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On the plurality of epistemic indefinites*

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Abstract This paper addresses a cross-linguistic puzzle about epistemic indefinites: determiners that are grammatical in episodic contexts and that trigger an ignorance inference. While their singular forms converge in yielding obligatory ignorance, their plural counterparts diverge in the presence or absence of obligatory ignorance readings and syntactic marking of plurality. I propose an account in team semantics with two independent parameters: (i) plurality in the domain and (ii) strict vs. lax assignment extension, together with a variation condition. The analysis derives three distinct types of plural EIs and explains the distribution of collective and non-collective readings, as well as the presence or absence of obligatory ignorance, across Italian *qualche*, Spanish *algunos*, and German *irgendwelche*.

Keywords: epistemic indefinites, plural indefinites, team semantics, dynamic semantics, domain and evaluation plurality, syntactic and semantic plurality, Italian, Spanish, German

1 Introduction

This paper revisits a familiar class of 'some-or-other' determiners, *epistemic indefinites* (EIs), and examines their behavior in the plural. We take EIs to be indefinites that are grammatical in episodic sentences and that, in their canonical uses, convey that the speaker does not know *which* witness satisfies the predicate (Alonso-Ovalle & Menéndez-Benito 2010, 2015; Alonso-Ovalle & Menéndez-Benito 2017). In the singular, many languages converge: Italian *un qualche*, Spanish *algún*, and German *irgendein* uniformly yield an obligatory ignorance inference and resist identifying continuations (e.g., 'namely' continuations), as well as 'Guess who?' follow-ups.

(1) a. Un qualche studente ha superato l' esame.
some.SG.EI student AUX.3SG.PRS pass.PTCP DEF exam
'Some student passed the exam.' (Italian)

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b. Algún estudiante aprob-ó el examen.
some.SG.EI student pass-PST.3SG DEF exam
'Some student passed the exam.' (Spanish)

c. Irgendein Student hat die Prüfung bestanden.
some.SG.EI student AUX.3SG.PRS DEF exam pass.PTCP
'Some student passed the exam.' (German)

The puzzle arises with their plural forms. Across closely related systems, plural counterparts diverge. Italian *qualche* and Spanish *algunos* do not force an ignorance inference, whereas German *irgendwelche* preserves obligatory ignorance. The contrast between Spanish and German was first described by Alonso-Ovalle & Menéndez-Benito (2011), with a focus on Spanish. In addition, while Spanish *algunos* and German *irgendwelche* are morphologically plural, Italian *qualche* is morphologically singular but semantically plural, since it conveys multiplicity, as first observed by Zamparelli (2007).

The analysis developed here builds a typology of plural EIs from independently motivated ingredients. I adopt a team semantics framework (Heim 1982; Groenendijk, Stokhof & Veltman 1996; van den Berg 1996; Brasoveanu 2007; Ciardelli, Groenendijk & Roelofsen 2018; Aloni 2022), where formulas are evaluated with respect to a set of assignments, in which indefinites introduce new values by extending an information state with a new variable. Two general parameters govern how this works. One parameter concerns the *mode of extension*: a *strict* existential adds exactly one value per assignment, whereas a *lax* existential may *branch* an assignment into multiple values. The second parameter concerns the *type of individual* contributed: an indefinite may require an *atomic* witness or a *plural* one in the domain. All EIs share a *variation* condition that prohibits the indefinite from being constant across the team. These conditions, in combination with the two parameters, yield three natural types of plural EI.

This perspective situates the plural split within a broader theory of how plurality interacts not only with plural individuals but also with plural assignments (Brasoveanu 2011). The latter dimension is reflected in the disappearance of ignorance inferences not only in the plural, but also in co-variation readings and under negation, as we explain in the paper.

This paper is organized as follows. Section 2 maps the empirical landscape of the different types of plural EIs and highlights distinctions that are relevant for the formal analysis. Section 3 lays out the team-based dynamic framework and our view of quantification. Section 4 derives the three EI types, their predictions, and adds further remarks on plain plural indefinites, negation and syntactic vs. semantic plurality. Section 5 compares the account with implicature-based approaches. Section 6 concludes. Throughout, we present the central facts in accessible terms and provide

precise definitions in Appendix A, which we encourage the reader to consult.

2 The plural split

Considering the three singular EIs in (1), their plural counterparts display strikingly different behavior along several dimensions. First, consider the status of **ignorance inferences** in episodic contexts. The plural EIs *qualche* in Italian and *algunos* in Spanish do not carry obligatory ignorance, unlike their singular forms. By contrast, plural *irgendwelche* preserves obligatory ignorance, now with respect to a plurality of individuals.[1]

(2) a. Qualche studente ha superato l' esame, in particolare Giovanni
some.SG student.SG have.3SG pass.PTCP DEF exam in particular Giovanni
e Maria.
and Maria
'Some students passed the exam, in particular Giovanni and Maria.'

b. Algunos estudiantes aprob-aron el examen, en concreto Juan y María.
some.PL students pass-PST.3PL DEF exam in particular Juan and María
'Some students passed the exam, in particular Juan and María.'

c. Irgendwelche Studenten haben die Prüfung bestanden, #nämlich
some.PL.EI students have.PRS.3PL DEF exam pass-PTCP namely
Johann und Maria.
Johann and Maria
'Some students passed the exam, namely Johann and Maria.'

