**Rethinking negative polarity and free choice in comparatives: a crosslinguistic perspective**

**Abstract.** Our main goal in this paper is to challenge the observation that the comparative is a licensing environment for negative polarity items (NPIs). Based on data from Greek, English, Korean, Dutch, and American Sign Language—we show that strong NPIs do not appear in comparatives and that weak NPIs are dispreferred. NPIs that do appear in the comparative are *rescued* (in the sense of Giannakidou 2006), and are therefore *not* subject to licensing, because rescuing happens without a nonveridical or negative licenser in the syntax. Free choice items, on the other hand, appear in the comparatives systematically; and because they typically avoid negation, their occurrence serves as evidence that the comparative is *not* a negative environment. Strong NPIs appear in the comparative only if it contains an antiverdical (i.e., negative) operator, such as the Korean negative metalinguistic comparative *charari* (Giannakidou and Yoon 2009, 2011). The implication of our analysis is that the comparative does not belong to the class of NPI *licensers*, and is consistent with the long-standing observation in the literature that the comparative lacks monotonic properties. Free choice items and NPIs with free choice or generic readings are admitted because these items can refer to a class, and are therefore appropriate for class comparisons.

## 1 The puzzle of NPIs in English comparatives

The literature on comparatives is quite extensive, and we do not by any means presume to cover it here. The current study focuses on the nature of the comparative in the *primary* comparative construction, i.e., with morphological components of the differential marker equivalent to '-er' or 'more' and the standard maker 'than' in English, as in (1a,c). This is known as the natural and unmarked construction compared to the secondary alternatives in (1d-g); see Stassen 1985 for the distinction between primary and secondary mode of comparison:

(1) a. Joe is taller than Bill.
b. Joe exceeds Bill in height.
c. Joe's height is greater than Bill's.
d. Joe is tall compared to Bill.
e. Joe is tall next to Bill.
f. Joe is tall, but Bill isn't very tall.
g. Between Joe and Bill, Joe is the tall one. (Bochnak 2013:29(18))

As illustrated above, there are various ways of expressing comparison across languages, including *exceed* comparison in (1b), locative comparison in (1e), and conjoined comparison in (1f) (for crosslinguistic variations of comparative constructions, see Beck 2011, Beck et al. 2004, Bochnak 2013). Secondary comparatives are called also *implicit* (Kennedy 2007), and a number of tests are employed to illustrate that they differ from canonical comparatives. Observe that implicit comparatives do not sanction NPIs:

(2) a. Joe is taller than **anybody**.
b. Joe exceeds **anybody (else)** in height.

c. Joe's height is greater than **anybody's.**
d. *Joe is tall compared to **anybody**.
e. *Joe is tall next to **anybody.**
f. *Joe is tall, but **anybody** isn't very tall.
g. *Between Joe and **anybody**, Joe is the tall one.

NPIs can thus be used as another diagnostic of a difference between the canonical and non-canonical comparatives. Among the variety of comparative constructions above, only the primary comparatives seem to allow *anybody*. If the differential component, present in all comparatives, were responsible for NPIs, we would not expect to see the contrast above. In the implicit comparatives, additionally, we can differentiate between two individuals (*Joe* and *Bill*) but not between *Joe* and *anybody*. *Anybody* can be used to denote a class and cannot refer to an individual. Implicit comparisons, apparently, cannot be made between an individual and a class. Overall, these contrasts are unexpected if the comparative is simply a licensing domain for NPIs.

In primary comparatives, it is often stated that NPIs occur freely. Some illustrations are given below (based on examples from von Stechow 1984, Hoeksema 1983, Heim 2006):

(3) Roxy is prettier than **anyone** of us. *Phrasal comparatives*
(4) Roxy ran faster than **anyone** had expected. *Clausal comparatives*
(5) My urge to steal was stronger than I **could help.**
(6) a. He said the sky would sooner fall than he would **budge an inch.**
b. John would sooner roast in hell than **give a penny** to the charity.
c. Mary buys expensive presents for her assistant more often than she **lifts a finger** to help her husband.

*Any* and English minimizers appear in canonical comparatives (phrasal and clausal). Since NPI licensing is due to nonveridicality (including negation, and mere downward entailment; see Ladusaw 1979, Zwarts 1995, Giannakidou 1997, 1998, 2006), the appearance of NPIs suggests that the canonical comparative is a context that could be understood as negative, DE, or nonveridical. Yet, it has proven notoriously and excruciatingly difficult to show that the comparative is any of these (Larson 1988; Schwarzschild and Wilkinson 2002; Heim 2006; Giannakidou 1998). As of this writing, there has been no success in providing a plausible account of the comparative as negative, DE or nonveridical; instead, upward entailing analyses have been proposed, e.g. for phrasal comparatives (Hoeksema 1983).

Earlier works dealt with the analytical difficulty of comparatives by positing an underlying syntactic negative operator in the *than*-clause (Jespersen 1917; Ross 1969; McConnell-Ginet 1973; Seuren 1973; Klein 1980; Stassen 1984; Larson 1988) which often appears in the form of 'expletive' negation.[1] We illustrate with Ross's deep structure (7):

[1] Comparatives may contain negative markers in some dialects of English (Joly 1967, Seuren 1973), and in some registers of Romance languages such as French, Spanish, and Catalan, as in (i-iii), thus motivating the analysis of negative operator in comparatives. The negation in the comparative, however, has been shown to be *expletive* negation, indicating a negative attitude toward the content of *than*-clause, not regular negation (Yoon 2011):

(i) He is richer **nor** you'll ever be. [English dialects]
(ii) She did a better job than what I **never** thought she would. [Cockney English]
(iii) Jean est plus grand que je **ne** pensais. [French]
Jean is taller than I Neg thought
'Jean is taller than I thought.'

(7) John is taller than anyone. (Ross 1969)
∃*d* John is tall to extent *d* & **NOT** [anyone else is ~~tall to extent *d*~~]

In more recent accounts (von Stechow 1984; Rullmann 1995; Kennedy 1997, 2007), the comparative is an ordering relation between two (maximal) degrees, d′, d″:

(8) Kim is taller than Lee.
$max\{d'| \text{tall}(kim) \geq d'\} \succ max\{d'' \mid \text{tall}(lee) \geq d''\}$

From this relation, the differential follows— *d*″ is *not* as great as *d*′— and a 'negativity' is triggered. This, of course, does not imply that there is negation or that *max* is negative. Giannakidou (1998, 2006) argued that the negativity produced by the differential licenses *indirectly,* and *rescues* the NPIs in the comparatives—a point that proves crucial, and which we will discuss at length in this paper.

Hoeksema (1983) claims that, in contrast to the phrasal comparative, the clausal comparative is DE. Yet Larson (1988), and Schwarzschild and Wilkinson (2002) show that the DE scheme is not validated in the comparative, but the upward entailing is, as shown below:

(9) a. John is taller than **some professional athletes** are. –/→
b. John is taller than **some professional basketball players** are.
(10) a. John is taller than **some professional basketball players** are. →
b. John is taller than **some professional athletes** are.

Here we have an existential quantifier in the *than*-clause, and this seems to affect its monotonicity, something that we wouldn't expect if the *than*-clause were inherently DE. Nowadays the consensus seems to be that the comparative is not inherently monotonic, but depends on the kind of quantifier it contains (Rullmann 1995; Hendriks 1995; Heim 2006). When we have *some,* as above, we do not get DE. But if the *than*-clause contains a DE operator such as a universal quantifier, it becomes DE:

(11) a. John is taller than **all professional athletes** are. →
b. John is taller than **all professional basketball players** are.
(12) a. John is taller than **all professional basketball players** are. –/→
b. John is taller than **all professional athletes** are.

Given this flexibility, one must concede that the bare comparative is underspecified for monotinicity.

How about nonveridicality (Giannakidou 1998, 1999)? Heim (2006) notes that according to an obvious generalization of the existing definition, *-er* comes out as veridical. Giannakidou (1998: 151-153) notes that in comparatives, NPIs are only rescued, as we mentioned earlier. Briefly, the sentence (4) receives the analysis below (Giannakidou 1998: 152, (145)) in which (13a) is the denotation of the matrix clause, and (13b) the denotation of the comparative clause:

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Expletive negation is not classical negation (anti-morphic and anti-additive), its existence therefore is by no means an argument for negation in the *than*-clause. The transition from regular negation to expletive, with the concurrent change in meaning can be viewed within the Jespersen cycle.

