.)

### 3.1. Hamblin indefinites.

In the Hamblin semantics put forth in Kratzer and Shimoyama (2002), expressions of type  $\tau$  are mapped into sets of denotations in  $D_\tau$ . Indefinite noun phrases denote sets of individual alternatives, as illustrated in (20) below for an English *a*-noun phrase.

$$(20) \quad \llbracket \text{a man} \rrbracket^{w,g} = \{x \mid \mathbf{man}_w(x)\} = \{\text{Juan, Carlos, Pedro} \dots\}$$

Other lexical items denote singleton sets that contain their standard denotations, as illustrated below for the verb *arrived*:

$$(21) \quad \llbracket \text{arrived} \rrbracket^{w,g} = \{\lambda x \lambda w'. \mathbf{arrived}_{w'}(x)\}$$

In this framework, Functional Application is defined pointwise, as in Hamblin (1973): the result of combining an expression  $\alpha$  denoting a set of functions of type  $\langle \sigma, \tau \rangle$  with an expression  $\beta$  denoting a set of objects of type  $\sigma$  is the set of objects of type  $\tau$  that we get by applying each of the functions denoted by  $\alpha$  to each of the objects denoted by  $\beta$ .

The individual alternatives introduced by indefinites into the semantic derivation ‘expand’ (i.e., give rise to alternatives of a higher type) via pointwise functional application. The combination of the indefinite in (20) with the verb in (21), for instance, gives us the set of propositions in (22).

$$(22) \quad \llbracket \text{arrived} \rrbracket^{w,g}(\llbracket \text{a man} \rrbracket^{w,g}) = \{p_{\langle s,t \rangle} \mid \exists x[\mathbf{man}_w(x) \ \& \ p = \lambda w'. \mathbf{arrived}_{w'}(x)]\} = \\ \{\text{that Juan arrived, that Carlos arrives, that Pedro arrived,} \dots\}$$

Alternatives keep expanding until they meet one of several operators that take sets of propositional alternatives as arguments. The denotation of the sentence in (23a), for example, is the result of combining the set of propositions in (22) with the Existential Closure operator in (23b), which gives us the (singleton containing the) proposition in (23c).

- (23) a. A man arrived.  
 b. For any set of propositions  $\mathbb{A}$ :  $\llbracket [\exists] \rrbracket^{w,g}(\mathbb{A}) = \{\lambda w'. \exists p \in \mathbb{A} \ \& \ p(w')\}$   
 c.  $\{\lambda w'. \exists p \in (22) \ \& \ p(w')\} = \{ \text{that at least one man arrived} \}$

### 3.2. *The proposal.*

We will assume that both *un* and *algún* are Hamblin indefinites, in the Kratzer and Shimoyama (2002) sense, and that, therefore, they introduce sets of alternatives. As before, domain restriction will be modeled via subset selection functions. The denotation of an *algún* phrase is undefined if the value of the subset selection function it introduces is a singleton one (as illustrated in (24a).) Therefore, the set of individual alternatives introduced by *algún* will always be larger than a singleton. *Un*, however, does not impose any requirements on the value of its subset selection function (see (24b)) and thus it can in principle introduce a singleton set.<sup>18</sup>

- (24) a.  $\llbracket [\text{algún } [f[\text{estudiante}]]] \rrbracket^{w,g}$  is defined only if  $\llbracket [f] \rrbracket^{w,g}$  is an anti-singleton subset selection function.  
 When defined,  $\llbracket [\text{algún } [f[\text{estudiante}]]] \rrbracket^{w,g} = \llbracket [f] \rrbracket^{w,g}(\{x : x \text{ is a student in } w\})$   
 b.  $\llbracket [\text{un } [f[\text{estudiante}]]] \rrbracket^{w,g} = \llbracket [f] \rrbracket^{w,g}(\{x : x \text{ is a student in } w\})$

We will next see how the alternatives that these indefinites denote behave in the course of the semantic derivation of conditionals and relative clauses.

#### 3.2.1. *Conditionals in an Alternative Semantics.*

Exceptional scope readings in the antecedent of conditionals were found to be hard for *un* and virtually impossible for *algún*. In what follows, we argue that this pattern

<sup>18</sup>For concreteness, we will assume that the subset selection function is syntactically represented, the way the  $C$  variable used to account for quantifier restrictions is assumed to be (see, for instance, von Stechow (1994).)

can be derived from the interaction of domain constraints and the Hamblin semantics for conditionals put forward in Alonso-Ovalle (2009).

Alonso-Ovalle (2009) discusses a well-known problem that arises in connection with the interpretation of counterfactuals with disjunctive antecedents.<sup>19</sup> Consider, for instance, the interpretation of (25):

- (25) If we have had good weather this summer or the sun had grown cold, we would have had a bumper crop.

(Alonso-Ovalle (2009), a minimal variation on an example from Nute (1975).)