To further probe this pattern, the plural target forms were examined with multiple diagnostics and in varied contexts. In particular, we used question-answer pairs that directly test speaker knowledge in follow-ups, and we tested compatibility with explicit ignorance adjuncts such as 'I do not know which ones'.[2] All the diagnostics confirm the contrasts in (2).

A second contrast concerns the relation between morphology and interpretation. The examples in (2) already illustrate the point. The Italian form *qualche*, the plural counterpart of *un qualche*, displays **syntactic singularity**: the noun bears singular morphology and the verb shows singular agreement. Crucially, unlike *un qualche*, *qualche* gives rise to a multiplicity inference, as the continuation in (2a) lists two individuals, which would be odd with the singular form. Italian *qualche* is therefore

1 The determiner *irgend-* also combines with numerals, for instance *irgendzwei* 'irgend-two', although such forms are marked. These marked numeral combinations carry ignorance as well.

2 A full list of tests, together with illustrative examples, is available at this OSF page: https://osf.io/a3w2s/.

syntactically singular but *semantically plural*. By contrast, the Spanish and German forms in (2b) and (2c) show plural morphology, hence they are both *syntactically plural* and *semantically plural*.

A third difference, likely a consequence of the syntactic-semantic divide just mentioned, is that the Italian form does not allow **collective readings** and is predominantly distributive unless its determiner ranges over a group-denoting noun phrase, for instance *qualche gruppo di studenti* 'some group of students'. The Spanish and German forms readily allow collective construals. Focusing on Italian, the incompatibility with collective readings surfaces not only with gather-type predicates but also with joint-measurement predicates in (3a) and with reciprocals in (3b).

(3) a. #Qualche persona pesa complessivamente 200 kg.
some person.SG weigh.PRS.3SG in.total 200 kg
Intended: 'Some people weigh 200 kg in total.'

b. #Qualche persona si aiuta l'un l'altra.
some person.SG REFL help.PRS.3SG the-one the-other
Intended: 'Some people help each other.'

All the plural EI forms license **multiplicity inferences**. This raises the question whether these inferences are semantic or pragmatic. Useful testing grounds are questions and downward-entailing environments, where implicatures are typically cancelled. The question-answer patterns in (4) indicate that multiplicity inferences do not survive there. A positive answer that reports reading one book is sufficient. While we mark the bare negative answer as odd, it becomes acceptable with an overt *only*, which signals that a strengthening process has taken place.

(4) a. Q: Hai letto qualche libro durante le vacanze?
have.2SG read.PTCP some.EI book.SG during DEF holidays.PL

A: Sì / #No, ne ho letto uno.
yes no PART have.1SG read.PTCP one

b. Q: ¿Leíste algunos libros durante las vacaciones?
read-PST.2SG some.PL books during DEF holidays.PL

A: Sí / #No, leí uno.
yes no read-PST.1SG one

c. Q: Hast du irgendwelche Bücher in den Ferien gelesen?
have.PRS.2SG you some.EI.PL books in DEF holidays.PL read.PTCP

A: Ja / #Nein, ich habe eins gelesen.
yes no I have.PRS.1SG one read.PTCP

'Q: Did you read some books during the holidays? A: Yes / #No, I read one.'

Testing EIs under negation is complicated by the availability of dedicated negative indefinites in many languages. In indirectly negative environments and in conditional antecedents, however, we observe the same patterns as in (4).[3] We therefore treat the plural forms as number neutral and adopt a pragmatic view of multiplicity inferences (among others, Sauerland 2003; Sauerland, Anderssen & Yatsushiro 2005; Spector 2007): when a speaker uses a plural form rather than the more informative singular, the hearer infers reference to more than one entity.[4]

2.1 The empirical space of EI systems

The discussion so far supports a distinction among three types of plural EIs, summarized in Table 1.

	Obligatory ignorance		**Collective readings**
Plural morphology	**yes**	**no**	
+	III	II	✓
–	sing.	I	✗

Table 1: Typology of EIs.

Our core cases already instantiate I, II, and III, namely Italian, Spanish, and German. The missing cell would be filled by singular EIs, which we will derive.[5]

Beyond Italian, Spanish, and German, Table 2 illustrates the contrasts for other languages. A few remarks are in order. First, we added a column for the availability of free choice readings. The exact nature of these modal readings varies, but there is broad agreement that some EIs in the singular display total variation readings (Kratzer & Shimoyama 2002; Alonso-Ovalle & Menéndez-Benito 2010; Aloni & Port 2015). German *irgendein* provides a relevant case: when stressed and under deontic modals, the sentence in (5) invites the addressee to take any card, not a particular card unknown to the speaker. Many EIs allow such readings by strengthening their non-specific interpretation under suitable operators, but German can signal obligatory free choice by prosodic stress. A related test uses question-answer pairs of the form 'Q: Which card can I take? A: Some card' in contexts where

3 See the relevant examples in the OSF repository: https://osf.io/a3w2s/.

4 As we will see, such competition will arise for us from two independent factors: plurality in the domain and plurality in assignment extension.

5 The present analysis does not predict an item that is syntactically singular but semantically plural, like type I, and that still displays *obligatory* ignorance in the plural. We are not aware of any indefinite with such behavior.

