

Chapter 6

The Landscape of Greek Quantifiers

Anastasia Giannakidou

6.1 Introduction

In this article, we study the structures that the Greek language employs to express quantification. By Greek, I am referring to the contemporary Greek spoken in the countries of Greece and Cyprus (an estimated total of 14 million speakers), and Greeks in diaspora (an estimated 5–6 million). It has long been customary, especially in the study of classics, to use the term ‘Greek’ to refer to the ancient language – and for a while, linguists referred to the modern language as ‘Modern Greek’, or *Koine* Modern Greek (*Κοινή Νεοελληνική*; Babiniotis and Kontos 1967). However, ‘as a living language, contemporary Greek does not need to be qualified by an adjective which implies that it is somehow secondary to the ancient language’ (Holton et al. 1997: xiii). For this reason, it gradually became standard practice in linguistics to use *Greek* to refer to the modern language, adding the adjective *ancient* or *modern* only when these chronological stages need to be distinguished.

Greek is an Indo-European language, the sole descendant of Ancient Greek. Ancient Greek exhibited variation in its dialects – which, however, were always mutually intelligible and in later stages (e.g. in later antiquity and the Hellenistic period) developed into a common language *koine* (see among others Horrocks (1997)). It is now the standard view that ‘the vast majority of Greek speakers now speak a common language with only relatively minor dialectal variations. The only exception to this is the Greek Cypriots, many of whom ordinarily speak a dialect which, although linguistically close to standard Greek, presents some significant differences’ (Holton et al. 1997: xiii).

Until 1976, two versions of Greek co-existed: *demotic* (δημοτική), which was the actual spoken language at least since the turn of the twentieth century; and *katharévousa* (καθαρεύουσα), a hybrid made up of lexical, morphological, and

A. Giannakidou (✉)
University of Chicago, Chicago, IL, USA
e-mail: giannaki@uchicago.edu

syntactic features of Ancient and Modern Greek. ‘Katharévousa was used not only on most official occasions, but it was also the language of secondary and college education, the law, medicine, the church, armed forces, most newspapers, and even to a certain extent radio and TV broadcasting’ (Holton et al. 1997: xv). The title of the most authoritative earlier grammar of Greek – *Νεοελληνική Γραμματική (της Δημοτικής)* [Modern Greek Grammar (of Demotic), Athens 1941] – reflects precisely this context. Demotic became the official language in 1976, and since then, the Greek language ‘has come closer to developing a set of universally accepted norms than at any other stage in its history’ (Holton et al. 1997: xv). The grammar I will be using as reference in this chapter is Holton, Mackridge, and Philippaki-Warbuton (1997), which describes what can be thought of as standard modern Greek, spoken at urban centers in Greece and Cyprus, which is based on demotic vocabulary, morphology and syntax, but does display a significant influence from katharévousa; for additional description, and more details in the history of Greek, see also the important works of Mackridge (1985) and Horrocks (1997).

Greek is a highly inflected language. The nominal system displays four cases (nominative, genitive, accusative, vocative), and there is agreement within the nominal, so all constituents are typically marked for case, number and gender. The verbal system is inflected for voice (active, medio-passive), tense (past, non-past), aspect (perfective-imperfective), and person, so verbal forms can be quite complex. We will not emphasize these morphological matters in this article, and recall them only when necessary. First, I briefly consider some basic facts about clause structure (6.1.1), and then I give some necessary background information about the DP structure (6.1.2). D plays an important role in the formation of quantifiers in Greek, as we will see.

6.1.1 *Basic Facts About Greek Clause Structure*

Alexiadou and Anagnostopoulou (1998) and others have cited Greek as underlyingly VSO, but I think that the most defining feature of Greek is that there is extensive word order freedom. In practice, the subject dominantly occurs sentence initially in affirmative declarative sentences, but the flexibility in word order allows constituent displacements such as topicalizations, focus, and wh-movement. Another distinctive property of modern Greek is that it does not have an infinitive, and therefore complementation is always finite.

We have three mood paradigms: subjunctive, indicative, and imperative. The imperative is used in main contexts only, and is marked with specific morphology on the verb (Mackridge 1985, Holton et al. 1997).¹

¹ In the examples, I use common transcription practice, and do not follow the orthographical conventions. I do designate stress, though, in words with more than one syllable, to increase readability.

the particles to supply a temporal anchor. The particles, including the subjunctive *na*, function as the present tense: they introduce the variable *now* in the syntax. *Na* is generated as a Mood head (Philippaki-Warbuton 1993).

Greek diachronically possess negations that are heads (Ancient Greek *ou, μην*, Modern Greek *dhen, min* (δεν, μην)). The modern Greek negations head their own projections NegP (Giannakidou (1998), see also Veloudis (1982)); but the Ancient Greek negators are argued to be phrasal (Chatzopoulou 2011). *Dhen* is used to negate indicative clauses, and *min* negates subjunctive clauses and gerunds. The correlation between negation and mood has been diachronically stable in the history of Greek, though not perfect (see Chatzopoulou forthcoming).

(6) Na *min* to pis.
 subj not it say.1sg
 Don't say this.

(7) *Dhen* to ipa.
 not it said.1sg
 I did not say this.

Now let's look at the basic patterns of the Greek definite structures.

6.1.2 *The D in Greek: Uses, Differences with English, and Genericity*

Greek has a DP (Stavrou 1983, Stavrou and Horrocks 1989, Horrocks and Stavrou 1987), headed by the definite article. Like the noun and adjective, the article in Greek is fully inflected for gender, case, and number: *o* is masculine, *i* feminine and *to* neuter (in singular nominative). I will be using *o* in this chapter as the label for the definite article. The definite article is usually designated as D (Abney (1987); see Alexiadou et al. (2008) for a recent overview), and the demonstrative is generated in English also as D (thus **this the book*). The English DP has the structure below; it produces typically a referential expression, a (maximal or unique) individual indicated with *iota*:

(8)

DP, $e: t$ (λx . woman (x))	
D	NP
$\langle\langle e, t \rangle, e \rangle$	$\langle e, t \rangle$
{the/this}	woman : λx . woman (x)

Demonstratives are generally thought of as definites that come with additional presuppositions of maximal salience or proximity (see Roberts (2002) for a

comparison between definite descriptions and demonstratives in English). The DP produces the most basic argument *e* – which can be lifted up to the GQ type when necessary (*modulo* Partee's 1987 type shifting rules).

6.1.2.1 The Greek Definite Article

The Greek article *o* is a D too, but it has a number of additional uses that are not observed in English, and which make it quite interesting.

(i) Definite Serializations

The article is used multiply in the so-called *definite reduplication*, or *polydefinite* structure (see Kolliakou 2004, Alexiadou and Wilder 1998, Campos and Stavrou 2004, Ioannidou and den Dikken 2009, Lekakou and Szendroi 2009).

- (9) a. **o** kókinos **o** tíxos
 the.nom.sg red.nom.sg the.nom.sg wall.nom.sg
 the wall that is red
- b. **o** tíxos **o** kókinos
 the wall the red

These serial [DP plus DP] structures are extremely common and productive in Greek. Often, they are thought to express a predication relation between the two DPs, as indicated above (*the wall that is red*), though the exact details are not crucial here. It is, however, important to note the possible permutation of noun and adjective. Also, there is no limit in how many DPs can be serialized. Consider the example below (ignoring agreement in the gloss):

- (10) to palió to spíti to megálo to patrikó
 the old the house the big the paternal
 the big old family house

Possessive pronouns (*mas* 'ours' below) can be added at any point:

- (11) a. to spíti *mas*
 the house ours
- b. to palió *mas* to spíti to megálo to patrikó
 the old ours the house the big the paternal
- c. to palió to spíti *mas* to megálo to patrikó
- d. to palió to spíti to megálo *mas* to patrikó
- e. to palió to spíti to megálo to patrikó *mas*
 our big old family house

We see here that the possessive also appears as a definite description (with overt definite article) in Greek – again a major difference with English where the possessive does not, and cannot, contain the definite article.

(ii) *Definite Article with Quantifiers*

Another use of the Greek article which differs from English is when it appears to attach not to an NP, as is expected, but to a quantificational determiner (Giannakidou 2004). This is illustrated with the universal quantifier *káthe* ‘every’:

- (12) a. **o** *káthe fititís* (Giannakidou 2004: (32b))
 D.masc every student.masc
 * the every student
- b. * *káthe* **o** *fititís*
 every D student
- (13) **i** *káthe fitíttria*
 D.fem. every student.fem

Giannakidou (2004) and Etxeberria and Giannakidou (2010) gloss D *káthe* lit. ‘the every’, as *each*. This use of D is observed in other languages too, e.g. Basque (Etxeberria 2005, 2009, Chapter 3, this volume) and Hungarian (Szabolcsi 1987; see also Szabolcsi 2010). The works cited propose that the article in this use modifies syntactically the quantificational determiner and *not* the NP. We come back to these uses of D when we discuss universal quantifiers later on. We will also find the definite article to interact with *wh*-quantifiers in Section 6.7, more specifically in the formation of free relatives and free choice items.

(iii) *Definite Article with Proper Names*

The Greek definite article is obligatory with proper names:

- (14) a. **o** *Nikólas;* **i** *Ariádne*
 the Nicholas; the Ariadne
- b. * *Nikólas;* **Ariádne*

The article is dropped only with the vocative (Stavrou 2011): *Nikóla! Ariádne!*; but **o Nikóla!* **i Ariádne!* Otherwise, the Greek proper name looks like a definite description too.

(iv) Generic Reference in Greek Is Only Possible with the Definite Article

The Greek DP is the typical vehicle of genericity. Bare singular count nominals are not allowed in the language as arguments:

- (15) a. *(I) patáta íne laxanikó.
 the potato is vegetable
 {Potato/the potato} is a vegetable.
- b. *(I) patátes íne laxaniká.
 the potatoes are vegetables
- (16) a. *(I) patáta itan sápia. (yesterday)
 the potato was rotten
- b. *Patátes itan sápies.
 potatoes were rotten

The first sentence is generic, and the second is episodic, as indicated and suggested by the predicates. We see that bare singular and plural count nouns are excluded in both cases. Generic reference is done via the definite determiner, in singular *and* plural. Compare the plural version to *The potatoes are vegetables* in English, which has a multiple kind reading (Krifka et al. 1995, Chierchia 1998). In Greek this sentence also has the kind denoting bare plural reading that the English definite plural lacks. Even singular mass nouns, which in English can be bare, cannot appear bare as generic arguments:

- (17) *(I) záxari íne glikiá.
 the sugar is sweet
 Sugar is sweet.

So, Greek is very restricted in its use of bare nominals. Bare singulars are allowed only as predicate nominals as we see, in the existential structure (to be examined in Section 6.4), and in the object position, where it has been argued that they contain a null D (Sioupi 1998, 2002, following Longobardi 1994, Chierchia 1998).

- (18) a. Xriázome záxari.
 I need sugar.
- b. O Jánis aftí ti stigmí diavázi {efimerída/periodiká}.
 the John this the moment read.imperf.3sg newspaper/magazines
 John is reading {the newspaper/magazines} right now.
- c. O Jánis éxtise {spíti/spítia}.
 the John built house/houses
 John built a house.

- d. I mamá éftiakse {kéik/pítes}.
 the mom made cake/pies
 Mom made {a cake/pies}.

The bare arguments in object position are all narrow scope indefinites, equivalent to existential bare plurals in English, and the singulars to *a* indefinites (see Sioupi's work for more details). Bare singulars are also employed in minimizer negative polarity items (e.g. *didn't say a word*), as we see in Section 6.6.