According to a minimal change semantics for counterfactuals of the Lewis-Stalnaker variety (Lewis, 1973), *would*-counterfactuals are evaluated by considering a ranking of worlds: a *would* counterfactual is true in a world  $w$  if and only if the worlds  $w'$  in which the antecedent is true that are most similar to  $w$ , are all worlds where the consequent is true.<sup>20</sup> Now let us make the standard assumption that disjunctions have existential force (i.e. let us suppose that  $A$  or  $B$  is the proposition that is true in a world  $w$  if *at least one* of  $A$  and  $B$  is true in  $w$ .) Under this semantics, the antecedent of the counterfactual in (25) denotes, in set-theoretical terms, the union of the set of worlds where we have a good summer and the set of worlds where the sun grows.

- (26)  $\llbracket \text{we have had a good summer or the sun had grown cold} \rrbracket^{w,g} =$   
 $\{w' \mid \text{we have a good summer in } w'\} \cup \{w' \mid \text{the sun grows cold in } w'\}$

Given all that we have said so far, the counterfactual in (25) should then denote the proposition that is true in a world  $w$  if and only if all worlds  $w'$  in (26) that are closest to  $w$  are worlds where we have a bumper crop. These truth-conditions are too weak, though. According to the intuitive notion of similarity under which we are likely to evaluate the sentence in (25), the worlds where we have a good summer are more similar to the actual world than the worlds where the sun grows cold. Thus, all the

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<sup>19</sup>For overview and discussion see Nute (1984); for an early response to the problem see Lewis (1977).

<sup>20</sup>We are making what Lewis calls 'The Limit Assumption' (Lewis (1973)), namely that given a proposition  $p$ , there will always be a non-empty set of worlds  $w'$  in which  $p$  is true that come as close as possible to the world of evaluation. Ties in similarity are allowed. For a survey of the different flavors a minimal change semantics might come in, see Nute (1984).

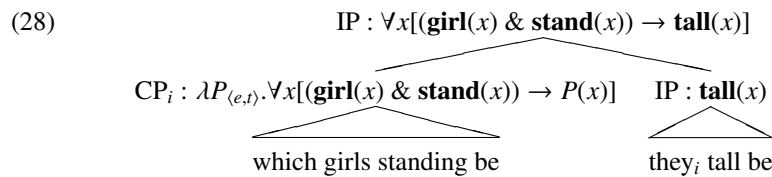
worlds in (26) that are closest to the actual world are worlds where we have a good summer. Therefore, (25) is predicted to be true in the actual world if and only all the closest worlds in which we have a good summer are worlds in which we have a bumper crop. The sentence in (25) is intuitively false in the actual world, but we predict it to be true.<sup>21</sup>

Alonso-Ovalle (2009) shows that the natural interpretation of counterfactuals with disjunctive antecedents can be captured if, in line with recent literature, we treat conditionals as correlative constructions (von Stechow, 1994; Izvorski, 1996; Bhatt and Pancheva, 2006; Schlenker, 2004) and we adopt an Alternative Semantics for disjunction (Aloni (2003); Simons (2005); Alonso-Ovalle (2006)).

Correlative constructions arguably convey universal quantification. The construction is illustrated with the help of the Hindi example in (27):

- (27) [ jo laRkiyaaN khaRii haiN ]<sub>i</sub> ve<sub>i</sub> lambii haiN  
 which girls standing be-present they tall be-present  
 ‘Which girls standing are, they are tall.’ (Dayal (1996,192)).

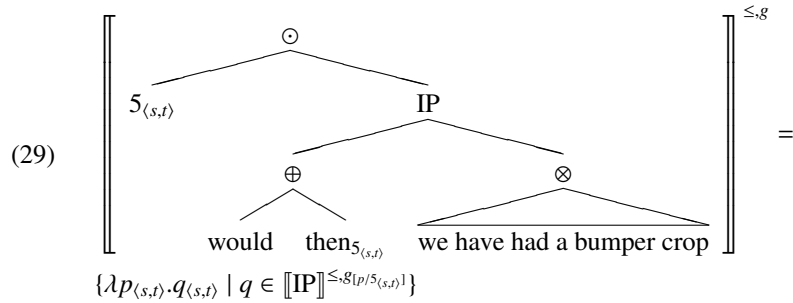
In correlatives, a relative clause adjoined to the matrix clause provides an anaphoric pronoun inside the main clause with an antecedent. The antecedent of a correlative denotes, under Dayal’s analysis, a generalized quantifier: a property of properties of individuals (Srivastav, 1991b,a; Dayal, 1995, 1996). The example in (27), for instance, can be analyzed as in (28) below: the antecedent denotes a property of properties of individuals that holds of *any* property *P* if and only if *P* holds of every individual which is a girl and is standing.<sup>22</sup>



<sup>21</sup>The problem arises with *might* counterfactuals, and, in general, with other conditionals for which an ordering semantics is assumed (a downward monotone analysis licenses the inference from  $(p \vee q) \rightarrow r$  to  $p \rightarrow r$  and  $q \rightarrow r$ , but see Alonso-Ovalle (2006) for reasons to believe that the inference we are after is not a downward entailing inference.)

