

The Landscape of Negative Dependencies: Negative Concord and N-Words

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1 Introduction: negative dependency

A “negative dependency” is a relation that characterizes a linguistic expression α – the negative “dependent” – such that, in order for α to be “licensed,” the presence of negation is required in a clause or sentence. When negation is present, α must be in a particular structural relation to it (e.g., in its c-command domain, pending more specific restrictions on α). On the basis of Ladusaw (1979), Giannakidou (1997; 1998; 2000), Progovac (1994), Postal (2000; 2004), and others, there are two kinds

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of dependencies: licensing and anti-licensing, illustrated below, where *neg* is the negation and α the negative dependent:

- (1) Negative dependency
 - a. R (*neg*, α) (licensing)
 - b. *R (*neg*, α) (anti-licensing)



R requires that α be in the scope of *neg*, and *R is the opposite condition, that α avoids the scope of *neg*. The later is an antinegative condition and applies mostly to positive polarity items (PPIs; for a recent discussion, see Szabolcsi 2004; Ernst 2009; and Giannakidou 2011), but also to free-choice items (FCIs), which are typically blocked in the scope of negation in a number of languages (Giannakidou 1997; 1998; 2001; Giannakidou and Cheng 2006; Giannakidou and Quer 2013). Licensing says that the negative dependent must be in the scope of negation; if scope reflects overt c-command, this describes the following minimal pair:

- (2) a. Bill didn't see any student.
b. *Any student didn't see Bill.
- (3) a. $\neg\exists x$. student (x) \wedge see (Bill, x)
b. $\exists x$. student (x) \wedge \neg see (Bill, x)

Any student is a negative dependent, specifically a negative polarity item (NPI): it can only be interpreted in the scope of negation (3a); the scoping in (3b) is impossible. Appearance to the left of negation (in a position where *any* is not c-commanded by negation) is generally prohibited. However, not every negative dependent requires to be overtly c-commanded by negation, and language-specific conditions can play a role (see Uribe-Etxebarria 1994 for an attempt to reanalyze overt c-command as LF licensing; for semantic accounts of this tendency, see De Swart 1996; 2000; Giannakidou 1998).

In some cases, α strictly requires the presence of negation, but in other cases the dependency is of a broader nature and α appears in non-negative environments such as questions, modalities, conditionals, and so on. We see the contrast below, in *any* versus *in years* or *either*:

- (4) a. Bill didn't buy *any* books.
b. *Bill bought *any* books. (versus: Bill bought {*War and Peace*/two books}).
- (5) a. Did you see anybody?
b. She may talk to anybody.
c. Any cat hunts mice.
- (6) a. I haven't seen Bill *in years*.
b. *I saw Bill *in years*.
c. *Have you seen Bill *in years*?
d. *She may talk to him *in years*.

- (7) a. Bill doesn't like pasta *either*.
 b. *Bill likes pasta *either*.
 c. *Does Bill like pasta *either*?
 d. *She may like pasta *either*.

All NPIs are licensed by negation, but not all NPIs appear in questions and with modals, as we see: all three – *any*, *in years*, *either* – are negative dependents and need negation, but *any*'s sensitivity to negation is of a broader nature and includes negation as a subcase. Non-negative contexts that allow *any* do not tolerate *either* or *in years*.

There appear to be, then, at least two kinds of negative dependents: those that are strictly speaking dependent on negation, such as *either* and *in years* – which we can call “strong NPIs,” following the literature – and those like *any*, which appear in non-veridical contexts such as questions that are non-negative (Giannakidou 1997; 1998). We can call these NPIs “weak NPIs.” We proceed to elaborate on the relation between negation and non-veridicality in section 2, thus giving the general background for our discussion. In section 3 we focus on n-words, which we argue can be understood as a subtype of strong NPIs. In section 4 we present the non-negative theories of negative concord (NC) and offer a number of diagnostics to distinguish main classes of n-words. In section 5 we discuss the negative analyses of n-words. Section 6 concludes the chapter.

2 Negation, non-veridicality, and two kinds of polarity items

NPIs are typologically very common. Haspelmath (1997), in his large and impressive survey of indefinites – which in many ways defined the field of indefiniteness as we know it today – reports data from 40 languages, and the classes of NPIs and n-words feature prominently in each language. NPIs seem to exist in virtually every language we consider (see Giannakidou 2001; Horn 2012 for recent overviews). NPI licensing has likewise been a central issue in linguistic theory, and received considerable attention since Klima's (1964) work on English negation and Fauconnier's, Ladusaw's, and Horn's studies in the 1970s and early 1980s. In the earlier works the focus was on English NPIs, but in the 1990s, along with Haspelmath's work, specific studies of Dutch, Greek, and Hindi NPIs extended the empirical domain of polarity and made obvious a complexity that had gone unnoticed in the earlier works. NC has been a central part of the discussion, especially with the seminal works of Laka (1990) and Zanuttini (1991) on Romance n-words and Haegeman's (1995) work on West Flemish NC.

A main task in most theories of polarity has been to delimit the set of potential NPI licensers. This is known as the “licensing” question (Ladusaw 1996, Giannakidou 2011). In order to be able to predict whether an expression can act as a licenser, we expect a coherent characterization of the set of expressions that can possibly allow polarity items (PIs) within and across languages. The literature now agrees that the contexts that license NPIs are at least non-veridical and that NPIs come in stronger and weaker varieties, as mentioned already: NPIs are subject to stronger or weaker licensing conditions. Here is an illustration of the hierarchy of negative

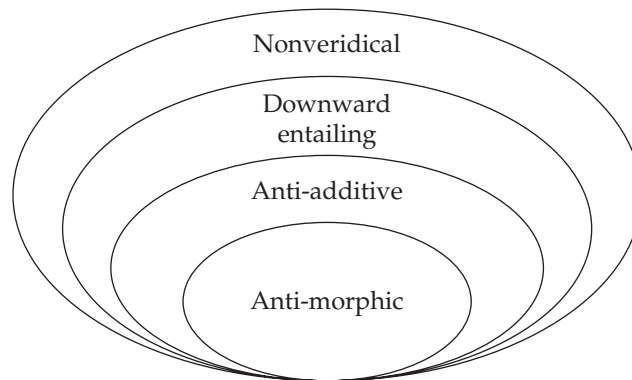


Figure 1 The negative/non-veridical hierarchy of polarity items

contexts for NPIs as it emerges from the works of Giannakidou (1997; 1998; 1999; 2011), Zwarts (1995; 1996), Hoeksema (1999), Bernardi (2002), and many others. Figure 1 depicts the different sets of licensers:

NPIs are sensitive to negation, but also to the broader property of non-veridicality; for example they appear in questions, as we saw earlier with *any*, and in modal sentences. The non-veridicality theory of polarity is a conservative extension of negation-based and downward entailment (DE) approaches (Ladusaw 1979; Von Stechow 1999) – but one that allows a wider distribution of NPIs than its predecessors in non-negative contexts. (For proof that all DE environments are non-veridical, see Zwarts 1995.)

Following the distinctions made by Zwarts (1981; 1996), the schema above divides NPI licensers into two classes: those that are negative (being DE, antiadditive, or antimorphic) and those that are not negative (but simply non-veridical). Within negative contexts, Zwarts (1996) further distinguishes two kinds: (a) *classically* negative contexts, which include antimorphic and antiadditive contexts, and (b) *minimally* negative contexts (mere DE contexts):

- (8) Three kinds of non-veridical contexts
- i. *non-negative contexts* (questions, imperatives, modal contexts);
 - ii. *classically negative*: An expression is classically negative iff it is antiadditive or antimorphic;
 - iii. *minimally negative*: An expression is minimally negative iff it is DE but not antiadditive or antimorphic.

Negation is antimorphic and classically negative, and negative quantifiers such as *nobody*, *nothing* are antiadditive and classically negative. Antimorphic negation corresponds to set-theoretic complementation and satisfies both de Morgan's biconditionals (four laws of negation), which are shown in (9) below. Antiadditive functions satisfy the first law and only the second half of the second (out of three laws), and mere DE only satisfies two:

- (9) De Morgan Laws: both satisfied by anti-morphic operators, that is, negation, *without*
- (i) $f(x \cup y) \leftrightarrow f(x) \cap f(y)$
 - (ii) $f(x \cap y) \leftrightarrow f(x) \cup f(y)$

- (10) Antiadditive (*nobody, nothing*)
 (i) $f(x \cup y) \leftrightarrow f(x) \cap f(y)$
 (ii) $f(x) \cup f(y) \rightarrow f(x \cap y)$
- (11) Minimal negation (DE)
 (i) $f(x \cup y) \rightarrow f(x) \cap f(y)$
 (ii) $f(x) \cup f(y) \rightarrow f(x \cap y)$
- (12) Negativity as a scale: <DE, antiadditive, antimorphic>

In this perspective, negativity is a gradable property: *nobody* is more negative than *few* (it satisfies three negative laws, but *few* only satisfies two); *not* is more negative than *nobody* because it satisfies all four laws. The difference in strength is reflected in the scale in (12). Non-veridical, non-negative elements have zero negativity, in other words none of the negative laws apply, and they are not included in the negativity scale. As Giannakidou (1998; 1999) points out, in a language without negative quantifiers (but with non-negative n-words), the distinction between antiadditive and antimorphic may not be relevant. But, even in this case, we have gradient negation in the distinction between antimorphic negation, mere DE, and non-veridicality. The non-veridical non-negative is the weakest kind of licenser.