In subject position, bare singular existentials are out, but bare plurals are marginally allowed with existential, never generic, readings:

- (19) Gátes niaourízoun.
 Cats are meowing.

The point I want to make here is that bare arguments, to the extent that they are allowed, are equivalent to narrow scope indefinite existentials, and are never used generically. Generic reference in Greek is always via DP, regardless of mass/count differences.

6.1.2.2 Demonstratives

Finally, Greek possesses two demonstrative pronouns *aftós*, *aftí*, *aftó* 'this', *ekínos*, *ekíni*, *ekíno* 'that' – which, unlike English, *must* embed DPs (Stavrou 1983, Stavrou and Horrocks 1989, Alexiadou et al. 2008):

- (20) a. aftós *(o) fítitís
 this the student
 this student
- b. ekínos *(o) fítitís
 that the student
 that student

Horrocks and Stavrou argue that the demonstratives are not D heads in Greek, but phrases in Spec, DP. Other demonstratives in Greek are: the qualitative demonstrative *tétjos* 'such', and the quantitative *tósos* 'that much' (the latter related to the wh-word *ósos* 'as much as'):

- (21) a. Thélo éna *tétjo*. (with a pointing gesture; Holton et al.: 327)
 want.1sg one such
 I want one of these.

- b. Dhen thélume *tétja*.
We don't want such things.
- c. Íne *tóso* psilós!
He is so tall!

Finally, anaphoric elements also appear as DPs in Greek: the word ‘self’ – *o eafiósmu* ‘myself’ – and *o idhios* lit. ‘the same one’, a long distance anaphor and a logophor in Greek (Iatridou 1986, Varlokosta and Hornstein 1993). This background on the Greek DP will suffice for our discussion of quantificational expressions. More details regarding the use of D will be pointed out as we move on.

6.1.3 Roadmap

Traditional grammars use the terms ‘pronouns’ as in *definite* (*he, she, it*) and *indefinite* (*someone, something*) pronouns, determiners, and quantifiers to refer to what can collectively be understood as ‘quantificational expressions’. In this context, the word ‘determiner’ is understood descriptively as ‘a word that is not an adjective or a numeral but which accompanies a noun (e.g. “every”, “other”, “same”)’ (Holton et al. 1997: 303), hence quite differently from the way the term is used in the theoretical discussion in the syntax-semantics interface.

The background of our discussion here will be the generalized quantifier (GQ) theory (Montague 1974, Barwise and Cooper 1981, Zwarts 1986, Westerståhl 1985, Partee 1987, Keenan 1987, 1996, Keenan and Westerståhl 1997; for more recent works see Giannakidou and Rathert 2009, Szabolcsi 2010), which posits that there is a natural class of expressions in language, called quantificational determiners (designated as Qs), which combine with a nominal (NP) constituent (of type *et*, a first order predicate) to form a quantificational argumental nominal (QP). This QP denotes a GQ, a set of sets. In a language like English, the syntax of a QP like *every woman* is as follows:

- (22) a. $[[\text{every woman}]] = \lambda P. \forall x. \text{woman}(x) \rightarrow P(x)$
 b. $[[\text{every}]] = \lambda P. \lambda Q. \forall x. P(x) \rightarrow Q(x)$
 c.
- | |
|---|
| QP, $\langle\langle e, t \rangle, t \rangle$ |
| \swarrow \searrow |
| Q NP |
| $\langle\langle e, t \rangle, \langle\langle e, t \rangle, t \rangle\rangle$ $\langle e, t \rangle$ |
| every woman : $\lambda x. \text{woman}(x)$ |

The quantificational determiner Q *every* combines first with the NP argument *woman*, and this is what we have come to think of as the standard QP-internal syntax. The NP argument gives the domain of the Q, and the Q expresses a *relation* between this domain and the set denoted by the VP. QPs like *every woman*, *most women*, etc. are known as ‘strong’ (Milsark 1977), and they

contrast with the weak Qs like *some, few, three, many, etc.*, in that the latter, but not the former, are admitted in the existential construction. Another element that combines with a domain set to give a nominal argument is the definite D, as we saw earlier. In Greek, like in English, the DP and the QP are the two argumental nominals – bare nominals are generally not allowed as arguments, as we saw, or if they do, they are thought to contain a null D.

The structure of this chapter will unfold as follows. We start first with existential QPs in Section 6.2. We present first the quantity denoting existentials such as numerals – including modified numerals (Section 6.2.2) and distributive numerals, and we also examine the indefinite QPs preceded by the Greek equivalent to *some* and those preceded by the indefinite article (Section 6.2.4). Then, I present the so-called value judgements existentials, i.e. those that express a *subjective assessment* of their quantity (equivalents to *few, many, several, etc.*). We will notice an interaction there between intonation and determiner, a pattern that we observe again later in our discussion of scope and negative polarity quantifiers in Section 6.6. We discuss also partitive structures, and in Section 6.2.7, the adverbial variants of existentials.

In Section 6.3, we move on to expressions of universal quantification and other strong quantifiers, where we observe the systematic interaction between D and Q mentioned earlier. Here we also discuss binominal *each*, floating quantifiers, and distributivity. In Section 6.4, we zoom in on the existential structure, and ask what kinds of quantifiers can appear there. It is hard to draw clear conclusions about the definiteness effect in Greek; also there is more than one variant of the existential structure in Greek. In Section 6.5, we discuss morphologically complex quantifiers such as comparative quantifiers, those created via boolean compounding (*and, or, neither...nor....*, and *not*), exception phrases (*all but ten students*), and bounding phrases (*He exercised twice a day, six days a week for one year*).

In Section 6.6, we discuss negative polarity quantifiers and negative concord in Greek, and consider some more general questions of scope in a bit more detail. We notice an interaction between scope and intonation in Greek that has been observed in the literature (Giannakidou 1998, 2000, Baltazani 2002). In Section 6.7, finally, we focus on wh-based quantification. Unlike English, there are *three* paradigms of wh-words in Greek: interrogative wh-words, relative wh-words, and a special wh-form for free relatives that employs the definite article. The form is also the one used as the basis for the formation of free choice quantifiers (Giannakidou and Cheng 2006), so we find again an interaction of D with quantifiers in free choice, suggesting the relevance of definiteness for the semantics of free choice.

We distinguish between *D-quantifiers*, i.e. those that we call QPs (formed by using the determiner Q), and *A-quantifiers* which are adverbial. The latter are mathematically less well understood, and morphosyntactically and semantically more variable than D-quantifiers. Finally, it is important to emphasize that, as just described, we take the basic *semantic* type of quantifiers to be a relation between two sets. Our classification is thus meaning based. Logically equivalent

expressions in different languages may be syntactically non-isomorphic: *e.g. each student* in Greek appears as *o káthe fititis*, i.e. it is as a definite as mentioned earlier, but it will be classified as a universal based on its meaning.

My goal is to offer an accurate *description* of the Greek quantificational system, and it is my hope that this article will provide useful information to those interested in knowing what the landscape of Greek quantifiers looks like. The emphasis is therefore on broad empirical coverage and accuracy. However, connections to current theoretical discussions will also be made when they help the description – and, most importantly, when the lessons we draw from Greek can have implications for the analysis of quantification in general.

6.2 Expressions of Existential Quantification

We start with the examination of *generalized existential (intersective) quantifiers* (Keenan 1987, 1996). This is the class known as *weak* quantifiers, the Q expressing the intersection of their domain argument (NP) and the VP.

Often, existential Qs have been treated in the literature as ‘adjectival’, and therefore are not always considered syntactically Qs of type *et,ett* (cf. Link 1984, Partee 1988, Kamp and Reyle 1993, Krifka 1999, van Geenhoven 1998, Landman 2002). Ionin and Matushansky (2006) more recently argue that weak numerals, at least, are modifiers. Greek weak Qs are also argued to be adjectival as a class in Giannakidou and Merchant (1997), Stavrou and Terzi (2010). In what follows, I will generally refrain from syntactic questions, and consider primarily the semantic classification. So, what are called *existential quantifiers* below are simply relational expressions that are used in Greek to express existential quantification, regardless of whether they are syntactically quantificational determiners or not.

6.2.1 Indefinite Article and Numerals

A numeral is a word that expresses a number. Numerals are typically divided into cardinals (*one, two, three*) and ordinals (*first, second, etc.*). Ordinals in Greek behave like predicative adjectives and will not be considered here. Holton et al. state that ‘from the morphological point of view, Greek cardinal numerals may be divided into three categories: (a) indeclinable cardinals, (b) declinable cardinals, and (c) cardinals behaving like nouns’ (Holton et al. 1997: 294). Examples of declinable numerals are *énas* (masc.) *mía* (fem.) *éna* (neut.) ‘one’, *trís* (masc., fem.) *tría* (neut.) ‘three’, *tésseris* (masc., fem.) *téssera* (neut.) ‘four’, *diakósi diakósies diakósia* ‘two hundred’, *xílji xíljes xílja* ‘one thousand’. *Ekatómírio* ‘million’ behaves like a noun, and thus also declines (like all nouns in Greek). Indeclinable are the words designating the numbers 2, 5, 6, 7, 8, 9, 10, 11, 12 and the tens. Some examples are given below:

- (23) I María agórase ÉNA vivlío, ke óxi pénde.
 Mary bought one book, and not five [books]
- (24) a. Tris ánthropi diamartiríthikan.
 Three people complained.
- b. To tmíma mas tha dextí fétos xílius
 the department ours will. admit this year thousand.masc.acc.pl.
 diakósius néus fitités.
 two-hundred.masc.acc.pl new. masc.acc.pl students. masc.acc.pl
- c. Ekremún apózimiósis enós ekatomiríu agrotón.
 Pend.3pl compensations.nom one.gen million.gen farmers.gen
 The compensations of one million farmers are still pending.
- d. i xóra ton xílion limnón
 the country the.gen.pl thousand.gen.pl lake.gen.pl
 the country of a thousand lakes

The bracketed part in the example (23) illustrates NP ellipsis which is generally available in Greek (Giannakidou and Stavrou 1999), and depends on contrastive focus. In the example, the numeral is stressed for this reason. Unstressed, the numeral is used as the indefinite article:

- (25) Skéftome na agoráso éna spíti.
 I am thinking of buying a house.

The use of numeral *one* as an indefinite article is very common in many European languages, and in Greek, the indefinite *éna* is a run of the mill unmarked indefinite with no preference for specific or non-specific readings (Giannakidou et al. 2011). For indefiniteness in the plural, the bare plural can be used, as indicated in the example below:

- (26) I María agorase vivlia.
 the María bought books
 María bought books.

As said earlier, the indefinite bare plural is always narrow scope and cannot be specific (unlike the singular which is neutral). For indefinite plural Greek also employs *káti*, which we will discuss later in this section, and which seems to be comparable to the use of *unos* in Spanish.

Greek numerals are also known to license null arguments:

- (27) I Éléna agórase tría vivlíá, alá I María dhen agórase [e].
 Eléna bought three books, but María didn't buy [any].