<sup>22</sup>Assume that the CP and the IP combine once the free variable in the IP is abstracted over.

If conditionals are correlative constructions, we expect them to convey the very same components (Alonso-Ovalle, 2009). For instance, if the consequent of a correlative contains an anaphoric element, the consequent of a conditional should also contain one. Where can it be? As other natural language quantifiers do, modals range over a contextually supplied domain. We can capture this contextual dependency by assuming that modals take as an argument a pronoun ranging over propositions (von Stechow, 1994), which can be overtly realized as *then*. This propositional anaphor can be abstracted over, as illustrated in (29), and, then, we can assume that the consequent of a conditional denotes a property of propositions, much as the consequent of a correlative denotes a property of individuals. Under this analysis, the consequent of (25) denotes (a set containing) a function from propositions to propositions that maps any proposition  $p$  into the proposition that is true in a world  $w$  if and only if the  $p$ -worlds that come closest to  $w$  are all worlds where we have a bumper crop.<sup>23</sup>

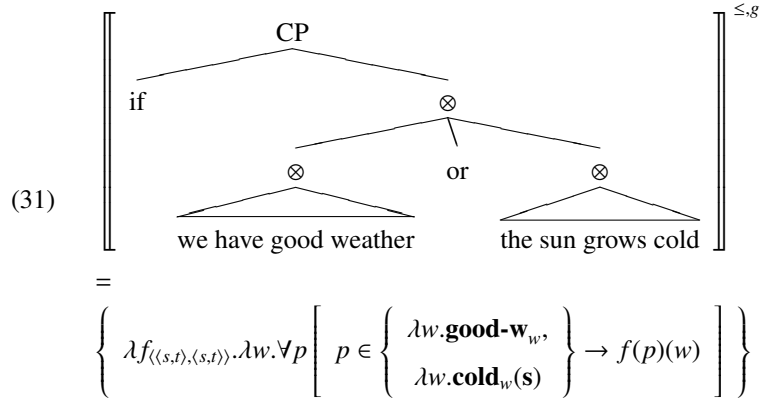


If correlatives convey universal quantification, conditionals should convey universal quantification, too. What would the domain of this universal quantification be? If disjunctions introduce sets of propositional alternatives into the semantic derivation, it is natural to assume that the universal quantification ranges over the propositions introduced by disjunction. Let us then assume that the antecedent of (25) denotes the set in (30).

(30)  $\llbracket \text{we have had a good summer or the sun had grown cold} \rrbracket^{w, g} =$   
 $\{\lambda w'. \text{we have a good summer in } w', \lambda w'. \text{the sun grows cold in } w'\}$

<sup>23</sup>For ease of exposition, we assume that the lambda abstraction is represented at LF by means of an index, as in Heim and Kratzer (1998).

We can now say that exactly as in the case of correlatives, under Dayal's analysis, combining the antecedent of a conditional with its consequent amounts to saying that *all* the propositions introduced by the disjunction have the property expressed by the consequent. The antecedent in (31) denotes, under this analysis, a property of properties of propositions, much as in Dayal's analysis, the antecedent of a correlative denotes a property of properties of individuals. In the case under discussion, (31) denotes a property of properties of propositions that holds of any property of propositions  $P$  in a world  $w$  if and only if  $P$  holds in  $w$  of the proposition that we have good weather this summer and of the proposition that the sun grows cold (the two propositions introduced by the disjunctive antecedent.)



The denotation of the whole conditional can be now calculated by applying the denotation of the *if*-clause to the denotation of the consequent. Under the present analysis, the sentence in (25) denotes (the singleton containing) the proposition that is true in a world  $w$  if and only if all the closest worlds to  $w$  in which we have good weather are worlds where we have a bumper crop, *and* all the closest worlds to  $w$  in which the sun grows cold are worlds where we have a bumper crop.

This analysis extends directly to the case of indefinites, and once we adopt it, the experimental results that we presented should not come out as a total surprise. As an illustration, consider the following sentence:

- (32) Si Juan hubiera mandado algún artículo suyo, hubiera conseguido  
 If Juan had sent ALGÚN article of his, pro would have gotten  
 la beca.  
 the grant

‘If Juan had sent some article of his, he would have gotten the grant.’

Assume that Juan has written three articles in  $w$ : “Principles of A”, “Principles of B” and “Principles of C” and that the context does not narrow down the domain of *algún*.<sup>24</sup> Let us compute the denotation of the sentence in (32).

Under our current assumptions, the denotation of the indefinite noun phrase *algún artículo de Juan* will be (33):

(33) { “Principles of A”, “Principles of B”, “Principles of C” }

Combining this set with the denotation of the verb (disregarding tense and mood), and the result with the denotation of the subject, yields the set of propositions in (34).