Language	Indefinite	Properties			Type
		Pl.	Ign.	FC	
Italian	*qualche*	✗	✗	✗	I
Spanish	*algunos*	✓	✗	✗	II
German	*irgendwelche*	✓	✓	✓	III
Finnish	*jotkut*	✓	✓	✗	III
Russian	*kakie-to*	✓	✓	✗	III
Slovak	*akési*	✓	✓	✗	III
Greek	*kapoioi*	✓	✗	✗	II

Table 2: Plural EIs across languages: morphological plurality (Pl.), obligatoriness of ignorance (Ign.), availability of free choice (FC), and resulting type.

all options are possible. In those contexts, answering with *some* is underinformative unless a dedicated free choice use is available, as with *irgend-*. Among the languages listed, only German appears to allow this, as indicated in Table 2.

(5) Du darfst IRGENDEINE Karte nehmen.
2SG mod-PRS.2SG some.EI-F.SG card take-INF
'You may take any card.'

One might hypothesize that free choice and focus-related structure are responsible for obligatory ignorance in the plural. We argue that they are independent. First, Finnish or Slovak maintain ignorance in the plural but do not allow free choice. Second, in Russian the availability of contrastive focus affects whether the continuation can list specific individuals without signalling obligatory ignorance. In the default case in (6), plural *-to* still resists a 'namely' continuation. With contrastive fronting, as in (7), a listing continuation becomes acceptable. If focus alone drove obligatory ignorance, we would expect the opposite pattern.[6]

(6) Ona kupil-a kakíe-to knig-i #- "Vojnu i mir", "1984",
she.NOM buy-PST.F.SG which.PL-INDF book-ACC.PL *War and Peace*, *1984*,
"Gamlet".
Hamlet

6 A further case worth investigating is Mandarin *shenme* (Law 2018; Cao 2023). Mandarin lacks nominal plural morphology and *shenme* appears bare and with classifiers plus numerals. Cao (2023) proposes an analysis that broadly aligns with our Type III. In light of the distinctions developed below, it may be possible to treat the bare form on a par with Type I as syntactically singular, and the classifier-numeral form as Type III with the classifier marking plurality. We leave a full exploration of Mandarin to future work.

(a) Initial Team

v	T
v_1	i_1
v_2	i_2

(b) Universal y-extension

v	y	$T[y]$
v_1	d_1	i_{11}
	d_2	i_{12}
v_2	d_1	i_{21}
	d_2	i_{22}

(c) Strict functional y-extension

v	y	$T[f_s/y]$
v_1	d_1	i_{11}
v_2	d_2	i_{22}

(d) Lax functional y-extension

v	y	$T[f_l/y]$
v_1	d_2	i_{12}
v_2	d_1	i_{21}
	d_2	i_{22}

Table 3: Initial team (a), universal y-extension (b), strict functional y-extension (c), and lax functional y-extension (d), with D consisting of two individuals d_1 and d_2.

Intended: 'She bought some books - "War and Peace", "1984", "Hamlet".'

(7) KAKIE-TO KNIGI ona kupil-a - "Vojnu i mir", "1984", which.PL-INDF book-ACC.PL she.NOM buy-PST.F.SG *War and Peace*, *1984*, "Gamlet".
Hamlet

'Some of the books she bought - "War and Peace", "1984", "Hamlet".'

3 Formal background

The framework adopted here is team-based: formulas are evaluated with respect to *sets* of evaluation points rather than single points. This assumption is standard in several strands of work in formal semantics that motivate teams for independent reasons (Heim 1982; Groenendijk et al. 1996; van den Berg 1996; Brasoveanu 2007; Ciardelli et al. 2018; Aloni 2022). Concretely, we use the two-sorted system of Degano & Aloni (2025) (see also Aloni & Degano (2022); Degano (2024)), building on precursors such as Brasoveanu & Farkas (2011), and we render it dynamic for reasons that will become relevant below. A *model* is a triple $M = \langle W, D, I \rangle$, with W a set of worlds, $D = \wp(E) \setminus \{\emptyset\}$ a set of individuals formed from a basic set of entities E, and I an interpretation function for the non-logical vocabulary. A *team* is a set of assignments over M that assign elements of W to world variables and elements of D to individual variables.

A key notion is the one of *initial team*. A team T is initial if its domain contains only a dedicated variable for the actual world, written v. The set of v-values in an initial team represents the speaker's information state with respect to the current question under discussion. For instance, in Table 2(a) the information state contains two epistemic possibilities v_1 and v_2. If the relevant QUD is 'Who is running?', these might be worlds where only d_1 runs and only d_2 runs.

Initial teams can be extended with new variables by dedicated operations on assignments. We distinguish *universal* extensions and *strict* and *lax* existential extensions. Formal definitions are given in the appendix. Intuitively, a universal extension with y duplicates the current information state once for every possible value of y. A strict extension with y adds exactly one value of y per input assignment, and a lax extension may *branch* an assignment into multiple y-values.

A first-order literal $F(y,v)$ at an assignment i is true iff $i(y)$ satisfies F in $i(v)$. Over a team, $F(y,v)$ is true iff it is true at all assignments in the team. A sentence is *felicitous* if there is an initial team that *supports* it. The notion of support deserves some remarks, given our dynamic setting. We describe it informally here and refer to the appendix for a precise definition, where we extend the assignment survival condition of Dekker (1993); Groenendijk et al. (1996) to *team survival*. Each formula acts as an *update program* on teams. It can clone assignments through quantifiers, filter them through literals, and check side conditions. A team supports a formula if, after running the update, the set of resulting assignments is nonempty and every input assignment has at least one continuation among the results. This is the survival requirement. Since the actual-world variable v is never re-assigned, all v-worlds present in an initial input persist in the output. The update may branch, add values for new variables, and prune branches, yet it does not eliminate an entire v-world. At the sentence level, a sentence is felicitous just in case there is an initial team, representing the speaker's epistemic state, that supports it.