Any appears with minimal negation, but stronger NPIs such as *either, in years* do not: **Few boys came either, *Few boys visited the museum in years*. N-words, as we see in section 2, are generally not licensed by DE, so they appear to be strong NPIs. Van der Wouden (1994) was among the first to correlate the strength of the licenser to the strength of the NPI.

The definitions of non-veridicality are given in (13) below.

- (13) Veridicality, non-veridicality, antiveridicality of functions
 (i) A function f is *veridical* iff $f(p)$ entails p .
 (ii) If $f(p)$ does not entail p , f is non-veridical.
 (iii) If $f(p)$ entails *not* p , f is *antiveridical*.

Under these definitions, the set of antiveridical functions is a subset of the set of non-veridical functions, since they satisfy (ii). Negative quantifiers such as *no student* are also antiveridical, because *No student slept* entails that, *for each student x , it holds that x didn't sleep*. Hence classically negative contexts (antiadditive and antimorphic contexts) are jointly understood as antiveridical.

Overall, non-veridicality allows unification of all NPI licensers as a natural class. Here is a small sample of non-negative, non-veridical NPI contexts:

- (14) a. *John saw anybody.
 b. Did John see anybody?
 c. John didn't see anybody.
 d. Few students saw anybody.
 e. John can see anybody (from where he is).
 f. Any minor must be accompanied by an adult.
 g. Pick any card.

- h. Ariadne will talk to anybody.
- i. Any cat hunts mice.

Note that *any* typically triggers free-choice reading in non-negative contexts, but there are plenty of other NPIs that appear in exactly these contexts without free-choice readings (as shown in languages like Greek, Mandarin, Korean, Salish; see the overview in Giannakidou 2011; also Matthewson 1998; Giannakidou and Yoon 2016). Given the broader distribution of NPIs in non-veridical contexts, we follow Giannakidou (1999), who offers the following general definition of a polarity item (Giannakidou 1999, 1):

- (15) Polarity item
- (i) A polarity item α is an expression whose distribution is limited by sensitivity to some semantic property β .
 - (ii) β is at least non-veridical.

This is the all-inclusive definition from which various further, more specific conditions can be derived, predicting distributions of various polarity items, both cross-linguistically and within a single language. More specific implementations have been thoroughly discussed in recent overviews (see especially the overview works by Horn 1989; Ladusaw 1996; Giannakidou 2006; Hoeksema 2012; and Zeijlstra 2013a), and we will not offer more discussion here. What we retain is the distinction between strong NPIs that appear with the negative core (antimorphic, antiadditive, jointly antiveridical) and weak NPIs that appear in a whole array of non-veridical contexts, including non-negative ones. N-words (and this will become clear in our discussion next), are strong NPIs.

Importantly, the term NPI is a descriptive label and does not impose a syntactic category of the NPI or a particular meaning. NPIs can be nominal constituents, but there are also NPI adverbs (*ever*, Dutch *ooit*; Hoeksema 1999), modal verb NPIs (*hoeven*, *brauchen* ‘need’ in Dutch and German; Van der Wouden 1994), NPI focus particles meaning ‘even’ (Greek *oute kan*, Giannakidou 2007; Spanish *nisiquiera*, Herburger 2003; Alonso-Ovalle 2006), English additive particle *either*, and so on. There is a class known as “minimizers” because they contain expressions of minimal amount, such as *lift a finger* or *say a word* in *Bill didn’t lift a finger to help me* and *She didn’t say a word all night* (Israel 2001; 2011). Finally, it has also been argued that negative markers themselves can be NPIs; for instance, Chatzopoulou (2012) argues that the Greek negator *m̄*, throughout the history of Greek is an NPI appearing also in questions and conditionals; Zeijlstra (2010) has made similar claims for French *ne*.

Our emphasis in the rest of the chapter will be on n-words and the phenomenon of NC. As we said, it becomes clear under our working definition (16) that n-words must be understood as NPIs (as suggested already in Ladusaw 1992).

3 N-words and negative concord

The term “n-word” originates in Laka (1990) and is employed to refer to negative dependents often marked with *n-*, such as Italian *nessuno*, Spanish *nadie*, and

Portuguese *ningu* ('nobody'). N-words appear in NC structures while also featuring as fragment answers with negative meaning.

3.1 Definition of n-words

Laka introduced the term “n-word” as a descriptive label, and Giannakidou (2006) offers the following working definition:

- (16) *N-word*: An expression α is an n-word iff:
- (i) α can be used in structures that contain sentential negation or another α -expression, yielding a reading equivalent to one logical negation; and
 - (ii) α can provide a negative fragment answer (i.e., without the overt presence of negation).

The definition in (16) does not appeal to morphological negative marking, despite the prevalent presence of *n-*. The reason is that some n-words contain *n-* (e.g., *ningu*, *nessuno*) but others do not (e.g., Catalan *res* or Greek n-words); some n-words are *wh*-marked (e.g., in Japanese and Korean):

- (17) a. Italian
 Gianni *(non) ha visto niente
 Gianni not has seen n-thing
 ‘Gianni hasn’t seen anything’
- b. Catalan
 *(No) he dit res
 Not have.1SG said n.thing
 ‘I haven’t said anything’
- c. Hungarian
 Balász *(nem) látott semmit
 Balász not saw n-thing
 ‘Balász didn’t see anything’
- d. Serbian/Croatian
 Milan *(ne) vidi ništa
 Milan not sees n-thing
 ‘Milan doesn’t see anything’
- e. Polish
 Janek *(nie) pomaga nikomu
 Janek nog help n-person
 ‘Janek doesn’t help anybody’
- f. Greek
 *(Dhen) ipa TIPOTA.
 Not said.1SG n.thing
 ‘I didn’t say anything’
- g. Japanese
 John-wa nani-mo tabe-*(nak)-atta
 John.TOP n-thing eat.not.PAST
 ‘John didn’t eat anything.’

The structures with n-words exhibit “concord” between the negation and the n-word, which results in a single-negation reading. We talk about NC in situations where the negation is interpreted just once, although it seems to be expressed more than once in the clause. One occurrence of negation is the negative marker; the second occurrence appears to be the n-word. Other terms used for NC, or the rule system underlying it, are “double attraction,” “neg-incorporation” (Klima 1964), or “negative attraction” (Labov 1972).

There is no uniform morphological criterion for all n-words as a class, hence it is more accurate to identify them by means of distributional and meaning-based criteria, as in our working definition. The definition also captures the fact that n-words behave similarly to negative quantifiers in Germanic (e.g., English *nobody*, Dutch/German *niemand*) with respect to criterion (16ii):

- (18) Italian, Spanish, Catalan, Polish, Dutch/German
 Q: Who did you see?
 A: Nobody / *Nessuno/Nadie/Ningu/Nikommu/Niemand*

But, in contrast to n-words, negative quantifiers in Germanic languages do not co-occur with negation or with one another. If they do, they give separate negative meanings, resulting in a so-called double-negation (DN) reading:

- (19) a. John didn’t see nobody.
 DN: John saw someone.
 b. Nobody said nothing.
 DN: Everybody said something.
- (20) Dutch
 a. Niemand heeft niets gezegd.
 nobody has nothing said
 DN ‘Nobody has said nothing’ = ‘Everybody has said something’
 b. Ik heb niet niets gezegd.
 I have not nothing said
 ‘I haven’t said nothing’ = ‘I have said something’

DN readings may also arise in some NC languages, for instance in French, Spanish, or Afrikaans (De Swart and Sag 2002; De Swart 2010; Biberauer and Zeijlstra 2012); but in many NC languages double-negation readings are blocked (e.g. in Greek and Slavic languages), and if they arise they are marked in particular ways. In recent work, Déprez et al. (2015), Espinal and Tubau (2016), and Espinal, Borràs-Comes, and Prieto (2014) provide experimental confirmation that NC in Catalan is the preferred and faster interpretation for negative sentences that either omit or contain the overt negative marker *no* ‘not’ – while also revealing that a non-negligible amount of DN readings also arises, but mainly when the negative marker co-occurs with a preverbal n-word and when the n-word has a complex DP structure. Espinal, Borràs-Comes, and Prieto account for these findings within a micro-parametric approach that features ambiguous n-words (non-negative vs. negative) and a possible ambiguous negative marker *no* (negative vs. expletive), variably available for Catalan speakers.

In earlier literature, a frequently asked question was whether n-words are NPIs or negative quantifiers. Within our general perspective, which is expressed by our definition of NPI in (16), n-words *are* NPIs because they require a negative marker to be present. Purely in descriptive terms, they are NPIs, albeit of a special kind, regardless of whether they are semantically negative or not. The question now becomes how n-words differ from other NPIs and how to reconcile the seemingly negative content of the n-word as it appears in the fragment answer with its concord use. Various ideas have been suggested; but, before we move on to the theories, it is useful to mention the typological distinction between strict and non-strict NC, a distinction that originates in Giannakidou 1997):

- (21) Strict and non-strict NC
- i. *Strict NC*: The n-word *always* requires the presence of the negative marker, regardless of position in the sentence.
 - ii. *Non-strict NC*: The n-word can appear without the negative marker in preverbal position or when construed with another preverbal n-word.

Strict NC is observed in Slavic languages, Greek, and Hungarian, as shown below, as well as in Albanian, Romanian, and several East Asian languages (e.g., Japanese, Korean):

- (22) Czech
 Dnes nikdo *(ne-)volá nikoho.
 Today n-body NEG-calls n-body
 'Today nobody calls anybody.'
- (23) Greek
 KANENAS *(dhen) ipe TIPOTA.
 n-person not said.3SG n-thing
 'Nobody said anything.'
- (24) Hungarian
 Senki *(nem) látott semmit.
 n-person not saw.3SG n-thing
 'Noone say anything.'