Giannakidou and Merchant (1997) call this ‘indefinite object drop’, and show that only indefinite existential quantifiers can serve as antecedents for indefinite object drop in Greek.²

Numerals can also be used in the so-called pseudopartitive structure (Stavrou 1983, 2003) which seems to be equivalent to a classifier structure:

- (28) a. Xriazómaste tría bukália krasí.
 need.1pl three bottles.acc wine.acc
 We need three bottles of wine.
- b. Dío potíria ximós íne arketá.
 two glasses.nom juice.nom is enough
 Two glasses of juice is enough.
- c. tría métra ífasma
 three meters cloth

Like English, Greek is not a classifier language and uses containers and measure phrases to count units of mass nouns. We see here that no preposition is used – hence, *pseudopartitive* – but the two nominals agree in case (though not number, as the mass noun appears typically in the singular), and the case is determined by their grammatical function (object or subject).

6.2.2 Modified Numerals

Numerals can be modified by the following kinds of modifiers:

6.2.2.1 Quantity Bounding Modifiers

Quantity bounding modifiers are: *tuláxiston* ‘at least’, *to polí* ‘at most’, *óxi parápáno apó* ‘no more than’, *akrivós* ‘exactly’:

² This is one of the reasons, Giannakidou and Merchant argue, why indefinite object drop is a phenomenon distinct from VP ellipsis or null arguments in Japanese, Chinese, Portuguese.

- (29) Írthan {tuláxiston/to polí/ óxi parapáno apó} diakósi fitítés.
 came.3pl at least/at most/ no more than two hundred students
 {At least/ at most/no more than} two hundred students came.
- (30) To cake xriázete (akrivós) diakósia (akrivós) grammária vútiro (akrivós).
 The cake needs (exactly) two hundred (exactly) grams butter (exactly).

We see here that the modifier *akrivós* ‘exactly’ can float, and appear at the right or the left edge of the QP. *Tuláxiston* and *to polí* (lit. ‘the much’) typically precede the numeral but can also appear to the right: *tría avgá to polí* ‘three eggs at most’, *tría avgá tuláxiston* ‘three eggs at least’ but **tría avgá óxi parapáno apó* ‘*three eggs no more than’ – notice the parallel with English. Importantly, the modifier can also ‘split’ the QP and appear to the right of the numeral, between the number word and the noun:

- (31) a. Evgala dhío akrivós fotografíes.
 took two exactly pictures
 Lit. I took two exactly pictures.
- b. Na vgális dhío {to polí/tuláxiston} fotografíes
 Take two {at most/at least} pictures.

As I mentioned at the beginning, Greek has great flexibility in word order, and this carries over to the QP internal structure. This flexibility in the positioning of modifiers suggests that they don’t just function as Q modifiers, but they may have flexible syntactic specification as Q or QP modifiers, something which is expected given that they are adverbial. Holton et al. (1997) discuss some of these modifiers as ‘adverbials within the noun phrase’ (1997: 337), along with the approximative and evaluative modifiers that we discuss next.

Another bounding modifier is *móno(n)* ‘only’. (*N* is added before a vowel for euphonic reasons only.) *Móno* shows exactly the same flexibility:

- (32) Evgala (móno) tris (móno) fotografíes (móno).
 took.1sg (only) three (only) pictures (only)
 I took (only) three (only) pictures (only).

Tuláxiston, *to polí* and *mónon* do not exclusively modify numerals, they can also modify e.g. proper nouns:

- (33) Tha milíso {tuláxiston/ móno/ to polí} me ton Jáni.
 I will talk {at least/ only/ at most} with John.

6.2.3 Approximative Modifiers

Typical approximative modifiers are *perípu* ‘around’, *sxedhón* ‘almost’:

- (34) Simetíxan stis diadilósis {perípu/sxedhón}
 participated.3pl in-the demonstrations approximately/almost
 tris xiliades fitités.
 three thousand students
 {Approximately/ almost} three thousand students participate at the
 demonstrations.

Like the bounding quantifiers, *perípu* and *sxedhón* may also appear at the right edge of the QP:

- (35) Simetíxan stis diadilósis tris xiliádes fitités {perípu/ sxedhón}.
 Three thousand students approximately participated at the demonstrations.
 *[Three thousand students almost] participated at the demonstrations.

Notice the contrast with English *almost* that cannot be parsed as a constituent with the QP in this position. The intermediate position is also available: *tris xiliádes {perípu/ sxedhón} fitités* ‘three thousand {approximately/almost} students’.

Another class of approximative quantifiers is *kamiá* and *kána*. These sound like variants of *perípu*, but are morphologically related to the NPI *kamiá* ‘NPI.any.fem.’ that we will discuss in Section 6.6. *Kamiá* is the feminine form, and *kána* is related to the masculine and neuter *kanéna*. As approximatives, *kamiá* and *kána* are used uninflected. *Kamiá* appears with a numeral that does not agree in gender/number, or with nouns ending in *-ariá*, which are classifying:

- (36) Tha prépi na íxes {kamiá/kána} déka telefonímata (oso elipes).
 you must have had kamiá/ kána ten phone calls.neuter (while you were gone).
 You must have had about 10 phone calls while you were gone.
- (37) a. Idha {kamiá/*kána} dekariá fitités.
 I saw about ten students.
 b. Diávase {kána/* kamiá} vivlío.
 Read.imperative.2sg some book or other.

Dekariá is a classifying noun like ‘dozen’; *-ariá* and *-ádha* are very productive suffixes that create such classifying nouns: *eksádha* ‘six-piece’, *ekatodádha* ‘a mass of hundred’, *penindariá* ‘a mass of fifty’ (for a recent discussion see Stavrou and Terzi (2008, 2010)). The *kamiá* is not an NPI – given that it can

be used in a positive veridical sentence in the past tense (37a). As for *kána*, we see that it cannot be used with the classifying nouns, but rather with a bare NP, or with the numeral ‘two’ (*dhío*), and with the bare noun, thus creating an indefinite noun phrase.

- (38) Tha agoráso {kána dío vivlía/ kána vivlío}.
I will buy about two books/ a book.

Importantly, both *kamiá* and *kána* are not polarity sensitive, unlike their cognate *kanénas*, since they can be used in the veridical context of the simple past.

Numerals and modified numerals can all be used in the existential structure in Greek, which we consider separately in Section 6.3.

6.2.4 Indefinite QPs and Epistemic Judgement

An indefinite QP with the article *éna* can have specific or non-specific usages, as said earlier. Roughly, specificity means that the speaker has a particular individual in mind (in the ‘epistemic’ approach to specificity; Groenendijk and Stokhof (1981), Farkas (2002), Ionin (2006); for the choice function analysis see Reinhart (1997), Winter (1997). Specific indefinites refer to objects that are speaker identifiable but not part of the common ground; definiteness, on the other hand has to do with speaker *and* hearer reference, part of the common ground. Ionin (2006) argues that the QP is associated with a *felicity* condition that requires that the speaker be in position to identify the referent. This felicity condition is distinct from the presupposition of existence that a definite DP carries. It is clear then, that the specific use of an indefinite reflects an *epistemic judgement* on the part of the speaker. Such judgement often gets realized in the use of so-called ‘specificity’ markers such as *certain* in English.

Indefinite NPs sensitive to judgement or knowledge of the speaker exist in various languages, as noted by Haspelmath (1997) – and there exists a class of indefinites that appear to be the opposite of specific: they express uncertainty or indifference on the part of the speaker. They can only be used when the speaker does not know what their referent is. Examples of such indefinites are French *un quelconque* (Jayez and Tovena 2006), and Spanish singular *algún*. Jayez and Tovena call them *epistemic*, Alonso-Ovalle and Menéndez-Benito (2010) call them *modal*, but I will use the term *referential vagueness* (from Giannakidou and Quer 2011). Referential vagueness is an anti-specificity condition which says that the QP will be felicitous only if the speaker does *not* have a fixed value in mind.

Greek has two referentially vague determiners: the negative polarity *kanenas* series that we discuss in Section 6.6, and the non-polarity determiner that translates in English as *some*: *kápjios*, *kápjia*, *kápjio* ‘some, someone, somebody’ – inflecting fully for ϕ -features (case, number, gender), and which can be used both as determiner and as full QP, as indicated.

- | | | |
|------|--|---------------------------------|
| (39) | <i>kápjios</i> , <i>kápjia</i> , <i>kápjio</i> | ‘someone, some N’ |
| | <i>káti</i> | ‘something’ |
| | <i>kápu</i> | ‘somewhere’ |
| | <i>kápotē</i> | ‘sometime, once’ |
| | <i>kápos</i> | ‘in some way, in a certain way’ |
| | <i>kámboso</i> | ‘a certain amount’ |

This *ká*-series is composed morphologically by adding *ká* to a wh-word (the *p*-part and *tí*; see Section 6.7). The *ká*-indefinites, however, do not have wh- or interrogative uses in Greek.³ Some examples are given below:

- (40) a. *Idha kápjion na trexi sta skotiná.*
I saw someone run in the dark.
- b. *Kápjia nosokoma tha ton kálmári.*
Some nurse will calm him down.
- c. *Fáe káti.*
Eat something.

(An older form, *katití*, also exists, but its usage is in decline). The *ká*-indefinite is typically used when the speaker does not have a specific referent in mind, or in situations where the speaker doesn’t care about the identity of the referent; empirical evidence for this comes from two experiments (Giannakidou et al. 2011) showing that *kápjios* is dispreferred situations where the speaker has one particular value in mind, such as below:

- (41) *Thelo na miliso me kápjion glosologo. # Ine aftos o kyrios eki.*
I want to meet some linguist of other. # It’s that guy over there.
- (42) *Thelo na miliso me kápjion glosologo. # To onoma tu ine Veloudis.*
I want to meet some linguist or other. # His name is Veloudis.

³ Giannakidou (1997, 1998) claims that the *ká*-indefinite also has a positive polarity use (like *some*: *I didn’t see some student*), but the facts are not so clear, because speakers do accept the *ká*-indefinite inside the scope of local negation, or non-local negation. The category of positive polarity indefinites is illusive (see Giannakidou and Yoon to appear), and even in English, there may be two incarnations of *some*, the positive polarity one being distinguished as more emphatic, as suggested in Giannakidou and Yoon to appear. For more on intonation, quantifiers, and scope, see Section 6.6.

- (43) Thelo na milso me *kápjon* kathijiti. # Ine o proedros tu tmimatos filosofias.
I want to talk to some professor or other. He is the head of the Philosophy Department.

The unmarked indefinite has no trouble in this fixed-value context:

- (44) Thelo na miliso me *énan* glosologo. Ine aftos o kyrios eki.
I want to talk to a linguist. It's that guy over there.
- (45) Thelo na miliso me *énan* glosologo. To onoma tu ine Veloudis.
I want to talk to a linguist. His name is Veloudis.
- (46) Thelo na miliso me *énan* kathijiti. Ine o proedros tu Glosologikou.
I want to talk to a professor. He is the head of Linguistics.

So, epistemic judgement does constrain the distribution of the *ká*-indefinite, albeit not in a polarity manner. The specific use of *énas* simply remains unmarked.

There is also a use of *énas* 'someone' as an independent QP. The example below is from Holton et al. 1997: 320):

- (47) Irthe {*énas/kápjos*} ke se zituse.
Someone came looking for you.

This use of *énas* is equivalent to *someone*, as we see. For arbitrary reference 'one', Greek employs *kanís* (a cognate of the polarity *kanénas* that we examine later, Giannakidou (1994); *kanénas* itself can also, more markedly, be used in this context):

- (48) Anarotiete *kanís* an. . .
One wonders whether. . .