3.1 Kinds of plurality

In a team-based semantics, there are *two independent loci* at which plural behavior can arise. We distinguish (i) *plurality in the domain of individuals* from (ii) *plurality in evaluation*, that is, variation across assignments in a team. This distinction is natural in a team setting and figures in accounts of multiple plural donkey anaphora (Brasoveanu 2011), dependent indefinites, and pluractionality (Henderson 2014; Kuhn 2017; Law 2022). A third, finer notion is (iii) *v-evaluation plurality*, where variation is considered *holding the actual-world coordinate v fixed*. Keeping these apart will be crucial for the typology of plural EIs developed below.

We assume a cumulative mereology for individuals. The domain D is closed under sum, with a binary sum operation $\oplus$ and a part-of relation $\leq$. Atoms are those $a \in D$ with no proper parts. Plural individuals are sums of at least one atom (i.e., singulars count as plurals). We write $\textsc{pl}(x)$ iff x is plural and $\textsc{sg}(x)$ iff x is atomic. We illustrate the different kinds of plurality in Table 4.

Domain plurality is a property of *values*. A variable x in an assignment is assigned a plural individual in the sense of the ontology, for instance $i(x) = d_1 \oplus d_2$. Intuitively, x denotes a plurality *within a single assignment*. As will become apparent,

(a) Domain plurality

T	v	x
i_1	v_1	$d_1 \oplus d_2$

$M,T \models \text{DOM-PL}(x) \iff \forall i \in T:\ \text{PL}(i(x))$

(b) Evaluation plurality

T	v	x
i_1	v_1	d_1
i_2	v_2	d_2

$M,T \models \text{EVAL-PL}(x) \iff \exists i \neq j \in T:\ i(x) \neq j(x)$

(c) v-evaluation plurality

T	v	x
i_1	v_1	d_1
i_2	v_1	d_2

$M,T \models \text{V-EVAL-PL}(x) \iff \exists i \neq j \in T:\ i(v) = j(v)\ \&\ i(x) \neq j(x)$

Table 4: Kinds of plurality.

domain plurality correlates with the availability of *collective* construals such as gather predicates, joint measurement, and reciprocals, because the predicate is evaluated of a plural individual.

Evaluation plurality is a property of the *team*. The variable receives *different* values across assignments. Each value $i(x)$ may be SG or PL. The plurality is thus 'spread across' assignments rather than guaranteed within an assignment. Evaluation plurality naturally arises from branching, that is, lax updates, and it will explain why ignorance inferences disappear when combined with a variation condition.

A finer notion keeps the actual-world coordinate fixed and asks for variation in x *at the same world*. We call this *v-evaluation plurality*. This notion of plurality is relevant as initial teams encode the speaker's epistemic state over v: v-EVAL-PL(x) tracks variation that cannot be attributed to variation between different epistemic alternatives.

4 Proposal

In the previous section we observed that there are different ways to extend a team with a new variable. Following standard practice, we treat indefinites as existentials over D that add a new variable to the team. The team-based perspective makes it possible to impose restrictions on how the value of the indefinite may vary across assignments. This is how Degano & Aloni (2025), building on Farkas (2002); Farkas & Brasoveanu (2020), capture the empirical distribution of marked indefinites, including EIs, which have a more restricted syntactic and semantic distribution than plain indefinites. Concretely, the logical form of an indefinite is $\exists x(\phi \wedge ATOM)$, where $ATOM$ imposes an additional condition on the values of x. For EIs the relevant condition is *variation*, $var(\varnothing, x)$, which requires that the value of x is not constant across the team T.

For independent reasons, Degano & Aloni (2025) take indefinites to be strict existentials. For *plain* indefinites, without any additional $ATOM$ condition, strict

	Assignment extension		Collective readings
Domain plurality	**Strict**	**Lax**	
+	III	II	✓
−	singular	I	✗

Table 5: Types of EIs by domain plurality and assignment extension.

and lax existential updates are equivalent, that is, $\exists_s x\,\phi \equiv \exists_l x\,\phi$, since that fragment of the logic is downward closed (see Appendix A). Crucially, for EIs the variation component breaks downward closure. This makes it possible to distinguish strict from lax quantification in a principled way.

4.1 The formal space of plural EIs

We propose that the typology of plural EIs developed above follows from two parameters that mirror the two loci of plurality. Plural EIs vary with respect to: (i) the **type of extension** used to add the witness, strict vs. lax, and (ii) the **type of individual** required in the domain, SG vs. PL. We notate this as $\exists^{\beta}_{\alpha}\phi$, with $\alpha \in \{s, l\}$ and $\beta \in \{+, -\}$, omitting $-$ in the formulas that follow. The predicted EI types are summarized in Table 5. In the remainder of this section we show how the proposal derives the core facts.

4.1.1 Singular epistemic indefinites

Singular EIs are captured, as in Degano & Aloni (2025), by a strict extension over a singular domain. In episodic contexts this yields an obligatory ignorance inference. For instance, the initial team T_1 in Table 5(a) does not support (8a), while T_2 in Table 5(b) does. The resulting strict extension is shown in Table 5(c).