Here we see that the n-word acts like a strong NPI: it requires negation to be licensed.

In non-strict NC varieties – which are found mostly in Romance languages, with the exception of Romanian – the preverbal n-word occurs without negation, and a preverbal n-word can license a postverbal one. We give examples below from Italian:

- (25) Italian
- a. Non ha telefonato nessuno.
 NEG has called NEG.body
 'Nobody called.'

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- b. *Ha telefonato nessuno.
Has called NEG.body
- c. Nessuno ha telefonato a nessuno.
NEG.body has called to NEG.body
'Nobody has called anybody.'

Structures with multiple n-words that disallow the negative marker are known as “negative spread” (Den Besten 1986). In (25c) the first n-word “licenses” the second, postverbal one, without *non* being present.

Finally, n-words contrast for instance with weak NPIs such as *any*, which can *never* induce a semantic negation and therefore cannot be used as negative fragment answers.

- (26) Q: Whom did you talk to?
A: *Anybody.

Hence the ability to convey a negative answer in elliptical contexts is a property of n-words, but not of other NPIs.

3.2 N-words and negative concord: compositionality

At first sight, the concord reading seems to violate the principle of compositionality (see Frege 1892; Janssen 1997), and this triggers the following question:

- (27) The *compositionality question* of NC
If two elements are independently able to induce a semantic negation, how is it possible that jointly they yield only one semantic negation?

This raises a more general question about polarity. Why do we need polarity items at all? If the meaning of a NC is equivalent to that of the structure with a single negation and if n-words appear to be NPI versions of negative quantifiers, then the question is: Why do we need them? NC appears to be seriously redundant.

In answering these questions, it is important to remember that natural language is full of redundancy. We think of it as “agreement,” that is, as cases where we have multiple exponents of what appears to be a single semantic category (e.g., gender, person, number). Naturally, agreement was invoked for NC in the literature (Haegeman and Zanuttini 1991; 1996; Zanuttini 1991; Zeijlstra 2004; Haegeman and Lohndal 2010), and in this frame NC translates into morphosyntactic agreement, producing a non-violable grammatical requirement that explains the very clear judgment with unlicensed n-words: if licensing fails, the sentences are ungrammatical. If agreement is centrally involved in the grammatical licensing of (at least some) n-words, then we have an additional argument that it is an essential property of human grammar rather than some particular phenomenon restricted to morphological phi-agreement.

We would like NC not to be an anomaly; we want to be able to derive it from other, better understood phenomena. The same desideratum applies, at a more general level, to all polarity phenomena: we do not want to posit them in the grammar

as composition-external filters, but we want to derive them from rules that we need independently anyway (for extensive discussion, see Krifka 1995; Giannakidou 1998; 2011; Chierchia 2006; 2013). Just as with agreement, the reduction of NC to (a special kind of) NPI licensing is an attempt to do precisely this. Another attempt in the same spirit has been that of Progovac (1988; 1994), who reduces the NC to binding theory. We refer the reader to the theory of *dependent, non-deictic* variables (Giannakidou 1998; 2011; Giannakidou and Quer 2013) as a way to update the binding account and combine it with a semantic explanation of what the licensing of anaphors and NPIs have in common.

Ladusaw (1992) hypothesizes that n-words are non-negative and NPIs. Acquaviva (1993), Giannakidou (1997), and others developed further this idea by arguing that n-words are Heimian indefinites, that is, variables without quantificational force. This renders them similar to *any*, but leaves unanswered the negative fragment answer property and the preverbal licensing without negation of Romance n-words:

- (28) Italian
- a. Nessuno ha telefonato.
N-body has called
'Nobody called.'
 - b. *Anybody has called.

N-words, unlike *any*, can “self-license” negation (to use Ladusaw’s term) in preverbal position (in strict NC) and in fragment answers (in all NC languages). Building on this idea, Giannakidou (1998; 2000) argues that, in all cases where the negation is absent, it is deleted under ellipsis; it is therefore present in the Logical Form (LF). Another proposal, Zeijlstra (2004; 2008), states that n-words differ from other NPIs in that n-words, but not *any*, are required to stand in a syntactic Agree relation with a negative operator, which in turn may be phonologically null.

Another approach, initiated by Haegeman and Zanuttini (1991; 1996) and elaborated upon by De Swart and Sag (2002) and De Swart (2010), takes a completely different angle: it argues that every n-word is semantically negative and that a special means of *absorption* mechanism ensures that in certain languages multiple negative elements yield one semantic negation. We consider these proposals in detail in the following sections. Remember that, in the light of double-negation experiments carried out by Espinal, Borràs-Comes, and Prieto (2014) and by Espinal and Tubau (2016), it can be plausible to assume that there may be two different analyses of the same n-word within a given language.

To sum up, there are two ways of addressing the question of compositionality in NC. Either one adopts a very general absorption mechanism that generates NC readings with an additional restriction that explains why NC readings are systematically blocked in most double-negation languages and vice versa, or one treats n-words as semantically non-negative NPIs that can be licensed by negation overtly (strict NC), or both overtly and covertly (non-strict NC).

3.3 Strict and non-strict negative concord

As we suggested already, the strict NC variety n-word seems to be the easiest to handle as NPI: in strict NC n-words (regardless of their meaning) are NPIs licensed by negation, whatever the mechanism is. But in negative spread, where an n-word can license another n-word without a negative marker, the issue becomes more complex. To complicate things further, across non-strict NC languages we can attest differences with respect to the possibility of having n-words in the preverbal position. Minimally, we have the following typology:

- (29) N-words in non-strict NC languages
 (i) N-words do not need the negative marker when preverbal.
 (ii) A preverbal n-word “licenses” a postverbal one (negative spread).

But there is variation with respect to the presence of the negative marker with preverbal n-words. Some languages forbid that; others allow it. We can think of the first class as “strictly non-strict” n-words. In this variety – predominantly attested in Italian, Spanish, and Portuguese – postverbal n-words must be accompanied by a preverbal negative element (an n-word or a negative marker), but preverbal ones *may not* be followed by the negative marker.

- (30) Italian
- a. Ieri nessuno (*non) ha telefonato.
 Yesterday NEG.body NEG has called
 ‘Yesterday nobody called.’
- b. Ieri *(non) ha telefonato nessuno.
 Yesterday NEG has called NEG.body
 ‘Yesterday nobody called.’
- c. Ieri *(nessuno) ha telefonato nessuno.
 Yesterday NEG.body has called NEG.body
 ‘Yesterday nobody called anybody.’

The only possible reading in the above sentences, to the extent that it is available, is the DN reading, so the n-word in the preverbal position *must* be interpreted negatively.

The second type of non-strict NC can be called “optionally non-strict NC.” In West Flemish, for instance, the negative marker with NC *is* possible with preverbal n-words without a double-negation reading (see Haegeman 1995; Haegeman and Zanuttini 1996), as it is in certain varieties of Catalan (Quer 1993; Vallduví 1994):

- (31) West Flemish
 da niemand Valère (nie) ken.
 that NEG.body Valère NEG knows
 ‘that nobody knows Valère.’

- (32) Catalan; restricted varieties
 Cap estudiant (no) va dir res.
 N- student not aux say n-thing
 ‘No student said anything.’

Finally, French is an NC language that has a real negative marker *pas* and an additional expletive negative marker *ne*. Although *pas* is the main negator in French, it is systematically banned from NC constructions (see Penka 2010; Zeijlstra 2010). A sentence with one or more n-words and *pas* always gives rise to a DN reading (De Swart and Sag 2002; De Swart 2010):

- (33) French
 Personne (ne) mange pas rien.
 N-body NEG eats NEG n-thing
 ‘Nobody eats nothing.’ = ‘Everybody eats something.’

The typological picture of n-words with respect to the position parameter and the possibility of negative spread (multiple n-words occurring without a negative marker) are summarized in Table 1, which is replicated from Giannakidou (2006).

In connection to these data, Giannakidou notes:

We have a continuum with Strict NC on the one end (rows 1–[7]) and negative-spread-only on the other, identified with French in row [12], which systematically licenses double negative readings. In between we have Catalan, closer to the Strict NC end, and Italian, Spanish, and Portuguese, closer to the French end. Keep in mind that the proper set of comparison here is the set of Germanic negative quantifiers which do not allow NC, and [would] therefore answer “no” to the three possibilities indicated in the table. French is almost identical to the Germanic situation, save for those cases where multiple occurrences of n-words do not allow for double negative readings. (Giannakidou 2006, 24)¹

In other words, the sensitivity of n-words, as a class, to the presence of negation or of another n-word looks gradient. However, it is also important to note that this apparent gradience may be due the coexistence of different varieties in the same language. To make things a bit more complicated, notice that, as discussed in

TABLE 1 The distribution of n-words with respect to the position and availability of negative spread in a number of languages discussed in the literature

<i>Language</i>	<i>PreV n-word + negative marker</i>	<i>PostV n-word + neg. marker</i>	<i>Negative spread</i>
1. Greek	Yes	Yes	No
2. Hungarian	Yes	Yes	No
3. Polish	Yes	Yes	No
4. Russian	Yes	Yes	No
5. Czech	Yes	Yes	No
6. Serbian/Croatian	Yes	Yes	No
7. Romanian	Yes	Yes	No
8. Catalan	Yes	Yes	Yes
9. Spanish	No	Yes	Yes
10. Italian	No	Yes	Yes
11. Portuguese	No	Yes	Yes
12. French	No	No	Yes

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Giannakidou (2006), even within the class of strictly non-strict n-words, there are more subtle details to be addressed. For instance, although negative spread in non-strict NC languages is fine with “bare” n-words, that is, with n-words as independent arguments, it seems degraded when n-words are used as modifiers or determiners. The fact has been noted in Acquaviva (1997) for Italian (and attributed to Manzotti and Rigamonti 1991), but it has not been discussed much in the relevant literature.