(13) a. Roxy run *g* fast.
b. *k* is the greatest degree such that people expected Roxy to run *k* fast.
c. ¬ [people expected Roxy to run *g* fast]

The sentence (4) is true if Roxy did not run to the degree *k* of the *than*-clause containing *any*. Giannakidou says that (4) asserts 13a (veridical component), presupposes 13b, and conventionally implicates the negative sentence in 13c. Giannakidou claims further the lack of differential blocks NPIs, as shown by the equative which does not allow the Greek NPI *kanenas*:

(14) *I Roxani trexi (akrivos) oso grigora trexi **kanenas** stin taksi tis.
The Roxanne run.3sg (exactly) as fast run.3sg anybody in-the class hers
'Roxanne runs (exactly) as fast as anybody in her class.'
(Giannakidou1998: 152, (147))

(Notice that *akrivos* 'exactly' is optional, it can therefore not be the decisive factor.). The problem here is that the equative does not express a differential that could create a negative inference that could then sanction the NPI *kanenas*. *Any*, to the extent it can be acceptable, allows only the "average" reading of *anybody,* symptomatic of its free choice nature. The *kanenas* type of NPI lacks free choice readings (Giannakidou 1998, Giannakidou and Yoon 2016), and as it turns out, such NPIs are highly constrained in comparatives and equatives.[2]

In this paper, we want to propose that the analytical difficulty we observe in characterizing the comparative as an NPI *licenser* is to be expected because the comparative is *not* an NPI-licenser. Much of the literature has been misled into grouping the comparative together with other NPI-licensers by focusing on English *any,* which has a free choice component and can be rescued in a non-negative, veridical environment. To the extent that an NPI can be sanctioned this way, it can appear in the comparative. But if an NPI cannot generally be rescued or lacks free choice, it cannot appear in the comparative. We present here evidence from a number of genetically distant languages such as Greek, English, Korean, Dutch, and American Sign Language (ASL), to illustrate this point. Moreover, strong NPIs (and we illustrate with English, Greek and Korean), which have stricter licensing conditions and need negation, are always excluded in the comparative. If a negation is introduced, such as with the Korean negative comparative *charari* (Giannakidou and Yoon 2009, 2011), strong NPIs become fine, as expected.

The discussion proceeds as follows. We lay out the basic assumptions about NPI-licensing,

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[2] Note that English equatives generally seem to allow *any* and *ever*. This can be understood in analyses where equatives are comparatives (Von Stechow 1984; cf. Bhatt and Pancheva 2004, Rett 2007; Beck 2009). Von Stechow, e.g., treats the equative as a close relative of the comparative, the only difference being in the relation expressed. With the semantics corresponding to 'at least as Adj as', the equative involves the slot for the differential:

(i) The Beatles are as big as **anybody** (else).
(ii) The Beatles are as big as **ever**.

We will argue here that the appearing elements have free choice readings and can be rescued. If an item can be rescued, the differential can rescue it. In Greek and the other languages we consider, the NPIs cannot capitalize on the potential of the equative because they lack free choice and cannot be rescued. More discussion on why the free choice meaning is compatible with the comparative in section 6.

including the distinction between licensing and rescuing in section 2. In section 3 we present the data of strong NPIs not being accepted in comparatives, and in section 4 we show that if a negative element is present, as is the case in the Korean metalinguistic comparatives containing *charari,* the strong NPIs become licit. In section 5 we study the broad NPI classes and illustrate that the only acceptable NPIs are the ones that can receive free choice reading. This holds for the liberal, rescued NPI class of *any, ever* and their Dutch cognates *enig, ooit.* In section 6 we propose that the free choice reading (of FCIs and NPIs) is accepted in the comparative because it is an excellent device to express comparison to a *class*.

## 2 NPIs: nonveridicality, licensing vs. rescuing

Our background is the nonveridicality theory of polarity (Giannakidou 1998, 1999, 2001, 2006, 2011; Zwarts 1995; for a (non)veridicality calculus in a categorial type logic and Italian NPI data see Bernardi 2002). The starting point is that NPIs across languages and paradigms are licensed in nonveridical contexts. These contexts can be negative or merely nonveridical.

### 2.1 Polarity items are licensed in nonverdical contexts

The nonveridicality theory consists in the following main tenets:

*A. Licensing Property*
NPIs appear in nonveridical contexts. Nonveridical contexts can be negative (mere downward entailing, antimorphic, or anti-additive), but also non-negative (modal, non-assertive contexts (questions, imperatives, and the protasis of conditionals)).

*B. Varied distribution due to lexical composition*
For each NPI paradigm, its lexical semantic properties and its morpho-syntactic features will determine where precisely, within the nonveridical space, the NPI will appear. NPIs often contain *sensitivity* features which are morphological features marking the sensitivity (EVEN-based, NEG-based, and more).

*C. Two modes of sanctioning*
NPIs can be *licensed* or *rescued*. Licensing is the primary sanctioning mechanism and happens at the scope of a nonveridical operator. Rescuing sanctions an NPI in a sentence lacking a licenser. Rescuing is *secondary* sanctioning: there are no NPIs that are rescued but not licensed.

The above creates a flexible framework where various NPI paradigms can be studied and understood. The licensing vs. rescuing distinction is crucial to our discussion, and distinguishes between *canonical* licensing (all NPIs are licensed), and extraordinary sanctioning (not all NPIs can be rescued, or not all can be rescued to the same degree).

A veridical context is one that allows the speaker to infer the truth of a sentence; a non-veridical context is one where truth inference is suspended. Consider the difference below between adverbs such as *yesterday/(un)fortunately*, which create veridical contexts, and modal adverbs which create nonveridical contexts.

(15) a. {Yesterday/Unfortunately}, Mary saw a snake. ⇒ Mary saw a snake.
b. {Possibly/Maybe/Probably}, Mary saw a snake. –/⇒ Mary saw a snake.

A veridical expression allows inferencing to the *actual* truth of the sentence: *yesterday* and *unfortunately* are thus veridical. *Unfortunately* is called sometimes *factive* because it appears to presuppose the truth of the embedded sentence, factivity can therefore be understood as veridicality. Modal elements, on the other hand, are nonveridical: under a modal adverb or verb, it is unclear whether *p* is true. From *Mary possibly/probably saw a snake*, it doesn't follow that she did or did not see a snake. A speaker uses *Modal p* if she is not (absolutely) certain that *p* is true. For this reason, modal adverbs and verbs have been characterized in the literature as *weak* (Karttunen 1972, Kratzer 1991, Giannakidou 1997, 1999, Portner 2009).

(Non)veridicality is thus about whether *Fp* entails or presupposes *p*. Zwarts 1995, Giannakidou 1997, 1998, 1999 define veridicality as follows:

(16) Veridicality and Nonveridicality
An expression *F* is veridical iff $Fp \Rightarrow p$; if this is not the case, *F* is nonveridical.
⇒ means 'entails' or 'presupposes'

Veridicality depends on what is or is not the case under *F*, but also on what the speaker knows or believes to be the case. In this case, veridicality is *relative*, or *subjective* (Giannakidou 1998, 1999, 2013; Giannakidou and Mari 2016). Subjective veridicality is needed for discussing propositional attitude verbs, predicates of personal taste, evidentials, and similar phenomena. We will not consider more detail here since it does not appear to be relevant for comparatives.

Positive unembedded assertions are veridical and exclude NPIs. Questions, on the other hand, modal verbs, directive propositional attitudes, the protasis of conditional, and negation are all nonveridical, and license NPIs.

(17) a. John didn't invite **any** students. *Negation*
b. Did John invite **any** students? *Question*
c. John is willing to invite **any** student. *Infinitival complement*
d. If you sleep with **any**body, I'll kill you! *Conditional*
e. You may talk to **any** student. *Modal*

Negation does not validate the veridicality schema $Fp \Rightarrow p$, it is therefore nonveridical; at the same time, negation entails *not p, i.e.* it is *antiveridical*:

(18) *Antiveridicality*
An nonveridical expression *F* is antiveridical iff $Fp \Rightarrow \neg p$.

