A typology of negative indefinites*

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1 Introduction

Negative indefinites (NIs) are words specialized for expressing nonexistence, e.g. *They didn't hear anything* / *They heard nothing*. NIs exhibit a number of different behaviors across languages, mainly with respect to their available interpretations and whether they must cooccur with negation. Numerous analyses have attributed these differences to different NIs' syntactic properties, or to differences in grammars across languages while treating NIs as a homogeneous class. However, I will claim that NIs are in fact a heterogeneous class, their differences mainly due to different semantic properties among NIs, and to different NI inventories across languages. The different properties that NIs may possess account for the main crosslinguistic differences in NI behavior.

I'll be interested in providing a unified account for several problems concerning NI differences across languages.

First, NI inventories can be more or less detailed in different languages. Russian, for example, has several specialized subclasses of NIs, while Ancash Quechua has one all-purpose lexical item that serves many functions (Haspelmath 1997). Second, the syntactic distribution of NIs can also vary across and within languages. Some NIs must cooccur with verbal negation in the same finite clause, others only require that it be present in the same sentence, and still others need not cooccur with verbal negation at all. Third, the interpretations of NIs vary. Some NIs induce multiple negation readings, and others do not. Furthermore, some NIs have interpretations outside of their canonical use as existential negators, such as the free choice reading.

I claim that NIs fall into two quite distinct main types: negative quantifiers and polarity items. These types are distinguished by their semantic properties. Negative quantifiers express inherent negative universal quantification, while polarity items denote the endpoints of contextually determined pragmatic scales. These pragmatic scales denote sets of entities ordered by the likelihood that some predicate holds of them. Polarity items' properties as scalar indefinites are shown to explain many facts concerning their distribution and interpretation. Furthermore, many languages distinguish further subtypes within the polarity item type with additional but simple semantic or syntactic properties. These are free choice items, negative polarity items, and negative concord items. These subtypes are restricted to uses that are subsets of the uses of plain polarity items.

(1) Types of negative indefinites proposed here

			English	Spanish	Russian
a.	negative quantifiers		*no*	—	—
b.	free choice items (FCIs)	polarity items	*any*	*cualquier*	*ljuboj*
c.	negative polarity items (NPIs)	polarity items	*any*	*ningún*	*kakoj-libo*
d.	negative concord items (NCIs)	polarity items	—	—	*nikakoj*

This proposed typology responds to the problems introduced above in the following ways. First, the different NI inventories across languages depend entirely on what types of NIs are present in their lexicons, and are not predictable from any other feature of the grammar. Second, the different syntactic distributions of NIs with respect to negation and other licensors are explained by their type. Negative quantifiers express inherent negation and do not require licensors, while polarity items need the support of negation or some other licensor in order to function as NIs. Third, the different interpretations of NIs arise from their semantic status. Since negative quantifiers express inherent negation, they induce multiple negation readings when they cooccur with verbal negation and with each other. Polarity items, on the other hand, do not express inherent negation, but rather denote scalar endpoints. Their interpretations depend on the semantic interaction of their scalar endpoint interpretations with their context.

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The paper is organized as follows. Parts 2 through 5 analyze the various NI types that I argue for. Part 2 discusses the semantics of negative quantifiers, the simpler and less common of the two main types of NIs proposed here. Part 3 sets out and defends the scalar indefinite analysis of polarity items, while Part 4 analyzes negative polarity items and free choice items, the two main subtypes of polarity items. In Part 5, I present my analysis of negative concord items. Part 6 surveys typological support for my proposed typology, and Part 7 concludes.

2 Negative quantifiers

I will claim that NIs can be broadly distinguished into two main types, those that inherently express negation (negative quantifiers), and those that do not (polarity items). What distinguishes negative quantifiers as a type is that they have the special property that they inherently express negative universal quantification. I will show that it is necessary to recognize this special semantic property of negative quantifiers because of their distinct interpretation and distribution. The more common and internally diverse class of polarity items, which I will discuss in ensuing parts of the paper, does not inherently express any negative meaning. First, I discuss the properties of interpretation and distribution that distinguish negative quantifiers from other types of negative indefinites. Then I offer a semantic analysis of negative quantifiers that I will assume for the remainder of the paper. Finally, the introduction to negative quantifiers leads to an overview of negative indefinites, plotting a course for the rest of the paper.

2.1 Negative quantifier behavior

This section presents some of the distinct behaviors of negative quantifiers and polarity items, in order to argue that they be analyzed with distinct semantics. The English *no* series (*no*, *nothing*, *no one* / *nobody*, *nowhere*, *never*) will serve to exemplify the behavior of negative quantifiers, providing evidence that these items express inherent negative universal quantification.

The first distinct behavior that favors this analysis is that multiple occurrences of English *no* words induce multiple negation readings with each other — as in (a) below — and with verbal negation (b). The interpretation that I assume for each sentence is represented as both a logical formula and a paraphrase.

(2) Multiple negation

a. **No one** saw **nothing**.

logical formula: $\neg\exists x.\neg\exists y.[person(x) \& thing(y) \& saw(y)(x)]$
paraphrase: There is no person *x* such that there is no thing *y* such that *x* saw *y*.
(In other words, at least one person saw something.)

b. We did**N'T** see **nothing**.

logical formula: $\neg.\neg\exists x.[thing(x) \& we\text{-}saw(x)]$
paraphrase: It is not the case that there is no *x* such that *x* is a thing and we didn't see *x*.
(In other words, we saw something.)

The ability of negative quantifiers to induce multiple negation makes them unusual among NIs, but indicates that they express some kind of inherent negation. Most NIs across languages do not have this property. Thus, in contrast to the negative quantifier *no*, multiple occurrences of polarity items like English *any*, Spanish *ningún*, and Russian *nikakoj* words yield single-negation readings with verbal negation (a) and with each other (b).

(3) Single negation

a. We do**N'T** hear **any** noise.
Nosotros **NO** oímos **ningún** ruido.
My **NE** slyshim **nikakix** zvukov.

logical formula: $\neg\exists x.[noise(x) \& we\text{-}hear(x)]$
paraphrase: There is no *x* such that *x* is a noise and we hear *x*.

b. They do**N'T** give **anything** for free to **anyone anywhere**.
Ellos **NO** dan **nada** gratis a **nadie** en **ningún** parte.
Oni **NE** dajut **nichego nikomu nigde** besplatno.

logical formula: ¬∃x∃y∃z.[*thing*(x) & *recipient*(y) & *place*(z) & *they-give-for-free*(x)(y)(z)]
paraphrase: There are no thing *x*, recipient *y*, and place *z* such that they give *x* for free to *y* at *z*.

Throughout the paper, English, Spanish, and Russian are the principal languages from which examples are drawn because they demonstrate succinctly the range of types of negative indefinites attested crosslinguistically, and because their similar word orders and grammars allow for easy interlinguistic comparison.

A second, related property of negative quantifiers is that they express nonexistence with no support from verbal negation (a), while polarity items always cooccur with verbal negation in order to express this same meaning (b) (with some patterned exceptions in Spanish, as we will see in Part 5). Again, negative quantifiers' independence from verbal negation indicates that they express inherent negative meaning.

(4) Cooccurrence with verbal negation

a. We hear **no** noise.

b. We do**N'T** hear **any** noise. / #We hear **any** noise.
Nosotros **NO** oímos **ningún** ruido. / *Nosotros oímos **ningún** ruido.
My **NE** slyshim **nikakix** zvukov. / *My slyshim **nikakix** zvukov.

In fact, negative quantifiers are capable of supporting other NIs that normally cooccur with negation.

(5) Licensing normal NIs

a. **No one** gives **anything** for free to **anyone anywhere**.
b. They do**N'T** give **anything** for free to **anyone anywhere**.

As we have seen, negative quantifiers have the distinct properties that they induce multiple negation readings with each other and with verbal negation, and that they do not need the support of verbal negation to express nonexistence. I attribute this to the fact that negative quantifiers inherently express negative universal quantification. This sets them apart from the other principal type of NIs, polarity items, which are the topic of a later part of the paper. The next section offers a more formal analysis of the meaning of negative quantifiers.

2.2 A semantic analysis of negative quantifiers

What is needed now is an semantic analysis of negative quantifiers that can be assumed in order to facilitate later discussion of the more controversial semantic representation of polarity items. The semantic representation of negative quantifiers is therefore not at issue here. Accordingly, I assume an analysis that adequately represents the inherent negative meaning of negative quantifiers that has so far been argued for, though it may turn out that other linguistic problems outside the scope of this paper may call for a slightly different analysis.

The discussion of the distinct behavior of negative quantifiers in the preceding section yielded the generalization that they express inherent negative universal quantification. Since the English negative quantifier *no* has the syntactic status of a determiner, and I have argued that negative quantifiers have a quantificational meaning, let us assume for *no* a semantic representation as a generalized quantifier. That is, *no* quantifies over the relationship between two properties. This yields two possible semantic representations for *no*, shown below. These representations are applied to interpret the example sentence *No robot came*, expressing either narrow-scope existential quantification under negation (a), or wide-scope universal quantification over negation (b).

(6) Possible representations of *no*

a. [[no]] = λQλP[¬∃x.Q(x)&P(x)]
semantic formula: [[no [$_Q$ robot] [$_P$ came]]] = ¬∃x.[*robot*(x) & *came*(x)]
paraphrase: There is no *x* such that *x* is a robot and *x* came.

b. [[no]] = λQλP[∀x.Q(x)→¬P(x)]
semantic formula: [[no [$_Q$ robot] [$_P$ came]]] = ∀x.[*robot*(x) → ¬*came*(x)]
paraphrase: For all *x*, if *x* is a robot, then *x* didn't come.

Since I will adopt narrow-scope existential quantification as the canonical representation of propositions containing NIs, I assume the representation in (a) as the semantic representation for negative quantifiers. As for other negative quantifiers of the *no* series that are not determiners, but full determiner phrases or adverbs — i.e. *nothing*, *no one* / *nobody*, *nowhere*, and *never* — I will assume for them representations similar to that for *no*, but with the Q property argument saturated with a specification for things, people, places, or times.

(7) Assumed semantics of non-determiner negative quantifiers

a. [[nothing]] = λP[¬∃x. *thing*(x) & P(x)]
b. [[no one]] = λP[¬∃x. *person*(x) & P(x)]
c. [[nowhere]] = λP[¬∃x. *place*(x) & P(x)]
d. [[never]] = λP[¬∃x. *time*(x) & P(x)]

The next section locates this semantic representation for negative quantifiers within the larger class of NIs.