Finally, it is worth noting the use of *káti* – which means literally 'something' – as an indefinite determiner, akin to a plural indefinite article. In this use, *káti* combines with a plural NP and creates a plural indefinite:

- (49) Píran tiléfono káti fitités.
called telephone káti students.
Nomízo oti ítan o Pétros ke i María.
Think.1sg that be.3pl the Peter and the Mary
Some students called. I think it was Peter and Mary.

The singular **káti fitítis* is impossible. As a plural indefinite, *káti* appears invariant (not inflected for ϕ -features). Languages tend to not have a morphological plural indefinite article (a notable exception is Spanish *unos*), and supplement it with other forms, hence the use of *káti* in Greek. English weak

sm has a similar use as in *I saw sm students*. As a plural indefinite, the *káti* indefinite conveys complete ignorance of reference, as is shown in the example above. There are cases where *káti* imposes anti-specificity in the sense that it cannot refer back to a discourse given set. Consider the following scenario (modeled after Martí's (2009) example (1)):

(50) Context: Teachers A and B are on an excursion with [a group of children]_κ.

Teacher A comes to teacher B running:

a. A: Akouses? [Káti pedhiá]_{J, #κ} xáthikan sto dásos.
 Did you hear? Some children were lost in the forest
 Eftixos pu ta diká mas ta kratísame edo!
 Thank God we kept ours here!

b. A: Akouses? [Kápja pedhiá]_{#J, κ} xáthikan sto dásos.
 Did you hear? Some children were lost in the forest

Káti pedhiá here cannot refer back to the discourse given set of children the teachers A, B were in charge of; Spanish *unos* has been claimed to have the same property (Gutiérrez-Rexach (2001), and this supports further a parallel between the Greek *káti NP.plural* and the plural indefinite article *unos* in Spanish, which remains non-specific in the plural. The *b* example with the plural *kápja* needs to refer to the previously introduced set, just like Spanish plural *algunos* (Martí 2008, 2009). So, unlike English, Spanish and Greek employ two indefinite paradigms in the plural: [*A*+NP.plural], and [SOME+NP.plural] – and these come with distinct patterns of context dependence: the former isn't context dependent, but the latter is. The mystery is that in the singular we tend to have the opposite pattern, and this somehow needs to be explained.

Finally, in support of the equivalence of *káti NP.plural* to a plural SOME consider the following exclamative sentence:

(51) Exi káti kunímata!
 She's got SOME moves!

This is equivalent to the emphatic use of *some*, and makes a rather qualitative statement. Such uses provide further support for the idea that indefinites are generally associated with epistemic judgment.

6.2.5 Value Judgement Quantifiers, and the Role of Intonation

Value judgement quantifiers are those that come with some kind of judgement on the *quantity* they denote. Typical such examples in English are *few*, *many*, *several*, etc. I give below some examples with their Greek equivalents, all inflected for case number and gender. We start with those expressing a positive judgment on the quantity:

- (52) Idhame {polés/arketés/kábofos/merikés} tenies fétos to kálokéri.
 saw.1pl many/several/several/a few movies this summer
 We saw {many/several/a few} movies this summer.

There are variants of MANY NP like [*plíthos* NP.genitive], as in *plíthos tenión* ‘crowd movies.pl.gen.’, and ‘ápires NP’ lit. ‘infinite.pl NP.pl’, as in *ápires tenies* ‘tons of movies’ – both designating quantities judged as very large. *Polí* is an adjective – the word for *many* and *much* in Greek – and it inflects, as above, where we find it as *poles* ‘many.fem.pl.acc’. The uninflected variant *polí* ‘many.neuter.sg’ is an adverb – equivalent to English ‘very’, ‘very much’ and ‘a lot’:

- (53) To podílato aftó mu arési *polí*.
 the bicycle this me.gen like.3sg much
 I like this bicycle a lot/very much.

- (54) I María íne *polí* kourasméni.
 María is very tired

As the English *many* and *very*, *polí* is generally emphatic, but in construals like *polí kurasméni* ‘very tired’ *polí* need not bear the main stress; stress could be on the adjective. If stressed, the emphatic variant of *polí*, which I will designate as POLI, delivers equivalence to English ‘too’ (Giannakidou 1997, 2000:465–466). An important diagnostic employed in Giannakidou was that emphatic POLI can license NPIs such as *kanénan*, but the unstressed *polí* cannot:

- (55) a. I María íne POLI kourasméni ja na milísi me kanénan.
 María is *too* tired to talk to anybody.
 b. * I María íne *polí* kourasméni ja na milísi me kanénan.
 * María is *very* tired to talk to anybody.

Hence, intonation realizes in Greek an otherwise lexical difference in English. This we find again with QPs expressing negative judgement such as *líji*, and emphatic *LIJI*. The adjective *lígos*(masc.) *líji*(fem.) *lígo*(neuter) means literally ‘small, little in size or quantity’ as is *Thelo líji zaxari* ‘I would like {a little bit of, some} sugar’. The examples and glosses below concerning intonation are from Giannakidou (2000), and the NPI *típota* serves as a diagnostic:

- (56) a. LIJI fitités ípan *típota*.
few students said.3pl anything
 Few students said anything.
 b. **Líji* fitités ípan *típota*.
a few students said anything
 *A few students said anything.

Non-emphatic *líji* carries a more neutral judgement on the quantity like *a few*, and does not license the NPI. But the emphatic LIJI designates a quantity judged negatively as *not much*, or *less than expected*, like *few*, thereby allowing the NPI. Emphatic accent thus again marks an otherwise lexical distinction in English.

Another negative judgement value quantifier is *eláxisti*, literally the superlative of *lígos*, meaning ‘very few’:

- (57) Eláxisti fitités ípan típota.
 very few students said.3pl anything
 Very few students said anything.

Eláxisti allows for NPIs, as we see. More on the NPI facts in Section 6.6.

6.2.6 Existential Quantifiers in the Partitive Structure

All existentials mentioned in this section occur in the partitive – which in Greek involves using the ‘light’ proposition *apó* ‘of’, or ‘from’, plus a plural DP as is typically the case. When the existentials are used in the partitive, they receive proportional readings, as expected:

- (58) a. Idha {tris/kápjus/lígous/merikús/polús} *apó* tus fitités.
 saw.1sg three/some/a few/several/many of the students
 b. Idha {to polí/tuláxiston} pénde *apó* tus fitités.
 saw.1sg at most/at least five of the students

6.2.7 Existential A-Quantifiers

Adverbial expressions with existential force come in two basic varieties: quantificational adverbs (Q-adverbs) along with adverbials typically denoting frequency, and iterative adverbials (I-adverbials) that denote iteration.

6.2.7.1 Q-Adverbs and Adverbials with \exists -Force

- (59) O Jánis kapnízí {sixná/spánia/póte- póte /káthe tris ke lígo}.
 the John smoke.imperf.3sg often/rarely/when-when/every three and little
 John smokes {often/rarely/every now and then/very often}.

Notice the two idiomatic expressions: (a) the reduplication *póte- póte* (of the wh-word meaning *when*) meaning ‘every now and then’ or ‘occasionally’; and *káthe tris ke lígo* which involves a universal quantifier and a coordinate structure. These are perceived as conventionalized expressions. Reduplication,

however, often creates distributive expressions in Greek as we will see soon. As indicated, the verb with Q-adverbs appears in the imperfective, since these sentences are habitual/generic statements and involve quantification of events (Krifka et al. 1995, Giannakidou 1995, 1997, 2009 for Greek). The Greek imperfective also has progressive usages that will not be relevant here.

Another group of frequency adverbials is those that are expressed in English with the prepositions *on*, *in*, *at* (*on Monday*, *in the winter*, *at noon*), or a bare plural naming a day of the week: *On Monday*, *Mondays*, *Wednesdays*. In Greek, these all appear as bare accusative DPs:

- (60) O Jánis érxete {tis kyriakés/ ta vrádia}.
 the John comes.imperf.3sg the Sundays.pl.acc/ the evening.pl.acc
 John comes {on Sundays/at night}.
- (61) To xióni péfti ton ximóna.
 the snow falls.imperf.3sg the.sg.masc.acc winter.masc.sg.acc
 The snow falls in the winter.
- (62) O pyretós anevéni ti níxta.
 the fever rises.imperf.3sg the.sg.acc night.fem.sg.acc.
 The fever rises at night.
- (63) Ti níxta, ta pedhiá kimúnde.
 At night, the children are asleep.

Finally, another group denoting frequency appears in the form *n forés* + *accusative* ‘three times a week/a month’, etc.:

- (64) Ton vlépo tris forés {tin evdomáda/ to mína}.
 Him see.imperf.1sg three times the.acc week.acc/ the.acc. month.acc
 I see him three times {a week/a month}.

So, we see a systematic use of DP in frequency adverbials, where English uses an indefinite QP.

6.2.7.2 Iterative Adverbials

These are: *tris forés*, *pénde forés*, etc.:

- (65) Milísame pénde forés fétos to kálokéri.
 talked.perfective.1pl five times.acc this-year the summer
 We talked five times this summer.

The iterative sentence contains a verb in the perfective, as we see in the gloss. Also noteworthy is the deictic word *fétos* ‘this year’ – a constant meaning ‘the year of utterance’. Greek employs likewise *pér(i)si* for the year prior to the year of utterance, and *tu xrónu* for the year after. Crucially, these are not indexicals, unlike *next year*, *last year* in English which can be anchored to the year of the clause and not necessarily the utterance:

- (66) I María ípe to 2007 oti tha édíne eksetásis *tu xrónu*.
 Mary said in 2007 that she would take the exam in 2011.
 (utterance year: 2010)
Not: Mary said in 2007 that she would take the exam in 2008.

This concludes our presentation of existential structures in Greek. We move on now to universal quantifiers.

6.3 Universal Quantifiers, Distributivity, and Interaction with D

In this section, we discuss strong quantifiers in Greek: universals, and the quantifiers equivalent to *both*, *most*. Greek has two expressions of universal quantification: *ólos* (masc.), *óli* (fem.), *ólo* (neut.) ‘all’, and the indeclinable *káthe* ‘every’ – a distributive universal, variants of which appear with the definite article, e.g. *o káthe* ‘each’. D is also involved in the formation of *both*, *most*. We discuss the two major groupings in turn.

6.3.1 Ólos

Ólos fully inflects for ϕ -features, but I will be referring to the whole paradigm as *ólos* following the grammars. *Ólos* means both ‘all’ and ‘whole’ in Greek. Like in English, it appears in the periphery of a DP, and cannot follow the D:

- (67) a. Psífisan óli i fitités.
 voted.3pl all.pl the.pl. students
 All the students voted.
- b. *i óli fitités
- c. Éfage óli tin túrta.
 Ate.3sg all.acc.fem the.fem.acc cake
 He ate all the cake/the whole cake.
- d. Émine óli tin óra.
 stayed.3sg all.acc.fem the.fem.acc hour
 He stayed the whole hour./ He stayed the whole time.

In the use as ‘whole’, *ólos* can in fact follow the D, and seems to be equivalent to the adjective *olókliros* (*i, o*) ‘whole’.

- (68) a. {i óli / óli i} sizitisi
 the whole/ whole the discussion
 the whole discussion
- b. olókliri i sizitisi
 whole the discussion

Unlike English, *ólos* cannot appear with a bare NP:

- (69) Óla *(ta) pediá ine xaritoména.
 all D children are cute
 All children are cute.