Antiveridicality is the reversal of veridicality, the strengthening of the uncertainty into *certainty* that *not p*. Apart from negation and negative quantifiers, *without* and *before* also allow antiveridical inference, as in *John worked without having any break*, or *John died before he saw any of his grandchildren.* For the nonveridicality of *before* see Sanchez-Valencia et al. 1994, Giannakidou 1997, and Xherija 2016, who proposes that *before* contains disjunction.

Nonveridicality appears to characterize the contexts where NPIs and FCIs appear, as formulated in the thesis below. A pictorial depiction is also given:

(19) *Polarity sensitivity as Nonveridical dependency*
NPIs and FCIs appear in nonveridical contexts.

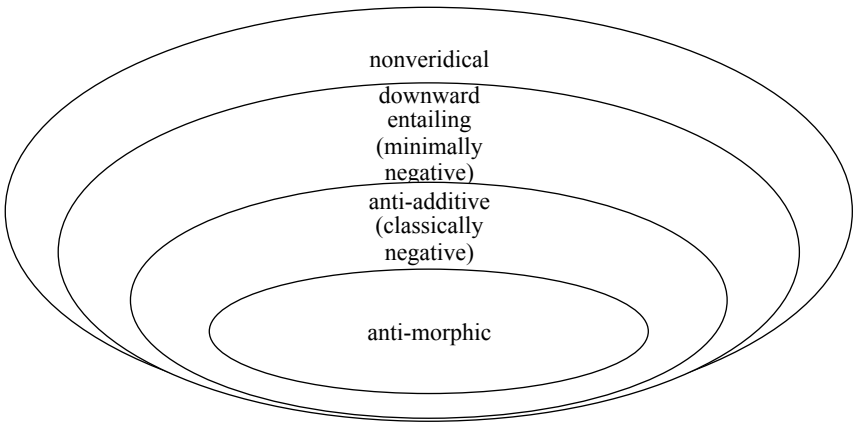


Figure 1: The Giannakidou/Zwarts Nonveridical Hierarchy of polarity contexts

As we see, nonveridicality is a conservative extension of negation, allowing a wider distribution of NPIs in non-negative nonveridical contexts, as needed. For a 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, anti-additive, or anti-morphic) 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 anti-morphic and anti-additive contexts, and (b) *minimally* negative contexts (mere DE contexts):

(20) 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 anti-additive or anti-morphic.
iii. *Minimally negative:* An expression is minimally negative iff it is downward entailing but not anti-additive or anti-morphic.

Negation is anti-morphic and classically negative, and negative quantifiers such as *nobody, nothing* are anti-additive and classically negative. Anti-morphic negation, which is antiveridical, corresponds to set-theoretic complementation and satisfies both de Morgan bi-conditionals (fours laws of negation), shown in (21) below. Anti-additive functions satisfy the first law and only the second half of the second (three laws), and mere DE only satisfies two:

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

(22) Anti-additive (*nobody, nothing*)
(i) $f(x \cup y) \leftrightarrow f(x) \cap f(y)$

(ii) $f(x) \cup f(y) \rightarrow f(x \cap y))$

(23) Minimal negation (*downward entailment*)
(i) $f(x \cup y) \rightarrow f(x) \cap f(y)$
(ii) $f(x) \cup f(y) \rightarrow f(x \cap y))$

(24) <DE, anti-additive, anti-morphic>

Negativity emerges as a gradable property, as the scale in (24) shows: *nobody* is more negative than *few* (it satisfies 3 negative laws, but *few* only satisfies two), and *not* is more negative than *nobody* because it satisfies all four laws. For non-veridical, non-negative elements none of the negative laws apply. As Giannakidou 1998, 1999 points out, in a language without negative quantifiers (but with non-negative NPI n-words, such as Greek), the distinction between anti-additive and anti-morphic does not exist. But even in this case, we have gradient negation in the distinction between anti-morphic negation, mere DE, and non-veridicality.

Some of the core nonveridical environments for NPIs are summarized in Table 1 below, which includes *any*, the Greek broad NPI *kanenas* and the emphatic variant KANENANS which is a strong NPI licensed only with negation and antiveridical operators. (We will show in section 3 that Korean broad NPIs pattern with Greek ones.)

Table 1: *Distribution of NPIs and any* in nonveridical contexts

| *Environments* | *Any* | *Greek/Korean broad* NPI | Greek emphatic NPI |
|---|---|---|---|
| 1. Negation/without | OK | OK | OK |
| 2. Questions | OK | OK | * |
| 3. Conditional (*if*-clause) | OK | OK | * |
| 4. Restriction of *every/all* | OK | OK | * |
| 5. (Non-antiadditive) DE Q | OK | OK | * |
| 6. **Modal verbs** | OK, with FC | OK | * |
| 7. **Directive attitudes** (e.g. *want)* | OK, with FC | OK | * |
| 8. **Imperatives** | OK, with FC | OK | * |
| 9. **Habituals** | OK, with FC | OK | * |
| 10. **Disjunctions** | OK | OK | * |
| 11. ***prin/before* clauses** | OK | OK | * |
| 12. **Future** | OK, with FC | OK | * |
| 13. Progressives | * | * | * |
| 14. Episodic perfective past | * | * | * |
| 15. Affirmative existential | * | * | * |
| 16. Epistemic veridical attitudes (e.g. *believe, imagine, dream*) | * | * | * |

All the environments above (rows 1-12) have been characterized as nonveridical in the literature. Here are some examples with the Greek NPI *kanenas*, *any*, and FCIs:

(25) a. Patise **{kanena/opjodhipote}** pliktro.

press.imperative any.NPI/any.FCI key
'Press {some key or other/any} key.'
b. O Janis bori na milisi me **{kanenan/opjondipote}.**
the John may subj talk.3sg with anybodyNPI/FCI
'John may talk to {some person or other/anybody}.'
c. O Janis ine prothimos na milisi me **{kanenan/opjondipote}.**
the John is willing subj talk.3sg with anybodyNPI/FCI
'John is willing to talk to {some person or other/anybody}.'

(26) a. I bike mesa **{kanenas/opjosdhipote}** i afisame to fos anameno.
either entered.3sg NPI /FCI.person OR left.1pl the light on
'Either {somebody/anybody} came in, *or* we left the light on.'
b. *Bike mesa **{kanenas/opjosdhipote}** ke afisame to fos anameno.
'*{Somebody/anybody} came in *and* we left the light on.'

(27) I Eleni dhiavaze sinithos **{kanena/opjodhipote}** periodhiko (otan variotane).
the Ellen read.imperf.3sg usually NPI/ FCI magazine
'Ellen used to read {some magazine or other/any} magazine when she was bored.'

As we see, there is a meaning difference between the NPI and the FCI. The NPI receives merely a referentially vague reading (translated above as *some or other*). Giannakidou and Quer 2013, and Giannakidou and Yoon 2016 offer more discussion on the nature of this reading and how it differs from free choice; we revisit that discussion later. The difference between FCIs and NPIs is observed clearly in Greek, Korean, Mandarin, and other languages (see Giannakidou to appear for the most recent survey). The comparative, we will argue, does not belong to the nonveridical class or licensers because the Greek and Korean type of NPI, which needs a nonveridical licenser, cannot appear in the comparative.

## 2.2 Licensing vs. rescuing

Some NPIs can also be rescued. Licensing requires a nonveridical expression in the sentence, and is a scope condition at the logical form (Ladusaw 1980, Giannakidou 1997, and many others); rescuing, on the other hand, is done without a licenser, as long as the sentence gives rise to a negative inference.

(28) *Licensing* (Giannakidou 1997)
R (β, α);
where R is the scope relation; α is the polarity item; β is a nonveridical expression.

(29) *Rescuing by NEGATION* (Giannakidou 2006)
A PI α can be rescued in sentence S, if **the global context C** of S makes a negative proposition S' available, and (b) α is in the scope of negation in S'.

Rescuing is a secondary mode of licensing, relying on the global context which includes presuppositions and implicatures. NPIs differ to the degree they can be rescued. Greek NPIs were shown (Giannakidou 1997, 1998, 2006) to be very resistant to rescuing; but *any, ever* (and their Dutch cognates, as we see later), as well as English minimizers can be rescued much more easily. Two typical rescuing cases, Giannakidou argues, are the scope of emotive factive verbs

and *only*. In these contexts, we find *any* and English minimizers, but not the Greek NPIs:

(30) a. I am glad he **said a word**!
b. I'm glad we got **any** tickets. (from Kadmon and Landman 1993)
c. Mary regrets that she **lifted a finger**.
d. Only Mary {**gives a damn/said anything**}.