(8) a. Luca sta leggendo un qualche libro.
Luca AUX.3SG.PRS read.GER some.EI book
'Luca is reading some book (or other).'

b. $\exists_s x(\text{BOOK}(x, v) \wedge \mathit{var}(\varnothing, x) \wedge \text{READ}(L, x, v))$

Before turning to plural forms, note that the ignorance component is not tied to plurality per se. It also disappears when an EI co-varies with another operator. The sentence in (9a) is felicitous even in circumstances where the speaker can identify which book each person is reading. In the extended team, variation is satisfied,

(a) T_1

T_1	v
i_1	v_1

(b) T_2

T_2	v
i_1	v_1
i_2	v_2

(c) $T_2[f_s/x]$

T_2	v	x
i_1	v_1	d_1
i_2	v_2	d_2

(d) $T[y][f_s/x]$

$T[y][f_s/x]$	v	y	x
i_1	v_1	d_1	a
i_2	v_1	d_2	b
i_3	v_1	d_3	c

Table 6: (a) singleton initial team; (b) two-world initial team; (c) strict x-extension; (d) universal y-extension followed by strict x-extension.

not to signal ignorance, but to exclude cases in which everyone reads the *same single* book. In such cases the indefinite is v-evaluation plural, where the plurality encodes the non-singleton set of books produced by co-variation with the universal quantifier. This behavior is not accidental and relates to why some plural EIs lose their ignorance component.

(9) a. Tutti stanno leggendo un qualche libro.
all AUX.3PL.PRS read.GER some.EI book
'Everyone is reading some book (or other).'
b. $\forall y\, \exists_s x(\text{BOOK}(x,v) \wedge \mathit{var}(\varnothing,x) \wedge \text{READ}(y,x,v))$

4.1.2 Type I

Type I uses a *lax* existential extension. A single input assignment may branch into multiple x-values, so $\mathit{var}(\varnothing,x)$ can be satisfied even from a singleton initial team. The domain requirement is *singular*, hence x ranges over atomic individuals within each assignment. In episodic contexts the ignorance component is *defeasible*, since variation can be achieved by branching instead of appealing to distinct epistemic alternatives. Collective readings are ruled out, because x is always atomic.

We take that variation is checked at the nominal level, where the indefinite is introduced, before composition with the rest of the clause. This allows the lax extension to satisfy variation locally, while later filtering can remove some x-values, yielding compatibility with singular outcomes. This matches the defeasible nature of multiplicity inferences for plural EIs. If variation were checked globally at the clausal level, multiplicity would be enforced.

(10) a. Luca sta leggendo qualche libro.
Luca be.PRS.3SG read-GER some book.SG
'Luca is reading some book(s).'

b. $\exists_l x(\text{BOOK}(x,v) \wedge var(\varnothing,x) \wedge \text{READ}(L,x,v))$

$T[f_l/x]$	v	x
j_1	v_1	a
j_2	v_1	b

Table 7: Lax x-extension satisfies variation from a singleton initial team.

4.1.3 Type II

Type II also uses a *lax* existential extension, so $var(\varnothing,x)$ can be satisfied without epistemic uncertainty. The domain requirement is *plural*, hence x may denote a plural individual within an assignment. In episodic contexts the ignorance component is *defeasible*, while *collective readings* are *available*, since predicates can apply to a plural x.

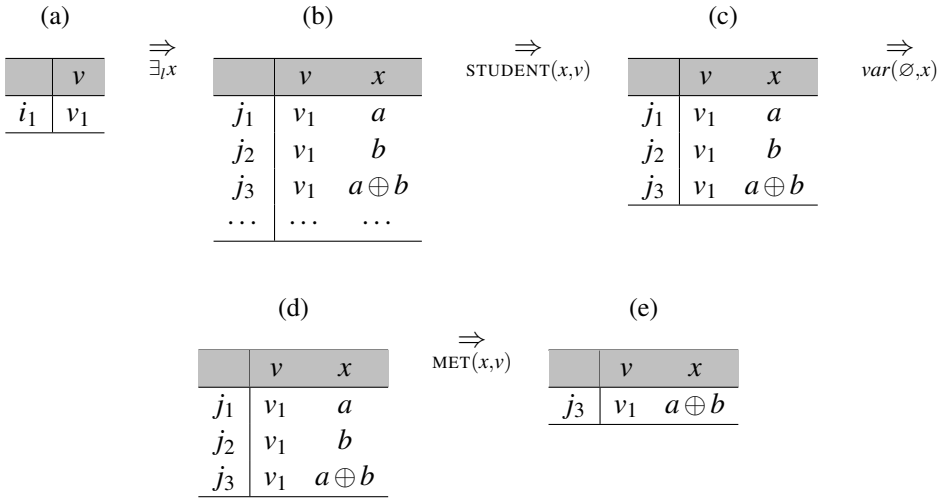
A key diagnostic involves collective predicates. If variation is checked at the nominal level, ignorance disappears even with collectives, in line with Alonso-Ovalle & Menéndez-Benito (2011). If variation had to be checked globally, we would predict the re-emergence of ignorance with collectives, as in Martí (2015), which does not match the empirical data. We adopt the former view and illustrate it schematically in Table 8, where we also depict the introduction of x into the team, although in the formal system we define existential quantification together with its scope (see Appendix A) rather than as a separate step.