- (34) Italian
 ??/Nessuno studente ha letto nessun libro.
 N- student has read NEG book
 #‘No student has read any book.’

(Acquaviva 1997, 69)

The sentence is reported infelicitous on the intended NC reading. Similarly, structures with two n-words that function, both, as determiners are excluded in Spanish and Catalan (Josep Quer, personal communication). Compare the two sets of sentences below:

- (35) Spanish
 a. Ningún estudiante dijo nada.
 No student said n-thing
 ‘No student said anything’
 b. Cap estudiant (no) va dir res.
 No student not aux say n-thing
 ‘No student said anything’

- (36) Spanish
 a. ??/Ningún estudiante dijo ninguna pregunta.
 No student answered no question
 b. Cap estudiant va contestar cap pregunta.
 No student AUX answer no question

The reported unacceptable judgment (in 36a) in Spanish reflects the availability of only a DN reading. The sentence is fine, but without negative spread. In Catalan, on the other hand, if we add the negative marker “no,” the result is a NC reading ‘No student answered any question’ and not the DN reading ‘It is not the case that no students answered any questions.’

Naturally, theories of NC should, depending on the language(s) of departure, be able to explain the differences between different types of licensing conditions that n-words are subject to cross-linguistically. In the next sections we go on to discuss existing theories that have aimed to address these questions. We first discuss the non-negative approaches in section 4, starting with the idea that n-words are indefinites. This analysis is most faithful to the idea that n-words are NPIs, and is very well suited to strict NC patterns. We then proceed with Zeijlstra (2004; 2008), who extends the semantically non-negative approach to all kinds of NC under syntactic agreement. We also present the universal analysis of NPIs proposed by Giannakidou (1998; 2000). Once we are done with the non-negative analyses, in section 5 we move on

to the negative approaches initiated by Zanuttini (1991) and Hagaeman and Zanuttini (1991) and followed up by De Swart and Sag (2002) and De Swart (2010).

4 N-words as indefinites

The idea that n-words are not negative has been implemented in three ways: (i) n-words are indefinites that are bound existentially under the scope of negation, (ii) n-words are indefinites that must stand in an agreement relation with negation, and (iii) n-words are universal quantifiers that must outscope negation. We consider these three approaches in turn.

4.1 The indefinites approach

Historically, the approach that takes n-words to be semantically non-negative indefinites signals the first attempt to reduce NC to an independently motivated mechanism: the binding of indefinites. Ladusaw (1992; 1994) announces the program, and the idea is developed in Acquaviva (1993; 1997), Giannakidou and Quer (1995; 1997), Giannakidou (1997), Déprez (1997; 2000 for Haitian Creole), Richter and Sailer (1998), and others. In this approach, n-words are indefinites with no quantificational force of their own (Kamp 1981; Heim 1982). N-words thus contribute just a predicate and a free variable. The denotation of the n-word “n-person” would then be as follows:

(37) $[[n\text{-person}]] = \text{person } (x)$

There is no negation in the denotation, n-words are regular indefinites like *a person*, *any person*. And, just like *any*, n-words differ from regular indefinites in that they come with a “roofing” requirement (Ladusaw 1992) that they be bound by existential closure under negation.

N-words look very much like *any* in this approach; and, by assuming that n-words have no inherent quantificational force and are existential by default, the indefinites approach seems to offer an easy solution to the compositionality problem. The indefinites analysis has also been popular for Germanic n-words (e.g., Rullmann 1995; Penka 2010): *no-one*, *k-ein* can be understood as *not one*, *not ein*, as is also justified by split-scope readings and by some ellipsis facts discussed in Merchant (2013). The difference between n-words in NC and Germanic n-words is that the Germanic ones definitely contain negation.

Additional evidence for the indefinite status of n-words comes from that fact that n-words can have purely existential uses in non-negative contexts, as illustrated below for Catalan (Quer 1993; Vallduví 1994), Spanish (Laka 1990), and Italian (Zanuttini 1991):

(38) Catalan
 a. Li diràs res?
 Him/her tell.FUT.2SG n-thing
 Will you tell him/her anything?

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- b. Si aneu enlloc, digueu-m'ho.
 If go.2PL anywhere, tell.IMP.2SG me
 'If you go anywhere, tell me'
- c. Tothom qui vulgui res, que m'ho digui.
 Everybody who wants n-thing, that me tell
 'Everybody who wants something/anything, should let me know'

(39) Spanish

- a. Perdimos la esperanza de encontrar ninguna salida.
 Lost.1PL the hope to find no exit
 'We lost the hope of finding any way out'
- b. Todos aquel que tenga nada que dicer
 All who that have n-thing that say
 'Everybody who has anything to say ...'

(40) Italian

- a. È venuto nessuno?
 Is.3SG come n-body
 'Has anybody come?'
- b. E l'idea più stupida che nessuno abbia mai avuto
 Be.3SG the idea more stupid that n-body have.SUBJ.3SG ever had
 'It's the dumbest idea anybody ever had'

Here we see n-words in three languages appearing in non-negative environments (questions, conditionals, scope of universals) with a purely existential reading, similar to *any*. The indefinites approach is also consistent with the fact that many n-words morphologically reflect an existential component "one" – for example *uno* in Italian *nessuno*, or *enas* in Greek *kan-enas*.

At this point it will be useful to consider Greek, because this language has been argued to distinguish the indefinite from the quantificational reading of n-words. Since Veloudis (1982), it has been a common observation that modern Greek has two variants of n-words (illustrated below), which are distinguished by "emphatic accent," marked here by upper case (Veloudis 1982; Tsimpli and Roussou 1996; Giannakidou 1997). Chatzikonstantinou (2016) presents experimental evidence that prosodic prominence consists of both lengthening and higher pitch.

(41) Greek

- kanenas/KANENAS 'anyone, anybody/no-one, nobody'
 tipota/TIPOTA 'anything/no thing'
 pote/POTE 'ever/never'
 puthena/PUTHENA 'anywhere/nowhere'
 katholu/KATHOLU 'at all/not at all'

One element in the paradigm contains the word *kan*, which is one of the four words for 'even' in modern Greek (Giannakidou 2007; Giannakidou and Yoon in press). *Kan-enas* is literally 'even one', but notice that this composition does not characterize the entire paradigm (even though in Korean and Albanian it does: Xherija in press; Giannakidou and Yoon 2016).

With negation and antiveridical *without*, both variants of n-words appear:

- (42) Greek
- a. Dhen idhe kanenan o Janis.
not saw NPI-person the John
'John didn't see anybody.' = John DIDN'T see anybody (#at all).
 - b. Dhen idhe KANENAN o Janis.
not saw n-person the John
'John didn't see ANYBODY at all.'
 - c. *Idhe kanenan/KANENAN o Janis.
saw NPI-person/n-person the John

- (43) Greek
- xoris na dhi {kanenan/KANENAN}.
without SUBJ see.3SG n-person
'without having seen anybody.'

'Without', an antiveridical element, is a general licenser of n-words (also in the other languages discussed so far). Truth-conditionally, the statements with emphatic and non-emphatic n-words are equivalent, but they differ in rhetorical force: the emphatic variant is intensified (see Giannakidou and Yoon in press), whereas the non-emphatic is not. Importantly for our discussion, the two paradigms also differ with respect to apparent negativity and distribution, as discussed in great detail in Giannakidou (1997; 1998; 2000), a summary of which we give below.

In non-veridical contexts outside the negative, the emphatic n-word is ruled out but the non-emphatic one is fine:

- (44) Greek
- Pijes {poté/*POTE}sto Parisi?
went.2SG n-ever in-the Paris
'Have you ever been to Paris?'

- (45) Greek
- An dhis tin Elena {puthená/*PUTHENA}, na tis milisis.
If you see Elena anywhere, talk to her.

The non-emphatic n-word is further licensed in non-veridical environments that also license *any*, but the Greek n-word lacks the free-choice reading that *any* may exhibit in some of these contexts. In all cases above, the non-emphatic n-word gives rise to narrow-scope existential readings under negation (like the n-words in our earlier examples from Spanish, Italian, and Catalan). On this view, Greek allows us to see clearly the possibility of existential n-word via emphatic versus non-emphatic variants. In addition, only the emphatic NPI can yield a successful fragment answer:

- (46) Greek
- Q: Pjon idjes?
'Whom did you see?'
- A: {KANENAN/*kanenan}
Nobody/*Anybody.

Again, the non-emphatic n-word behaves on a par with *any*. Giannakidou (1997; 2000) argues that the n-word in fragment answers is the remnant of an elliptical structure and, “given that the remnants in fragment answers are accented, non-emphatics are excluded because they are not accented” (Giannakidou 2000, 469). Then, for her, negative fragment answers do not entail that the emphatic word is negative, since the structure contains ellipsis that itself contains a negation. For more on the issue of ellipsis and n-words, see Giannakidou (2006), Watanabe (2004), and Zeijlstra (2013b), in conjunction with some critical remarks and comments in the conclusion of this section. Merchant (2013) offers further supporting comments on the ellipsis account of n-words.