(31) a.*Xerome pou **dhinis dhekara**. (Giannakidou 1998, 2006) [Greek]
'I am glad you give a damn.'
b.*/#**Mono** i Maria **dhini dhekara**.
'Only Mary gives a damn.'
c.#I Maria **metaniose** pou kounise to daktilaki tis.
Only literal interpretation: 'Mary regrets that she lifted her finger.'
d. * I Maria metaniose pu milise me **kanenan**.
'Maria regrets that she talked to anybody.'
e. ***Mono** i Maria ipe **tipota.**
'Only Mary said anything.'

In a recent experimental study, Chatzikonstantinou, Giannakidou and Manouilidou (2015) show that the judgment for *only* and emotive verbs indeed differs statistically from that of licensing proper (with negation and DE quantifiers, for instance).

The details of how *only* and emotives trigger negative inference are not crucial for our purposes—since there is consensus that these two contain both positive (veridical) and nonveridical components in the global inference: *Only A p* entails or presupposes *p* (under every theory of *only* see Horn 1996, Beaver and Clark 2008), but asserts *no other than A p.* Likewise, the emotive verb is factive (thus veridical, it presupposes *p*) but at the same time expresses a contrary (therefore negative) inference (Baker 1970). This inference has been characterized in the literature as an implicature (Linebarger 1980), or presupposition (Baker 1970; Giannakidou 1998, 2006, 2016). Baker (1970) says that emotives express "a relation of contrariness between a certain fact and some mental or emotional state. For example, we say that we are *surprised* when a certain fact does not conform to our expectations; *relieved* when it does not conform to our fears; *disappointed* when it is not in line with our hopes; and *lucky*, if it is not in line with some standard set of probabilities."

Negative meaning can thus arise from two sources: either from the logical form (what is said) or from the non-asserted content (presuppositions or implicatures). We can think of the latter as *implicit* negation (following Xiang et al. 2016). *Any*, *ever*, and English minimizers can be rescued by implicit negation systematically, but the Greek NPI *kanenas*, minimizers, and their crosslinguistic equivalents, cannot. We will use emotives as a test for rescuing in our discussion in the rest of the paper.[3]

The rescuing of *any* is overwhelming, and this has not gone unnoticed. In an important recent paper, Duffley and Larivee 2015 provide extensive corpus data of *any* in veridical contexts, i.e.

[3] The dual mode of sanctioning makes more reliable predictions than Strawson-DE (von Fintel 1999), since it predicts fully the distribution of NPIs (strong as well as weak) in Greek and languages that have similar types, while also acknowledging a *qualitatively* different mode of sanctioning without a licenser. See Xiang et al. 2016 for evidence that indeed emotives pattern apart from canonical licensers in two experiments.

in the columns of Table 1 where NPIs should not appear. In these contexts, *any* either receives a free choice reading or is rescued by implicit negation. Duffley and Larivee argue that veridical contexts are possible with *any* when "emphasis is placed on utter indiscriminacy of reference", and ultimately say that "lexical characteristics of polarity items are thus shown to play an important role in accounting for polarity sensitivity, which cannot be reduced to a scope constraint requiring a nonveridical operator." (Duffley and Larrivee 2015: 35). We agree with this conclusion, and emphasize that the occurrence of *any* is not an indicator that an NPI-licenser is present in the structure.

We proceed now to discuss in more detail the crosslinguistic NPI data. NPIs, as it emerged from our discussion in this section, come in three varieties: (a) *strong* NPIs that only appear in the scope of a classical negation; (b) *broad* NPIs that appear in the scope of nonveridical expressions including non-negative ones; and (c) *liberal* NPIs, i.e. broad NPIs such as *any, ever,* and English minimizers that can also be rescued by implicit negation with e.g. emotive verbs. We can think of strong NPIs as the strongest, and the liberal ones as the weakest. Rescuing correlates with a free choice reading, we must therefore also explain why this is so.

## 3 Strong NPIs are excluded in the comparative

The nonveridicality theory identifies a class of strong (or *strict*) NPIs: these are NPIs that are licensed only by classical negation (recall also Table 1).

(32) a. John didn't see **anybody**.
b. John doesn't **give a damn.**
c. John didn't see Bill, **either**.

(33) a. Did John see **anybody**?
b. Did John **say a word**?
c. *Did John see Bill, **either**?

(34) a. Does John **give a damn**?
b. If you **give a damn**, you will listen to me.
c. *If you see Bill **either**, ...

Among the various NPIs above, only *either* is strong. Turning now to Greek, the emphatic variants of the broad NPIs mentioned earlier are strong NPIs (Giannakidou 1998, Giannakidou and Yoon 2016, Chatzikonstantinou 2016 for recent discussions).

(35) a. **KANENAN** dhen idha. [Greek]
anyone not saw.1sg
'I saw nobody.'
b. *An erthi **KANENAS**...
if come.3sg anybody
'If anyone comes...'
c. *Irthe **KANENAS**?
came.3sg anybody
'Did anyone come?'

As shown above, KANENAS is only acceptable with negation. Another such NPI is the NPI-even *oute* (Giannakidou 2007). Furthermore, observe that minimizers in Greek are only allowed with negation (Giannakidou 1998, 1999):

(36) **Dhen dhino djekara** jia to ti th'apojinis.
notgive.1sg damn about the what will happen.2sg
'I don't give a damn about what will happen to you!'

(37) #/*An **dhinis dhekara**, tha me akousis.
'If you dive a damn, you'll listen.'

Like Greek, Korean has a class of strong NPIs (containing the *even*-particle *to*, equivalent to Greek *oute*; Lee 2005):

(38) a. Na-nun **amwuto** po-ci anh-ass-ta. [Korean]
I-Top anyone see-CI Neg-Pst-Decl
'I didn't see anyone.'
b.*Manil **amwuto** o-ntamyen...
if anyone come-Subj
'If anyone comes...'
c.***Amwuto** o-ass-ni?
anyone com-Pst-Q
'Did anone come?'

So, Korean *to*-NPIs and Greek emphatic NPIs are both strong (Giannakidou and Yoon 2016). The parallel in the two languages extends to minimizers:

(39) a. John-i **kkwumccekto ha**-ci anh-ass-ta.
John-Nom budge an inch-CI Neg-Pst-Decl
'John didn't budge an inch.'
b.*John-i **kkwumccekto ha-**ess-ni?
John-Nom budge an inch-Pst-Q
'Did John budge an inch?'
c.*John-i **kkwumccekto ha-**ess-ta.
John-Nom budge an inch -Pst-Decl
'John budged an inch.'

The *to*-minimizer *kkwumccekto ha* 'budge an inch' is grammatical only in negative sentences, just like Greek minimizers, and unlike English ones. Hence, minimizers crosslinguistically exhibit variation with respect to whether they are strong NPIs or not. Given the observations so far, we can conclude that: i) strong NPIs have narrow distribution with negation; ii) Greek and Korean have a class of strong NPIs, including minimizers; and iii) *Any* and minimizers in English (and as we will show, ASL) are not strong NPIs but behave like broader NPIs.

Crucially, the canonical comparative Korean *pota*- and Greek *apo(ti)*-clauses cannot license strong NPIs:

(40) *Kim-un **amwuto-pota** te khu-ta. [Korean]

Kim-Top anyone-than more tall-Decl
'Kim is taller than anyone.'

(41) *I Kiki ine pliloteri **apo** KANENAN. *NP comparative* [Greek]
'Kiki is taller than anyone.'

(42) *Sue-nun [Tom-i **kkwumccekto han**-kes]-**pota** temanhi wumcikyess-ta. [Korean]
Sue-top Tom-Nom budge an inch-FRel-than more moved-Decl
'Sue moved more than Tom budged an inch.'

(43) *I Kiki milouse perisotero **apoti** I Maria **ipe leksi**. *S comparative* [Greek]
'Kiki talked more than Maria said a word.'

Likewise *either*, a strong NPI in English, does not appear in comparatives:

(44) *John is taller than Bill (is) **either**.[4]

Since strong NPIs do not appear in comparatives, the necessary conclusion is that the comparative does not contain negation.