2.3 Situating negative quantifiers

Negative quantifiers are just one strategy that natural languages use to express the general meaning 'There is no *x* such that Q(*x*) and P(*x*)'. This section uses the semantic analysis of negative quantifiers established so far as a way of defining the larger class of items that this paper is about — i.e. NIs — which will in turn provide a context for the subsequent discussion of the semantics of polarity items, the other main type of NIs treated in this paper.

I identify the class of NIs as a subset of those expressions that are used to express the nonexistence of entities fitting some description, paraphraseable as 'There is no *x* such that Q(*x*) and P(*x*)', or ¬∃x.[Q(x)&P(x)]. Natural languages use a variety of strategies to express nonexistence, some of which involve some indefinite expression under the scope of negation. Consider the sentences below, which express nonexistence in different ways. Sentence (a) expresses nonexistence with a negative quantifier (*no one*) alone. Sentence (b) does so with a polarity item (*anyone*) under verbal negation. Lastly, sentence (c) does so with a normal indefinite (*a thing*) under verbal negation.

(8) Sentences expressing nonexistence

a. **No one** here is a fool.

logical formula: ¬∃x.[*person-here*(x) & *is-a-fool*(x)]
paraphrase: There is no *x* such that *x* is a person here and *x* is a fool.

b. We did**N'T** tell **anyone** the secret.

logical formula: ¬∃x.[*person*(x) & *we-told-the-secret-to*(x)]
paraphrase: There is no *x* such that *x* is a person and we told *x* the secret.

c. The witness would**N'T** say **a thing**.

logical formula: ¬∃x.[*thing*(x) & *the-witness-would-say*(x)]
paraphrase: There is no *x* such that *x* is a thing and the witness would say *x*.

I take the class of NIs to comprise various proforms specialized for expressing nonexistence, e.g. expressions like *no one* and *anyone* in (a) and (b) above. The normal indefinite expression *a thing* in sentence (a) above has many functions outside of nonexistence, and does not concern this paper. Furthermore, I will not be concerned with non-proform polarity expressions like *at all*, *a red cent* and *the time of day*.

Natural languages typically posses one or more NI series, each of which may include a determiner — e.g. *no*, *any* — as well as a number of nominal and adverbial expressions ranging over things, people, places, and times. The following lists of negative indefinite series from English, Spanish, and Russian are non-exhaustive, but exemplify the kinds of expressions that will concern this paper. Each series is named for its determiner member.

(9) a. English negative indefinite series

no series: *no, nothing, no one* / *nobody, nowhere, never*
any series: *any, anything, anyone* / *anybody, anywhere, ever*

b. Spanish negative indefinite series

ningún series: *ningún, nada, nadie, en ningún parte, nunca*
cualquier series: *cualquier, cualquier cosa, cualquier persona*, etc.

c. Russian negative indefinite series

nikakoj series: *nikakoj, nichto, nikto, nigde, nikogda*
kakoj-libo series: *kakoj-libo, chto-libo, kto-libo, gde-libo, kogda-libo*
ljuboj series: *ljuboj, chto ugodno, kto ugodno, gde-ugodno, kogda-ugodno*

This section put the negative quantifier type into perspective by situating it within the larger class of NIs. The loose definition of the class of NIs that resulted from this discussion will provide a context for the discussion of polarity items in Part 3 of the paper.

2.4 *Nothing/nada/nichto*

The discussion in the preceding sections identified the distinguishing characteristics of negative quantifiers and situated them in the larger space of NIs. It turns out that the negative quantifier type is quite rare crosslinguistically. In fact, I will argue that of the three principal languages from which examples are drawn for this paper, only English includes negative quantifiers in its NI inventory (though Russian does a evince a partial negative quantifier series).[1] Here I compare the English, Spanish, and Russian NIs *nothing, nada*, and *nichto*, contending that despite popular views to the contrary, only *nothing* among them is a negative quantifier, the others being negative polarity items.

Multilingual speakers often have the intuition that e.g. English *nothing*, Spanish *nada*, and Russian *nichto* (from the *no, ningún,* and *nikakoj* series, respectively) all mean the same thing. This intuition seems related to the fact that all of these are used as negative elliptical answers, appearing to express negative force without the support of a verbal negator. To the questions *What do you want to eat?* and *What are you doing?*, all three of *nothing*/*nada*/*nichto* can be used elliptically (i.e. alone) to answer *Nothing*, indicating that they are equivalent.

(10) a. What do you want to eat? —**Nothing**.
¿Qué quieres comer? —**Nada**.
Chto ty xocheshj estj? —**Nichego**.

b. What are you doing? —**Nothing**.
¿Qué haces? —**Nada**.
Chto ty delaeshj? —**Nichego**.

However, when answering these questions with a full sentence containing verbal negation, English uses *anything* instead of *nothing*, while Spanish and Russian still use *nada*/*nichto*.

(11) a. What do you want to eat? —I do**N'T** want to eat **anything**.
¿Qué quieres comer? —**NO** quiero comer **nada**.
Chto ty xocheshj estj? —Ja **NE** xochu **nichego** estj.

b. What are you doing? —I'm **not** doing **anything**.
¿Qué haces? —**NO** hago **nada**.
Chto ty delaeshj? —Ja **nichego NE** delaju.

[1] Russian has a defective NQ series with two members: *nékogo* 'no one' and *néchego* 'nothing'. These words appear only in oblique cases with an infinitival verb in the 'potential negative' construction, e.g. *Nékomu skazátj* 'There's no one (DATIVE) to tell', *Néchego délatj* 'There's nothing (GENITIVE) to do'. I will ignore this series here.

This suggests that *nada*/*nichto* have something in common both with English *nothing* and *anything*. Like *nothing, nada*/*nichto* are restricted to contexts that express nonexistence (*anything*, by contrast, is used in other contexts as well, in free choice contexts in particular). Like *anything*, however, *nada*/*nichto* do not express their own inherent negation, but must cooccur with verbal negation in order to express nonexistence.

Based on their obligatory cooccurrence with verbal negation in contexts of nonexistence, it seems clear that *nada*/*nichto* are not negative quantifiers. In fact, I will claim later that they are polarity items. As for why they can be used in negative elliptical answers when they have no inherent negative meaning, the simplest explanation seems to be that they can unambiguously imply the presence of verbal negation in the corresponding full answer, because they are restricted to negative contexts. English *anything* cannot be used as a negative elliptical answer because it is not restricted to negative contexts, e.g. *He can do anything*. This claim is supported by Haspelmath's 1997 survey of 40 indefinite pronominal systems, which found that an indefinite can be used in an negative elliptical context only if its use is restricted to negative contexts (with one exception: Greek *típota*).

As for multilingual speakers' intuitions that *nothing*/*nada*/*nichto* are synonymous, they might feel this way because these are the closest NI equivalents between English, Spanish, and Russian. The proposed typology predicts these words to be the closest equivalents to each other because Spanish and Russian have no negative quantifiers.

2.5 Summary

In this part of the paper I discussed the reasons for proposing a distinct negative quantifier type within the class of NIs, and outlined the semantic analysis of negative quantifiers that will be assumed henceforth. The unique semantic properties of negative quantifiers are that they induce multiple negation interpretations with each other and with verbal negation, and do not require the support of verbal negation to express nonexistence. Accordingly, I assumed a semantic representation of negative quantifiers as generalized quantifiers that express inherent negative universal quantification by the schema $\neg\exists x.[Q(x)\&P(x)]$. Finally, I considered negative quantifiers in the context of the larger class of NIs in order to more clearly define the expressions that are the topic of this paper.

3 Polarity items

The semantic properties of polarity items are quite different from those of negative quantifiers. Though both types of NIs are used to express nonexistence — i.e. $\neg\exists x.[Q(x)\&P(x)]$ — the means by which polarity items accomplish this are more complex. I argue that polarity items are scalar indefinites, following Fauconnier, Lee & Horn, Israel, and Haspelmath. Moreover, I extend the scalar indefinite account by providing a precise formal semantics for polarity items. This analysis accounts for the facts that polarity items can yield both nonexistence and free choice interpretations, and that they need the support of verbal negation in order to express nonexistence. This part of the paper is directly concerned only with plain polarity items like English *any*. However, the analysis proposed here will support my claims in later parts of the paper concerning the semantics of the various subtypes of polarity items.

The discussion of polarity items begins with the identification of their different possible interpretations, and how the scalar indefinite analysis accounts for these interpretations. I then outline my formal elaboration of the scalar indefinite account and some problems that it raises. Last, I discuss the problems associated with patterns of polarity item licensing, and how my formal analysis accounts for these problems.

3.1 Polarity item interpretations

The difference between polarity items and negative quantifiers is immediately apparent from the fact that polarity items are more flexible in their interpretations. To begin with, polarity items, like negative indefinites, are used to express nonexistence. The nonexistence reading of polarity items has traditionally been called the *negative polarity reading*, and I will continue this practice. The following examples demonstrate the negative polarity reading of the English polarity item *any* under verbal negation (a) and under implicit negation (b). Where polarity items must cooccur with some licensor in order to express existential negation, that licensor appears in small capitals.

(12) The negative polarity reading

a. We do**N'T** hear **any** noise. (under verbal negation)

logical formula: $\neg\exists x.[noise(x) \& we\text{-}hear(x)]$
paraphrase: There is no *x* such that *x* is a noise and we hear *x*.

b. We came **WITHOUT any** excuse. (under implicit negation)

logical formula: $\neg\exists x.[excuse(x) \& we\text{-}came\text{-}with(x)]$
paraphrase: There is no *x* such that *x* is an excuse and we came with *x*.

However, polarity items often have available an additional reading, traditionally called the free choice reading. The free choice reading is schematized with the logical formula $\forall x.[Q(x) \rightarrow P(x)]$.

(13) The free choice reading

a. **Any** owl hunts mice.

logical formula: $\forall x.[owl(x) \rightarrow hunts\text{-}mice(x)]$
paraphrase: For every *x*, if *x* is a kind of owl, then *x* hunts mice.

b. Polk would use **any** trick.

logical formula: $\forall x.[trick(x) \rightarrow Polk\text{-}would\text{-}use(x)]$
paraphrase: For every *x*, if *x* is a trick, then Polk would use *x*.

Because of these two distinct interpretations of polarity items, there has long been a question of whether plain polarity items like English *any* have a single semantic representation that somehow yields these two interpretations, or whether they combine two meanings in one lexical item. (See Carlson 1981 for a clear enumeration of the differences between the negative polarity and free choice interpretations of *any*.) In the next section, I propose a single semantic representation for polarity items that explains their flexible interpretations.