We see that even in generic contexts, as the sentence above could be, *ólos* must be followed by a DP, as DPs are the typical vehicles of generic quantification in Greek. Given this requirement for a definite DP, Giannakidou (2004) I argues that *ólos* is not a quantificational determiner, since all Qs in Greek take NP complements. Rather, I suggested treating *ólos* as an adverbial, i.e. an exhaustivity modifier of the DP, as has been suggested for *all* in English, and similar items in other languages. More supporting evidence for a non-determiner analysis comes from the fact that *ólos*, like *all*, but unlike the determiners we saw earlier, can float:

- (70) a. I fitités éfigan óli norís.
 The students left all early.
 b. I fitités éfigan noris óli.
 c. I fitités óli éfigan noris.
 d. Ta pediá ta ída na févgun óla norís.
 The children, I saw them all leaving early.
- (71) a. * Fitités tris éfigan norís.
 Students three left early
 b. Fitités éfigan tris norís

We see here that *óli* can appear in various places: in the periphery of the DP to the right, after the verb, at the right edge of the sentence. These are unacceptable positions for the existential quantifiers we discussed in the previous section which all appear pre-NP and seem to form a constituent with the NP – they can only be separated via split topicalization, which is marked by intonation breaks, indicated here with comma⁴:

⁴ I think it is also worth noting that Greek has the so called *Genus species topicalization*:

- (i) Kréas, mu arési móno to xirinó.
 Meat, me.gen like.3sg only the.nom pork.nom
 As for meat, I only like (the) pork.

- (72) *Vivlíá, agorasa polá. Periodiká, polí líga.*
 Books, I bought many; magazines, very few.

Hence, the mobility of *ólos*, in conjunction with its extraordinary behavior of combining with a DP allows us to think of it as an adverbial modifier of the DP, maybe a kind of exhaustivity marker or designating *good fit*, as suggested in Brisson (2003) for English *all*.

Finally, *ólos*, does not occur in partitives:

- (73) a. **óli* *apó tus fitités*
 all of the students
- b. (*o*) *káthe énas* *apó tus fitités*
 each one /every one of the students
- c. *o kathénas* *apó tus fitités*
 everyone of the students

From the universals, the variants of (*o*) *káthe énas* (discussed next) occur in the partitive. ‘Most’ is fine too – *i perisoteri apó tus fitités* ‘most of the students’, but ‘both’ is not so good (but still usable): ? *ke i dhio apó tus fitités* ‘both of the students’.

6.3.2 *Káthe, kathénas: Distributivity, and D-Universals*

Káthe appears to be a universal distributive quantificational determiner in Greek. Holton et al. (1997: 313) characterize it as a distributive determiner too – like *every*. It appears to be a singular uninflected determiner, combining only with a singular argument:

- (74) a. *káthe fitítis*; *káthe fitítí*; **káthe fitités*
 every student.sg.nom; every student.sg.gen; every student.nom.pl
- b. *káthe fitíríia(fem)*; *káthe fitítíríias(fem.gen)*

So, unlike *olos*, the definite and indefinite article, the demonstrative, and the existential quantifiers we discussed earlier which appear to inflect fully (with the exception of a few numerals), *káthe* is morphologically set apart from adjectives and D in the language. But *káthe* can combine with *énas*, and in this case it inflects:

- (75) a. *kathénas*; *kathénós*
 every-one.*nom.sg.masc* every-one.*gen.sg.masc*
- b. *kathemía*; *kathemías*
 every-one.*nom.sg.fem*; every-one.*gen.sg.fem*
- c. *kathéna*; *kathénós*
 every-one.*nom.sg.neut.*; every-one.*gen.sg*

It seems natural to think of *káthe* as ‘every’ and *kathénas* as ‘everyone’. However, there are certain facts that set *kathénas* apart from ‘everyone’. I discuss them in detail next.

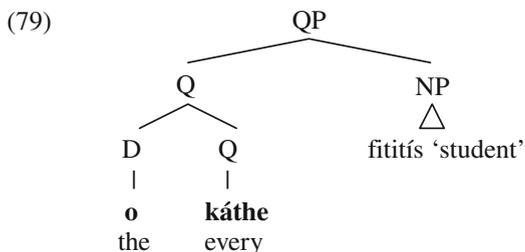
6.3.2.1 The Presence of D and Context Dependence

The first difference is that *kathénas* is always construed with the definite determiner *o*. I give below examples in a generic and episodic context:

- (76) a. *O kathénas* gnorízi oti i ji íne strogilí. generic
 Everyone knows that the earth is round.
- b. ?? *Kathénas* gnorízi oti i ji íne strogilí.
- (77) a. *O kathénas* éfere apó éna vivlío. episodic
 the everyone brought of one book
 Everyone brought one book each.
- b. * *Kathénas* éfere apó éna vivlío.

We see here that *o kathénas* receives both generic and episodic uses – in the latter referring to a discourse specific set of entities which renders the D-*káthe* QP context dependent. Giannakidou (2004) and Etxeberria and Giannakidou (2010) claim that D in this case does not function as *e*-forming, but as a *modifier* that does not saturate (in the sense of Chung and Ladusaw (2003)) the NP: it composes with Q, via an operation called *D-domain restriction* (DR), designated in *d* below. D-DR can be thought of as a morphological or lexical operation on the Q, and semantically it contributes the context set variable C. (Westerståhl (1984, 1985) claimed that the definite article contributes C anyway). C renders the QP anaphoric to a salient discourse set (property). So, for languages that employ D-restriction, contextual restriction is grammaticalized, and is not merely a matter of pragmatics.

- (78) a. $[_{QP} o \text{ D} + \textit{káthe} \text{ Q} [_{NP} \textit{fítítis} \text{ N}]]$
- b. *o káthe fítítis* = [(C) *káthe*] (student) ‘each student’



- a. *o káthe fititís* = [(C) *káthe*] (*fititís*)
- b. $\llbracket Q \rrbracket = \lambda P \lambda R . \forall x P(x) \rightarrow R(x)$
- c. $\llbracket D \rrbracket = \lambda Z_{et,ett} \lambda P_{et} \lambda R_{et} Z (P \cap C) (R)$; Z the relation denoted by Q
- d. $\llbracket D(Q) \rrbracket = \lambda P \lambda R . \forall x (P(x) \cap C(x)) \rightarrow R(x)$

The result of D-DR is a *presuppositional* Q, i.e. a Q imposing on the context the constraint that there be a non-empty set to quantify over. Similar D- universals are observed in Basque, Salish, and Hungarian. Ettxeberria and Giannakidou further suggest that *each* has a structure parallel to the Greek [D-*every*]; only with *each*, D is covert. This idea is supported also by the parallels between D *káthe* and *each* in the domain of distributivity that we discuss next. Finally, Matthewson 1998, 2001 also documents interactions of D with quantifiers in Salish.

The context dependent and therefore presuppositional nature of D-universals means first that these QPs will not be able to quantify over empty sets. This is indeed what we observe. Notice the contrasts below, and the parallel of D- *káthe* and *each* (the examples are from Ettxeberria and Giannakidou (2010)):

- (80) #An vris to *káthe* láthos, tha su dhóso bonus; but there may be no mistakes at all.
#If you find each mistake, I'll give you a bonus; but there may be no mistakes at all.
- (81) If you find *every* mistake, I'll give you a bonus; but there may be no mistakes at all.
An vris *káthe* láthos tha su dhóso bonus; but there may be no mistakes at all.
- (82) If you find *all (the)* mistakes, I'll give you a bonus; but there may be no mistakes at all.
An vris *óla ta láthi* tha su doso bonus; but there may be no mistakes at all.

Unlike *óla* and bare *káthe*, *o káthe* and *each* presuppose the existence of mistakes, and Giannakidou (1997, 1999) characterizes *o káthe* as veridical for this reason.

Second, D-universals cannot refer to non-existing kinds:

- (83) a. *Káthe* monókeros éxi éna kerato. (Ettxeberria and Giannakidou 2010)
Every unicorn has one horn.
- b. # *O káthe* monókeros exi éna kerato.
Each unicorn has one horn.

Again, notice the parallel with *o káthe* and *each*: they both cannot refer to non-existing kinds – but *káthe* ‘every’ can be used for non-existing kind reference (for *each*, see Beghelli and Stowell (1997)).

However, D-universals are fine in characterizing sentences:

- (84) a. Sto programá mas, *o káthe fititís* prépi na epiléksi dhío mathimata simasiologías.
 b. In our program, *each student* must choose two semantics classes.

What is crucial is the restriction ‘in our program’, which renders the example not a predication of a kind, but a characterizing sentence that expresses a generalization about a particular set of students *in our program*. *O káthe* and *each* can be used here.

This section ends with two more points supporting the composition of D and Q. First, D is used to form other presuppositional determiners in Greek: those equivalent to *both*, and *most*:

- (85) Xriázome *ke* *ta* dhío vivlía.
 need.1sg and the two books
 I need both books.
- (86) Agórasa *ta* *perisótera* vivlía.
 bought.1sg the more books
 I bought most books.

‘Both’ in Greek is literally ‘and the two’ – and likewise, we can build presuppositional partives of the form ‘all *n* of the NP’ (e.g. *all three of the books*) in a parallel fashion:

- (87) *ke* *ta* *tría* *vivlía*; *ke* *ta* *íkosi* *vivlía*, etc.
 and the three books; and the twenty books
 ‘all three books’; ‘all twenty books’

These QPs presuppose their quantity, and the use of *ke* ‘and’ can be seen as a join operation, along with the use of D. Likewise, ‘most’ is decomposed in Greek into D and the comparative of *polí* ‘many, much’ – *perisotera*. So Greek appears to use D systematically in the formation of strong quantificational determiners, and not just universal ones. The same pattern is observed in Basque, see Etxeberria’s earlier work, and [Chapter 3](#), this volume.

Second, D plus Q really results in a complex Q, rather than a DP. The competing DP structure is also available, typically with weak quantifiers, in Greek:

- (88) [I [tris fitités pu írthan sto parti]], ítan endelos methisméni.
 [The [three students that came to the party]] were completely drunk

These structures are DPs, as indicated in the brackets, and are interpreted like regular definite descriptions: the denotation of *three students* will be a familiar and unique set of three students. The output of these structures is then of type *e*, and not a GQ.⁵ Giannakidou and Etxeberria offer two arguments that the D-universal structure is not a DP of this kind. First, [*o káthe* NP] cannot co-occur with the demonstrative pronoun (*aftós* ‘this’, *ekínos* ‘that’) – which in Greek *must* embed DPs as we noted at the beginning:

- (89) a. aftós *(o) fitítis
 this the student
 this student
 b. ekínos *(o) fitítis
 that the student
 that student
- (90) a. {aftí/ekíni} i tris fitités
 these/those the three students
 b. {aftós/ekínos} o énas fitítis
 this/that one student
- (91) *{aftós/ekínos} o káthe fitítis
 this/that the every student

The demonstratives *aftos/ekinos* require a DP. Since the demonstrative cannot occur with *o káthe*, we must conclude that the *o káthe* constituent doesn’t count as a DP.

The second piece of evidence that [*o káthe* NP] does not behave syntactically as a DP comes from the fact that it cannot be used in the polydefinite structure that we mentioned at the beginning; but a numeral under D is no problem:

⁵ Notice that non-quantity denoting weak quantifiers, are not easily compatible with D:

- (i) I {polí/ líji/ *kápji} fitites pu írthan sto parti, ekanan poli fasaria.
 [The [many/few/*some students]] that came to the party made a lot of noise.

Weak Qs as a class, then, do not generally embed under D. I am not going to address the contrasts here, but I think it suggests that non-quantity weak Qs introduce \exists (inherently, or via existential closure), thus preventing combination with a definite D.