Josep Quer brought to our attention the case of Romance n-words which may appear in phrasal comparatives, such as Spanish "mas bonita que ninguna" *more beautiful than anybody.* Hoeksema (2010) also reports synchronic uses of Dutch *enig*, which is becoming a strict NPI, in comparatives. The n-word facts are relatively well known, but unfortunately, space prevents us from addressing them in serious detail. Some basic things must be said though. First, Greek and Korean do not allow such uses of their strong NPIs:

(45) O Janis ine omorfoteros apo **{opjondhipote/*KANENAN/*kanenan}.** [Greek]
John is more handsome than anybody.

(46) Con-un **{nwukwu(na)/*amwuto/*nwukwuto}**-pota calsayngkiess-ta. [Korean]
John-Top anyone-FCI/strict NPI/broad NPI-than handsome-Decl
'John is more handsome than anybody.'

As we see here, the FCI is the only acceptable option. Crucially, Romance n-words are not strong NPIs like the Greek or Korean n-words. Romance n-words do appear (in preverbal position) without negation:

(47) **Nessuno** e arrivato. [Italian]
no one is come

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[4] *Additive* particles as a class appear to be rare in comparatives:

(i) a. #John was taller than Mary was **also**.
b. #John was as tall as Mary was **also.**

Hence the oddity of *either* might be due to a general ban on additive particles—a fact that needs to be explained, of course. The Greek and Korean NPIs, however, are bad just because they are NPIs: variants of (45) and (46) with non-polarity indefinites are fine:

(ii) I Maria ine pjiloteri apo **enan fititi/merikous fitites** stin taksi tis.
Mary is taller than one student/several students in her class.

'No one has arrived.'

Thus, the fact that n-words appear in the comparative is not evidence that the comparative contains negation. Rather, it suggests a free choice use of the n-word that occurs in it, and how exactly this happens will have to be explored on another occasion (see Donati 2000 for Italian data and some initial observations). In our discussion of *ever* and Dutch *ooit* later we find a similar free choice use in the comparative.

## 4 Negative Metalinguistic Comparatives allow NPIs

Negative metalinguistic comparatives (Neg-MC) in Korean do allow various kinds of NPIs. These comparatives, however, have been argued to denote an antiveridical ordering (Giannakidou and Yoon 2009, 2011), therefore NPI licensing is consistent with the presence of an antiveridical operator, as is required.

Greek and Korean exhibit distinct paradigms for metalinguistic comparatives: *para* comparatives in Greek (Giannakidou and Stavrou 2009), *kipota/nuni* comparatives in Korean (Giannakidou and Yoon 2009, 2011). *Para* clauses seem to allow the *kanenas* NPI and FCIs:

(48) Kalitera na mino spiti moni mou, para na miliso me {**kanenan/opjondhipote**}! [Greek]
I'd rather stay home by myself than talk to anybody.

However, the stronger kinds of NPIs—emphatic KANENAS and minimizers—remain ungrammatical in the Greek *para* clause; and likewise, *amwuto* and *to*-minimizers in Korean, as we see below in *kipota/nuni* clauses:

(49) *Kalitera na mino spiti moni mou, para na miliso me KANENAN!
I'd rather stay home by myself than talk to anybody.

(50) *Kalitera na mino siopili, para na po KOUVENDA!
I'd rather be silent than say a word.

(51) *Na-nun [kulen-salamtul **amwuto** manna-**kipota**] cipey issko sipta. [Korean]
I-Top such-people anyone meet-rather.than home be want
'I would rather stay home than meet anyone among such a crowd.'

(52) *Na-nun [kulen il-lo **kkwumccekto** ha-**kipota**] kamanhi issko sipta.
I-Top such task-for budge an inch-rather.than still stay want
'I would rather stay still than budge an inch to do such a task.'

(53) *Na-nun [kulen-salamtul **amwuto** manna-**nuni**] cipey issko sipta.
I-Top such-people anyone meet-rather.than home be want
'I would rather stay home than meet anyone among such a crowd.'

(54) *Na-nun [kulen il-lo **kkwumccekto** ha-**nuni**] kamanhi issko sipta.
I-Top such task-for budge an inch-rather.than still stay want
'I would rather stay still than budge an inch to do such a task.'

Giannakidou and Yoon (2009, 2011) note that there is no licenser in the MC; however, if we use the negative *charari* 'rather' in Korean, strong NPIs become fine:

(55) Na-nun kulen il-lo [**amwuto** manna/**kkwumccekto ha-nuni**] **charari** [Korean]

I-Top such task-for anyone meet/ budge an inch -rather.than rather
kunyang swui-keyss-ta.
just rest-will-Decl
'I would rather just take a rest than{meet anyone/budge an inch} to do such a task.'

*Amwuto* and the Korean *to*-minimizer require an antiveridical licenser. The regular comparative clauses cannot supply it, and this provides evidence that there is no negation in the comparative clause. *Charari*, as argued in Giannakidou and Yoon (2009, 2011), creates a metalinguistic comparative that asserts zero preference of the *than* proposition by the speaker, hence it is antiveridical and can license strong NPIs:

(56) Antiveridical $\text{MORE}_{\text{ML}}$ (Neg-$\text{MORE}_{\text{ML}}$)
[[charari]] = $\lambda p \lambda q[\, p >_{\text{Des }(\alpha)(c)} q \wedge \underline{\alpha \text{ desires } q \text{ to } d'\text{: } 0}]$
where $>_{\text{Des }(\alpha)(c)}$ is an ordering function such that: for $p$ and $q$ and degrees $d$ and $d'$, the degree $d$ to which α desires $p$ in $c$ is greater than the degree $d'$ to which α desires $q$ in $c$; and α is the anchor of comparison. (Giannakidou and Yoon 2011: 59)

In Korean grammars, *charari* is defined as "an adverb used when selecting a relatively better option than the other one, while implying that both options are not so preferable" (Dictionary of the *National Institute of Korean Language*). Hence *charari* plausibly conveys negation, though it is not itself morphologically negative. In the definition above, *charari* is the negative variant of the preferential $\text{MORE}_{\text{ML}}$ of MCs, imposing a total dispreference of the *nuni* argument, indicated above as the underlined negative component. It is also possible to envision the added conjunct as a presupposition, and we believe nothing crucial depends on this choice. The definition renders *charari* antiveridical, and this is sufficient to license NPIs.

The take home lesson is, then, that the comparative has no inherent negative or antiveridical property, unless we insert an element that has such a property. In this case NPIs will be licensed, but this is not due to the comparative but rather to the added negative element. We proceed now to study the behavior of the broader NPI classes in the comparative.

## 5 Broader NPIs in the comparative: rescuing, free choice reading

The nonveridicality theory characterizes as *broad* (a better label, we think, than the often-used 'weak') the NPIs sanctioned in the whole range of nonveridical environments. The result is broader distribution of these NPIs in questions, imperatives, modal, protasis of conditional, disjunctions, etc. These nonveridical environments are also good for FCIs, as we illustrated earlier. In this section we present data from broader NPIs in Greek, Korean, ASL and Dutch. We discover that only the rescued NPI appears in the comparative, and when it does it receives a free choice like interpretation like *any* and the n-words mentioned above.

### 5.1 Greek, Korean

Recall that Greek exhibits a lexical distinction between a FCI and a weak NPI:

(57) a. Patise {**kanena/opjodhipote**} pliktro. *Imperative* [Greek]
Press <u>some key or other</u>. / Press **any**-FC key!

b. O Janis bori na milisi me {**kanenan/opjondipote**}. *Modal*
John may talk to {some guy or other/**anybody-FC**}.

(58) An kimithis me**{opjondhipote/kanenan}** tha se skotoso. *Conditional*
if sleep.2sg with FCI-person/NPI-person Fut you kill.1sg
'If you sleep with **anybody**, I'll kill you.'

(59) a. I Ariadne epemine na afisoume **kanenan** na perasi mesa. *Directive attitude*
'Ariadne insisted that we allow **some person or other** to come in.'
b. I bike **kanenas** mesa **i** afisame to fos anameno. *Disjunction*
'Either someone got in or we left the light on.'