3.2 Scalar entailment

Here I adopt an analysis of polarity items as scalar indefinites, following Fauconnier 1975a, 1975b, 1978, Lee & Horn 1994, Israel 1996, and Haspelmath 1997. This analysis neatly explains plain polarity items' puzzling ambiguity between the negative polarity and free choice interpretations, while relying on the independently motivated principle of scalar entailment. Though this analysis has been described and argued for previously by the authors mentioned above , it is necessary to establish a normalized version of it on which I can build a more precise semantic analysis in the next section.

The quantificational force in the nonexistence interpretation was represented above as existential quantification under negation, i.e. $\neg\exists.[Q(x)\&P(x)]$. However, the same quantificational force can be represented by the logically equivalent schema of universal quantification over negation: $\forall.[Q(x)\rightarrow\neg P(x)]$. This is shown in the following example, where the sentence *Oscar doesn't like anyone* (a) can be represented by formulas of either shape (b&c).

(14) a. Oscar does**N'T** like **anyone**.

b. logical formula: $\neg\exists x.[person(x) \& Oscar\text{-}likes(x)]$ (existential quantification)
paraphrase: There is no *x* such that *x* is a person and Oscar likes *x*.

c. logical formula: $\forall x.[person(x) \rightarrow \neg Oscar\text{-}likes(x)]$ (universal quantification)
paraphrase: For all *x*, if *x* is a person, then Oscar doesn't like *x*.

Recall that the free choice interpretation of polarity items is also represented by universal quantification.

(15) a. **Any** owl hunts mice.

b. logical formula: $\forall x.[owl(x) \rightarrow hunts\text{-}mice(x)]$ (universal quantification)
paraphrase: For every *x*, if *x* is an owl, then *x* hunts mice.

The scalar indefinite analysis of polarity items supposes that polarity items have a single semantic representation that yields both the negative polarity and free choice readings. Since both the negative polarity and free choice readings of polarity items can be represented as universal quantification, the scalar indefinite analysis takes this to be indicative of the true interpretation of polarity items. However, unlike negative quantifiers, which carry inherent quantificational force, the idea of scalar indefinites is that they induce the quantificational force both negative polarity and free choice contexts by means of entailment.

In intuitive terms, a scalar indefinite denotes some entity of whom a particular property is highly likely or unlikely to hold. This likelihood or unlikelihood is such that the property is therefore entailed to hold of all such entities.

For example, under this approach, the polarity item *anyone* in the sentence *Oscar doesn't like anyone* denotes the *most* likely person for Oscar to like, whoever that might be. If Oscar doesn't like that person, then it seems to follow that there is no person that he likes. In *Any owl hunts mice*, on the other hand, *anyone* denotes the owl that is *least* likely to hunt mice. If that owl hunts mice, then all owls hunt mice. The scalar indefinite approach envisions this most likely or least likely thing at one end of a *scale* of things, ordered by the likelihood that some property holds of them. The negative polarity and free choice interpretations then differ just in whether the polarity item denotes the most likely or least likely end of the scale. However, these interpretations can be united if we simply stipulate that a polarity item always denotes *the entailing end* of some scale.

Fauconnier's 1975a proposal that *any* gets its universal force by entailment along a pragmatic scale is supported by independent evidence that scales are necessary to derive universally entailing readings for superlatives and other expressions interpretable as scalar endpoints (Horn 1972). Such expressions include morphological and logical superlatives like *the strongest man, the weakest cow, his own brother,* and *even a kid*. I briefly review here evidence that entailing superlatives evince the same behavior as polarity items, supporting the scalar indefinite analysis.

Each of the superlatives in sentences (a) through (c) below can get a universally entailing reading because the superlative and the property represented by the rest of the sentence allow the construction of a pragmatic scale whose members are ordered according that property, and of which the superlative is one endpoint, such that predicating the property of that endpoint entails that the property holds of the rest of the scale. In the case of *Iocaine kills the strongest man*, the scale is an ordering of men with the one least likely to be killed by poison — the strongest man — at the bottom. Under the entailing reading, the sentence is understood as meaning that iocaine kills everyone, because if it kills the strongest man, it must kill everyone else on the scale too. The polarity item *anyone*, which also denotes a scalar endpoint, gets a similarly entailing reading in the same context.

(16) Entailing superlatives and *even*

a. Iocaine kills **the strongest man** / **anyone**. $\supset \forall x.[man(x) \rightarrow iocaine\text{-}kills(x)]$
b. **The weakest cow** / **any cow** could swim this river. $\supset \forall x.[cow(x) \rightarrow could\text{-}swim\text{-}this\text{-}river(x)]$
c. Iago would betray **his own brother** / **anyone**. $\supset \forall x.[person(x) \rightarrow Iago\text{-}would\text{-}betray(x)]$
d. **Even a kid** / **anyone** can be courteous. $\supset \forall x.[person(x) \rightarrow can\text{-}be\text{-}courteous(x)]$

Other scalar analyses of PSIs include Krifka 1990, 1994, 1995, Lahiri 1995, and Lee 1997, all of which analyze polarity sensitive items as introducing alternatives into the discourse. Krifka 1995, Ladusaw 1996, and Israel 1996 provide comprehensive summaries and comparisons of different approaches to polarity sensitive items

This section outlined the intuitive basics of the scalar indefinite analysis of polarity items. The advantages of this analysis are (i) that it yields both the negative polarity and free choice readings of polarity items by the single stipulation that a polarity item denotes the entailing end of a pragmatic scale, and (ii) that the semantics of scalar entailment are independently motivated by the interpretations of entailing superlatives. In the next section, I extend the scalar indefinite account into a more precise semantic analysis, in order to provide a framework for analyzing the finer distinctions between the subtypes of polarity items in my proposed typology of NIs.

3.3 A semantic analysis of polarity items

In this section I develop an explicit semantic analysis of the English polarity item *any* as a scalar indefinite. The

purpose of this is, first, to discover inconsistencies or other problems in the scalar account, and second, to develop a basis for my analyses of negative polarity items, free choice items, and negative concord items — all subtypes of the polarity item type — in subsequent parts of the paper. A large part of the NI typology that will eventually be worked out therefore depends on the formal account developed here.

The general idea of the scalar indefinite analysis, introduced in the last section, is that a polarity item denotes an endpoint of a pragmatic scale, and induces universal quantification by means of entailment along that scale. Adapting the formal analysis of the scalar adverb *even* proposed in Lee & Horn 1994, I posit a denotation of *any* with three parts: a presupposition, an assertion, and an entailment. The presupposition is that there exists some pragmatic scale with an entailing endpoint *m*. The assertion is just that the relevant property holds of *m*. The entailment is that the property therefore holds of every other member of the scale.

This denotation is represented as a semantic formula and a paraphrase. In the following example, the denotation of *any* consists of a lambda expression followed by a presupposition and an assertion (both in brackets). The pragmatic entailment of *any*, however, is not part of its semantic denotation, but follows from it.

(17) Denotation of *any*

a. [[any]] = $\lambda Q \lambda P$: [[$\exists!S$. S is a pragmatic scale, S on Q] & [$\exists!m \in S.\forall x \in S.P(m) \supset P(x)$]]. [P(m)].

b. paraphrase: the denotation of a natural language expression [P [*any* [$_{NP}$ Q]]], where P is a property and the noun phrase [$_{NP}$ Q] is the focus of *any*, is [[any]](Q)(P), which includes the following presupposition (i) and assertion (ii). In addition, the presupposition and assertion produce the pragmatic entailment in (iii).

(i) presupposition: there is (one and only one) pragmatic scale S on the members of Q, and there is (one and only one) element *m* in S such that for all *x* in S, if the property P holds of *m*, then P holds of *x*;

(ii) assertion: the property P holds of the entity *m*;

(iii) entailment: for all *x* in S, the property P holds of *x*.

Both the presupposition and entailment of *any* depend on the following formal definition of a pragmatic scale.

(18) Definition of pragmatic scale

a. pragmatic scale: a set S ordered according to some property P such that (i) $\forall x,y \in S$, if $x>y$ then P(x) is more likely than P(y), and (ii) S has a top $a \in S$ and/or a bottom $z \in S$, such that $\forall x \in S.a \geq x \geq z$.

b. paraphrase: a pragmatic scale is a set whose elements — whether entities, kinds, or quantities — are ordered according to the likelihood that some property applies to them. The top and bottom ends of the scale are differentiated such that the top is the element for which the relevant property is most likely to hold, while the bottom is the element for which the property is least likely to hold.

The denotation of *any* proposed here immediately brings up certain questions concerning the burden that it places on the pragmatics as opposed to the semantics. First, does the entailing scalar endpoint *m* exist? Second, is the entailment portion of *any*'s denotation really all in the pragmatics, or is it part of the *any*'s semantics? These questions are taken up in the next section. The remainder of this section is devoted to exemplifying the formal denotation of *any* and definition of pragmatic scale introduced above.

The most powerful advantage of the scalar indefinite analysis is that it yields both the negative polarity and free choice readings of polarity items from the same underlying denotation. Under this analysis, the difference between the two interpretations consists just in the direction of entailment that they induce along a scale. The negative polarity reading results from downward entailment from the top endpoint of the scale — i.e. the end of the scale for which the relevant property is most likely to hold — while the free choice reading results from upward entailment from the bottom element of the scale — i.e. the end for which the property is least likely to hold.

This difference is shown in the following example, where the entailing end *m* of the scale S is the top end in the case of the negative polarity expressing sentence *We don't hear any noise* (a), but the bottom end in the case of the free choice expressing sentence *Any owl hunts mice* (b).

(19) a. We don't hear **any** noise. (nonexistence interpretation)

S = the scale of quantities of noises ordered according to how likely we are to hear them
m = top / the most likely quantity of noise for us to hear
then [We don't hear *m*] entails [For all *x*, if *x* is a quantity of noise, then we don't hear *x*]

b. **Any** owl hunts mice. (free choice interpretation)

S = the scale of kinds of owls ordered according to how likely they are to hunt mice
m = bottom / the least likely owl to hunt mice
then [*m* hunts mice] entails [For all *x*, if *x* is an owl, then *x* hunts mice]

To see that only one end of a scale is entailing, compare the results in the next example of trying to yield a nonexistence interpretation with the bottom end of a scale (a), or a free choice interpretation with the top (b).

(20) a. *m* = bottom / the least likely quantity of noise for us to hear
then [We don't hear *m*] does *not* entail [For all *x*, if *x* is a quantity of noise, then we don't hear *x*]

b. *m* = top / the most likely owl to hunt mice
then [*m* hunts mice] does *not* entail [For all *x*, if *x* is an owl, then *x* hunts mice]

As shown by these examples, the relevant pragmatic scale for a given context is sometimes a scale of quantities (a), sometimes a scale of kinds (b), and sometimes a scale of entities (e.g. *We didn't see anyone*). Lee & Horn 1994 propose that nonexistence interpretations always involve quantity scales, while free choice interpretations involve kind scales, but I suggest that it is sufficient to assume that the pragmatics will determine the appropriate scale.