The Greek data are important also because they suggest a role for prosody in distinguishing varieties of n-words. Many Slavic languages have existential NPIs and n-words; but, unlike Greek, they block the existential NPI in the context of negation and license only the n-word (consider the distinction between *i*-NPIs and *ni*-NPIs in Serbian or Croatian, discussed in Progovac 1994 and Blaszczak 1999; the phenomenon is known as the *bagel* problem, after Pereltsvaig 2004). Crucially, the recent works on double negation (Espinal, Borràs-Comes, and Prieto 2014; Déprez et al. 2015; Espinal and Tubau 2016) also point out a role of prosody in distinguishing DN from NC readings.

Prosodic differentiation in NC thus emerges as a decisive factor in distinguishing NPI paradigms. Hoeksema (2010) mentions Sahlin’s (1979) study of a prosodically marked-up corpus of spoken English, where we find substantial differences between stressed and unstressed *any*. Krifka (1995) also mentions a distinction between emphatic and non-emphatic *any*. Hoeksema (1999) reports on several prosodic differences between polarity-sensitive and non-sensitive *ooit* ‘ever’ in Dutch, possibly with comma intonation in the case of non-sensitive *ooit* and with emphatic lengthening of the vowel in the case of polarity-sensitive *ooit*. Yoshimura (2004) argues for prosodic differentiation in Japanese NPIs, Eckardt (2012) similarly argues for emphatic and non-emphatic variants of the German *irgend*-indefinite, and we have similar observations for Arabic NPIs (Hoyt 2014). These observations collectively demonstrate prosodic marking to be rather systematically recruited in NPI and n-word distinctions (for a recent discussion, see also Giannakidou and Yoon 2016). Emphatic NPIs and n-words are restricted to negative contexts.

The indefinites approach also faces challenges. One challenge is presented by the locality of NC. Cross-linguistically, n-words, as opposed to indefinites, are generally not licensed long-distance (Longobardi 1991; Zanuttini 1991; Progovac 1994; Giannakidou 1997; 1998; 2000; Przepiórkowski and Kupc 1997; Brown 1999; Weiß 2002; among many others), as is shown for Greek and Serbian or Croatian below:

(47) Greek

Dhen prodhosa mistika [pu eksethesan {kanenan/*KANENAN}]
 Not betrayed.1SC secrets that exposed.3PL anybody/n-body
 ‘I didn’t reveal secrets that exposed anybody’

N-words are also not licensed in islands:

- (48) Greek
 I Ariadne dhen ipe oti idhe {tipota/*TIPOTA}.
 the Ariadne not said.3SG that saw.3SG anything/n-thing
 ‘Ariadne didn’t say that she saw anything.’
- (49) Serbian
 a. Milan ne tvrdi [da Marija poznaje {*ni(t)koga/i(t)koga}]
 Milan no claim that Maria know n-body/anybody
 ‘Milan does not claim that Maria knows anybody’
 b. Ne zelim da vidim {*ni(t)koga/i(t)koga}
 Not wish.1SG that see.1 SG n-body/anybody
 ‘I do not wish to see anybody’

In (50), which comes from Progovac (1994), the so-called *i*-indefinites are just like *any*-NPIs in generally being licensed long-distance. *Ni-indefinites*, on the other hand, are like the emphatic Greek n-words and are licensed only locally. In some cases, for instance in Polish and Russian, even locality is very strict: NC is impossible in *all* non-monoclausal domains, even if these domains are subjunctival or infinitival. Other languages allow long-distance licensing of n-words in subjunctive clauses (e.g., Spanish and Italian: see Herburger 2001; Zeijlstra 2004; Greek, Giannakidou 1998; 2000). If n-words were indefinites, we should not find such locality constraints, as indefinites have “unbounded” scope, as observed above with *any* and non-emphatics.

To sum up, the indefinite analysis of n-words is the implementation most faithful to the idea that n-words are NPIs. At the same time, however, it predicts that n-words would be similar to *any*; but they are not. The indefinite analysis also stumbles upon the locality problem. These problems are not insurmountable, but they do necessitate additional rules.

4.2 N-words as agreement markers

Zeijlstra (2004; 2008) presents a variant of the non-negative indefinite approach that is partly based on the locality considerations mentioned above. He proposes that n-words are like other NPIs but, in contrast to other NPIs, must be licensed by negation *in the syntax*. Concretely, it is claimed that n-words are semantically non-negative indefinites that carry an uninterpretable negative feature [uNEG], which must be checked against a higher, semantically negative element that carries an interpretable formal negative feature [iNEG] (see also Ladusaw 1992; Brown 1999; Weiß 2002 for similar proposals along these lines). NC, in his view, is nothing but an instance of syntactic agreement. Since the Agree system (after Chomsky 1995; 2001) that Zeijlstra adopts allows for Multiple Agree (see Ura 1996; Hiraiwa 2001), multiple n-words can be checked against a single negative operator (see Haegeman and Lohndal 2010 for an alternative to this approach that does not allude to Multiple Agree). This approach is thus close in spirit to the agreement theories of NC of the early 1990s (Zanuttini 1991; Haegeman and Zanuttini 1991; 1996;

Ladusaw 1992; Haegeman 1995); however, unlike these theories, which rely on negativity of n-words, Zeijlstra's approach does not posit semantic negativity for n-words.

Zeijlstra further assumes that, just as in other cases of syntactic agreement, the element carrying the interpretable feature may be phonologically null. A good parallel is the null subject. Whereas in some languages finite verbs do not agree with their subjects and every subject must be pronounced, other languages allow their finite verbs to agree with a phonologically null subject. Null subjecthood and NC, for Zeijlstra, are two sides of the same coin, as shown below in the case of Italian. In both examples some element (the n-word and the finite verb, respectively) is equipped with a feature that requires that some other, possibly null element check it (the abstract negative operator and abstract *pro*, respectively).

- (50) Italian
- a. $Op_{\text{NEG}[\text{iNEG}]}$ nessuno $_{[\text{uNEG}]}$ telefona
 - b. $ro_{[\text{i3SG}]}$ telefona $_{[\text{u3SG}]}$

Following this line of reasoning, if the negative marker carries a feature [iNEG], no n-word is allowed to c-command it and still yield an NC reading, as feature checking cannot take place in the reverse direction. In strict NC languages such as Czech, however, the negative marker may be preceded by an n-word. For Zeijlstra, this indicates that in these languages the negative marker cannot carry [iNEG], and thus cannot be the phonological realization of the negative operator either. Instead, fully analogously to n-words, Zeijlstra takes the negative marker in these languages itself to carry [uNEG]. This [uNEG] feature can then only be checked by an abstract negative operator *Op* that, if present, c-commands all other n-words. Below are the relevant structures for preverbal and postverbal n-words in strict and non-strict NC languages:

- (51) Czech: strict NC
- a. $Op_{\text{NEG}[\text{iNEG}]}$ nikdo $_{[\text{uNEG}]}$ nevolá $_{[\text{uNEG}]}$
 - b. $Op_{\text{NEG}[\text{iNEG}]}$ nevolá $_{[\text{uNEG}]}$ nikdo $_{[\text{uNEG}]}$

- (52) Italian: non-strict NC
- a. $Op_{\text{NEG}[\text{iNEG}]}$ nessuno $_{[\text{uNEG}]}$ telefona
 - b. Non $_{[\text{iNEG}]}$ telefona nessuno $_{[\text{uNEG}]}$

Note that, in this frame, negative markers in strict NC languages are not the carriers of semantic negation but rather force the presence of an abstract negative operator that carries [iNEG] as well; they are signals of negation.

- (53) Czech
- Dnes $Op_{\text{-}[\text{iNEG}]}$ nevolá $_{[\text{uNEG}]}$.
 today NEG.calls
 'Today he doesn't call.'

If the [uNEG]/[iNEG] distinction among negative markers is correct, this explains the strict NC vs. non-strict NC pattern by reducing it to the semantic value of

negative markers: negative markers in non-strict NC languages, such as Italian *non* and Spanish *no*, carry a feature [iNEG], whereas negative markers in strict NC languages, such as Czech *ne* and Polish *nie*, carry a feature [uNEG]. This way the analysis accounts for NC compositionally; and it accounts for the above-discussed cross-linguistic variation attested with respect to NC.

The advantages of the system outlined above are that it can allude to an independently motivated self-licensing principle (whose application is attested in other Agree domains as well) and, like the indefinites approach, it takes n-words to be different from existential NPIs and from negative quantifiers. The locality of NC, which is a challenge for other indefinites approaches, follows easily as a result of the locality conditions on Agree itself.

A question that arises, though, concerns the necessity of licensing by some preverbal negatively marked element. Following Acquaviva (1997) and Herburger (2001), Zeijlstra takes the role of the negative marker to be one of ensuring that the abstract negative operator takes scope above vP , a requirement for the expression of sentential negation (see also Penka 2010). As Herburger (2001) has illustrated in the Spanish example below, without such a marker for negation, postverbal n-words may still appear to be under the scope of negation, but this negation then takes a much lower scope.

(54) Spanish

- a. El bebé no [vP está mirando a nadie].
 The baby NEG is looking at NEG.thing
 'The baby isn't looking at anything.'
 $\neg\exists x\exists e[\text{look}'(e) \ \& \ \text{Agent}(e, \mathbf{b}) \ \& \ \text{thing}'(x) \ \& \ \text{Patient}(e, x)]$
- b. El bebé [vP está mirando *Op* a nadie].
 The baby is looking at NEG.thing
 'The baby is staring at nothing.'
 $\exists e[\text{look}'(e) \ \& \ \text{Agent}(e, \mathbf{b}) \ \& \ \neg\exists x[\text{thing}'(x) \ \& \ \text{Patient}(e, x)]]$

A prediction that this proposal makes is that the licensing of n-words is only obligatory if n-words appear in postverbal position. This may be problematic for understanding why preverbal n-words in strict NC languages must always be accompanied by a negative marker, as in those languages its contribution is semantically redundant. Zeijlstra does not provide a specific explanation for this fact but takes this redundancy to hold for many agreement phenomena, and thus not to be specific to NC. On the other hand, this feature explains why certain languages allow their n-words to be optionally accompanied by a negative marker; West Flemish is an example, as shown in (31). In this language all indefinites must obligatorily scramble to a vP -external position, so there is no longer a need for overt licensing.