(34)  $\llbracket \text{Juan hubiera mandado algún artículo suyo} \rrbracket^{w,g} = \left\{ \begin{array}{l} \lambda w'. \text{Juan sends “Principles of A” in } w', \\ \lambda w'. \text{Juan sends “Principles of B” in } w', \\ \lambda w'. \text{Juan sends “Principles of C” in } w' \end{array} \right\}$

Given our assumptions about the semantics of conditionals, the conditional in (32) will be true in the actual world if and only if the three conditions in (35) below are satisfied:

- (35) a. In all the worlds closest to the actual world in which Juan sends “Principles of A”, he gets the grant.  
 b. In all the worlds closest to the actual world in which Juan sends “Principles of B”, he gets the grant.  
 c. In all the worlds closest to the actual world in which Juan sends “Principles of C”, he gets the grant.

This means that (32) will be true in the actual world if and only if Juan would have got the grant if he had sent *any* of his papers. The semantic computation, then, yields a “narrow scope reading.”<sup>25</sup>

<sup>24</sup>This means, under our assumptions, that the value of the subset selection function variable introduced by *algún* is the identity function.

<sup>25</sup>Notice that, under this semantics, the evaluation of a one case conditional involves checking for each of the alternatives introduced in the antecedent, the closest worlds where that alternative is true. This is a

This, we contend, explains why subjects rejected the *algún* sentences in Experiment 1B, where subjects were asked to evaluate the conditionals in scenarios that made them false under a narrow scope reading of the indefinite.

Things are somewhat more complicated in the case of *un*. As long as *un* introduces two or more alternatives, it will only have a narrow scope reading in the antecedent of conditionals, just like *algún*. However, we have seen in section 2.2 that *un* can be a singleton indefinite. In the current framework, this means that *un* noun phrases can denote a set containing just an individual alternative. When that happens, we should get the illusion of exceptional scope, as Schwarzschild explains. Suppose, for instance, that (36) is uttered in a context that makes salient the article “Principles of C”. This sentence will be then true in the actual world if and only if in all the closest worlds where Juan sends “Principles of C”, he gets the grant. In that case, there will be a particular paper of his that will get him the grant, just as if the indefinite had scoped out the antecedent of the *if*-clause.

- (36) Si Juan manda un artículo suyo, conseguirá la beca.  
 If Juan sends UN paper of his, pro will get the grant  
 ‘If Juan sends a paper of his, he will get the grant.’

In our experiment, however, exceptional scope readings for *un* were difficult in the antecedent of conditionals (there was a 32% of ‘yes’ answers in the antecedent of conditionals, as opposed to 86% of ‘yes’ answers in relative clauses.)<sup>26</sup> This means,

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welcome result. Consider, for instance, the interpretation of the deontic conditional below, which is discussed in Heim (1982, 171):

- (i) If a cat has been exposed to 2,4-D, it must be taken to the vet immediately. (Heim (1982, 171))

As Heim points out, the interpretation of the conditional requires checking for each cat *x*, the most ideal worlds where *x* is exposed to 2,4-D, just as our system predicts. On the interaction of disjunctions and indefinites with a minimal change semantics, see Alonso-Ovalle (2005) and van Rooij (2006).

<sup>26</sup>An anonymous reviewer points out that the Spanish indefinite *cierto* (‘a certain’) can easily get exceptional scope in *if*-islands. The sentence in (i), for instance, is true in a situation where there is a specific article such that, if John sends that article, he will get the grant.

- (i) Si Juan manda cierto artículo suyo, conseguirá la beca.  
 If Juan sends a certain paper of his, he will get the grant.

As the reviewer notes, our explanation for why exceptional scope readings are difficult for *un* in *if*-clauses raises the question of why these readings are easy for *cierto* in the same configuration, at least according to initial intuitions. We think that previous work on *cierto* suggests that this item does not belong to the same

then, that restricting the domain of *un* to a singleton is difficult in that context. Why should this be so? In what follows, we will examine a couple of possible reasons for this difficulty.

The first possibility we would like to consider is that the difficulty of restricting the domain to a singleton in the antecedent of conditionals is related to the fact that determiner quantifiers with universal force implicate that their domain is not a singleton: the example in (37), for instance, seems infelicitous if Phil only said of one movie that it was his favorite.

- (37) Everyone at the party voted to watch every movie that Phil said was his favorite.  
(Schwarzschild (2002, 48))

Schwarzschild argues that this non-singletonness inference is likely to be an implicature: the inference is cancellable, as the discourse in (38) shows, and seems to result from a comparison between what was actually asserted with a set of comparable alternatives (it is odd to utter the example in (39) if one knows that each instructor has only one student with a disability — using *a student* or *the student* would be more appropriate in that case.)