English minimizers, crucially, also appear in directive propositional attitudes:

[Retrieved with Google, 10/17/2006; *gratia* Jason Merchant]

(60) She's still funny and cute and smart and I wish she gave a damn that we aren't friends anymore. I miss Candice. www.xanga.com/betweenIDs

(61) "I just wish you gave a damn about something besides your television set." Mr. Smith threw the remote control across the room stomped out of the room.
www.deadmule.com/content/word.of.mule.php?content_id=952

(62) Till the pianist finished, we left, and I dropped off tom and went home. Now I wish I had said a word. It would have come out lame though, I just know it.
everything2.com/index.pl?node_id=116678

This again shows that it is a mistake to treat English minimizers as strong NPIs. The verb *wish* is not antiveridical, and it is also not DE; but it is nonveridical, and the occurrence of minimizers is fine. Interestingly, Korean exhibits a set of minimizers that contains a weaker form of EVEN— *lato*-minimizers ('even if'-minimizers) which are broader NPIs:

(63) a. Ceypal **kkwumccekilato ha**-yla. *Imperative* [Korean]
please budge an inch-even if-Imp.
'At least budge an inch!'
b**.** John-i **kkwumccekilato ha-**ess-ni? *Interrogative*
John-Nom budge an inch -Pst-Q
'Did John at least budge an inch?'
c. *John-i **kkwumccekilato ha-**ess-ta. *Declarative*
John-Nom budge an inch -Pst-Decl
'John even budged an inch.'

In Greek *kanenas* is reported to be OK (example below from Giannakidou 1998)— while the strong emphatic NPI KANENAS and minimizers are unacceptable in the comparative, as we showed earlier.

(64) I Maria etrekse grigorotera apoti perimene **kanenas**.
'Mary ran faster than anybody had expected.'

However, upon closer inspection, it turns out that the occurrence of *kanenas* is very limited. The following sentences have been judged as odd or ungrammatical (by a total of 8 native speakers).

(65) *I Maria diavase perisotera arthra apoti tis ixe protini **kanenas kathijitis**. [Greek]
'Mary read more articles than any professor suggested.'

(66) *I Maria agapa ton Petro perisotero apoti ton agapa **kanenas simathitis tou.**
Mary loves Peter more than him loves any fellow student.
'Mary loves Peter more than any fellow student loves him.'

*Kanenas* fails in this context. In the good case, bare *kanenas* seems to be conflated with the generic *kanis*. Giannakidou 1993 notes this use which is equivalent to generic *one*:

(67) Prepei na skefti **kanis/kanenas** an afti i epilogi ine sosti:
must subj. think.3sg one if this the choice is correct
'*One* must wonder if this is the right choice.'

Generic *kanenas/kanis*, by making reference to a class (or kind) becomes akin to a free choice reading, and this makes the difference in making it acceptable in the comparative. It has been a long-standing observation in the literature that generical contexts are very welcoming to FCIs. Importantly, the modified *kanenas* cannot be read generically, thus producing ill-formedness.

What about Korean? Yoon (2008) notes that *nwukwuto* is a weaker NPI than the *amwuto* we discussed earlier; and just like Greek *kanenas*, it is odd in comparatives:

(68) ??/*Kim-un [kyoswu **nwukwu-to** chwuchenhankes-pota] [Korean]
Kim-Top professor WH-even(anyone) suggest-than
te manhun nonmwun-ul ilk-ess-ta.
more article-Acc read-Pst-Decl
'Kim read more articles than any professor suggested.'

In order to be grammatical, the *even*-particle *to* must escape out of the *than*-clause in Korean:

(69) Kim-un [kyoswu **nwukwu**-ka chwuchenhankes-pota]**-to** [Korean]
Kim-Top professor WH-Nom(anyone) suggest-than-even
te manhun nonmwun-ul ilk-ess-ta.
more article-Acc read-Pst-Decl
'Kim read more articles than any professor suggested.'

*Amwulato* 'someone or other', another weaker NPI than *amwuto* (Giannakidou and Yoon 2016) is also odd in comparatives along with Greek *kanenas*.

(70) *Kim-un [kyoswu **amwu-lato** chwuchenhankes-pota] [Korean]
Kim-Top professor someone or other suggest -than
te manhun nonmwun-ul ilk-ess-ta.
more article-Acc read-Pst-Decl
'Kim read more articles than some professor or other suggested.'

We therefore conclude that in Greek and Korean, weaker NPIs that cannot be interpreted generically or class referring cannot be used in the comparative.

## 5.2. ASL NPIs in comparatives: ANY

The licensing pattern of ANY 'any' in ASL, which is grammatical in interrogatives and modals, exhibits its status as a broader NPI (Schlenker 2016, Fleckenstein and Yoon, to appear). In the below example, signs are represented by the words in all capital letters and the line over the sentence represents the onset, offset, and duration of the yes/no question sign, following sign language glossing conventions:

(71) _____y/n
JOHN SEE **ANY**+ONE *Interrogative* [ASL]
'Did John see anybody?'

(72) JOHN NEED TALK **ANY** *Modal*
'John should talk to anybody.'

ANY in ASL is subject to rescuing in contexts where it is not licensed but where there is a negative expectation:

(73) _____top. [ASL]
MARY **ONLY** IX:3P SAY **ANY**+THING
'Only *Mary* said anything.'

Hence ANY in ASL and the Korean and Greek NPIs stand in contrast wrt rescuing. Regarding the comparative, though complex word formation is rare in ASL, the primary comparative is expressed with a suffix roughly comparable to the *-er* in English (and a superlative is expressed with the *-est* suffix) (Kuhn 2017; see Abner et al. 2017 for 'exceeds'-comparatives in ASL, and Aristodemo and Geraci, to appear, for Italian Sign Language). There are signs for the suffixes '-er' and '-est.' (It is often assumed that these suffixes are evolved under the influence of English.)

Given that ANY in ASL can be rescued, we can predict that it may appear in comparatives. The prediction is borne out in the following data illustrating that ANY in ASL can appear in both phrasal and clausal comparatives.[5] We will come back to this point in section 6.1 to show that, just like English, ANY in comparatives is in fact a FCI.

(74) TALL KIM IX:3P THAN **ANY** IX:THEY [ASL]
'Kim is taller than anyone.'

(75) KIM READ MORE ARTICLE++ THAN ANY TEACH+AGENT SUGGEST
'Kim read more articles than any professor suggested.'

[5] Although the primary comparative construction like (75) is grammatical in ASL, it is assumed to be influenced by English. The most natural way of expressing comparatives in ASL would involve a topic-comment structure such as (i), where professors' telling Kim to read books is established as a topic.

(i) _____top
BOOK++ ANY TEACH+AGENT TELL KIM IX:3P READ IX:3P READ MORE BOOK++
'Kim read more books than any teacher told her to.'
'As for the books any teacher told Kim to read, she read more than that.'

ASL ANY thus upholds the correlation observed in English between the appearance of NPI in comparative, rescuing and free choice reading (manifested in the phrasal comparative).

### 5.3. Dutch NPIs in comparatives: *ooit* and *ever*

The occurrence of NPIs in comparatives has been well documented in Dutch (Hoeksema 2008, 2010 and references there). Dutch has the NPI *ooit* with distribution very similar to Greek *kanenas*, but is also a cognate of *ever*; *ooit*, unlike *kanenas,* can be rescued with emotives and *ONLY*. As expected, then, *ooit* appears in the comparative and superlative:[6]

(76) a. Het spijt me dat ik dat **ooit** heb gedaan. [Dutch]
It saddens me that I this ever have done
'I regret having ever done this.'
b. Alleen Jan heeft er **ooit** over geschreven.
Only John has there ever about written
'Only John has ever written to me.'
c. Ze was het mooiste meisje dat ik **ooit** gezien had.
'She is the prettiest girl that I have ever seen.'

(77) a. Deze boot is sneller dan **enige** boot die ik **ooit** heb gezien.
'This boat is faster than any boat I have ever seen.'
b. Het paard rende de snelste race die het **ooit** had gerend.
'This horse ran the fastest race that it has ever run.' (Hoeksema 2008: (6))

The superlative is another rescuing context (Giannakidou 1998, 2006). In the example (77a) we see also the NPI *enige boot*; *enig* is the Dutch cognate to *any*. The data are parallel to English.

*Ever* and *ooit* occur also in equatives:

(78) a. She is as beautiful as ever.
(79) b. She is more beautiful than ever.
c. Zij is mooier dan ooit.