The denotation of *any* is further exemplified in the calculations of the interpretations of the sentences *Ginny doesn't like any men* and *Ginny would marry any doctor*. The polarity item *any* gets its negative polarity reading in (a) and its free choice reading in (b) (ignoring various complications introduced by the modal *would*). Accordingly, *any men* in (a) denotes the top of the relevant scale — i.e. the most likely men for Ginny to like — while *any doctor* in (b) denotes the bottom of the relevant scale — i.e. the least likely doctor for Ginny to marry.

(21) a. [[Ginny doesn't like any men]]

= [[[$_P$ Ginny doesn't like any [$_Q$ men]]]
= [[any]]($_Q$ *men*)($_P$ $\lambda x.$*Ginny-doesn't-like*(x))

= (i) presupposition: there is a pragmatic scale S that is an ordered set on the members of *men*, ordered according to the property [$\lambda x.$*Ginny-doesn't-like*(x)], and there is an endpoint *m* in S such that for all *x* in S, if [*Ginny-doesn't-like*(m)] is true, then [*Ginny-doesn't-like*(x)] is true;
(ii) assertion: [*Ginny-doesn't-like*(m)] is true;
(iii) implicature: for all *x* in S, [*Ginny-doesn't-like*(x)] is true

b. [[Ginny would marry any doctor]]

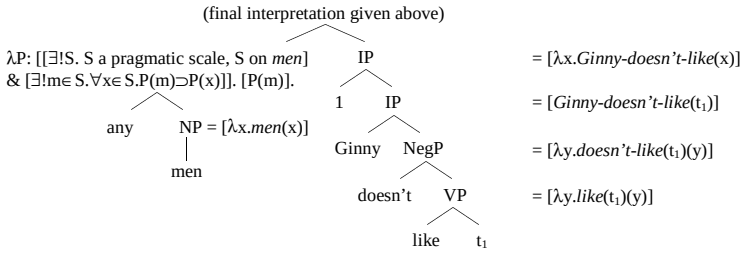
= [[[$_P$ Ginny would marry] any [$_Q$ doctor]]]
= [[any]]($_Q$ *doctor*)($_P$ $\lambda x.$*Ginny-would-marry*(x))

= (i) presupposition: there is a pragmatic scale S that is an ordered set on the members of *doctor*, ordered according to the property [$\lambda x.$*Ginny-would-marry*(x)], and there is an endpoint *m* in S such that for all *x* in S, if [*Ginny-would-marry*(m)] is true, then [*Ginny-would-marry*(x)] is true;
(ii) assertion: [*Ginny-would-marry*(m)] is true;
(iii) implicature: for all *x* in S, [*Ginny-would-marry*(x)] is true

These calculations are presented again here in tree form, in order to make as clear as possible the order of semantic composition. These tree analyses assume Quantifier Raising of *any* DPs, as well as Laka's 1994 claim that in English, Inflection Phrase is above Negation Phrase (ΣP, in her proposal).

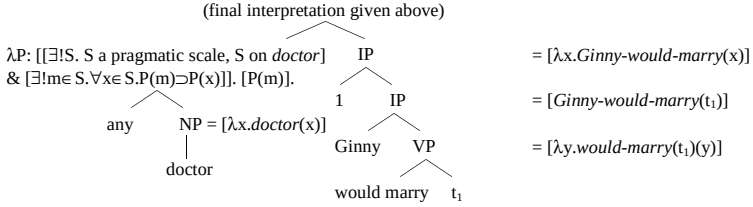
(22) a. Ginny does**N'T** like **any** men.

b. (final interpretation given above)



(23) a. Ginny would marry **any** doctor.

b. (final interpretation given above)



In this section I proposed a detailed version of the scalar indefinite analysis of *any*, and provided examples of how it composes semantically with the other elements in sentences where it occurs. In the next section, I address a couple of the problems raised by this analysis.

3.4 The ontology of *m*

The three-part denotation of *any* offered in the previous section presents us with a couple of problems having to do with the existence of the entailing scalar endpoint *m*, and whether the entailment portion of a polarity item is semantic or pragmatic. One problem is simply, does *m* exist, and if so, where? A second problem that follows from the first concerns whether the entailment of a polarity item is entirely pragmatic, or partly semantic. I do not have solutions to these problems, but I try to lay out the issues involved in the hope that they might eventually be solved.

On one hand, the presupposition portion of the denotation of *any* seems to state that *m* exists: [∃!m∈ S.∀x∈ S.P(m)⊃P(x)] 'There is an *m* in S such that for all *x* in S, P(m) entails P(x)'. Also, the assertion portion of *any*'s denotation — i.e. P(m) — makes an assertion about *m*, which might be strange if *m* did not exist.

On the other hand, it seems reasonable to say that *m* does not exist because it is merely an endpoint of a pragmatic scale whose purpose is to entail. The other elements of the scale — e.g. all quantities of mail in *Any mail that came for you is there* — might exist, at least in the world under discussion, because the purpose of the utterance is to entail something about all that mail. However, the entailing quantity of mail, i.e. the least likely quantity to be there, does not need to exist to entail. It is enough that we can imagine what that quantity would be if it existed. Certainly in the case of *We didn't see any ghosts*, we do not suppose that the most likely quantity of ghosts for us to have seen (i.e. zero) exists, nor even that the other members of the scale (i.e. all other quantities of ghosts) exist.

The question of *m*'s existence is tied in with the question of where the entailment in the interpretation of polarity items lies. The view adopted in the denotation of *any* proposed here us that the entailment ∀x∈ S.P(x) arises from the pragmatics, and is therefore not mentioned in *any*'s formal denotation.

There are two reasons to maintain that ∀x∈ S.P(x) is a pragmatic entailment rather than a semantic assertion. First, as was discussed earlier, the notion of pragmatic entailment is independently motivated by the interpretations of entailing superlatives. It is therefore less stipulative to allow polarity items to take advantage of pragmatic entailment than to mimic the effects of pragmatic entailment in the semantics of polarity items. Second, if ∀x∈ S.P(x) were the assertion and the current assertion P(m) were discarded, then there would be nothing asserted of *m*. This might be a problem because it is desirable that a DP denote some entity, either explicitly or intuitively, and the assertion P(m) seems to accomplish this. And if P(m) is the assertion, then it makes sense that ∀x∈ S.P(x) is the entailment rather than the assertion, since it would be useless to assert both P(m) and the proposition that it entails.

However, if *m* does not exist, then this would seem to imply something undesirable about the entailment of *any*. Under the view that *m* does not necessarily exist, the reason why the assertion P(m) about a possibly nonexistent element is not automatically infelicitous is that the meaning of a polarity item does not focus on whether some property holds of *m*, but rather on yielding entailment along a scale. An alternative denotation of polarity items might therefore dispense with the assertion P(m), saying instead that the entailment ∀x∈ S.P(x) is conventionalized to the point that ∀x∈ S.P(x) is actually the assertion, and there is no purely pragmatic implicature. Then the 'entailment' would be a semantic assertion rather than a pragmatic entailment.

3.5 Polarity item licensing

Even before the interpretation of polarity items caught the attention of linguists, they became interested in the conditions under which they were licensed. Analyses differ on whether they suppose semantic licensing conditions (e.g. Ladusaw 1972, Giannakidou 1997) or syntactic ones (e.g. Klima 1964, Baker 1970, Linebarger 1980). I will demonstrate how the interpretation of polarity items under the scalar indefinite analysis predicts their licensing and distribution without external grammatical conditions.

The formal denotation of *any* proposed above (repeated below), as a generalized quantifier, contains all the rules for calculating its interpretation within itself. It composes semantically with two other constituents. First, with the predicate Q that determines the set whose members will provide the elements of the pragmatic scale (over which *any* will quantify), then with the predicate P that determines how the members of the scale will be ordered. As with negative quantifiers, we can assume that non-determiner polarity items like *anything* and *ever* have their Q argument already saturated with the contextually relevant set of things, people, places, or times, as shown here.

(24) a. [[any]] = λQλP: [[∃!S. S is a pragmatic scale, S on Q] & [∃!m∈ S.∀x∈ S.P(m)⊃P(x)]]. [P(m)].
b. [[anything]] = λP: [[∃!S. S is a pragmatic scale, S on *thing*] & [∃!m∈ S.∀x∈ S.P(m)⊃P(x)]]. [P(m)].
c. [[ever]] = λP: [[∃!S. S is a pragmatic scale, S on *time*] & [∃!m∈ S.∀x∈ S.P(m)⊃P(x)]]. [P(m)].

In general terms then, we can say that a context that licenses e.g. *anything*, under either its negative polarity or free choice reading, is also the property P with which *anything* semantically composes in each case. A couple of generalizations follow from this about what contexts are polarity item licensing. First, felicitous licensors for polarity items are those that can yield an appropriately entailing scale. Second, polarity items actually have scope over their licensors, since their licensors are their arguments

These generalizations are illustrated by the following example. The sentence *I doubt that John understands anything* has available both a negative polarity reading (b) and a free choice reading (c), but these readings have slightly different scopal properties because their licensor/sisters are different constituents. The denotation for each reading shows which constituent represents the predicate P with which the polarity item *anything* must compose.

(25) a. I doubt that John understands **anything**.

b. Negative polarity reading

paraphrase: I doubt that there is anything that John understands (i.e. he understands nothing).
truth conditions: [∀x.[P I doubt that John understands *x*].
denotation: [[anything]][P λx.*I-doubt-that-John-understands*(x)]
m = top / the most likely thing for me to doubt that John understands: P(m) ⊃ ∀x.P(x)

c. Free choice reading

paraphrase: I doubt that it's that case that John understands everything (i.e. he understands some things).
truth conditions: I doubt that [∀x.[$_P$ John understands *x*].
denotation: [λp∈ D⟨t⟩.*I-doubt-that*(p)] ([[anything]][$_P$ λx.*John-understands*(x)])
m = bottom / the least likely thing for John to understand: P(m) ⊃ ∀x.P(x)

My claim that *m* must denote the bottom of a scale under the above free choice reading may seem odd because of the difficulty of perceiving the free choice reading. But *m* must be the bottom in the free choice interpretation, because the felicitousness of the context as a free-choice-licensing context is evaluated before *I doubt that* composes with the rest of the semantic calculation. For the embedded proposition *John understands anything* to yield a universal entailment, *anything* must denote the least likely thing for John to understand. If John understands this thing, then he must understand anything. Only then do we compose this proposition with *I doubt that*, discovering that in fact, I doubt the proposition that John understands everything.