- (38) Everyone in the Italian department is happy with Cipriano's proposal, since there is just one person in the Italian department and that's Cipriano.  
(Schwarzschild (2002, 49))
- (39) Every instructor noticed that every student of his who had a disability had taken the exam anyway.  
(Schwarzschild (2002, 49))

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class as *un*. Eguren and Sánchez (2007) observe that *cierto* does not allow for co-variation readings (e.g., the sentence *Todos los estudiantes adoran a cierta actriz* — 'Every student adores a certain actress' — can only mean that there is a particular actress that all the students adore.) According to Schwarzschild's theory indefinites appear to take widest scope when their domain is restricted to a singleton set (*simpliciter*) while they get an intermediate reading when their domain is restricted to a singleton set relative to all the relevant values for a variable bound by a higher quantifier. The fact that the second possibility is not available for *cierto* might be taken as an indication that this item is not amenable to Schwarzschild's account (i.e., in the case of this indefinite, exceptional scope is not due to maximal domain restriction.) In principle, we would expect indefinites that can have their domain restricted to a singleton set to be able to do so across-the-board. An analysis of the scopal properties of *cierto* is unfortunately beyond the scope of this paper. We hope to undertake an experimental investigation of these properties in future research.

Now, suppose that this non-singletonness implicature arises not only with determiner quantifiers like *every* but also with universal propositional quantifiers. That is, suppose that the universal propositional quantifier introduced by a conditional structure triggers the implicature that its domain consists of at least two propositions. Since narrowing down the set of alternatives to a singleton set clashes with the implicature, we might expect that operation to be costly.

This hypothesis is, however, problematic. First, as we said above and Schwarzschild discusses, implicature computation involves comparing the assertion with a set of alternative assertions. It is hard to see what the alternatives to the universal propositional operator would be. Second, given the analysis of conditionals we are assuming, there are cases where the universal propositional quantifier in fact ranges over only one alternative: all those counterfactuals whose antecedent does not contain a Hamblin indefinite or disjunction. Take, for instance, the sentence in (40), where the universal would range over the singleton set containing the proposition that Juan came.

- (40) Si Juan hubiera venido,    lo hubiéramos pasado muy bien.  
 If Juan had    come,    pro it would have passed very well.  
 ‘If Juan had come, we would have had a good time.’

Unlike what happens in the case of run-of-the-mill universal quantifiers ranging over a singleton, there seems to be no penalty associated with quantification over a singleton domain in (40), which sounds perfectly natural.

An alternative possibility is that restriction of the domain of a universal to a singleton domain is difficult because it clashes with a general preference for selecting the strongest possible meaning. Consider one of our experimental items in its context:

- (41) a. El Ministerio de Educación concede una beca a todos los investigadores que hayan publicado un artículo en una revista extranjera. Para solicitar la beca, es necesario enviar el artículo al comité de selección. Pedro tiene varios artículos publicados, pero sólo uno de ellos está publicado en una revista extranjera.

‘The Ministry of Education gives a fellowship to all the researchers who have published a paper in an international journal. To apply for the fellow-

ship, it is necessary to send the paper to the selection committee. Pedro has published several papers, but only one abroad.'

- b. Si Juan hubiera enviado un artículo suyo, hubiera conseguido la beca.  
If Juan had sent UN paper of his, pro would have got the grant  
'If Juan had sent a paper of his, he would have got the grant.'

Under the present analysis, the phrase *un artículo suyo* can denote different sets of alternatives, depending on the value of the resource domain variable. Assume again that Juan has published three articles: "Principles of A", "Principles of B", and "Principles of C". Assume furthermore that, of these articles, the only one published abroad is "Principles of C". Two sets made salient by the context above are then:

- (42) a.  $D_1$  : {"Principles of A", "Principles of B", "Principles of C"}  
b.  $D_2$  : {"Principles of C"}

Given our setup, if the indefinite is taken to denote  $D_1$ , the conditional in (41b) will denote the proposition that is true in a world  $w$  if and only if (i) in all the worlds that are closest to  $w$  where Juan sends "Principles of A", he gets the grant, (ii) in all the worlds that are closest to  $w$  where Juan sends "Principles of B", he gets the grant, and (iii) in all the worlds that are closest to  $w$  where Juan sends "Principles of C", he gets the grant. If the indefinite is taken to denote  $D_2$ , the sentence will denote the proposition that is true in a world  $w$  if and only in all the worlds that are closest to  $w$  where Juan sends "Principles of C", he gets the grant. The proposition that results from considering the wider domain ( $D_2$ ) is logically stronger than the proposition resulting from considering the singleton set ( $D_1$ ). Now, suppose that speakers prefer to select the strongest meaning available for any given sentence (?). This would explain why they resist narrowing down the set of reject a sentence as false than assign it a weaker interpretation.

An anonymous reviewer discusses the interpretation of the sentence in (43b) in the scenario in (43a):

- (43) a. Applicants have to send exactly one paper for a particular grant application. The committee only cares about papers that have been published in a foreign journal. John has 20 articles, but only 3 of them in foreign journals. (Those three articles are –unbeknownst to the speaker– A, B and C.)
- b. Si Juan hubiera mandado algún artículo suyo, habría conseguido la beca.  
 If Juan had sent algún paper of his, he would have gotten the grant  
 ‘If J. had sent some article of his, he would have gotten the grant.’