Finally, Zeijlstra (2010) argues that not every semantically negative element must always carry [iNEG]. He provides French *pas* as an example of a negative marker that lacks such a feature. It is only semantically but not syntactically negative. As a consequence, French *pas* cannot participate in NC relations and always brings in a negation of its own.

Another question that arises concerns the distribution of the abstract negative operator. How is its presence constrained to sentences that contain a feature [uNEG]? How can inclusion in other constructions, where it is not needed, be avoided? Here Zeijlstra alludes to a more general mechanism, which allows inclusion of an abstract operator only if the grammaticality of a sentence cannot be accounted for otherwise (see Zeijlstra 2008 for an extensive discussion). Consequently, *Op*₋ cannot be included in a sentence if that sentence does not contain an overt element carrying [uNEG] as well.

Zeijlstra's approach resonates with Giannakidou's idea that polarity items carry *sensitivity features*. Giannakidou states:

I will assume that polarity items are "special" expressions in that they encode a *sensitivity* feature. Sensitivity features are *semantic* features, part of the lexical representation of the polarity items, and they encode the semantic "deficiency" of these items. Sensitivity features are present in the lexical semantics of the PIs at least at an abstract level, and *they may, but need not, correspond to syntactically active features*. In some cases, *they are indeed realized as morphological features, in other cases, as phonological features* (for instance with emphatic NPIs in Greek). (Giannakidou 1997, 15)

In the n-word, Zeijlstra argues, the NPI sensitivity feature is syntactically realized as [uNEG]. EVEN in NPIs may be another realization of [uNEG], as for instance in East Asian languages, *kan-enas*, and Albanian NPIs (Xherija in press). In languages without NC such features are not part of the set of active syntactic features, and negation and negative dependencies are thus not encoded syntactically. Collins and Postal's (2014; 2015) idea that NPIs have a NEG feature is also in the same spirit, as well as Chierchia's (2013) treatment of NPIs and n-words (which is in spirit similar to Zeijlstra's).

Greek NPI-EVEN *oute* also carries a morphological exponent of [uNEG]: *ou* is one of the two negators in ancient Greek. If *ou* is the realization of [uNEG], this distinguishes it as an NPI from other expressions meaning 'even'. Giannakidou offers an Agree-based account for *oute* that is very similar in spirit to Zeijlstra's (presented below), in that it also addresses the preverbal versus postverbal difference:

(55) Greek

- a. O pritanis *(dhen) proskalese oute kan ti Maria.
 the dean not invited.3SG not even Maria
 'The dean didn't invite even Maria.'
- b. Oute kan ti Maria (dhen) proskalese o pritanis.
 not even Maria not invited.3SG the dean

Oute (*kan*) is thus like Romance n-words and creates non-strict NC, unlike the KANENAS paradigm that, as we saw, is strict NC. Giannakidou maintains, *pace* Zeijlstra, that *dhen* is the vehicle of semantic negation and thus contains the categorial syntactic feature [NEG]. *Oute*, on the other hand, contains an *inflectional* [uNeg] feature that agrees with the categorial [NEG] feature of *dhen*, thereby licensing *oute* – assuming, as usual, that categorial features of the agreement that trigger, for example, ϕ -features on a nominal agree with inflectional features on the target, for

example with ϕ -features on T or little *v*. This would then explain the need to have *dhen* if *oute* occurs postverbally. Agreement happens in situ and there is no need to move. *Oute* can also move overtly, in which case one would have to say that this movement is Extended Projection Principle- (EPP)-driven (Giannakidou 2007, 357). This would be the case of *oute* in the preverbal position with *dhen*. When *dhen* is omitted, Giannakidou thinks of this not as a case where *dhen* is dropped but as a situation in which a covert counterpart of the negation called “zero neg” is triggered. Zero neg contains both a categorial feature [Neg], just like overt negation, and an inflectional feature [uNeg]. This would be an NPI-like negation.

We proceed now with the universal approach to n-words.

4.3 N-words as universal quantifiers

Giannakidou (1997; 2000) argues that n-words with negation reflect one of the two logically available scopes: an existential quantifier (or an indefinite) under negation or a universal quantifier *above* negation:

- (56) Logical representations of general negative statements
- (i) $\forall x[P(x) \rightarrow \neg Q(x)]$ (universal negation)
 - (ii) $\neg \exists x[P(x) \& Q(x)]$ (existential negation)

In English, Giannakidou argues, the two different paradigms are *anybody* and *nobody*, and in Greek the non-emphatic (existential) and emphatic n-word (universal). Suranyi (2006) reports, likewise, two paradigms of Hungarian n-words parallel to the Greek (see also Szabolcsi 2004). In an earlier paper by Szabolcsi (1981), Hungarian n-words were uniformly analyzed as universal quantifiers. Hence it appears that we need to allow the universal quantifier option for n-words cross-linguistically. Note also that certain languages, for example Hebrew, employ morphologically universal n-words such as *kol* ‘every’, which appears above negation (see details in Giannakidou 2000).

Motivation for the universal approach comes from the parallelism between n-words and universal quantifiers in terms of their scope possibilities, and specifically from the locality of NC, which was a problem for the indefinites approach as noted earlier. Overall, the idea that there are universal n-words found applications also in East Asian languages (for universal analyses of Japanese and Korean n-words, see, e.g., Sells 2006; Yoon 2008; Shimoyama 2011).

Giannakidou summarizes the following criteria for universal n-words:

- (57) Diagnostics for universal n-words
- A universal n-word has the following properties:
- (a) It is licensed only by local negation; long-distance licensing may be allowed only through a transparent domain (infinitival or subjunctive clause).
 - (b) It can be modified by modifiers corresponding to *almost/absolutely*.
 - (c) It cannot bind donkey pronouns.
 - (d) It cannot be used as predicate nominal.
 - (e) It expresses *existential commitment*, in other words we tend to interpret it with a non-empty restriction, as happens with other universals.

- (f) It can be used as topic in topicalization structures, that is, it can be coindexed with a clitic pronoun (or a pronoun performing the respective function, if a language does not have clitics).

(Giannakidou 2006, 52; also Giannakidou 2000)

In Giannakidou (2006) a full illustration is given of these properties, but here we reproduce only a small part of the discussion. Criterion (58a), locality, is already discussed:

(58) Greek

- a. I Ariadhni dhen ipe oti idhe {tipota/*TIPOTA}.
 the Ariadne not said.3SG that saw.3SG n-thing
 'Ariadne didn't say that she saw anything/*at all.'
- b. I Ariadhni dhen theli na dhi {kanenan/KANENAN}.
 the Ariadne not want.3SG SUBJ see.3SG n-person
 'Ariadne doesn't want to see anybody (at all).'
- c. *Dhen lipame [pu pligosa kanenan/KANENAN].
 not be-sorry.1SG that hurt.1SG n-person
 'I don't regret that I hurt anybody/*at all.'

The emphatic n-word is not allowed in the indicative and factive complements (headed by *oti* and *pu*) and is only sanctioned in subjunctive *na* complements. On the contrary, the non-emphatic NPI, which is an indefinite, is fine; and so is *any*. The impossibility of the strong construal is illustrated above by *at all*, which, as we see, is excluded long-distance. The locality of NC is identical to the clause-boundedness observed with Quantifier Raising (QR) (see original observation and more discussion on Greek QR in Farkas and Giannakidou 1996). Because of the parallel with QR, Giannakidou concludes that the scope of the application of NC with emphatic n-words is identical to the scope of the universal quantifier.

Modifiers of universals and not existential quantifiers typically modify n-words, and modifiers of existentials cannot modify n-words (criterion 58b). For instance, universal quantifiers, as opposed to indefinites or existentials, can be modified by *almost/absolutely* (see Dahl 1970 and Horn 1972 for the original observation, but also Giannakidou 2000; Horn 2005; Penka 2010 for a critical discussion of these facts):

- (59) a. *Electra was willing to accept {absolutely/almost} something.
 b. Electra was willing to accept {absolutely/almost} everything.

In Greek (and all other NC languages) n-words can be modified by *almost/absolutely*, whereas NPI existentials cannot, as shown in (60):

(60) Greek

- a. Dhen idha sxedhon {KANENAN/*kanenan}.
 not saw.1SG almost n-person/any person
 'I saw almost nobody.'

- b. Dhen idha (apolitos) {KANENAN/*kanenan} (apolitos).
 not saw.1SG absolutely n-person/anybody absolutely
 'I saw absolutely nobody.'

On the other hand, the Greek additive marker *ke* 'and' is a modifier of existential quantifiers, and universal quantifiers are incompatible with it. *Ke* is comparable to Dutch *ook maar*, which also contains an additive marker (*ook* 'too') and typically combines with existentials. Below we see that *ke* is incompatible with emphatic n-words and other universals:

- (61) Greek
 a. Dhen ipe ke {kati/*katheti} spudheo.
 not said.3SG and something/everything important
 'He didn't say something important.'
 b. Dhen ipe ke {tipota/*TIPOTA} spudheo.
 not said.3SG and n-thing important
 'He didn't see anything important.'