The generalizations made above over the scope and licensing of polarity items are stated more explicitly here as the *polarity item scope and licensing generalization*.

(26) Polarity item scope and licensing generalization: a polarity item gets scope immediately over its licensor, which is an expression meeting the following criteria: (i) it is a constituent with which the item can semantically compose, (ii) it is a sister to the item at LF, (iii) it enables the construction of a felicitously entailing pragmatic scale.

This claim contrasts interestingly with classic analyses of negative polarity licensing like those of Ladusaw and Linebarger, who suppose that licensors have scope over their licensees. This points to a basic difference between such views and the view propounded here, that the special properties of polarity items derive from the interior semantics of the items themselves, not from exterior principles of the grammar.

This approach also contrasts with syntactic analyses of negative polarity licensing like Linebarger 1980, 1987 and Progovac 1994, which phrase such licensing in terms of the syntactic relation of c-command. Under the approach argued for here, the licensing condition on polarity items cannot be phrased with reference to c-command. As described in the above generalization, a polarity item is licensed by an appropriate context that is its semantic argument (i.e. its sister at LF). If anything, the polarity item c-commands its licensing context, as the result of Quantifier Raising if necessary. See the tree diagrams of in Section 3.3 for examples of this.

The principle that polarity items are licensed only in contexts where a felicitously entailing scale can be constructed by the pragmatics explains data that Progovac uses to argue for a syntactic licensing approach. Progovac takes contrasts like the following to indicate that negative polarity items are licensed only by overt verbal negation or a [+affective] Operator in the head of Complementizer Phrase (CP): the affective verb *doubt* can license the negative polarity item *anything* only through a CP, as in sentence (a). She explains the unavailability of the negative polarity reading for (b) by the fact that it lacks a Complementizer projection, and therefore contains no licensing Operator.

(27) a. I doubt [$_{CP}$ Op that John understood **anything**]. (negative polarity or free choice reading)

b. I doubt **anything**. (only free choice reading)

The analysis of polarity items as scalar indefinites provides a simple explanation for this contrast without reference to abstract operators. That sentence (b) is only a free choice licensing context, but not a negative polarity licensing context, is shown by the fact that *anything* is grammatical here in only if *m* is interpreted as the bottom end, i.e. the least likely thing for me to doubt. If I doubt this thing, then I must doubt everything. Interpreting *m* as the top end of the scale — i.e. the most likely thing for me to doubt — yields no such entailment.

(28) a. I doubt **anything**. (only free choice reading)

b. *m* = bottom / the least likely thing for me to doubt
then [*I-doubt*(m)] entails [∀x.*I-doubt*(x)]

c. *m* = top / the most likely thing for me to doubt
then [*I-doubt*(m)] does *not* entail [∀x.*I-doubt*(x)]

In this section I showed how the scalar indefinite analysis of polarity items unites both the interpretation and licensing of polarity items under one principle. That is, the formal denotation proposed for polarity items yields both the negative polarity and free choice readings by scalar entailment, and determines what contexts are licensing contexts for each reading by whether or not they can semantically compose with the polarity item as its argument, and whether or not they can provide a felicitously entailing context. This approach therefore has an advantage over others that see polarity item licensing as external, in the grammar, rather than internal to the item's semantics.

3.6 Summary

A theory of polarity items as scalar indefinites predicts both the interpretations and the licensing of polarity items from their denotations as entailing endpoints of pragmatic scales. Their interpretations are as universal entailments along these scales, while they are licensed by those contexts that can provide felicitously entailing scales. Therefore, no further stipulation beyond their denotations as scalar indefinites is necessary.

4 Subtypes of polarity items

One of the main advantages of the scalar indefinite analysis of polarity items is that it provides an easy way of distinguishing the two main subtypes of polarity items by their semantics alone. In this part of the paper I discuss these two subtypes — negative polarity items and free choice items — and offer a refinement of the scalar indefinite analysis that explains their behavior in languages that distinguish them.

4.1 The negative polarity/free choice distinction

Languages like Spanish and Russian that make the negative polarity/free choice distinction use different lexical items in negative polarity and free choice contexts. As the following examples show, Spanish and Russian use words of the *ningún* and *nikakix* series (respectively) in negative polarity contexts, but words of the *cualquier* and *ljuboj* series in free choice contexts, whereas the English *any* series is used in both contexts and is ambiguous between the readings associated with them (a further negative polarity distinction made in Russian is dealt with in Part 5).

(29) a. negative polarity context

We don't hear **any** noise.
Nosotros no oímos **ningún**/#**cualquier** ruido.
My ne slyshim **nikakix**/***ljubyx** zvukov.

b. free choice context

Any owl hunts mice.
Cualquier/#**ninguna** lechuza caza ratones.
Ljubaja/***nikakaja** sova oxotitsja na myshej.

The next section addresses the problem of explaining the complementary distribution of NIs in negative polarity and free choice contexts in languages that make the distinction.

4.2 A semantic analysis of the negative polarity/free choice distinction

In this section I extend the scalar indefinite analysis introduced in Part 3 to explain the negative polarity/free choice distinction. Building on proposals by Fauconnier 1975a, Lee & Horn 1994, Israel 1996, and Haspelmath 1997, I will propose a minor extension of the analysis, claiming that negative polarity items and free choice items have an additional semantic specification in their denotations that they denote the tops and bottoms of pragmatic scales, respectively. This extended analysis will be shown to explain both the complementary distribution and different interpretations of these items.

The comparative data introduced in the last section showed that Spanish and Russian each have two complementary sets of NIs where English has only one. There are two observations relevant for a semantic analysis of these complementary NIs. First, their interpretations appear to be the same as those of *any* when it is used in the same contexts. That is, English *any* gets the same reading in a negative polarity context as Spanish *ningún*, and the same reading in a free choice context as Spanish *cualquier*. Second, negative polarity items (henceforth NPIs) and free choice items (FCIs) in the same language are in complementary distribution. That is, *ningún* and *cualquier* are not interchangeable; *ningún* always yields a negative polarity reading, and *cualquier* a free choice reading.

If we assume that both NPI *ningún* and FCI *cualquier* are polarity items, since their united interpretations and distributions equal that of the English polarity item *any*, then the scalar indefinite analysis already developed for *any* provides an easy way to distinguish them. Recall that in its negative polarity use, *any* always denotes the top of the relevant pragmatic scale (the most likely thing), while in its free choice use it denotes the bottom (the least likely thing). If the denotation of NPI *ningún* specifies that it denotes the top end of a scale, while that of FCI *cualquier* specifies that it denotes the bottom end of a scale, then these items will be grammatical only in negative polarity and free choice contexts, respectively, explaining their complementary distribution.

For example, in the negative polarity context *We don't hear any noise* (a), the ungrammaticality of *cualquier* is explained if it is specified to denote the bottom of a scale. The accompanying analysis shows that only an interpretation where the polarity item refers to the top of a scale (b) yields a universal entailment. The interpretation that is specified for *cualquier*, as the bottom of a scale (c), yields no entailment.

(30) a. We don't hear **any** noise.
Nosotros no oímos **ningún**/***cualquier** ruido.

b. *m* = top / the most likely quantity of noise for us to hear
then [We don't hear *m*] entails [For all *x*, if *x* is a quantity of noise, then we don't hear *x*]

c. *m* = bottom / the least likely quantity of noise for us to hear
then [We don't hear *m*] does *not* entail [For all *x*, if *x* is a quantity of noise, then we don't hear *x*]

The reverse is true for *ningún* in a free choice context (a). Only the bottom of a scale (b) entails in this context. *Ningún* is ungrammatical here because it is specified to denote the top of a scale (c), which does not entail.

(31) a. **Any** owl hunts mice.
Cualquier/***ninguna** lechuza caza ratones.

b. *m* = bottom / the least likely kind of owl to hunt mice
then [*m* hunts mice] entails [For all *x*, if *x* is a kind of owl, then *x* hunts mice]

c. *m* = top / the most likely kind of owl to hunt mice
then [*m* hunts mice] does *not* entail [For all *x*, if *x* is a kind of owl, then *x* hunts mice]

We can now entertain a formal representation of the denotations of *ningún* and *cualquier*, given below. The points where their denotations differ from that of *any* are underlined. Where *any* states that the scalar endpoint *m* corresponds to whichever end of the scale entails in the context — i.e. $\forall x \in S.P(m) \supset P(x)$ — *m* is specified to be the top of the relevant scale for *ningún* — i.e. $\forall x \in S.m \geq x$ — and the bottom for *cualquier* — i.e. $\forall x \in S.x \geq m$.

(32) Denotations of *ningún* and *cualquier*

a. $[[\text{any}]] = \lambda Q \lambda P: [[\exists!S.\ S \text{ is a pragmatic scale, S on Q}] \& [\exists! m \in S.\underline{\forall x \in S.P(m) \supset P(x)}]].\ [P(m)]$.
b. $[[\text{ningún}]] = \lambda Q \lambda P: [[\exists!S.\ S \text{ is a pragmatic scale, S on Q}] \& [\exists! m \in S.\underline{\forall x \in S.m \geq x}]].\ [P(m)]$.
c. $[[\text{cualquier}]] = \lambda Q \lambda P: [[\exists!S.\ S \text{ is a pragmatic scale, S on Q}] \& [\exists! m \in S.\underline{\forall x \in S.x \geq m}]].\ [P(m)]$.

This quite small addition to the semantics proposed for scalar indefinites seems well motivated, considering that it yields both the differences in interpretation and distribution of NPIs and FCIs.

4.3 Summary

In this part of the paper I extended the scalar indefinite analysis of polarity items to the two main polarity item subtypes: NPIs and FCIs. I proposed formal denotations for these subtypes. I argued that this small modification to the scalar indefinite analysis accurately predicts the interpretation and licensing of NPIs and FCIs in those languages, like Spanish and Russian, that distinguish them in their NI inventories.

5 Negative concord

The semantics developed so far for PIs as scalar indefinites does not explain the restriction in some languages on the distribution of NPIs with respect to verbal negation. We must recognize that some NIs have unique syntactic properties that affect their syntactic distribution. I will recognize a subtype of NPIs, negative concord items (NCIs), that bear a unique syntactic marking, but which have the same semantics as other negative polarity items. That is, they are nonspecific scalar indefinites that denote the tops of pragmatic scales.

5.1 The negative concord distinction

Some languages exhibit an additional distinction within the NPI type that I will call the negative concord distinction. In languages with the negative concord distinction, a subset of NPIs must cooccur with verbal negation in the same finite clause, while other NPIs occur in all other negative polarity environments. In this section I elaborate on how the negative concord distinction is realized across languages, arguing that it is entirely syntactic in nature, involving no semantically characterizeable differences in interpretation or licensing. I embark on a precise syntactic analysis of the negative concord distinction in the next section.