- (92) **o** kókinos **o** tíxos
 the red.nom the wall.nom
 the wall that is red
- (93) a. * *o káthe* o fititís
 b. *o énas* o fititís ‘the one the student’
 c. *i tris* i fitités ‘the three the students’

In a language where DPs duplicate easily and routinely, the impossibility of D-spread with *o káthe* suggests again that *o káthe* does not create a DP.

6.3.2.2 D-Universals, Distributivity, and Distributivity Markers

D-universals are distributive. Although the DP with *oli* can have collective or distributive readings, the *káthe* QP, with or without D, does not have collective readings. We see below that all variants of (*o*) *káthe* are incompatible with a collective predicate like ‘meet’:

- (94) a. *Oli* i fitités sigendróthikan.
 All the students gathered. (collective)
 b. *{*Káthe* fititís / *o káthe* fititís / *o kathénas*} sigendrothike.
 every student/each student/everyone gathered. (distributive)

There are, however, degrees of distributivity. For instance, unlike *everyone*, *o kathénas* is awkward without an overt distributor. In our example earlier which I repeat here, we had *apó éna vivlío*, a typical distributive PP formed with the preposition *apó*; without the proposition, with a simple accusative, the reading strongly preferred is the collective one, which renders the sentence odd again:

- (95) a. *O* *kathénas* éfere *apó éna* vivlío.
 The everyone brought of one book
 b. # *O kathénas* éfere *éna* vivlío.
 Everyone brought one book

So, *o kathénas* really needs a distributive phrase to be well-formed. In the absence of an explicit phrase, e.g. when we use an intransitive verb, or an individual level predicate (that cannot distribute over events) as in the next examples, the result is problematic for *o kathénas* – but not for *káthe NP* and ‘everyone’:

- (96) a. #*O kathénas* íne 7 xronón.
 Everyone is 7 years old.
 c. # *O kathénas* kimíthike.
 Everyone slept.
 #Each one slept.

- (97) a. *Káthe* fititis íne 20 xronón.
Every student is 20 years old.
- b. *Káthe* fititis kimíthike.
Every student slept.

This contrast suggests that *o kathénas* is strongly distributive, and cannot be used without a distributive phrase. In English, *each* has been claimed to be so (Beghelli and Stowell 1997) – notice the parallel ill-formedness of #*Each one slept*. If *each* is also a D-universal, then the distributivity property must related to the use of D. *Káthe*, on the other hand, and *everyone*, seem to have no sensitivity to the presence of a distributive phrase and they do not contain D. We can think of them as *weakly* distributive.

Support for both (a) strong distributivity of *o kathénas* and (b) the parallel between D-universals and *each* comes from the fact that *o kathénas* itself is used as a distributive phrase, quite like binominal *each* in English:

- (98) Fagame (apó) tría míla *o kathénas*.
ate.1pl three apples each
We ate three apples each.

We see here that *o kathénas* is used as a distributor of the object QP (with only optional addition of *apó*; recall that *apó* is necessary for distributivity otherwise), just like *each*.

Interestingly, another distributive construal with *káthe* involves *káthe énas*, and no D, which I think can be best thought as ‘each one’.

- (99) Context: I met with a group of students.
- a. *Káthe énas* íxe káti endiaferon na mu pi.
Each one had something interesting to say.
- b. *O kathénas* íxe káti endiaferon na mu pi.
Each one had something interesting to say

The presence of *énas* renders both construals anaphoric in the sense that they need an antecedent, hence the strong requirement that there be a context with explicit mention of students. This requirement of explicit previous mention is not present with *káthe* or *o káthe*, since these can either not be context sensitive (*káthe*), or their domain extension can be accomodated (*o káthe*).

With indefinites, the way to create distributivity markers is by reduplicating:

- (100) a. I fitités bikan dhío-dhío.
 the students entered two-two
 The students entered in twos/two by two.
- b. O Jánis éfage ta sokolatákia éna-éna.
 the John ate the chocolate.PL one-one
 John ate the chocolates one by one.
- c. *O Jánis éfage to sokolatáki éna-éna.
 the John ate the chocolate.SG one-one

Reduplicated numerals and indefinites in Greek are distributivity markers. Such reduplication seems to be a strategy for distributivity crosslinguistically – e.g. the Hungarian reduplicated *egy-egy* (Farkas 1998) is likewise distributive. Distributive indefinites obviously depend on a plurality to be able to distribute, so they are out with singulars, as we see above in *c*.

6.3.2.3 D-Universals and Indiscriminative Free Choice Readings

We discuss free choice phenomena in detail in Section 6.7, but here it is important to note that the Greek D-universal, but not *káthe*, has the so-called indiscriminative reading (Horn 2000) that appears in English with *just any*. The Greek free choice item *opjosphípote* (Giannakidou 2001) can also co-occur with *o* (Lazaridou-Chatzigoga (2007), see also examples in Vlachou (2007)). Giannakidou and Ettxeberria are the first to note the indiscriminative reading with *o káthe*:

- (101) a. Tin períodho ton eksetaseon erxete *o káthe fititís*
 the period the.gen. exas.gen comes the every student
 ke me enoxlí me anoites erotísis.
 and me bothers with silly questions
- b. Tin períodho ton eksetaseon erxete *o opjosphípote fititís*
 the period the.gen. exams.gen comes the any.FC student
 ke me enoxlí me anoites erotísis.
 and me bothers with silly questions
 During the exam period, *just about any student* may come by and
 bother me with silly questions.

Here *o káthe* makes reference to a salient set in the discourse – *the students of the speaker* – and expresses a generalization about this set, while also being indiscriminative (in the sense of Horn 2000, 2006): *o káthe fititís* is read like *any random student of the speaker*, as suggested above by using *just about any* in the translation. We have thus restriction to a particular set (my students), and an arbitrary/pejorative reading at the same time, a reading that often arises with free choice items. Importantly, the pejorative reading does not arise with bare *káthe*:

- (102) a. (Stis meres mas), *o kathénas* borí na vgali dhíploma odhígisis.
 (Nowadays), *just anyone* can get a driver's license
- b. (Stis meres mas), *káthe enílikas* borí na vgali dhíploma odhígisis.
 (Nowadays), every adult can get a driver's license.

The *a* example, with *o kathénas*, creates a context in which the driving test is simply too easy, and even bad drivers can pass it. But the *b* sentence with *káthe* is simply a statement that it is possible for every adult to take the exam and get a license.

6.3.3 Universal A-Quantifiers

The word for the Q-adverb 'always' in Greek is *pánda*, or the slightly higher register *pándote*:

- (103) a. I Ariadne {*pánda/pándote*} ksexnáí na fáí.
 Ariadne always forgets to eat.
- b. I Ariadne {*pánda/pándote*} kimate noris.
 Ariadne always sleeps early.

Pánda/pándote belong to the Ancient Greek adjectival paradigm *pas* (masc.), *pása* (fem.), *pan* (neuter) glossed in Holton et al. as 'each, all' (1997: 312) – *ote* in *pándote* is the Ancient Greek word for *when*. In Modern Greek, the *pas* paradigm is still used, again in combination with the D; and it belongs to a slightly formal register:

- (104) a. Irthan i pándes. (*pándes)
 came the.masc.pl all.masc.pl
 Everybody came.
- b. Kséri ta pánda. (*pánda)
 knows 'the.neut.pl all.neut.pl
 He knows everything.
- c. Ise to pan ja ména. (*pan)
 be the.neut.sg all.neut.sg for me
 You are everything to me.

The expressions *i pándes*, *to pan*, *ta pánda* are perceived as *everybody* and *everything* – the word for *universe* is *synpan* (*syn-* 'con'). Notice that unlike *káthe*, *pas* actually declines. The adverb *pánda* is the plural neuter, following a common strategy for creating adverbs from adjectives in Greek.

Other adverbial expressions of universal quantification are formed with *káthe*: *káthe kyriakí* ‘every Sunday’, *káthe mína* ‘every month’, *káthe xrono* ‘every year’, etc.

- (105) (Káthe Kyriakí) páme stin ekleσία (*káthe kyriakí*).
Every Sunday we go to church.
- (106) *Káthe mína* prépi na plirónume tus loghariasímus.
Every month we have to pay the bills.

Káthe can also combine with a clause introduced by the complementizer *pu*, and it means ‘every time that’:

- (107) Sinxízome *káthe* (forá) pu ton vlépo.
I get-upset every time that I see him.

The verb contains imperfective aspect, since these are habitual sentences. We see also that *káthe* can be followed by the word *forá* ‘time, course’, which allows us to think that the noun is dropped when not present. Adverbs of nonuniversal habitual reference are: *siníthos* ‘usually’, *sixná* ‘often’, and the lower frequencies we discussed earlier with existentials. D never appears in adverbial use with *káthe*: *tin káthe kyriakí* would be impossible:

- (108) * *Tin káthe kyriakí páme stin ekleσία.*
Every Sunday we go to church.

This concludes our discussion of universal quantifiers in Greek. Now that we have the basics nailed down, we move on to see what kinds of quantifiers occur in existential structures.

6.4 Existential Structures in Greek

Existential structures in English appear in the form *There BE in XP*, where *in XP* is a locative phrase. The study of these structures has a long and venerable tradition in English (Milsark 1977, 1979, Keenan 1987, more recently McNally 1992, Francez 2007, 2009). A main claim has been that the existential structure exhibits the so-called definiteness effect, i.e. it excludes definite DPs, universal and other strong quantifiers, and allows only the (weak) intersective quantifiers. Recent literature on existential structures, however, has made it clear that we need to reconsider the so-called definiteness effect. Here are some examples with definites, *each*, and a proper name in the English existential:

- (109) a. There is Fred in the garden. (McNally 1992: (8))
 b. There was the table in the garden.
 c. There was each faculty member at the meeting.

At the worst, these may be slightly unnatural, and at best, they are fine sentences of English. In Greek there appear to be three structures that can be thought of as equivalent to the English existential: one that involves the verb BE (*íne* 'be.3sg/pl); one that involves the verb HAVE (*éxi* 'have.3sg) and which seems to be the one exhibiting the strongest definiteness effect; and one that employs the verb *exist* (*íparxi* 'exist.3sg). I will present the data in turn.

6.4.1 BE-Existential

The BE-existential accepts intersective quantifiers, but also definites, demonstratives, and names – though not universals, including D-universals. This again can serve as an argument for the non-DP nature of the D-universal:

- (110) a. *Íne* {tría/polá/káti/ meriká/ LIGA/ Ø} vivlíá páno sto trapezi
 There are three/many/a.plural/ several /few/Ø books on the table
 b. *Íne* {tuláxiston/to polí/móno} tría vivlíá páno sto trapezi.
 There are at least/at most/only three books on the table.
- (111) a. *Íne* ta pedhiá sto grafío ke se periménun.
 There are the kids at the office, and they are waiting for you.
 b. *Íne* ola ta pedhiá sto grafío ke se periménoun.
 There are all the kids at the office, and are waiting for you.
 c. # *Íne* káthe pedhí sto grafío ke se periméni.
 There is every child at-the office waiting
 d. # *Íne* to káthe pedhí sto grafío ke se periméni.
 There is each child at-the office waiting
- (112) a. *Íne* o Jánis sto grafío ke se periméni.
 There is the John in the office waiting for you.
 b. *Íne* aftos o enoxilitikos typos eki.
 There is this annoying guy over there.