Therefore, on the basis of this test, the emphatic n-word again patterns with the universals and the non-emphatic behaves like NPI *any*, an existential quantifier or indefinite.

Donkey pronouns (58c) and non-usage as a predicate nominal (58d) further confirm the quantificational status of the emphatic n-word. On a par with universals and unlike non-emphatics and regular existentials, emphatics cannot be used as predicate nominals, as shown in (62). This fact was first observed by Giannakidou and Quer (1995).

- (62) Greek
 Dhen ine {kanenas/*KANENAS} jatros.
 not be.3SG n- doctor
 'He is not a doctor./He is no doctor.'

- (63) Frank is {a/*every} student.

The cross-linguistic picture is a little more complicated. In English, a quantifier (*no doctor*) is indeed used predicatively, but, as Giannakidou (2000, 478) notes,

He is no doctor differs from *He is not a doctor*, and likewise the Greek equivalent of the former with the non-emphatic differs from the Greek counterpart of the latter with a bare NP *Dhen ine jatros*. I characterize this as an evaluative difference and it results, as we see, in a truth-conditional difference: in the case of *He is no doctor* the person in question can still be a doctor, but just not a good one. *He is not a doctor*, on the other hand, is a neutral statement that the person in question does not have property of being a doctor.

The Greek emphatic n-word can also have this evaluative dimension. French and Italian n-words pattern with emphatics, as shown in (64)–(65) below:

(64) Italian
 *Non è nessun dottore.
 not is n- doctor

(65) French
 *Il n' est aucun docteur.
 He not is n- doctor

Importantly, Germanic n-words can also be used as predicate nominals without evaluative reading: German *Er ist kein Arzt* and Dutch *Hij is geen dokter* 'He is no doctor' provide the only way to express this meaning in these languages. This behavior makes it plausible to argue that German, Dutch, and Scandinavian n-words are combinations of a negation and an existential quantifier, as has actually been proposed for German and Dutch n-words by Jacobs (1980) and Rullmann (1995) and, more recently, by Penka (2010), Zeijlstra (2011), and Temmerman (2012).

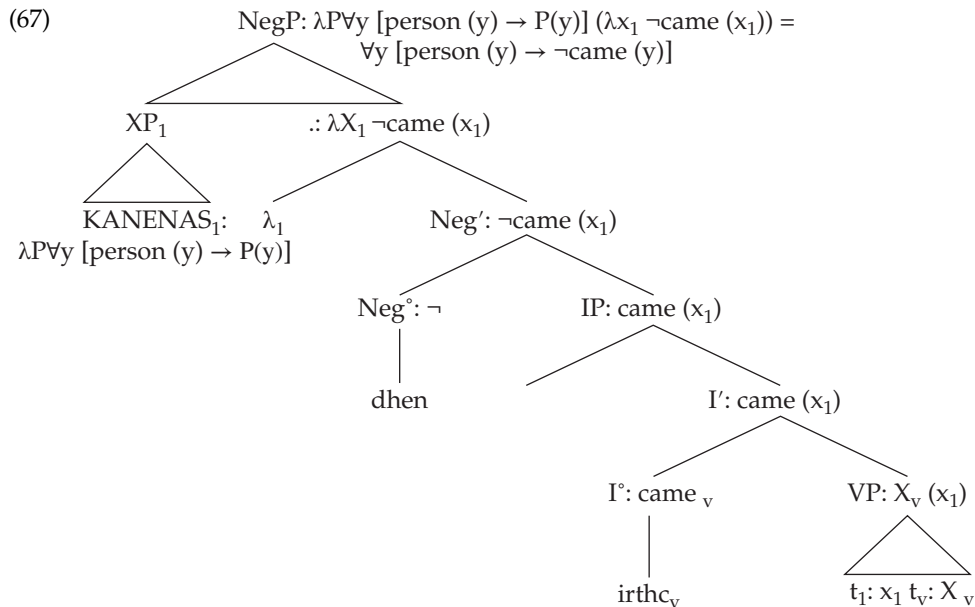
Finally, in a relatively recent discussion, Shimoyama (2011) adds an argument by pointing out readings that are unexpected under an analysis that takes n-words to be existentials. The sentence below has a reading where *tatei* ('mostly') may take scope between the n-word and negation, and the reading is only compatible with the universal quantifier's taking scope over *tatei*, which in turn outscopes the negation. Similar conclusions have been reached by Sells (2006) and by Yoon (2008) for *to*-containing n-words in Korean.

(66) Korean
 Kokyaku-no dare-kara-mo gozentyuu-wa taitei denwa-ga nakat-ta.
 client-GEN who-from-MO morning-WA mostly call-NOM not.exist-PAST
 'For every client, it was mostly the case that there was no call from him or her in the mornings.'

We proceed now with the actual details of the universal analysis. The universal analysis says that the n-word must outscope negation to achieve the right interpretation. Giannakidou argues that the n-word has a selectional restriction: it can only combine with negative predicates. This necessitates the movement above negation and satisfies the compositional need. Merchant (2017) proposes the related idea of *negative isotope*, a type-internal distinction that separates among like-typed expressions; he also proposes that negative-concord items are items that can combine only with such isotopes (where Afrikaans final n-word *nie* is an operator that takes an expression and returns its negative isotope, the input, to sentential negation and negative quantifiers, for example).

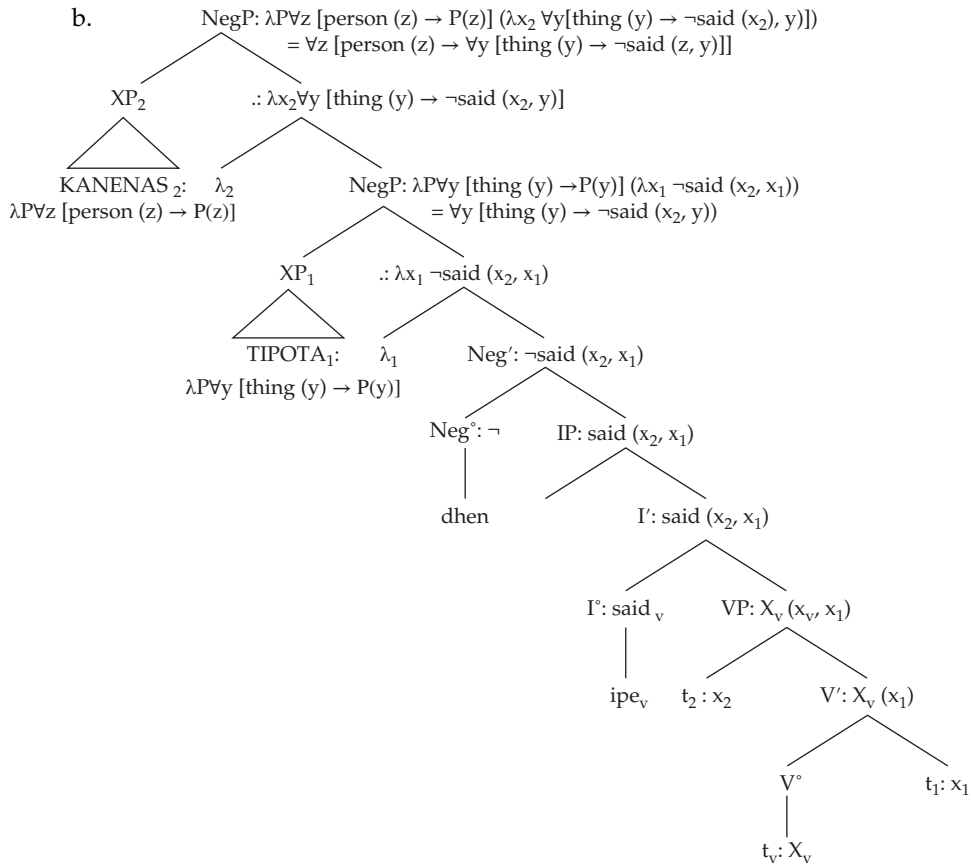
N-words, at the level of LF, must precede the negative marker; postverbal n-words only do so after spell-out. This account is compositional, as the only negation comes from the sentence negator and the scope requirement follows from the lexical/type specification of n-words. NPI universals are different from non-sensitive universals such as *nobody* in that, unlike these, which can combine with both positive and negative predicates, NPI universals can only combine with negative predicates. As with NPIs, NPI universals require the presence of negation for licensing, but they must undergo QR and take scope over negation. NC is thus reduced to a quantifier scope phenomenon – a move also considered desirable by Szabolcsi (1981, 531–532), who implements a similar derivation for Hungarian n-words as universal quantifiers that scope above negation.

The syntactic derivation is as follows:



In such configurations, KANENAS and TIPOTA undergo QR past *dhen* and land in Spec, NegP through an orthodox implementation of QR as adjunction (May 1985) – in this case, to NegP (Giannakidou 2000, 502). Multiple occurrences of emphatic n-words require successive adjunctions to NegP. Recall that no double-negation reading arises in these cases. In principle, the number of emphatic n-words allowed is unlimited:

- (68)
- a. Dhen ipethc KANENAS TIPOTA.
 not said.3SG n-person n-thing
 'Nobody said anything.'



As for the relation between licensing and scope, the proposed analysis of NC implies that the former does not necessarily translate into the latter. Universal n-words require negation but must also reach a position outside the scope of negation.

One final thing we consider here is how this approach deals with the apparent negative uses of n-words. Giannakidou explains fragment answers by assuming that, when n-words appear in isolation, the negative marker is deleted under ellipsis. The underlying structure of the fragment answer would be something as follows:

- (69) Greek
 Q: What did you see?
 A: *TIPOTA dhen-ida*
 n-thing NEG saw.1SG
 'Nothing.'