Russian will serve as our primary example of a negative concord language, i.e. a language exhibiting the negative concord distinction. In Russian, two NPI series are in complementary distribution, the *nikakoj* series — which only cooccurs with local verbal negation (i.e. in the same finite clause) — and the *kakoj-libo* series — which occurs in other negative polarity contexts (e.g. nonlocal negation, conditionals, and in the scope of implicitly negative words). The following examples illustrate this complementarity. Of the three negative polarity environments shown here, *nikakoj* words can only occur with local verbal negation (a), while *kakoj-libo* words occur elsewhere (b&c). Parallel examples from English and Spanish show that these languages do not make the negative concord distinction, using the *any* series and the *ningún* series, respectively, in all these contexts.

(33) The negative concord distinction

a. We don**'T** hear **any** noise. (local verbal negation)
Nosotros **NO** oímos **ningún** ruido.
My **NE** slyshim **nikakix**/***kakix-libo** zvukov.

b. I did**'T** say [that **any** robot came]. (nonlocal verbal negation)
Yo **NO** dije [que **ningún** robot vino].
Ja **NE** govoril [chto **kakoj-libo**/***nikakoj** robot prixodil].

c. We came **WITHOUT any** excuse. (implicit negation)
Nosotros vinimos **SIN ninguna** excusa.
My prishli **BEZ kakogo-libo**/***nikakogo** povoda.

I henceforth refer to these subtypes of negative polarity items as *negative concord items* (NCIs) and *plain negative polarity items* (plain NPIs), where NCIs are the subtype that only cooccurs with local verbal negation, like Russian *nikakoj*. The following examples from the negative concord languages Kazakh, Hungarian, and Serbo-Croatian further illustrate the complementary distribution of NCIs with plain NPIs (or plain indefinites, in Kazakh).

(34) Kazakh (NCI *esh* series, plain indefinite *bir* series)

a. **Esh-kim**/***birew eshnärse**/***birnärse** de-**ME**-di. (local negation)
no one/**someone nothing**/**something** say-**NEG**-PAST
No one said **anything**.

b. [**Birew**/***esh-kim** keldi dep] sen-**BE**-j-min. (nonlocal negation)
[**someone**/**no one** came that] think-**NEG**-PRES-1SG
I do**N'T** think [that **anyone** came].

(35) Hungarian (NCI *sem* series, plain NPI *akár* series)

a. **Senkinek**/***akárkinek semmit**/***akármit** **SEM** szólának. (local negation)
no one/**anyone nothing**/**anything** **NEG** said
NEITHER said they **anything** to **anyone**.

b. **NEM** hiszem, [hogy **akár-ki**/***sen-ki** látta volna]. (nonlocal negation)
NEG think [that **anyone**/**no one** saw SBJV]
I do**N'T** think [that **anyone** has seen it].

(36) Serbo-Croatian (NCI *nikoji* series, plain NPI *koji* series)

a. Milan **NE** voli **nitkoga**/***itkoga**. (local negation)
Milan **NEG** loves **no one**/**anyone**
Milan does**N'T** love **anyone**.

b. Marija **NE** tvrdi [da Milan voli **itkoga**/***nitkoga**]. (nonlocal negation)
Maria **NEG** claims [that Milan loves **anyone**/**no one**]
Maria does**N'T** claim [that Milan loves **anyone**].

Later I will be concerned with an analysis of negative concord; specifically, with the question of how the grammar ensures that NCIs and plain NPIs are in complementary distribution. I devote the rest of this section, however, to arguing that the negative concord distinction is a purely syntactic one.

The first argument that the negative concord distinction is a syntactic rather than a semantic one is that the interpretations of NCIs and plain NPIs do not appear to differ at all, which indicates that they have exactly the same semantic representation. NCIs, like plain NPIs, appear to be straightforwardly analyzed as scalar indefinites. Both NCI *nikakix* in (a) below and plain NPI *kakoj-libo* in (b) yield interpretations that are representable as universal quantifications, which is expected if *nikakix*/*kakoj-libo* are scalar indefinites that induce universal entailments.

(37) a. My **NE** slyshim **nikakix** zvukov.
We do**N'T** hear **any** noise.
$\forall x[noise(x) \rightarrow we\text{-}don't\text{-}hear(x)]$

b. Ja **NE** govoril [chto **kakoj-libo** robot prixodil].
I did**N'T** say [that **any** robot came].
$\forall x[robot(x) \rightarrow I\text{-}didn't\text{-}say\text{-}that\text{-}came(x)]$

Since NCIs occur only with verbal negation, they could instead be analyzed just as normal indefinites, as has been standardly assumed, rather than as scalar indefinites. This would predict, e.g. for *My ne slyshim nikakix zvukov* in (a) above, the interpretation $\neg\exists x[noise(x) \,\&\, we\text{-}hear(x)]$, which is logically equivalent to the interpretation given here. However, analyzing NCIs as normal indefinites still would not explain their restriction to contexts expressing nonexistence under the scope of negation. Rather, we would expect them to be used everywhere that normal indefinites are used. Therefore, since NCIs appear in a subset of the environments in which NPIs occur, I will assume for them the semantics of NPIs rather than the semantics of normal indefinites.

The second argument supporting a syntactic analysis of the negative concord distinction is that the domain of negative concord appears to be fairly cleanly characterizeable in syntactic terms, as the extended finite clause, i.e. the finite clause including all its nonfinite parts. This observation is supported by data from the negative concord languages Russian, Serbo-Croatian, Latvian, and Hungarian. As shown by the following examples, only NCIs, not plain NPIs, can occur in infinitival clauses (a) and in arguments of noun phrases (b) under verbal negation in the main clause, but only plain NPIs are permitted in a finite relative clause (c) under verbal negation in the main clause.

(38) Russian (NCI *nikakoj* series, plain NPI *kakoj-libo* series)

a. My nikogda v Rige **NE** xoteli [**nikuda**/***kuda-libo** vozitj **nikakix**/***kakix-libo** detej].
we never in Riga **NEG** wanted [**nowhere**/**anywhere** to take **no**/**any** children]
We never wanted [to take **any** children **anywhere**] (when we lived) in Riga.

b. On mne **NE** daval nikakix kartin [**nikakix**/***kakix-libo** pastoraljnix stsen].
he me **NEG** gave no pictures [**no**/**any** pastoral scenes]
He did**N'T** give me any pictures [of **any** pastoral scenes].

c. On mne **NE** daval kartiny [kotorye **kakoj-libo**/***nikakoj** xudozhnik napisal].
he me **NEG** gave pictures [which **any**/**no** painter painted]
He did**N'T** give me pictures [that **any** painter had painted].

(39) Serbo-Croatian (NCI *nikoji* series, plain NPI *koji* series)

a. Kad smo živeli u Rigi, nikad **NI**smo hteli [**nakakvu**/***ikakvu** djecu **nikuda**/***ikuda** odvesti].
when AUX lived in Riga, never **NEG**-AUX wanted [**no**/**any** children **nowhere**/**anywhere** to-take]
When we lived in Riga, we never wanted [to take **any** children **anywhere**].

b. On mi **NI**je dao [slike od **nikakve**/***ikakve** pastoralne scene].
he me **NEG**-AUX gave [pictures of **no**/**any** pastoral scenes]
He did**N'T** give me [pictures of **any** pastoral scenes].

c. On mi **NI**je dao slike [koje **ikakav**/***nikakav** slikar je nazrtao].
he me **NEG**-AUX gave pictures [that **any**/**no** painter AUX painted]
He did**N'T** give me pictures [that **any** painter had painted].

(40) Latvian (NCI *ne-kāds* series, plain PI *jeb-kāds* series)

a. Mēs nekad **NE**gribējām [**nekur**/?**jeb-kur** vest **nevienus**/***jeb-kādus** bērnus] (kad ozīvojām) Rīgā.
we never **NEG**-wanted [**nowhere**/**anywhere** to-take **no**/**any** children] (when we lived) in-Riga.
We never wanted [to take **any** children **anywhere**] (when we lived) in Riga.

b. Viņš man **NE**iedeva [**nevienu**/***jeb-kāds** gleznu ar **nevienām**/***jeb-kadām** pastorālām ainavām].
he me **NEG**-gave [**no**/**any** pictures of **no**/**any** pastoral scenes]
He did**N'T** give me [**any** pictures of **any** pastoral scenes].

c. Viņš man **NE**iedeva nevienu attēlu, [ko **jeb-kāds**/***neviens** (gleznotājs) ir gleznojis].
he me **NEG**-gave no pictures [that **any**/**no** (painter) AUX painted]
He did**N'T** give me any pictures [that **any** painter had painted].

(41) Hungarian (NCI *sem* series, plain NPI *akár* series)

a. Soha **NEM** akart [elvinni egy gyereket sem **sehová**/***akárhova**], amikor Rigában laktunk.
never **NEG** wanted [take-INF one child-ACC NEG **nowhere**/**anywhere**] when Riga-in lived-1PL
We never wanted [to take any children **anywhere**] when we lived in Riga.

b. (no example)

c. **NEM** adott nekem olyan képeket [amiket **akármilyen**/***semmilyen** festő festett volna].
NEG gave-3SG me such pictures-ACC [that **any**/**no**-kind-of painter painted be-COND]
He did**N'T** give me pictures [that **any** kind of painter had painted].

Many of the example sentences used in this paper to test the domain of negative concord, including those above, sound highly unnatural to native speakers. However, this does not alter the sentences' significance as tests of the domain of negative concord. The question here is not what is natural in a given context, but what is possible.

Though I have argued that the syntactically characterizeable domain of negative concord supports a syntactic analysis of the negative concord distinction, Zwarts 1993 (reported by Krifka 1995) proposes an algebraic theory of NPI licensing that might be able describe the domain of negative concord in semantic terms. Zwarts distinguishes weak, strong, and superstrong NPIs, and develops a theory of their distribution based on the semantic

characterization of their licensing environments. Superstrong NPIs are licensed only in anti-morphic contexts, which meet the condition ¬f(X)=f(¬X), where f is the context and X is a variable saturating the context. Since sentential negation is an anti-morphic context, and NCIs seem intimately related to same-finite-clause negation, might NCIs be semantically licensed by anti-morphic contexts?

Applying the anti-morphicity test to the three examples used above to exemplify the domain of negative concord shows that anti-morphicity does not make the same distinctions as negative concord. With respect to Zwarts' anti-morphicity condition, the infinitival clause example (a) and finite relative clause example (c) below pattern together by not being anti-morphic. However, this is unlike in negative concord, where infinitival clauses (a) pattern together with noun phrases (b) in not being domains for negative concord, but against finite clauses (c), which are domains for negative concord.