The reviewer points out that (43b) is most naturally read as conveying that Juan would have got the grant if he had sent any of his articles. In our setup this means that a natural value for  $f$  is the identity function ( $f_{\text{ident}}$ ). As the reviewer points out, in this context it is not easy to take  $f$  to be a function that maps the set of articles published by Juan to the set of articles that Juan published in a foreign journal ( $f_{\text{foreign}}$ ). Our analysis only requires  $f$  to select a set containing more than one paper, and so, it remains silent as to whether there should be a preference for the value of  $f$  to be  $f_{\text{ident}}$ , rather than  $f_{\text{foreign}}$ . Given our setup, however, the proposition expressed by (43b) when the value of  $f$  is  $f_{\text{ident}}$  is stronger than the proposition expressed when its value is  $f_{\text{foreign}}$ , and so, perhaps, logical strength could express the preferred interpretation. Further research is needed to determine if this is indeed the case.

### 3.2.2. Relative clauses.

The results of Experiment 1A show that in relative clauses exceptional scope is possible for both *un* and *algún*, although it is significantly harder for *algún*. The availability of exceptional scope readings for both indefinites can be accounted for if we assume (i) that relative clauses do not (necessarily) block the expansion of alternatives and (ii) that the Existential Closure operator is freely available up to interpretability.<sup>27</sup> The behavior of Japanese indeterminate pronouns might be taken to support the first assumption. Kratzer and Shimoyama (2002) argue that Japanese indeterminates are Hamblin indefinites, i.e., that they denote sets of alternatives (see section 3.1). These

<sup>27</sup>Of course, a process of free Existential Closure has been proposed before. See, for instance, Reinhart (1997)

alternatives are able to expand beyond relative clause boundaries, as illustrated by the example in (44). In this sentence, the indeterminate *dono*, which is inside a relative clause, gets a universal interpretation via association with the universal quantifier *mo*, outside the relative clause. Given what we have seen so far, this can only happen if the alternatives generated by *dono* grow past the relative clause boundary.

- (44) [[**Dono** hon-o yonda] kodomo] -mo yoku nemutta.  
 which book:acc read child -mo well slept  
 ‘For every book  $x$ , the child who read  $x$  slept well.’ (Kratzer and Shimoyama  
 (2002))

The behavior of disjunction provides evidence for both of our assumptions. Rooth and Partee (1982) show that, just like indefinites, disjunction can have “exceptional” scope. The sentence in (45), for instance, can be read as claiming that for every Englishman  $x$  there is an individual (either the King of  $x$  or the Queen of  $x$ ) such that  $x$  always cherishes the conviction that that individual was noble and pure.

- (45) Every Englishman always cherished the conviction that his King or his Queen  
 was noble and pure. (Rooth and Partee (1982, fn.6))

On this reading, the disjunctive noun phrase *his King or his Queen* has scope under the subject quantifier *every Englishman* and over the adverbial quantifier *always*. Since the disjunctive noun phrase *his King or his Queen* is inside a relative clause, we cannot get this interpretation by moving the disjunction to a position above the universal quantifier.

Let us assume that disjunctive phrases denote sets of alternatives, as suggested in a number of recent works (see section 3.2.1). On this view, the phrase *his King or his Queen* would introduce into the semantic derivation a set containing two definite descriptions:

- (46) { the King of  $x$ , the Queen of  $x$  }

As we have illustrated before, these alternatives will grow by pointwise functional application. We will be able to get the reading above if the alternatives can expand

past the relative clause boundary, and if they can be existentially closed right below the universal quantifier, yielding the truth conditions in (47) below:

$$(47) \quad \lambda w. \text{ For every Englishman } x \\ \exists p \left[ p(w) \ \& \ p \in \left\{ \begin{array}{l} x \text{ always cherishes the conviction that } x\text{'s King is noble and pure} \\ x \text{ always cherishes the conviction that } x\text{'s Queen is noble and pure} \end{array} \right\} \right]$$

Let us then go back to our indefinites. Consider again the example in (48). We are assuming that our indefinites introduce propositional alternatives into the semantic derivation. Given the behavior of the alternatives introduced by disjunction, we expect the alternatives introduced by indefinites to expand past relative clause boundaries. If the Existential Closure operator is freely available up to interpretability, it could be inserted in two positions, namely in the two sites where it can combine with a set of propositional alternatives: right above the lower IP or above the higher IP. The first configuration yields a narrow scope reading, the second a wide scope reading.

$$(48) \quad \left[ \text{IP}_1 \text{ El profesor López ha enviado al concurso de redacción todos los} \right. \\ \left. \begin{array}{l} \text{The professor López has sent to-the contest of writing all the} \\ \text{trabajos que } \left[ \text{IP}_2 \text{ le entregó \{algún / un\} estudiante suyo.} \right] \\ \text{papers that to-him gave \{ALGÚN / UN\} student of-his} \end{array} \right] \\ \text{'Professor López has sent to the writing contest all papers that a student of his} \\ \text{gave him.'}$$

To sum up, relative clauses crucially differ from conditionals in that the latter contribute an operator that stops the expansion of the alternatives introduced by the indefinites (hence, blocking exceptional scope), while the former can let alternatives project up. Putting this together with the hypothesis that Existential Closure is freely available up to interpretability predicts that exceptional scope should be available for *un* and *algún* when they are in a relative clause.