(11) a. Algunos estudiantes se reunieron en el pasillo.
some.PL students REFL meet-PST.3PL in DEF hallway
'Some students met in the hallway.'

b. $\exists_l^+ x(\text{STUDENT}(x,v) \wedge var(\varnothing,x) \wedge \text{MET}(x,v))$

4.1.4 Type III

Type III uses a *strict* existential extension. There is no branching within an assignment, so $var(\varnothing,x)$ can be satisfied only if the initial team contains multiple epistemic alternatives. The domain requirement is *plural*, so x may denote a plural individual in each assignment. In episodic contexts the ignorance component is *obligatory*, possibly with ignorance about *which* plural individual.



	v
i_1	v_1

	v	x
j_1	v_1	a
j_2	v_1	b
j_3	v_1	$a \oplus b$
$\dots$	$\dots$	$\dots$

	v	x
j_1	v_1	a
j_2	v_1	b
j_3	v_1	$a \oplus b$

	v	x
j_1	v_1	a
j_2	v_1	b
j_3	v_1	$a \oplus b$

	v	x
j_3	v_1	$a \oplus b$

Table 8: Simplified illustration for (11b).

This analysis predicts a default collective reading for plural *irgendwelche*. Distributive readings are derived by a dedicated distributivity operator that splits assignments over the atomic parts of the plural individual.[7]

(12) a. Irgendwelche Studenten haben ein Klavier gehoben.
some.EI.PL students have-PRS.3PL a piano lift-PTCP
'Some (unknown) students lifted a piano.'

b. *Collective LF:* $\exists^{+}_{s} x$ (STUDENT(x,v) $\wedge$ $var(\varnothing,x)$ $\wedge$ LIFT-PIANO(x,v))

c. *Distributive LF with* δ_x*:* $\exists^{+}_{s} x$ (STUDENT(x,v) $\wedge$ $var(\varnothing,x)$ $\wedge$ δ_x(LIFT-PIANO(x,v)))

4.2 Plain plural indefinites

Our discussion has focused on plurality in EIs. A parallel question concerns plurality in plain indefinites and other marked indefinites. We concentrate on plain indefinites. The key difference is the presence of the variation requirement $var(\varnothing,x)$ for EIs. It is therefore useful to compare the logical forms. For EIs, the four combinations of extension type and domain type are genuinely distinct. For plain indefinites, once variation is removed, strict and lax existentials are equivalent, and the only difference that remains is between singular domain and plural domain. As Table 10 shows, EIs generate four logically distinct patterns, while plain plural indefinites collapse the strict vs. lax distinction and reproduce the familiar singular vs. plural divide.

7 $M, \langle T, T' \rangle \models \delta_z(\phi)$ iff $M, \langle T[z/\delta_z], T' \rangle \models \phi$ with $T[z/\delta_z] = \{ j : i \in T$ and $j = i[\{a\}/z]$ with $a \in i(z) \}$.

(a) $T[f_s/x]$

$T[f_s/x]$	v	x
i_1	v_1	$a \oplus b$
i_2	v_2	$c \oplus d$

(b) $T[x/\delta_x]$

$T[x/\delta_x]$	v	x
j_1	v_1	a
j'_1	v_1	b
j_2	v_2	c
j'_2	v_2	d

Table 9: Illustration for (12).

(a) Plural EIs

	Assignment extension		
	Strict		**Lax**
$\mathbf{D}^+$:	$\exists_s^+ x(\phi \wedge var(\varnothing,x))$	$\not\equiv$	$\exists_l^+ x(\phi \wedge var(\varnothing,x))$
		$\not\equiv$	
$\mathbf{D}^-$:	$\exists_s x(\phi \wedge var(\varnothing,x))$	$\not\equiv$	$\exists_l x(\phi \wedge var(\varnothing,x))$

(b) Plural indefinites

	Assignment extension		
	Strict		**Lax**
$\mathbf{D}^+$:	$\exists_s^+ x\phi$	$\equiv$	$\exists_l^+ x\phi$
		$\not\equiv$	
$\mathbf{D}^-$:	$\exists_s x\phi$	$\equiv$	$\exists_l x\phi$

Table 10: Plural epistemic indefinites vs. Plural plain indefinites.

4.3 Negation

A singular or plural EI can take *narrow scope* under negation, yielding a *negated existential* reading. In suitable discourse contexts it can also take *wide scope* with respect to negation, preserving its ignorance component and producing a reading paraphrasable as 'there is some (unknown) x such that it is not the case that …'. For the wide-scope reading, we refer to Degano (2024) for singular EI, as it parallels the case discussed here. Cross-linguistically, plain sentential negation typically triggers a switch to the language's NPI or negative-series determiners, for instance Italian *nessuno*, Spanish *ningún*, German *kein*. This blocks the simple negated-existential reading for EIs, a blocking mechanism known as the *Bagel problem* (Pereltsvaig 2004). Indirect negative environments, for instance with *doubt*, *deny*, or *unlikely*, are friendlier to EIs and typically allow the narrow-scope reading. Plural EIs under negation pattern with their singular counterparts. They readily yield the negated existential reading in the complement of *doubt* across the languages at issue, and they permit wide scope when the discourse supports it. The Italian *qualche*, the

T	v	w	$\varphi[v/w]$
i_1	$v_\varnothing$	v_{ab}	✓
i_2	$v_\varnothing$	v_a	✓
i_3	$v_\varnothing$	v_b	✓
i_4	$v_\varnothing$	$v_\varnothing$	✗

Table 11: Team-based illustration of $\neg_I\varphi$ for $P(x,w)$.