(42) a. f = *we never wanted* (—); X = *to go swimming* (infinitival clause)

We did**N'T** never want [to go swimming] (i.e. we wanted to go at least sometimes).
≠ We never wanted [**NOT** to go swimming] (i.e. we always wanted to go).

b. f = *he didn't give me* (—); X = *a hot dog* (noun phrase)

He didn't **NOT** give me [a hot dog] (i.e. he gave me at least one).
= He didn't give me [**NO** hot dog] (i.e. he gave me at least one).

c. f = *he didn't give me pictures* (—); X = *that Dalí had painted* (finite relative clause)

He didn't **NOT** give me pictures [that Dalí had painted] (i.e. he did give me Dalí pictures).
≠ He didn't give me pictures [that Dalí had**N'T** painted]. (i.e. he might have given me Dalí pictures).

It seems therefore that anti-morphicity cannot predict the distribution of NCIs, and that a syntactic analysis is necessary.

Having discussed the nature of the negative concord distinction in a number of negative concord languages, I go on in the next section to propose a syntactic analysis of this distinction.

5.2 A syntactic analysis of negative concord

In the last section I presented evidence that the negative concord distinction is syntactic, not semantic. Here I am concerned with elucidating the actual grammatical principle that ensures the complementary distribution of NCIs and plain NPIs. I will propose an analysis that relies as much as possible on Minimalist principles, amounting in the end to a single stipulation: that only NCIs and verbal negators have the [NEG] feature.

To arrive at an analysis of the negative concord distinction, we must consider certain generalizations on the nature of this distinction. The two following generalizations describe the complementary distribution of NCIs and plain NPIs.

(43) a. In a negative concord language, NCIs are used to express nonexistence in the same clause with verbal negation, while plain NPIs are used to express nonexistence in other syntactic contexts.

b. In non-negative-concord languages, NPIs are used to express nonexistence in all contexts.

Since I have argued that NCIs and plain NPIs are semantically identical, I must assume that NCIs bear some lexico-syntactic marking that distinguishes them from plain NPIs, and in addition, that there is some principle of the grammar that enforces these items' complementary distribution based on this marking. This would be some kind of negative concord constraint that makes scalar indefinites with this special marking (i.e. NCIs) cooccur with verbal negation, while preventing indefinites without this marking (i.e. plain NPIs) from doing so.

To see how this marking and constraint would work, consider how they would derive the distribution of Russian NCI *nikakoj* and plain NPI *kakoj-libo* in the following familiar sentences. First, suppose that *nikakoj* has this special lexico-syntactic marking, while *kakoj-libo* does not. Then the negative concord constraint ensures that *nikakoj*, and not *kakoj-libo*, occurs in the same finite clause with verbal negation in (a), while *kakoj-libo*, and not *nikakoj*, occurs in the finite clause without verbal negation in (b).

(44) a. My **NE** slyshim **nikakix**/***kakix-libo** zvukov.
We do**N'T** hear **any** noise.

b. Ja **NE** govoril [chto **kakoj-libo**/***nikakoj** robot prixodil].
I did**N'T** say [that **any** robot came].

The question naturally arises of whether this special marking on *nikakoj* is associated with some morpheme. This seems plausible, since NCIs in many languages are constructed by adding some particle (e.g. *ni-* in Russian) to a normal indefinite or question word. In addition, a problem with the negative concord constraint is why it limits the domain of negative concord to the same finite clause as verbal negation (as argued in the last section). A related issue is whether the negative concord constraint is universal , i.e. present in every language, or only present in the grammars of negative concord languages. If it is universal, then it must necessarily be violated in languages without specially marked NCIs. If it is language-particular, then one must ask why only some languages have it.

The analysis of negative concord that I will pursue will address all these questions. First, following Brown's 1999 analysis of negation in Russian, cast in the Minimalist framework of Chomsky 1995, I will suppose the special marking on NCIs to be the syntactic feature [NEG] (expressed as a privative feature). Brown derives the distribution of Russian *nikakoj* words relative to verbal negation from the fact that both *nikakoj* words and the verbal negator bear the [NEG] feature, and they therefore cooccur in order that *nikakoj* words can check the negator's [NEG]. In my proposed typology of NIs, then, only NCIs among all NIs shall bear the [NEG] feature.

A possible problem with assuming that [NEG] distinguishes NCIs from plain NPIs is that [NEG] has both semantic and syntactic properties, its semantic property being that it expresses inherent negation. As I have argued, however, only negative quantifiers among NIs express inherent negative meaning; polarity items, including NCIs, must cooccur with some kind of negation in order to express nonexistence. Brown explains the observation that *nikakoj* words do not induce multiple negation by stipulating that their [NEG] feature is [–interpretable], so that it is deleted before semantic features are interpreted (though after syntactic features are checked). I will adopt this assumption.

As for the question of how the domain of negative concord is determined to be the extended finite clause, the independent Minimalist principles of A-movement provide a plausible solution. Though Brown is not concerned with distinguishing *nikakoj* words from *kakoj-libo* words, the analysis of *nikakoj* words as bearing [NEG] has the effect of explaining the domain of negative concord as the domain of A-movement. If we can characterize finite clauses as containing a Tense Phrase, and [NEG] feature-checking as involving the raising of NCIs, then we can explain the domain of negative concord with the simple condition that NCIs cannot raise out of Tense Phrase. Phrases that are not barriers to NCI raising — e.g. infinitival clauses and non-finite noun complements — have in common that they lack a Tense Phrase. The domain of negative concord is then the domain of other kinds of A-movement, e.g. subject movement to the Specifier of Inflection Phrase to get nominative case, and movement of agreement features. Like NCIs, neither subjects nor agreement features can move out of Tense Phrase.

Progovac 1994 has a different theory of the complementary distribution of NCIs and plain NPIs (in her terms, NI-NPIs and I-NPIs). She claims that the difference between the Serbo-Croatian NCI *ni* series and plain NPI *i* series is like the difference between short-distance and long-distance anaphors, and that all polarity item licensing can be accounted for under the Binding Theory. She proposes that all NPIs are licensed by an operator *Op* that is sometimes overtly realized as verbal negation or other negative word — as in the Serbo-Croatian sentences in (a) and (b)— and is sometimes covert — as in the English sentence in (c).

(45) Progovac 1994

a. Milan **NE** voli **nitkoga**/***itkoga**. (local negation)
Milan **NEG** loves **no one**/**anyone**
Milan does**N'T** love **anyone**.

b. Marija **NE** tvrdi [da Milan voli **itkoga**/***nitkoga**]. (nonlocal negation)
Maria **NEG** claims [that Milan loves **anyone**/**no one**]
Maria does**N'T** claim [that Milan loves **anyone**].

c. I doubt [$_{CP}$ [$_{C'}$ that **OP** [$_{IP}$ **anyone** has come]]]. (implicit negation)

Just like the analysis adopted here, Progovac's analysis treats the negative concord problem as a syntactic one. However, since the distribution of polarity items in general is explained by their semantic properties, the evidence for Progovac's proposal to explain all polarity item licensing under the Binding Theory seems weakened. The extension of the principles of A-movement to cover the facts of NCI distribution seems better motivated in this light.

Another problem raised above concerns whether the negative concord constraint is universal. With the adoption of [NEG] as the distinguishing feature of NCIs, there is no negative concord constraint as such, but only the general principle of feature-checking, which is assumed to be universal under the Minimalist framework. If feature-checking is universal, this raises the question, what happens to the [NEG] feature in languages without NCIs? These languages will presumably have verbal negators with the [NEG] feature, but no NCIs to raise and check this feature. Even in negative concord languages, a verbal negator will be left bearing an unchecked [NEG] feature if there is no NCI in the appropriate domain to check it, such as in a negated sentence that contains no indefinites. Whether or not these unchecked features delete at some point, I must assume that they are not sufficient to make the configurations in which they occur ungrammatical, and are therefore not a problem for this analysis. Under this proposal then, [NEG] checking is habitually violated, even in languages whose lexicons contain NCIs.

Another question that arises from this proposal is how it is ensured that only NPIs, and not morphemes of other categories, can bear the [NEG] feature. The most likely reason for this is that the only historical source for NCIs is NPIs, and grammaticization of NCIs presumably can happen only when a language's inventory of NPIs is rich enough to permit the splitting of the inventory into NCIs and plain NPIs. However, it is not inconceivable that some other category might be rich enough to allow splitting it into an [NEG]-marked subclass and a non-[NEG]-marked subclass. For example, person-number morphemes are known to vary depending on the mood and tense of finite clauses. If such morphemes were also found to vary with respect to negation, then this would support the proposal made here to account for NCI distribution by means of the [NEG] feature.

In this section, I proposed a syntactic analysis of the negative concord distinction under the Minimalist framework. The analysis comes down to the stipulation that only verbal negators and NCIs bear the [NEG] feature. The complementary distribution of NCIs and plain NPIs in negative concord languages, as well as the domain of negative concord, were then explained under the independently motivated principles of feature-checking and A-movement. In summary, negators need to be checked by NCIs, and NCIs need to check negators. Plain NPIs will occur only in domains where there is no negator to check, where the domain is determined by the fact that Tense Phrase is a barrier to NCI raising. Negative concord languages are those that happen to make a distinction in their NPIs between those that bear the [NEG] feature (NCIs) and those that do not (plain NPIs).

5.3 The Southern Romance problem

A problem posed by the behavior of NIs in some Southern Romance languages, including Italian, Standard Catalan, Spanish, and Portuguese, is that preverbal NIs do not cooccur with verbal negation, but postverbal NIs do. This thorny problem provides a good test of the NI typology proposed here, since it involves cooccurrence with negation and inherent negative meaning, both of which are properties that are clearly distinguished among the subtypes of the typology. In this section I will propose an analysis of Southern Romance NIs in terms of the proposed typology, claiming that these languages are not negative concord languages. Rather, they have only plain NPIs, whose strange behavior can be attributed to an abstract verbal negator.

Spanish will serve to exemplify the behavior of Southern Romance NIs. Spanish *ningún* words (*ningún*, *nada*, *nadie*, *en ningún parte*, *nunca*) occur without verbal negation when they are preverbal (a), appearing to express inherent negative universal quantification like English *no* words. When Spanish *ningún* words are postverbal (b), however, they must cooccur with verbal negation (unless there is also a preverbal *ningún* word in the same sentence), making them look more like English *any* words. Compare this to the parallel Russian examples, which illustrate the observation that Russian *nikakoj* words always cooccur with verbal negation. The preverbal/postverbal asymmetry of Spanish is further demonstrated in (c), where *nadie* cooccurs with verbal negation if and only if it is postverbal.