The BE-existential is dispreferred with mass nouns, even when combined with plausible quantifiers:

- (113) a. # *Íne* záxari ston kafé.
 is sugar in the coffee
 There is sugar in the coffee.

- b. #(Dhen) íne polí záxari.
 (not) is much sugar
 There is much sugar. There isn't much sugar.

6.4.2 HAVE-Existential

In the *éxi* structure, the quantifier is in the accusative case, so it does not function as the subject of the sentence (as with the BE existential), but as the object. I am not going to indicate case marking in the examples below to keep the glosses simple. The *éxi* structure is by far preferred with mass nouns:

- (114) a. Éxi zaxari ston kafé.
 has sugar in the coffee
 There is sugar in the coffee.
 b. (Dhen) éxi polí záxari.
 (not) has much sugar
 There {is/isn't} much sugar.

More examples with intersective quantifiers:

- (115) a. Éxi {tría/polá/káti/meriká/ LIGA/Ø} vivlíá páno sto trapezi.
 There are three.many/a.plural/several /few/Ø books on the table
 b. Éxi {tuláxiston/to polí/móno} pende vivlíá páno sto trapezi.
 There are at least/at most/only five books on the table.

Definites, again, are not impossible with *éxi* – though they are very marginal. But names, universals, and MOST can't be used:

- (116) a. ?? Éxi ta pedhiá sto grafío ke se periménun.
 There are the kids at the office waiting for you.
 b. Éxi afto to pedhí sto grafío ke se periméni.
 There is this boy in the office waiting for you.
 c. ?? Éxi ola ta pedhiá sto grafío ke se periménun.
 all the children
 d. # Éxi káthe pedi sto grafío ke se periméni.
 every child
 e. # Éxi to káthe pedi sto grafío ke se periméni.
 each child
 f. # Éxi ton Jáni sto grafío ke se periméni.
 the John

- (117) # {Éxi /ine} ta perisotera vivlíá páno sto trapezi.
 # There are most books on the table

The judgments here are subtle, and one may expect considerable speaker variation. But as I said earlier, the HAVE-existential seems to be exhibiting the definiteness effect.

6.4.3 *EXIST-Existential*

This is a personal structure: the XP is the subject of the verb and there is agreement (unlike with *exi* where the XP is syntactically the object, and *ine* where the 3sg and 3pl are the same form). Here are some examples, first with mass nouns:

- (118) a. Ipárxi záchari sto spiti.
 exists sugar in the house
 There is sugar in house. (No need to buy more).
 b. (Dhen) ipárxi arketi záchari.
 (not) exists much sugar
 There is enough sugar. There is not enough sugar.

More examples with intersective quantifiers:

- (119) a. Ipárxun {tria/polá/ káti/meriká/ LIGA/ Ø} vivlíá páno sto trapézi.
 exist.3pl three.many/a.plural/several /few/Ø books on the table
 b. Ipárxi {tulaxiston/to polí/mono} éna vivlíó páno sto trapézi.
 Exist.3sg at least/at most/only one book on the table.

Definites, names, universals, and MOST are impossible:

- (120) a. #Ipárxun ta pedhiá sto grafio ke se periménun.
 Exist.3pl the kids at the office waiting for you.
 b. #Ipárxi afto to pedhí sto grafio ke se periméni.
 Exist.3sg this boy in the office waiting for you.
 c. #Ipárxun ola ta pedhiá sto grafio ke se periménoun.
 Exist.3pl all the children at the office waiting for you
 d. # Ipárxi káthe pedhí sto grafio ke se periméni.
 Exist.3pl every child at the office waiting for you
 e. # Ipárxi to káthe pedhí sto grafio ke se periméni.
 Exist.3pl each child at the office waiting for you
 f. # Ipárxi o Jánis sto grafio ke se periméni.
 Exist.3sg the John at the office waiting for you

- (121) # *Ipárxun* ta perisotera vivlíá páno sto trapezi.
 exist.3pl. MOST books on the table

With *ipárxi*, there seems to be a definiteness effect, but there is a question here to what extent this structure is a true existential, and not simply an existence predication.

Finally, all three variants exclude the partitive:

- (122) a. # *Èxi* tría apo ta pedhiá sto grafío ke se periménun.
 has.3sg three of the children at the office waiting for you.
 b. # *Ine* tría apo ta pedhiá sto grafío ke se periménun.
 Is three of the children at the office waiting for you.
 c. # *Ipárxun* tría apo ta pedhiá sto grafío ke se periménun.
 Exist.3pl three of the children at the office waiting for you.

The contrast of the partitive with the simple cardinal *tría pedhiá* or the modified existentials, which are all good, is really striking – and a question worth examining.

6.5 (More) Morphologically Complex Quantifiers

We have already seen that morphological complexity is involved in the formation of presuppositional and distributive universals in Greek (D-universals), and in the formation of other strong quantifiers meaning ‘both’ (*ke i dhío*), and ‘most’ (*i perisóteri*). This overt D-deployment for strong quantifiers is a specific property of Greek (and Basque, see Etxeberria, [Chapter 3](#), this volume); but the complexity we are going to examine now concerns more ‘expected’ complex quantifiers such as comparative quantifiers, those created via boolean compounding (*and*, *or*, *neither...nor...*, *and not*), exception phrases (*all but ten students*), and bounding phrases (*He exercised twice a day, six days a week for one year*). I present each in turn.

6.5.1 Comparative Quantifiers

‘More than’ in Greek is typically formed with *parapáno*, an adverb meaning ‘further, above’, as in *Meni dhío tetragona parapáno* ‘He lives two blocks further up’ or the plain adverb *páno* ‘above’, plus the preposition *apó* ‘of’ (used also in the partitive and in phrasal comparatives). Greek, therefore, unlike English, does not simply employ the comparative MORE (*pio*, *perisotero*) for the *more-than* quantifier. The *perisotero* can also be used, as we shall see, but is less preferred. Another difference from English is that the NP appears typically in the plural with MORE THAN ONE:

- (123) a. Aghorasa parapáno apó éna {vivlíá/?vivlíó}.
 bought.1sg more than one book.pl/book.sg
 I bought more than one {book/*books}.
- b. Parapáno apó énas *fitités* irthan.
 More than one student.pl came.3pl
 More than one student came.
- c. ??/*Parapáno apó énas *fititis* irthē.
 more than one student.sg came.3sg

The contrast with English, which does not allow the plural, is sharp, and suggests that in Greek ‘more than n’ could be treated in the grammar as a plural determiner. The singular improves typically with temporal expressions, or if we replace *parapáno* with *páno*:

- (124) Perimena páno apó mia {ora/??ores}.
 I was waiting more than one {hour/*hours}.

With numbers larger than one, as expected, only the plural becomes possible.

The MORE *perisótero* variant is also possible. It is an adjective, thus an agreeing form, and when used, there is strong preference for the plural. Notice below that the singular is indeed ungrammatical:

- (125) a. Aghorasa *perisótera* apó éna vivlíá.
 bought.1sg more.pl. than one books
- b. *Aghorasa *perisótero* apó éna vivlíó.
 bought.1sg more.sg. than one book
 I bought more than one book/*books.

Here we see that the MORE part also shows plural morphology, agreeing with the NP. In this comparative structure we find a strong pattern with the plural, stronger than with the adverbial.

Another kind of comparative quantifier is ‘more girls than boys’. In Greek this appears as {*pio polá/perisótera*} *koritsia apóti agória*, lit. ‘{more much/more} girls than boys’ – *apóti* being one of the words for THAN that Greek employs (there is a bunch of them: *apó* for phrasal comparatives, *apóti* for clausal comparatives, and *pará* for metalinguistic comparatives; see Giannakidou and Stavrou (2009), Giannakidou and Yoon (2011), Merchant (2009) for more details). *Apó* is strongly dispreferred, and the comparative clause can separate, as in English:

- (126) a. Irtan *perisótera* koritsia {apóti/ *apó} agória.
 came more.pl girls than.clausal/of boys
 More girls came than boys.

- b. Perisótera koritsia irthan apóti agória.
 more.pl girls came than.clausal boys
 More girls came than boys.

The fact that the QP is discontinuous, and the use of clausal than *apóti*, suggests that maybe the [*perisótera NP apóti NP*] is not a constituent – and the comparative part is clausal comparative with TP ellipsis (which is the standard analysis of the *apóti* clause in Greek, Merchant (2009)).⁶

The comparative quantifiers occur uneventfully in the existential structure:

- (127) Exi/Íne perisotera koritsia apóti agória stin taksi mas.
 has/is more.pl girls than boys in-the class ours
 There are more girls than boys in our class.
- (128) a. {Exi/Ine} perisotera apó éna vivlíá sto trapezi.
 has/is more than one books in-the table
 There is more than one book on the table.
- b. {Exi/Ine} parapáno apó mia {óra/??óres} pu se periméno.
 has/is more than one hour/hours that you.acc wait.1sg
 There is more than one hour that I am waiting for you!

Again, the plural is the expected form, with the exception of the temporal expression where the singular is preferred.

6.5.2 Boolean Compounding

Boolean compounding is generally possible. Here are some examples:

- (129) a. *Parapáno* apó 5 alá to polí 10 fitités tha jínun dektí.
 More than 5 but at most 10 students will be admitted
- b. *Perisoteri* apó 5 alá to polí 10 fitités tha jínun dektí.
 More than 5 but at most 10 students will be admitted
- c. {*Parapáno/perisoteri*} apó 5 alá óxi páno apó 10 fitités
 More than 5 but no more than 10 students
 tha jínun dektí.
 will be admitted

⁶ Non-constituency is also suggested by the fact that we can have agreement mismatch between the arguments. Notice below the feminine gender on *perisoteres*, which is recycled for the ellipsis on the second clause which is masculine:

- (i) Perisoteres jinekes irthan apoti andres.
 more.fem.pl women.fem.pl came than men.masc
 More women came than men.

Notice again the use of both the adverbial form and MORE. In the negative (‘no more than’) version, we also use *óxi* which is Greek constituent negation (Giannakidou 1998, Veloudis 1982).⁷ It is also used in other *but*-compounds, as well as constituent negations of quantifiers:

- (130) a. o Jánis alá óxi i María ‘John but not Mary’
 b. Irthan óxi óli i fitités.
 came.3pl not all the students
 Not all the students came.
- (131) Efxaristíthikan *poli ala óxi óli* i kalesmeni.
 enjoyed.3pl many but not all the guests
 Many but not all the guests had a good time.

Neither...nor construals are formed by *óute...óute*. *Oúte* is the NPI-EVEN in Greek (Giannakidou (2007); Greek also has a positive EVEN *akomi ke*). In addition to being a focus particle, the lexical item *óute* is also used as cross-categorical coordinator. The examples below are from Giannakidou (2007: (45)):

- (132) a. Sto párti o Jánis *óute* efage *óute* ípje.
 at-the party the John neither ate.3sg neither drank.3sg
 At the party John neither ate nor drank.
- b. *(Dhen) milisa *óute* me to Jáni *óute* me ti María.
 not talked.1sg neither with the John neither with the María.
 I talked to neither John nor María.
- c. *Oúte* i María (dhen) írthe.
 even the María didn’t come
 Mary didn’t come either.

In the last example, *oute* (*dhen*) is used as *not either* (for more details see Giannakidou (2007)).

⁷ Veloudis (1982) and Giannakidou (1997, 1998), in their studies of negation, identify four negative morphemes in Greek: *dhen/mi(n)*, for sentential negation (mentioned in Section 6.1.1), but also lexical negation *mi* as in *mi-simetoxí* ‘non-participation’, and *oxi* which is used as constituent negation, metalinguistic negation, and external negation as in *Oxi, dhen írthe o Jánis* ‘No, John didn’t come’.