There are two similar cases, which indicate that n-words contribute negative meaning in elliptical contexts: (i) coordinations (disjunctions and possibly also conjunctions); and (ii) some apparently equative structures. We provide Greek examples here (from Giannakidou 2000, repeated in Giannakidou 2006), but

similar facts have been documented for Romance (Zanuttini 1991) and Slavic languages (Przepiórkowski and Kupc 1997):

- (70) Greek
 Thelo na pandrefto ton Petro i KANENAN (alo).
 want.1SG SUBJ marry.1SG the Peter or n-person (else)
 ‘I want to marry either Peter or nobody (else).’
- (71) Greek
 O Petros ine toso psilos oso KANENAS (alos) stin taksi tu.
 the Peter is as tall as n-person (else) in-the class his
 ‘Nobody else in Peter’s class is as tall as Peter is.’
 (Peter is taller than anybody else in his class.)

Hence we have to say that the negative meaning in elliptical fragments does not evidence negativity of the n-word but rather is the result of negation at the level at which ellipsis is resolved. Watanabe (2004) and Giannakidou (1998; 2000) offer further discussion, and we refer the reader to those works for details (see also Zeijlstra 2013b). In closing, we also want to point out that the existential versus universal analysis of Greek n-words has been further discussed in Giannakidou and Yoon (2016), where it is argued that emphatic n-words are *exhaustive*. Exhaustivity, it must be noted, is also compatible with the existential analysis of n-words.

Overall, the non-negative approaches to n-words solve the problem of NC by asserting that there is no semantic concord at all; at best, there is syntactic agreement. At the same time, both Giannakidou and Zeijlstra emphasize that n-words are diverse, that is, they are different for possibly different reasons. Whereas n-words in strict NC languages may be universal quantifier NPIs, n-words in other types of NC languages need not be.

5 Negative approaches to n-words

The scholarship that takes n-words to be semantically negative treats NC as “semantic agreement” or “absorption.” The idea relates to the early accounts of Zanuttini (1991) and Haegeman and Zanuttini (1991; 1996), who posited the so-called “Neg criterion” (see also Haegeman 1995), and is further developed in De Swart and Sag (2002) and De Swart (2010). In a similar spirit, Déprez argues that Haitian Creole n-words are indefinites roughly equivalent to “zero N.”

In negative absorption, NC is a case where a series of *n* unary negative quantifiers are interpreted as a single *n*-ary quantifier via a rule of absorption or agreement between the negatives. For De Swart and Sag (2002), NC is derived like the pair-list readings of multiple *wh*-questions. Consider (72):

- (72) Who bought what?

The most salient reading of (73) is one where it is asked what multiple pairs $\langle x, y \rangle$ there are, such that x bought y . An answer, then, could be the following:

(73) John bought apples and Mary pears.

This is a reading where a single *wh*-operator binds (or applies to) pairs of variables, pretty much in an unselective binding fashion. Such a reading is different from one that consists of a pair of *wh*-operators, each binding a single variable. For De Swart and Sag, the exact same mechanism applies to sentences with multiple negative quantifiers. For instance, the French example below has two readings: one in which every negative quantifier binds a single variable and one in which a single quantifier binds a pair of variables.

- (74) French
 Personne (n')a téléphoné personne.
 N-body has called n-body
 (i) DN: No one is such that they called no one
 $\neg \exists x \neg \exists y \text{ Call}(x, y)$
 'Nobody calls nobody.'
 (ii) NC: No pair of people is such that one called the other
 $\neg \exists \langle x, y \rangle \text{ Call}(x, y)$
 'No one calls anyone.'

As the reader can see, the first reading amounts to DN, while the second is the NC reading. Thus, if the mechanism responsible for the creation of the pair-list readings in multiple *wh*-questions also applies to multiple negative indefinites, then it is predicted that every sentence containing two n-words must have two readings as well: a DN and an NC reading. In this way n-words can be taken to be semantically negative quantifiers while maintaining compositionality. If n-words and negative markers are all inherently negative but can compose into a single negative quantifier, both readings above can be captured. In this view, n-words are negative quantifiers that, unlike Germanic negative quantifiers, are also subject to semantic absorption. In Germanic, such a rule, although available for *wh*-phrases, is not operative with negative quantifiers.

The strength of this proposal is also its weakness: it predicts that, in principle, all sentences containing more than one negative element (if negative markers are taken to be negative quantifiers as well) will be ambiguous between an NC and a DN reading. Although a few languages, for instance French, have both readings of such sentences, most other languages – as we mentioned already – don't freely allow both NC and DN readings. In strict NC languages, DN is either unattested or marked with some distinctly different intonation (Giannakidou 1998); and in Catalan NC is preferred, as the recent experimental work mentioned earlier has shown (Espinal, Borràs-Comes, and Prieto 2014; Déprez et al. 2015; Espinal and Tubau 2016). On the other hand, negative quantifiers never allow NC:

- (75) Dutch
 Jan belt niet niemand.
 Jan calls NEG NEG.body
 DN: 'Jan doesn't call nobody.' = 'Jan calls somebody.'
 *NC: 'Jan doesn't call anybody.'

Hence it needs to be stipulated that the Dutch n-word does not undergo absorption – but this doesn't seem to follow from any other difference between the two languages, as would be desirable. Whether negative quantifiers will undergo absorption in a given language or not remains arbitrary and essentially *ad hoc*, and it is derivable from the lexical or morphosyntactic properties of the n-words.

Another problem is that n-words appear to have non-negative readings, for example in questions or conditionals, as we noted in section 4 (which is also problematic for Zeijlstra's approach). What happens to the negative meaning in these cases?

Overall, the question arises as to why there is cross-linguistic variation in these respects. For De Swart and Sag (2002, 390), this is "really a question about the relation between language system and language use." In principle, both interpretations – the NC and the DN reading – are always available, but which one surfaces in the end it is a matter of preference. In later work, De Swart (2010) takes the cross-linguistic differences to be a result of independently applying constraints in an Optimality Theory framework.

Another question that arises concerns the role of negative markers in De Swart and Sag's (2002) system and the absence of negative spread in strict NC patterns. Why are the sentences below, without the negative markers, ruled out? If n-words are negative quantifiers, why can they not stand by themselves in strict NC?

- (76) a. Czech
 Dnes nikdo *(ne)volá.
 Today n-person NEG.calls
 'Today nobody calls.'
- b. Italian
 Ieri *(non) ha telefonato nessuno.
 Yesterday NEG has called NEG.body
 'Yesterday nobody called.'

Strict NC is, for this reason, a problem for the negative theories of n-words. If negative markers obligatorily participate in NC, how can this obligatoriness be accounted for? And how can the theory distinguish between the two types of NC with regards to this property? How can the theory predict that the negative marker will or will not be obligatory? De Swart and Sag argue that negative markers should be conceived of as zero-quantifiers, that is, as quantifiers lacking an argument. This way they can participate in quantifier resumption, which results in NC readings as well. Note, however, that this explains only why negative markers *may* participate in NC constructions but not why they *must* participate in strict NC varieties. De Swart (2010) offers more discussion of this problem.

Finally, consider the non-negative readings of n-words. All instances where n-words in Romance may receive a non-negative interpretation are exactly those cases where NPIs can be licensed as well. In order to maintain the view that n-words are negative quantifiers that undergo quantifier resumption, it must be assumed that NPI licensers consist at some level of a semantic negation as well, as has been proposed in the literature on NPI licensing by several scholars (most notably Postal 2000; 2004).

6 Conclusion

In this chapter we offered an overview of different accounts of n-words and of the phenomenon of NC within a broad perspective, where negative polarity emerges as a grammatical phenomenon to cover not only the more familiar NPIs such as *any*, but also dependency on negation in general. Such a broad understanding of polarity and negative dependency can be helpful in uncovering what is common between traditional NPIs such as *any* and less traditional ones such as n-words. At the same time, the flexibility of the tools discussed allows us to establish patterns and categories in the landscape that demonstrate similarities as well as differences among them.

The data show that the empirical domain of NC is complex. While some patterns are stable, others exhibit more variation, for example with regard to DN or to whether the occurrence of negation is obligatory or not. Moreover, languages vary not only synchronically in the expression of multiple negation, but also diachronically – an issue not addressed in this chapter but discussed in detail in the aftermath of Jespersen’s (1917) foundational work, for example in Eckardt (2006), Kiparsky and Condoravdi (2006), Jäger (2008), Van Gelderen (2008), and Chatzopoulou (2012).

Overall, it is no simple business to say whether n-words are or are not negative, and whether the later translates into having NEG features. As NPIs, however, it is conceivable that n-words do have sensitivity features, and intonation can serve as one such feature. Ultimately the very phenomenon of NC appears to be not a redundancy but a family of dependencies of the kind we observe in language (i.e., indefinite binding, agreement, or absorption). Therefore the central message of this chapter is that studying n-words and NC is tremendously helpful in revealing that the grammar of natural language has its own specific design and is not reducible to logical syntax alone.

Acknowledgments

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SEE ALSO: Adverb Classes and Adverb Placement; A-not-A Questions; Bare Nouns; Bound Variable Anaphora; Focus Movement; Long-Distance Agreement; Multiple-Wh-Questions; Quantifier Scope Ambiguities; Reconstruction, Binding, and Scope; Resumption; Unexpected Wide-Scope Phenomena

Note

1. In contemporary French, multiple occurrences of n-words could also allow a DN reading.

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