Spanish plural *algunos*, and German *irgendwelche* are all acceptable:

(13) Dubito che vi sia qualche errore nel testo.
doubt-PRS.1SG that there be.SBJV.3SG some.EI error in.the text
'I doubt that there is any error in the text.'

(14) Dudo que hay-a algunos errores en el texto.
doubt-PRS.1SG that be-SBJV.3SG some.PL errors in the text
'I doubt that there are any errors in the text.'

(15) Ich bezweifele, dass es irgendwelche Fehler im Text gibt.
I doubt-PRS.1SG that there some.EI.PL errors in.the text exist
'I doubt that there are any errors in the text.'

We model sentential negation as an *intensional* operator that compares the actual-world v with counterfactual or doxastic alternatives w (cf. Brasoveanu & Farkas 2011; Berto 2015; Kolodny & MacFarlane 2010):

$$\neg_I\varphi \quad \Longleftrightarrow \quad \forall w\,(\,\varphi[v/w] \;\Rightarrow\; v \neq w\,)$$

Thus '$\neg_I\varphi$' holds just in case φ does not hold at the actual world. Whenever φ holds at some alternative w, that w must differ from v. Operationally, we add a world variable w that ranges over the relevant alternatives to v, evaluate φ with v replaced by w, and require that no surviving assignment has $w = v$ and makes $\varphi[v/w]$ true. To illustrate, consider $\neg_I(\exists_s x\,[P(x,w) \wedge var(\varnothing,x)\,])$. Suppose the actual world v has an empty P-extension, $[\![P]\!]^v = \varnothing$, and we compare it to alternatives with P-extensions $\{a,b\}$, $\{a\}$, $\{b\}$, and $\varnothing$. The team in Table 11 lists one input assignment per alternative w, marks whether $\varphi[v/w]$ is true, and indicates the v=w relation. Intensional negation succeeds because the resulting team that makes $\varphi[v/w]$ true has $w \neq v$. If, by contrast, the actual world has a nonempty P-extension, say $[\![P]\!]^v = \{a\}$ with $v = v_a$, then there is a row with $w = v = v_a$ for which $\varphi[v/w]$ is true. The condition $\forall w(\varphi[v/w] \Rightarrow v \neq w)$ is violated and $\neg_I\varphi$ fails, which is the desired result when the complement φ is actually true at v.

Importantly, as long as there are at least two relevant individuals in the domain, variation is satisfied, since intensional negation quantifies over compatible alternatives and extends the team with the possible values of x at those alternatives. This explains why, for the narrow-scope reading under negation, the variation component is satisfied without generating ignorance.

The disappearance of ignorance effects under universal co-variation has a parallel under intensional negation. The loss of ignorance is not tied to plurality alone. Under negation, the variation condition is satisfied by quantifying over w-alternatives, which produces multiple values for the indefinite without committing the speaker to ignorance about which value holds in the actual world.[8]

4.4 Syntactic vs. semantic plurality

We adopted the distinction between *syntactic plurality* (overt number and agreement on the DP and the verb) and *semantic plurality* (the presence of multiplicity in interpretation), and we modelled the distinction by appealing to *lax extension* vs. *plural domain*. This mirrors standard treatments of distributive vs. collective quantification, where syntactically singular universals such as *every* are analyzed via universal extension and resist collectives, while plural universals such as *all* introduce a maximal plural individual and freely license collective construals. A related contrast is *many a* vs. *many* in English: *many a* is syntactically singular and enforces a one-by-one construal (evaluation plurality), whereas *many* is syntactically and semantically plural and can feed collective predicates (domain plurality).

In languages without obligatory plural marking on common nouns, for instance Mandarin, collective construals are introduced by numerals or classifiers, by dedicated adverbials, or by human plural morphology *-men* when available. This suggests analyzing bare forms by means of lax quantification rather than by domain plurality. A challenge for this generalization comes from Hungarian numerals: after numerals the noun remains bare singular, yet collective readings are available. Verbal agreement may be singular or plural, and the singular pattern does not appear to block collectivity, although these cases deserve closer scrutiny.

(16) Három diák találkoz-ott/-tak (együtt) a folyosón.
three student meet-PST.3SG/PL together in.the corridor
'Three students met (together) in the corridor.'

Two conclusions emerge. First, *collective licensing is a semantic requirement*: the predicate needs a non-atomic input. Syntactic plurality is a reliable route to

8 This parallelism is visible in Italian *alcun(i)*. Formerly an epistemic indefinite that yielded ignorance readings in episodic sentences, it is now restricted to a strict NPI in the singular, and in the plural it lacks obligatory ignorance (Gianollo 2019).

such an input, but it is not the only route. Numerals and explicit collective operators routinely supply a plural individual, even when the noun is morphologically singular or agreement is mixed. Second, *singularity drives distributivity*: *every*-type determiners pattern as syntactically singular across families and resist collectives, whereas *all*-type determiners and definite plurals are collective friendly.