This leaves us with the issue of how to explain the significant difference between *un* and *algún* found in Experiment 1A. We would like to hypothesize that this difference does not correspond to the exceptional scope behavior of the indefinites, but that it is due to an independent factor. Alonso-Ovalle and Menéndez-Benito (in press) show that *algún* (but not *un*) conveys ignorance on the part of the speaker. The sentence in (49), for instance, makes an existential claim (that there is a student that María married),

and additionally conveys that the speaker doesn't know which student María married. Hence, adding the continuation *namely Pedro*, which explicitly identifies the witness, results in oddity, witness (50). In contrast, the 'plain' indefinite *un* allows for this type of continuation, as (51) shows.<sup>28</sup>

- (49) María se casó con algún estudiante del departamento de lingüística.  
María se married with ALGÚN student of the department of Linguistics.  
'María married a Linguistics student.'
- (50) ‡ María se casó con algún estudiante del departamento de lingüística:  
María se married with algún student of the department of Linguistics:  
en concreto con Pedro  
namely with Pedro.  
'María married a Linguistics student, namely Pedro.'
- (51) María se casó con un estudiante del departamento de lingüística:  
María se married with UN student of the department of Linguistics:  
en concreto con Pedro.  
namely with Pedro  
'María married a Linguistics student, namely Pedro.'

All contexts in our experiment singled out a particular individual of the type described by the indefinite noun phrase in the target sentence. Consider for instance the context in (52), which corresponds to the target sentence in (48) above. The contexts singles out a particular student of López: his favorite.

- (52) El profesor López ha enviado al concurso de redacción todos los trabajos que le entregó su alumno favorito, y no ha enviado ninguno de los trabajos que le entregaron sus otros alumnos.  
  
'Professor López has sent to the writing context all the papers that his favorite student gave him, and he has not sent any of the other papers that the rest of his students gave him.'

It is possible that subjects disliked *algún* in our items because the description used in the contexts could suggest that the speaker is able to identify the individual that

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<sup>28</sup>Alonso-Ovalle and Menéndez-Benito (in press) analyze this ignorance component as a conversational implicature derived by the anti-singleton constraint imposed by *algún*.

satisfies the existential claim in the target sentence. The ignorance component of *algún*, which conveys that the speaker does not know which individual satisfies the existential claim, would then clash with this assumption.

Evidence for the claim that the difference between *un* and *algún* in relative clauses does not have to do with their exceptional scope behavior comes from an off-line study (experiment 2B) reported in Alonso-Ovalle and Menéndez-Benito (2008a). The study looked at the availability of intermediate scope readings for *un* and *algún* in relative clauses and outside an island. It tested twelve experimental items in four conditions. In conditions 1 and 2 the indefinites were inside a relative clause (i.e. an island), as in (53a), and in conditions 3 and 4 the indefinites were not in an island, as (53b) illustrates (the items contained *algún* in conditions 1 and 3, and *un* in conditions 2 and 4).<sup>29</sup>

- (53) a. Todos los profesores de lengua enviaron al concurso de  
all the:PL professor:PL of language sent:3PL to-the contest of  
redacción todos los trabajos que les entregó algún alumno  
writing all the:PL paper:PL that to-them sent:3S ALGÚN student  
suyo.  
of them  
‘All the language teachers sent to the writing contest all the papers that a  
student of theirs gave them.’
- b. Todos los profesores de lengua enviaron todas sus publicaciones  
all the:PL professor:PL of language sent:3PL all their publication:PL  
a algún alumno suyo.  
to ALGÚN student of them  
‘All the language teachers sent all their publications to a student of theirs.’

Table 5 summarizes the results of this subexperiment: we can see that intermediate readings are possible both inside and outside a relative clause. An ANOVA test yielded a marginally significant effect of *un* vs. *algún* by items ( $F = 3.6$ ,  $p = .08$ ), and a practically significant effect by subjects ( $F = 3.9$ ,  $p = .055$ ). There was no significant main effect of syntactic environment (relative clause vs. indirect object), and no significant

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<sup>29</sup>As in experiment 1, each sentence was preceded by a paragraph describing a situation forcing the intermediate scope reading of the sentence (the reading under which the indefinite is interpreted scoping under the subject quantifier but over the universal quantifier in object position.) As above, each context was followed by a question asking subjects whether the target sentence was an appropriate description of the scenario.

interaction between type of indefinite and syntactic environment (islands vs. no island) either. This means that the contrast between *un* and *algún* is independent of whether they are inside an island or not.

	relative clauses		no island	
	<i>algún</i>	<i>un</i>	<i>algún</i>	<i>un</i>
<i>Condition:</i>	C1	C2	C3	C4
% 'yes'	36	48	36	45

Table 5: Experiment 2B in Alonso-Ovalle and Menéndez-Benito (2008a) (relative clauses vs. no islands): results.