The readings we get are very similar to *ever* and those observed earlier for n-words, though neither *ever* nor *ooit* are n-words. Hoeksema, in his survey of the Dutch corpus of negative polarity expressions provides the following distribution:

[6] We thank Jack Hoeksema for providing the data in this section and for his insights and comments.

Table 2: *Ooit, ever, je(mals)*. Environment in percentages[7]

| item→<br>omgeving↓ | ooit<br>N=17.304 | ever<br>N=3949 | je(mals)<br>N=847 |
|---|---|---|---|
| comparatief | 20 | 13 | 22 |
| cond. bijzin | 10 | 8 | 6 |
| nauwelijks | 1 | 2 | 5 |
| negatie | 22 | 25 | 18 |
| neg. predikaat | 3 | 5 | 4 |
| superlatief | 10 | 17 | 13 |
| vraag | 24 | 19 | 20 |
| universeel | 2 | 3 | 3 |
| zonder | 5 | 1 | 6 |
| overig | 3 | 7 | 3 |

Table 2 includes also the German particle *je(mals)*, which as we see, is similar to *ooit*. In addition, Hoeksema offers the following historical data comparing comparatives to equatives (*gelijkheid* 'equality', *ongelijkheid* 'inequality' in the table; *uidrukking* 'expression'):

Table 3: *Comparative of equality (gelijkheid) and inequality (ongelijkheid)*

| uitdrukking | ongelijkheid | % | gelijkheid | % |
|---|---|---|---|---|
| ever | 359 | 9% | 153 | 4% |
| je(mals) | 181 | 21% | 5 | 0,5% |
| ooit (< 1800) | 140 | 14% | 72 | 7% |
| ooit (1800-1900) | 562 | 23% | 44 | 2% |
| ooit (1900-1950) | 1393 | 23% | 36 | 0.6% |

The conclusion from these data is that the use of *ooit* in Dutch comparative is in the ascend. Given that *ooit* can be rescued, its occurrence is consistent with the correlation we are making, namely that only rescued NPIs occur in the comparative. In stark contrast to the Greek *kanenas* and Korean NPIs, *ooit* and *ever* receive free choice readings independently.

We proceed now to ask the question of why are free choice and class denoting (generic) readings good in the comparatives.

## 6 Why are free choice readings good in comparatives?

A central observation throughout the paper has been that NPIs with free choice and class readings such as bare *kanenas/kanis* are accepted in the comparative. In this section, we provide more examples showing that FCIs generally appear in the comparative, and then we ask the question of why this is so.

[7] Translations: *omgeving* 'environment'; *comparatief* 'comparative', *cond. bijzin* 'conditional clause' *nauwelijks* 'rarely'; *negatie* 'negation'; *neg. predikaat* 'negative predicate; s*uperlatief* 'superlative'; *vraag* 'question'; *zonder* 'without; *overig* 'total'.

### 6.1 Free choice items in comparatives

The Greek FCI *opjosdhipote* is good in the comparative (see Giannakidou 1997, 2001), and the same for Korean FCIs:

(80) I Maria diavase perisotera arthra apoti tis ixe protini **opjosdhipote kathijitis**.[Greek]
Mary read more articles than any professor suggested.

(81) Kim-un [kyoswu **nwukwu-na** chwuchenhankes-pota] [Korean]
Kim-Top professor WH-or(anyone) suggest-than
te manhun nonmwun-ul ilk-ess-ta.
more article read-Pst-Decl
'Kim read more articles than any professor suggested.'

FCIs routinely appear in comparatives in many languages. Notice also that FCIs are typically blocked by negation:

(82) a. *Idha **opjondhipote.** [Greek]
saw.perf.1sg FCI-person
'*I saw anybody.'
b. *Dhen idha **opjondhipote.**
not saw.perf.1sg FC-person
Intended: 'I didn't see anybody.'

If there were a negation in the comparative, it should block the FCI *opjondhipote*, just like ordinary negation.[8] The occurrence of FCIs in the comparative is then evidence that the comparative does not contain negation. FCIs are typically accepted in modal environments:

(83) **Opjosdhipote** fititis bori na lisi afto to provlima. [Greek]
Any student can solve this problem. [English]

(84) **Opjadhipote** ghata kinigai pondikia. [Greek]
Any cat hunts mice.

Now, if the comparative is not a natural environment for *kanenas* but it is for the Greek FCI, these data tell us that we are dealing with free choice use of *any*. Consider, in this connection, that it can be modified by *almost*; NPI-*any* cannot:

(85) a. Mary wrote more articles than **almost any** professor suggested.
b. ??/*Mary didn't buy **almost any** book.

In addition, consider a context where we are talking about 3 professors—Frans, Jack, and Jerry. Imagine that Frans suggested 2 books, Jack 4, and Jerry 5. For our sentence with *any* to be true it has to be the case that Mary read more than 5. If Mary read 3 books, which is more than

[8] If the negative sentence contains a modal or some other nonveridical operator, this may improve the NPI, as observed in Giannakidou 1997, 2001. Vlachou 2007 also offers some improvements with negation. However, the general observation is that with negation FCIs are dispreferred in Greek and a number of other languages including Mandarin (Giannakidou and Cheng 2006), Spanish and Catalan (Quer 1998, 1999; Menendez Benito 2010).

what *some* professor suggested, the sentence is false. This suggests that *any* is interpreted akin to a universal quantifier in the comparative (Heim 2000, and Schwarzchild and Wilkinson 2002), a typical interpretation of FCI-*any*, not a mere existential like NPI *any*.

In a similar vein, the appearance of *ever, ooit* in comparatives can be seen as a diagnostic of a free choice component, involving quantification over events (Partee 1984). In the following example, if there was even one past episode of 'House of Cards' with more back-stabbing incidents than the new one, the sentence is false:

(86) 'House of Cards' is back, stabbing more backs than **ever.**

Furthermore, we can see the parallel in a sign language. ASL, just like English, shows ambiguity between FCI 'any' and NPI 'any'. The licensing of ALMOST ANY in (88), however, indicates that 'any' in the comparative is a FCI rather than a NPI:

(87) TALL KIM IX:3P THAN **ANY** IX:THEY [ASL]
'Kim is taller than anyone.'

(88) TALL KIM IX:3P THAN **ALMOST ANY** IX:THEY
'Kim is taller than almost anyone.'

The observations so far can be summarized as in the following tables. Table 4 specifies the individual NPIs and FCIs for each of the languages and their distributional properties:

Table 4: *Types of NPIs and FCIs in English, Greek, Korean, ASL, Dutch*

| NPI | English | Greek | Korean | ASL | Dutch |
|---|---|---|---|---|---|
| Strong NPI | *either* | *KANENAS,* minimizers | *amwuto, to*-minimizers | -- | -- |
| Broad NPI | *any,* minimizers | *kanenas* | *amwulato, nwukwuto, lato*-minimizer | *ANY* | |
| Liberal (rescued) NPI | *any,* minimizers | -- | -- | *ANY* | *ooit, enig* |
| FCI | *any* | *opjosdhipote* | *nwukwuna* | *ANY* | *wie dan ook* |

Table 5 summarizes the acceptability of each type of NPIs and FCIs in comparative clauses in the languages we have investigated:

Table 5: *Acceptability of NPIs and FCIs* in comparatives *in English, Greek, Korean, ASL, Dutch*

| NPI in comparative | English | Greek | Korean | ASL | Dutch |
|---|---|---|---|---|---|
| Strong NPI | * | * | * | -- | -- |
| Broad NPI | * | * | * | * | * |
| Liberal (rescued) NPI | *OK* | -- | -- | *OK* | *OK* |

| | | | | | |
|---|---|---|---|---|---|
| FCI | *OK* | *OK* | *OK* | *OK* | *OK* |

The easier an NPI can be rescued—e.g. *any*—the more often we will see it in a comparative. *Kanenas,* for which rescuing is very marginal (Giannakidou 1998), is only seldom encountered in the comparative—and only, as we saw, bare *kanenas* in the generic use akin to free choice.

Rescuing in the comparative is due to its conventional ordering that produces a differential by inducing a non-equality of degrees as described in section 1. The comparative thus triggers an implicit negation like other rescuing environments (emotives, *only*, superlatives), and this inference is accessed by the liberal NPIs. The correlation we observe here with rescuing allows predictions that can be tested in corpora— something that hopefully can be taken up in future research.

Let us now address the final question of why the free choice reading is compatible with the comparative.