5 Comparison with the implicature approach

A seminal implicature based account of (plural) EIs is due to Alonso-Ovalle & Menéndez-Benito (2011). For the Spanish singular *algún*, they argue that the 'ignorance' component is not lexicalized but arises as a *modal variation* implicature from competition among domain restrictions. Concretely, *algún* imposes an *antisingleton* requirement: the selected nominal domain must contain at least two candidates. When the assertion is evaluated against the speaker's epistemic alternatives, the hearer compares it to stronger but singletons alternatives. Systematically preferring the antisingleton option triggers the conversational inference that all relevant singleton assertions are false, hence that at least two individuals remain epistemically viable for the speaker. This yields the familiar 'some … or other' effect without lexicalizing ignorance. The plural *algunos*, on their account, *lacks* an epistemic effect because the implicature-deriving competition collapses once plurality is taken into account. Two ingredients are crucial. First, plural NPs are assumed to be *number-neutral*: their denotations contain both atomic individuals and sums. Second, *algunos* requires a plural witness. Given these assumptions, any atomic singleton domain is incompatible (it forces a contradiction), while a plural singleton domain (e.g. just $\{a \oplus b\}$) is truth-conditionally equivalent to some *licit* non-singleton domain that also includes atoms (e.g. $\{a, b, a \oplus b\}$). Consequently, none of the singleton-based alternatives are viable competitors: either they are contradictory or they duplicate a possible assertion. With no informative competitors to exclude, no ignorance implicature is generated.

From a broader cross-linguistic perspective, this approach faces limitations. Its central mechanism predicts that epistemic effects are defeasible in principle, yet some plural EIs, for instance German *irgendwelche*, show robustly *obligatory* ignorance in episodic contexts. Our account derives this pattern. Moreover, the facts do not reduce to the availability of free choice, as Alonso-Ovalle & Menéndez-Benito (2011) suggest at the end of the work. As shown in Section 2.1, there are languages which retain obligatory ignorance in the plural without licensing free choice. Moreover, the distinction between syntactic plurality and semantic plurality cannot be immediately accounted within the premises of this system. Nevertheless, the implicature approach has considerable empirical reach and has shaped much subsequent work, and future work extending it with the contrasts examined in the

present work would be very welcome.

6 Conclusion

This paper has argued that the plural behavior of EIs follows from two independent parameters in a team semantics. Distinguishing (i) how indefinites extend information states, strict vs. lax, from (ii) the sort of individual they contribute, atomic vs. plural, while keeping the EI variation condition, yields three plural types. These derive the split among Italian, Spanish, and German, correctly predict the availability or unavailability of collective readings, and explain why ignorance is obligatory in some plural systems but defeasible in others.

Several avenues for further work are natural. First, broader cross-linguistic testing, especially in classifier languages, can probe the division between syntactic and semantic plurality more finely. Second, the interaction of EIs with negation and plurality deserves systematic investigation across languages.

Appendix A

Syntax

$$\phi \ ::= \ P(t_1,\ldots,t_n) \mid t_1{=}t_2 \mid \neg P(t_1,\ldots,t_n) \mid \neg(t_1{=}t_2) \mid \\ \phi \wedge \phi \mid \exists_s z\,\phi \mid \exists_l z\,\phi \mid \forall z\,\phi \mid dep(\vec{z},\vec{u}) \mid var(\vec{z},\vec{u}).$$

Semantics

$$\begin{array}{lcl}
M,\langle T,T'\rangle \models P(t_1\ldots t_n) & \Leftrightarrow & T' = \{i \in T : \langle i(t_1),\ldots,i(t_n)\rangle \in I(P)\} \\
M,\langle T,T'\rangle \models \neg P(t_1\ldots t_n) & \Leftrightarrow & T' = \{i \in T : \langle i(t_1),\ldots,i(t_n)\rangle \notin I(P)\} \\
M,\langle T,T'\rangle \models t_1 = t_2 & \Leftrightarrow & T' = \{i \in T : i(t_1) = i(t_2)\} \\
M,\langle T,T'\rangle \models \neg t_1 = t_2 & \Leftrightarrow & T' = \{i \in T : i(t_1) \neq i(t_2)\} \\
M,\langle T,T'\rangle \models \phi \wedge \psi & \Leftrightarrow & \exists X : M,\langle T,X\rangle \models \phi \text{ and } M,\langle X,T'\rangle \models \psi \\
M,\langle T,T'\rangle \models \exists_s z\ \phi & \Leftrightarrow & \exists X : X = T[f_s/z] \text{ and } M,\langle X,T'\rangle \models \phi \\
M,\langle T,T'\rangle \models \exists_l z\ \phi & \Leftrightarrow & \exists X : X = T[f_l/z] \text{ and } M,\langle X,T'\rangle \models \phi \\
M,\langle T,T'\rangle \models \forall z\ \phi & \Leftrightarrow & T = T' \text{ and } M,T[z] \models \phi \\
M,\langle T,T'\rangle \models dep(\vec{z},\vec{u}) & \Leftrightarrow & T = T' \text{ and } \forall i,j \in T : i(\vec{z}) = j(\vec{z}) \Rightarrow i(\vec{u}) = j(\vec{u}) \\
M,\langle T,T'\rangle \models var(\vec{z},\vec{u}) & \Leftrightarrow & T = T' \text{ and } \exists i,j \in T : i(\vec{z}) = j(\vec{z})\,\&\, i(\vec{u}) \neq j(\vec{u})
\end{array}$$

A formula *survives* an input team if every input assignment has at least one continuation in the output:

$$\begin{array}{lll}
i \prec T' & \text{iff} & \exists j \in T' \text{ with } i \subseteq j \\
T \prec T' & \text{iff} & \forall i \in T :\ i \prec T'
\end{array}$$

We say that a team T over M supports ϕ, and we write $M,T \models \phi$ iff there is T' such that $M,\langle T,T'\rangle \models \phi$ and $T \prec T'$. An initial team is any non-empty team whose domain contains only the actual world variable v.

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On the plurality of epistemic indefinites

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