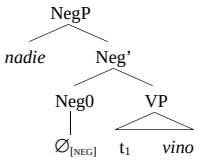
(46) a. **No** sailor smoked.
Ningún marinero fumó.
Nikakoj morjak **NE** kuril.

b. I didn**'T** see **any** rabbit.
Yo **NO** vi **ningún** conejo.
Ja **NE** videl **nikakogo** krolika.

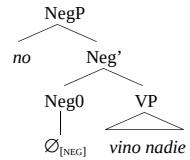
c. **Nadie** vino. / **NO** vino **nadie**.
No one came.

The problem lies in classifying these NIs. If Spanish *ningún* words are negative quantifiers like English *no* words, then we expect them not to cooccur with verbal negation. Conversely, if *ningún* is an NPI or NCI like English *any* or Russian *nikakoj*, then we expect it to always cooccur with verbal negation. I will pursue a solution to this problem that has been proposed by several authors, that *ningún* does not express inherent negative force, but cooccurs with an abstract verbal negator when it occurs preverbally (Bosque 1980, Laka 1994, Brown 1999). In terms of Brown's 1999 proposal, this abstract negator is just a [NEG] feature sitting in Neg0, the head of Negation Phrase (see example below). In a sentence like (a) *Nadie vino* 'No one came', where there is a *ningún* word immediately before the verb, this word fulfills the requirement that some overt negative word sit in the Specifier of Negation Phrase. When there is no preverbal *ningún* word, as in (b) *No vino nadie* 'No one came', the overt negator *no* fulfills this requirement.

(47) a.



b.



Under the proposed typology then, *ningún* words are straightforwardly analyzed as plain NPIs. The only unexpected feature of Spanish and the other Southern Romance languages is the abstract negator.

There is independent evidence for supposing the existence of an abstract negator in Spanish. Laka 1994 shows that the abstract negator theory offers a simple explanation for some cases of ambiguity in Spanish. The following Spanish sentences can get either a single negation reading or a multiple negation reading. Under the abstract negator theory, this is because it is not apparent on the surface whether or not these sentences contain an abstract negator ($\varnothing_{[NEG]}$). Normally, an NPI in the specifier of NegP must be licensed by a $\varnothing_{[NEG]}$ in Neg0, but these sentences also contain NPI-licensing expressions in a higher clause, so that the NPIs *nada* and *nadie* are licensed in either case. The single negation reading reflects a structure without the abstract negator, while the multiple negation reading reflects a structure with the abstract negator.

(48) a. La ministra **NEGÓ** [que **nada** (**$\varnothing_{[NEG]}$**) hubiera cambiado].

The minister denied that anything had changed. (single negation reading)
The minister denied that nothing had changed. (multiple negation reading)

b. Es **IMPOSIBLE** [que **nadie** (**$\varnothing_{[NEG]}$**) lo sepa].

It's impossible that anyone knows that. (single negation reading)
It's impossible that no one knows that. (multiple negation reading)

However, there is a hole in my abstract negator account as developed so far. The abstract negator theory assumes that only the overt negator and NPIs can fill the Specifier of Negation Phrase, but what criterion allows NPIs and only NPIs to sit in this position? Brown 1999 assumes that only items bearing the [NEG] feature can do this, but I have argued that only NCIs have the [NEG] feature, and that Spanish has no NCIs. Therefore I suggest that what allows Spanish NPIs to fill the Specifier of Negation Phrase is their special relationship with negation.

As evidence for this claim, recall that Spanish *ningún* words are used in negative elliptical answers (Section 2.4). A second piece of evidence is that unlike underspecified polarity items like English *any*, explicit NPIs like those of the Spanish *ningún* series occur only in negative polarity functions. The negative polarity functions include local, nonlocal, and implicit negation, questions, conditionals, and comparatives. The correlation between filling the

Specifier of Negation Phrase and restriction to negative polarity functions is supported by the fact that none of the Southern Romance languages allows an item that is not restricted to these functions to replace the overt negator.

5.4 Summary

I offered an analysis of the negative concord distinction, arguing that, while both NPIs and NCIs have the same semantics as scalar indefinites, NCIs are marked with the syntactic [NEG] feature. The domain of negative concord and the complementary distribution of NCIs and plain NPIs then falls out from the normal Minimalist principles of feature checking and A-movement.

I also proposed a syntactic analysis of some facts from Southern Romance that appeared to pose a problem for my typology of NIs. I followed Bosque, Laka, and Brown in assuming that these languages have an abstract verbal negator, and that NPIs can fill the Specifier of Negation Phrase just as an overt verbal negator can. The abstract verbal negator approach, coupled with the scalar indefinite semantics of NPIs, eliminates the need for additional assumptions made in similar proposals, e.g. that plain NPIs as well as NCIs bear the [NEG] feature (Brown 1999), and allows us to maintain that NPIs must always cooccur with some kind of negation.

6 Typological support

Though examples throughout the paper have been restricted mainly to English, Spanish, and Russian, the generalizations proposed are to some extent supported by typological data from other languages as well. I will show that Haspelmath's 1997 40-language survey of indefinite pronominal systems supports some of the conclusions drawn here. This survey classifies indefinites by the functions where they are used. One of the findings of the survey is that nine distinct functions are almost always sufficient to distinguish between different types of indefinites. These nine functions, and Haspelmath's subgrouping of them, are shown in the table below.

(49) Haspelmath's 1997 nine indefinite functions

a.	known to speaker		specific
b.	unknown to speaker		
c.	irrealis		nonspecific
d.	conditional	negative polarity	
e.	question		
f.	direct negation		
g.	indirect negation		
h.	comparative		
i.	free choice		

Haspelmath's (i) *direct negation* and (ii) *indirect negation* functions represent (in my terms) (i) local existential negation, either by a verbal negator or by a negative quantifier, and (ii) a conflation of nonlocal existential negation and implicit negation. I adapt Haspelmath's map of indefinite functions to test my proposed typology by defining my types in terms of his functions. I assume the following function-to-type definitions.

(50) a. negative quantifiers: items restricted to the direct negation function that express inherent negative force.
b. polarity items: indefinites restricted to the nonspecific functions.
c. FCIs: indefinites restricted to the nonspecific functions, excluding direct negation.
d. NPIs: indefinites restricted to negative polarity functions.
e. NCIs: indefinites restricted to the direct negation function that do not express inherent negative force.

As suggested by these definitions, there is considerable variation in which functions FCIs and NPIs can be applied to, although they are always used in the free choice and indirect negation functions, respectively. FCIs and NPIs in different languages often overlap in whether they can be used in the irrealis, conditional, question, and comparative function. My proposed typology offers no explanation of the varying degrees of overlap observed.

However, the proposed typology correctly predicts that some languages should possess plain PIs, i.e. indefinites that

are restricted to the nonspecific functions, but that are used in at least the indirect negation and free choice functions. Examples from Haspelmath's survey of plain PIs are English *any*, French *que ce soit*, Irish *ar bith*, Hindi *bhii*, and Hausa *koo*.

The proposed typology also offers an explanation for the differences between negative quantifiers and NCIs, which are treated alike on Haspelmath's functional map in being restricted to the direct negation function. Under the theory presented here, negative quantifiers are restricted to direct negation because they express inherent negation themselves, and are therefore their own context. NCIs, on the other hand, are restricted to direct negation because they bear the [NEG] feature. The data in Haspelmath's survey, as well as some data collected as part of the research presented in this paper, supports the division of Haspelmath's exclusively direct negation indefinites into negative quantifiers and NCIs.

Languages in the survey with exclusively direct negation indefinites include German, Dutch, English, Swedish, Icelandic, Latin, Serbian/Croatian, Polish, Russian, Lithuanian, Latvian, Ossetic, Kazakh, Hungarian, Georgian, and Chinese. The relevant indefinites in the first six of these languages are used without verbal negation, and are therefore assumed to be negative quantifiers. I have collected data from Serbian/Croatian, Russian, and Hungarian that appears to show that the precise distribution of these languages' exclusively direct negation indefinites conforms to that proposed here for NCIs. Confirmation of these typological predictions for the other languages listed in this paragraph has yet to be accomplished.

It is possible, though not likely, that the proposed typology represents the entire logical space of NIs. However, it represents at least the full range of NIs attested in the languages of Haspelmath's survey. Of the attested strategies for expressing nonexistence — i.e. $\neg\exists x.[Q(x)\&P(x)]$ — the typology gives two: (i) NQ, and (ii) PI plus negation. The other common strategy — (iii) normal indefinite plus negation — is not treated here because normal indefinites do not fall under the definition of NIs assumed in this paper. One other rare strategy apparently occurs in one language in Haspelmath's survey: Mandarin. This strategy is (iv) wide scope universal quantifier plus narrow scope negation, e.g. *Tā shéi-dōu bù xìnren* 'She everyone NEG trust' / 'She doesn't trust anyone'. This strategy also does not fall under the definition of NI assumed here. Considering the diversity of attested strategies for expressing existential negation, it seems likely that still more strategies are possible.

Assuming that the typology proposed here is to some extent accurate, a full explanation of the typology should account for the holes in many NI inventories. Most languages in Haspelmath's sample lack negative quantifiers and NCIs. In addition, plain PIs are fairly uncommon. The most common NI inventory appears to be one like that of Spanish or Japanese, with an FCI/NPI split, and no negative quantifiers or NCIs. There are also a few languages that appear to lack NIs altogether, using normal indefinites for existential negation and the various polarity functions.

7 Conclusion

In this paper, I proposed that NIs are restricted to a small number of types that are distinguished mainly by their semantic properties, which determine their different interpretations and distributions. The main division in the class of NIs is between negative quantifiers and polarity items. Negative quantifiers express inherent negative universal quantification, and therefore do not require licensors, and induce multiple negation readings with each other and with verbal negation. Polarity items were analyzed as scalar indefinites, so that they must cooccur with some kind of negation in order to express nonexistence. The two main subtypes of polarity items, NPIs and FCIs, were analyzed by a slight extension of the semantics proposed for plain polarity items, which was argued to explain their complementary interpretation and licensing.

I also developed a syntactic analysis of negative concord, arguing that NCIs are distinguished from plain NPIs by the [NEG] feature, and that independent principles of feature checking and A-movement explain the complementary distribution of NCIs and plain NPIs. A possible problem for the typology proposed here represented by certain distributional patterns of NPIs in some Southern Romance languages was explained in terms of an abstract negator.

Lastly, I discussed some of the typological support for the proposed analysis attested in Haspelmath's 1997 sample of indefinite pronouns. The typology of NIs in the sample was argued to match that proposed here.

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