An anonymous reviewer points out that the effect of the ignorance component can be tested further by changing the contexts used so that this component is made explicit. The reviewer proposes to modify, for instance, scenario (43) as in (54) below.

- (54) Prof. López sent to the writing context all the papers that one of his three favorite students gave him, but it is not clear (to the speaker) which one of those three. Prof. López didn't send any paper that any of the other students gave him.

The scenario above makes it clear that the speaker cannot identify the student whose papers Professor López sent to the contest. Thus, the ignorance component of *algún* should not interfere here, and speakers should not have particular difficulty in accepting the target in this scenario. The reviewer's intuition is that it is indeed easier to judge the target sentence true in the scenario above than in the original scenario. We share this intuition and plan to test it experimentally in future research.

#### 4. Open issues and concluding remarks.

Before concluding, we would like to point out an open issue for our analysis. Kratzer and Shimoyama draw a distinction between selective and unselective indefinites. The alternatives generated by unselective indeterminate pronouns can be quantified over by any operator. A case in point is that of Japanese indeterminate pronouns, which can have existential, universal, interrogative, negative polarity or free choice readings depending on what operator they associate with. This is illustrated in the

examples below, from Shimoyama (2001). In (55), the indefinite gets a universal interpretation via association with the universal operator *-mo*. In (56), the indefinite receives an interrogative interpretation via association with the question operator *-ka*.

- (55) [[Dono hon-o yonda] kodomo] mo yoku nemutta  
 which book-ACC read child MO well slept  
 ‘For every book x, the child who read x slept well.’  
 (Shimoyama (2001, 2))

- (56) Taro-wa [[dare-ga katta] mochi]-o tabemasita ka?  
 Taro-TOP who-NOM bought rice cake-ACC ate Q?  
 ‘Who is the x such that Taro ate rice cakes that x bought?’  
 (Shimoyama (2001, 4))

In contrast, selective indefinites can only associate with a particular type of operator. For instance, German *irgendein* can only get existential readings while German *kein* can only get negative readings. In the Kratzer and Shimoyama setup, this amounts to saying that the alternatives generated by *irgendein* can only be operated on by the existential propositional operator  $[\exists]$  whereas the alternatives generated by *kein* can only associate with a negation operator [Neg]. Both *un* and *algún* are selective. They do not double as interrogatives (they cannot associate with the question operator), and they cannot get negative readings (they are not negative concord items). However, according to our analysis, *un* and *algún* are not completely selective either: we have assumed that the alternatives they introduce can combine either with the Existential Closure operator in relative clauses which conditionals do not contribute.<sup>30</sup> As we dis-

<sup>30</sup>With adverbs of quantification, *un* shows quantificational variability effects, but *algún* has constant existential force, as illustrated below:

- (i) a. Un estudiante {siempre, normalmente, nunca} tiene dinero.  
 UN student {always, usually, never} has money  
 ‘All, most, no students have money.’  
 b. Algún estudiante {siempre, normalmente, nunca} tiene dinero.  
 ALGÚN student {always, usually, never} has money  
 ‘Some student always, normally, never has money.’

This is still compatible with both items having existential force: in the analysis of adverbs of quantification entertained in von Stechow (1994) and von Stechow (1995), indefinites always have existential force in these contexts, even in cases like (ia) above.

cussed in section 2, Kratzer and Shimoyama (2002) analyze the selectivity of Hamblin indefinites as morphological agreement. Casting the partial selectivity of *un* and *algún* in terms of agreement does not seem straightforward. We will have to leave this issue open for future research.

Let us sum up. The main empirical contribution of this paper is the finding that indefinites may display different scope possibilities depending on the type of syntactic environment that they are in: in conditionals, exceptional scope readings are impossible for *algún*, and possible (but hard) for *un*; in relative clauses, intermediate scope readings are available for both indefinites. We have presented an analysis of this puzzling data that makes crucial use of the Hamblin Semantics put forward in Kratzer and Shimoyama (2002). In our analysis, the difference between relative clauses and conditionals is due to the way the alternatives introduced in these two environments are treated.

The results that we have presented raise the issue of whether there are other indefinites that might also be sensitive to different types of islands. We hope to be able to explore this possibility experimentally in future work. In the meantime, we hope that the generalizations that we have presented will help to define the full range of exceptional scope possibilities across languages, and that, therefore, they will contribute to the characterization of a semantic typology of natural language indefinites.

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