### 6.2 Antis-specificity: referential vagueness and free choice

Consider first the Greek and Korean NPIs excluded from the comparative. As we noted, this type of NPI is an *anti-specific* existential that cannot refer to a class. It expresses indeterminacy about possible values (rendered into English by 'some or other' as translation), as shown in the test below (Giannakidou and Quer 2013, Giannakidou and Yoon 2016, building on earlier tests by Aloni and Port 2014):

*Greek*

(89) a. Thelo na miliso me **kanena** glosologo. #Ine aftos o kyrios eki.
'I want to talk to a linguist, *some linguist or other*. #It's that guy over there.'
b. Thelo na miliso me **kanenan** kathijiti. #To onoma tu ine Veloudis.
'I want to talk to *some professor or other*. #His name is Veloudis.'
c. Thelo na miliso me **kanenan** kathijiti. #Ine o proedros tu tmimatos filosofias.
'I want to talk to a professor, *some professor or other*. #He is the head of the Philosophy Department.'

*Korean*

(90) Na-nun enehak kyoswu **{amwu/nwukwu}-lato** manna-ko siph-ta.
I-Top linguistics professor anyone-even meet-C want-Decl
#Kukes-un ceki ce namca-ta.
it-Top there that guy-Decl
'I want to meet a linguistics professor, *some professor or other*. #It's that guy over there.'

In these contexts, the second sentence ascribes to the speaker knowledge of the referent of the NPI. *Kanenas* and *lato*-NPIs, though licensed (by nonveridical *want*), appear to be incompatible with this knowledge. If, on the other hand, the speaker does not have someone particular in mind, the NPIs are fine, as shown below.

(91) a. Thelo na miliso me **kanena** glosologo, dhen exi simasia me pjon.

'I want to talk to *some* linguist or other, but it doesn't matter who.'

b. Na-nun enehakca **{amwu/nwukwu}**-hako-**lato** yaykiha-ko siph-ta.
I-Top linguist anyone-with-even talk-C want-Decl
Nwukwu-tun sangkwaneps-ta.
who-ever not.care-Decl
'I want to talk to *some* linguist or other, but it doesn't matter who.'

Here the speaker has no specific interest in who she talks to; maybe she is curious to meet linguists, or she has a linguistic question, and *some linguist or other* would do. Greek and Korean NPIs thus are what Giannakidou and Quer (2013) call *anti-specific*. Well-known such indefinites are the Greek *kapjos*, and Spanish *algún*, which are not NPIs but exhibit the same pattern, i.e. they cannot be used if the speaker knows who/what the value of the indefinite is.

Specificity, von Heusinger (2011) states, is "a semantic- pragmatic notion that distinguishes between different uses or interpretations of indefinite noun phrases", and is related to "the communicative notion of referential intention. A speaker uses an indefinite noun phrase and intends to refer to a particular referent." (von Heusinger (2011):10). Giannakidou and Quer (2013) and Giannakidou and Yoon (2016) suggest that the phenomenon of referential vagueness is the absence of specificity— and determiners like *kanenas* and the like are the duals of specificity markers, i.e., anti-specificity markers. Given von Heusinger's distinctions, anti-specificity is the absence of referential anchoring and the absence of referential intent. Anti-specific determiners produce anti-specificity, just like specificity determiners produce specificity.

Variation seems to be the most intuitive way to capture the absence of referential intent, it must therefore be understood as the hallmark of anti-specific indefinites, just as singleton reference is the hallmark of specific indefinites (Schwarzchild 2002). Variation signals that the speaker is considering alternative values in the domain, but makes no claims about the totality of the domain:

(92) *Referential vagueness: presupposition of minimal variation*
(i) A sentence containing a referentially vague indefinite $\alpha$ will have a truth value iff:
$\exists\, w_1, w_2 \in W$: $[\![ \alpha ]\!]^{w1} \neq [\![ \alpha ]\!]^{w2}$; where $\alpha$ is the referentially vague indefinite.
(ii) The worlds $w_1$, $w_2$ are epistemic alternatives of the speaker: $w_1, w_2 \in M(speaker)$, where M(speaker) is the speaker's belief state, the worlds compatible with what she believes/knows.
(iii) The speaker does not know which value is the actual value. (vagueness, ignorance)

Referential vagueness thus expresses the epistemic indeterminacy of the speaker regarding the value of $\alpha$. The epistemic state of the speaker is modeled standardly as a set of worlds M(speaker) compatible with what the speaker knows or believes in the base world w. The speaker is in a state of referential vagueness if she has at least two possibilities in mind as values for $\alpha$. With referential vagueness, we don't run *all* possible values, it is simply a requirement that there be no fixed value.

The anti-specificity condition can be strengthened to express *exhaustive* variation. There are various implementations of this idea, going back to Kadmon and Landman's 1993 widening. We will adopt here Giannakidou and Quer's implementation of exhaustive variation:

(93) *Free choice item*

Let W be a non-empty, non-singleton set of possible worlds. A sentence with a free choice item $[\![\text{OP DET}_{FC}\ (P, Q)]\!]$ is true in $w_0$ with respect to W iff:

(where OP is a nonveridical operator; P is the descriptive content of the FC-phrase; Q is the nucleus of the tripartite structure; $w_0$ is the actual world):

a. Presupposition of **exhaustive variation:** $\forall d \in D_{FCI}.\ \exists w \in W.\ Q(d)(w)$, and no other member of the domain d' is such that Q(d')(w); where D is the domain of the FCI, and Q the VP predicate.

b. Assertion: $[\![\text{OP}w,x\ [P\ (x, w); Q\ (x, w)]]\!] = 1$ where *x,w* are the variables contributed by the FCI.

Exhaustive variation says that for each value *d* there will be a world *w* such that *Q(d)(w),* but also requires that in that world *w* there can be no other *d'* that satisfies Q.[9] The important point is that the FCI requires that *there be a plural domain*, and that *we exhaust all values* in this domain. We therefore explain the free choice effect without positing a universal quantifier in the assertion, which remains the one we expect from a regular indefinite.

If FCIs presuppose exhaustive variation, it is easy to see why they are good in comparatives. Exhaustive variation allows the *than*-clause to pick out the whole class as the compared term. This renders FCIs roughly equivalent to universals in the comparative:

(94) Mary is taller than **anybody/everybody** in her class.
(95) Mary ran faster than **anyone/everyone** had expected.

A free choice marker or an NPI that can make reference to the whole domain are therefore good devices in the comparative if we want the comparison to make reference to a class. With a regular existential class comparison is impossible:

(96) #Mary ran faster than what **some** professor **(or other)** expected.
(97) #Mary is taller than **some** student **(or other)** in her class.

The above comparisons are odd, coming out either as under-informative (some or other) or failed FCI uses. It is helpful to understand the use of FCIs and NPIs in comparatives in this light, i.e. as appropriate devices for class comparisons. A referentially vague indefinite (NPI or not) is an infelicitous device for a class comparison and will therefore be highly awkward in the comparative. Our prediction is that if an NPI, like the FCI, can get the class reading, it should be able to occur in the comparative.

## 7 Conclusion

In this paper we made two main points. Our first point was empirical: the comparative is actually *not* a licensing environment for NPIs. The apparent *any, ooit* and minimizer data considered in the literature misled researchers to think that comparatives belong to the class of NPI-licensers;

[9] This rules out the possibility of all values being satisfied in one world. The effect of domain exhaustification defined this way is equivalent to the i-alternative variant of Giannakidou 2001.

but once we acknowledge the qualitative difference between licensing and rescuing— which does *not* require a licenser— it turns out that only the rescued NPI occurs in the comparative. This NPI typically has a free choice reading too. The fact that only rescued NPIs appear in the comparative is consistent with the analytical difficulty of treating the comparative as negative, downward entailing or nonveridical. The comparative is not any of these things.

Our second point was that the occurrence of FCIs and NPIs with free choice readings in comparatives, both quite frequent and unmarked, is due to the fact that free choice, by conveying *exhaustive variation*, can make reference to *comparison classes*. For this reason, NPIs with generic reading (*any*, some Romance n-words, Dutch *ooit*) and FCIs are excellent devices to use in cases where comparison to a class is needed. Clearly, there is a correlation between class reading and the ability of a polarity item to be rescued—but we will postpone exploring this correlation for another occasion.

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To follow.

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