6.5.3 *Exceptive Phrases*

Typical exceptive phrases in Greek are formed with *ektós*, which is an adverb meaning literally *out/outside*, or *beside*, as in *Afto íne ektós thematos* ‘This is beside the topic’, plus our familiar preposition *apó*:

(133) Irthan óli ektós apó to Jáni.
 came all apart from the John
 {All/everyone} came but John.

(134) Irthe káthe fititís ektós apó to Jáni.
 came every student apart from the John
 Every student but John came.

There is also a more formal version with the genitive: *ektós tu Jáni*. As in English, the *ektós* constituent can be separated:

(135) Káthe fititís írthe ektós {apó to Jáni /tu Jáni}.
 every student came apart from the John/ John.gen
 Every student came but John.

Another way to form the exceptive phrase is via *alá óxi* ‘but not John’: *óli i fitités alá óxi o Jánis* ‘all the students but not John’. Again, separation is possible:

(136) a. Idha ólus tus fitités alá óxi ton Jáni.
 saw.1sg all the students but not the John
 b. Olus tus fitités ídha alá óxi to Jáni.
 I saw all the students but not John.

6.5.4 *Bounding Phrases*

These are adverbial phrases like ‘twice a day’, ‘six days a month’. In Greek these appear with accusative DPs:

(137) a. dhío forés tin iméra ‘two times a day’
 two times the.acc day.acc
 b. éksi méres to mína ‘six days a month’
 six days the.acc month.acc
 c. eptá forés to xróno ‘seven times a year’
 seven times the.acc year.acc

Notice that there is no special word for twice, *dhío forés* is ‘two times’. There is a more archaic paradigm ending in *-is*: *dhis* (twice, from *dhío*), *tris* (thrice, from *tría*), *tetrákis* (four times, from *tessera*), and also *polákis* ‘many times’; this paradigm, however is not very productive in Modern Greek, and is used only in very high registers.

We move on now to polarity quantifiers.

6.6 (Negative) Polarity Quantifiers

In this section we discuss *polarity sensitive* quantifiers – also known also as *negative polarity items* (NPIs). Some of these appear only in negative contexts, but others have a broader distribution in nonveridical contexts, i.e. they are sensitive to whether a truth or existence inference is available (Giannakidou 1997 et sequel; Zwarts 1995). The examples here are mostly from my previous work on Greek NPIs.

In the literature on English, *any* is often quoted as an NPI, though *any* is known to have two readings, the NPI reading (with negation) and the free choice reading (with modal verbs and imperatives).

- | | | | |
|-------|----|-------------------------|-------------|
| (138) | a. | I didn't buy any books. | NPI |
| | b. | Any book can be useful. | Free choice |
| | c. | Press any key. | Free choice |

The NPI reading is an existential quantifier in the scope of negation, but the free choice reading conveys *freedom of choice* (Vendler 1967), and it may look like it involves universal quantification – but look at the *c* example (from Giannakidou (2001); see also Horn (2000, 2006) for arguments against the universal analysis of *any*). Greek, like many other languages, employs distinct lexical items for the NPI-existential and the free choice quantifier (for more data from other languages, see Haspelmath (1997)). We discuss free choice in Section 6.7, along with *wh*-quantifiers because the free choice quantifier (but not the NPI) is *wh*-based in Greek.

With negation, Greek employs what appears to be one lexical NPI, but it comes in two intonational variants: an emphatic and a non-emphatic version (Veloudis 1982, Giannakidou 1994, 1997, 1999, 2000). The emphatic one seems to be a strong NPI, licensed only in the scope of negation and antiveridical expressions such as *without*, but the non-emphatic appears in the whole range of non-veridical environments which include, but are not limited to, some (but not all) downward entailing quantifiers. I will start by describing the NPIs with negation. I also discuss minimizers and negative concord in this context. Then, I illustrate the difference in distribution between the emphatic and non-emphatic NPIs. I also compare the non-emphatic NPI to *any*, and show empirical differences suggesting that *any*

is not always licensed but can be rescued in semantically non-licit environments such as *only*, the complements of factive verbs, and comparatives (Giannakidou 2006, Giannakidou and Yoon to appear). Finally, there will be some observations showing a correlation between intonation and quantifier scope in Greek.

6.6.1 *Emphatic and Non-emphatic NPIs in Negative Contexts, and Negative Concord*

Greek has the two paradigms of NPIs illustrated below (Veloudis 1982, Giannakidou 1997 et seq., Tsimpli and Roussou 1996). The glosses are suggestive only:

- | | | |
|-------|---------------------|----------------------------------|
| (139) | kanénas/KANÉNAS | ‘anyone, anybody/no-one, nobody’ |
| | kanénas N/KANÉNAS N | ‘any N/no N’ |
| | típota/TÍPOTA | ‘anything/no thing’ |
| | poté/POTE | ‘ever/never’ |
| | puthená/PUTHENA | ‘anywhere/nowhere’ |
| | kathólu/KATHOLU | ‘at all/not at all’ |

Upper-case letters indicate emphatic accent. *Kanénas* is the masculine, *kamía* is the feminine, *kanéna* is the neuter. The accent is not related to focus for reasons that have been discussed elsewhere (Giannakidou 1997, 1998: 227–231). Given the quantifiers *polí* and *líji*, which also come in emphatic and non-emphatic variants, I suggested that it is best to handle emphatic n-words as lexically distinct from non-emphatic ones, so emphatic accent functions as morphological marking.

The NPI series uses a variety of morphological sources including existential quantifiers (*énas*), universals (*ólu*), and wh- (*pu*, *poté*, with stress shift from *póte* ‘when’). Under negation and antiviridical *without* both paradigms are licensed:

- | | | | | | |
|-------|----|------------------------------|-----------------|---------|--------------------|
| (140) | a. | Dhen ídhe | {típota/TÍPOTA} | o | Jánis. |
| | | not saw | anything | the | Johh |
| | | John didn’t see anything. | | | |
| | b. | * Idhe | {típota/TÍPOTA} | o | Jánis. |
| (141) | | *xoris | na | dhi | {kanénan/KANÉNAN}. |
| | | without | subj | see.3sg | n-person |
| | | without having seen anybody. | | | |

additionally important to note here. First, Greek exhibits what I called *strict* negative concord, i.e. it always requires the presence of negation for the licensing of the emphatic NPI:

- (145) a. KANÉNAS *(dhen) ípe TÍPOTA. Greek
 n-person not said.3sg n-thing
 ‘Nobody said anything.’
- b. Nikt *(nie) uderzyl nikogo. Polish
 n-person not hit.3sg n-person
 ‘Nobody hit anybody.’
- c. Balázs *(nem) beszélt senkivel semmiről. Hungarian
 Balázs not spoke.3sg n-person n-thing
 ‘Balázs didn’t talk about anything with anybody.’

Greek, Hungarian, Japanese (Watanabe 2004), and Slavic languages form a natural class in terms of strict negative concord, and require sentential negation even when more than one n-word occurs in a sentence. In some Romance languages, the presence of negation is not obligatory, and two n-words may co-occur without it as long as one of them is preverbal (Zanuttini 1991):

- (146) Nessuno ha letto niente. Italian
 n-person have.3sg read n-thing
 ‘Nobody read anything.’

So negative concord in Romance is not strict. Given examples like the above, it is conceivable that these Romance n-words form branching negative quantifiers (de Swart and Sag 2002), but it is implausible to argue this for Greek or other strict negative concord varieties, where the NPI n-words alone do not suffice for negative meaning.

Another piece of evidence against negativity of n-words in Greek is that emphatics do not give rise to double negation readings (Giannakidou 2000, 2006):

- (147) KANÉNAS dhen ípe TÍPOTA.
 n-person not said n-thing
 Nobody said anything.
 Nobody said nothing.

The sentence does not have a double negative reading, as we would expect under the hypothesis that the n-words are negative (e.g. *Nobody said nothing*). The strict concord property, locality, and the absence of double negation

readings, along with a number of other diagnostics employed in my earlier work, led me to the conclusion that Greek emphatics are not negative quantifiers, but rather, universal quantifiers that need to be interpreted outside the scope of negation (Giannakidou 1998: chapter 4, 2000). Such universal NPI n-words have since then been identified in Korean (Yoon 2008), Japanese (Yoshimura 2007), and one variety of Hungarian n-words (Surányi 2006). These n-words, crucially, also have emphatic intonation. Puskás (1998) in particular argues for Hungarian that ‘This stress [i.e., the accent observed in Hungarian n-words] cannot be assimilated with the stress assigned in FP [Focus Phrase] which has strong emphatic or identificational reading. Therefore it cannot be argued that Hungarian negative phrases carry the feature [+f]’ (Puskás 1998: 199). Szabolcsi (1981: 530–532) also observes that Hungarian n-words, on a par with universal quantifiers, ‘may not fill the F-position’. If these n-words are universal quantifiers, the fact that the accent is not focus ties in with their semantic function as universals.

6.6.2 *Negation, Intonation, and Scope in Greek*

Since we are talking about emphatic NPIs scoping above negation, it is relevant to note the following generalization (Giannakidou 1998: 71–73, 2000).

(148) *The scope-negation generalization*

In Greek, a pitch-accented quantifier takes wide scope over negation.

This is a general observation about quantifier and negation interaction, and I am relying here on discussion from Giannakidou (2000: 480–481). Consider the sentences below:

- (149) I Anna dhen parakolúthise PARAPÁNO apó tría mathímata
 the Anna not attended.3sg more from three classes
 Anna didn’t attend more than three classes.

The English version of this sentence has two possible readings, depending on whether *more than three classes* scopes over negation or not. The first possibility is illustrated in the LF where *more than three classes* has adjoined to IP, and takes wide scope over negation. The second possibility indicates adjunction of *more than three classes* to VP, below negation.

- (150) a. [IP more than three classes₁ Anna didn’t [VP attend t₁]]
 b. [IP Anna didn’t [VP more than three classes₁ [VP attend t₁]]]

Under the *a* reading, we know that there were more than three classes from which Anna was absent, and we have no idea how many classes she actually attended. In the *b* reading, on the other hand, with negation taking wide scope, Anna attended no more than three classes, and we don't know how many classes Anna was absent from. Hence, the two readings are true under distinct circumstances.

Now, the Greek sentence, with the accented QP, has only the wide scope QP reading, whereas accent on negation *dhen* permits only the wide scope negation reading. The use of 'accent' here is a bit impressionistic, but see Baltazani (2002) for a more phonologically informed description. So, accent seems to indicate the element taking wide scope. The point can be further illustrated with the interaction between negation and *kápjon fititi* 'some student':

- (151) a. DHEN idha kápjon fititi.
 not saw.1sg some student
 I didn't see any student.
- b. Dhen idha KÁPJON fiti.
 not saw.1sg some student
 There was some student that I didn't see.

The sentence *a* has only the wide scope negation reading below, and the *b* sentence can only have wide scope *kápjon fititi*:

- (152) a. $\neg\exists x[\text{student}(x) \ \& \ \text{saw}(I, x)]$
 b. $\exists x[\text{student}(x) \ \& \ \neg\text{saw}(I, x)]$

A final point before closing is that another NPI, the minimizer, is formed in Greek with an emphatic bare singular. Bare arguments (singulars and plurals as we see) are generally allowed under negation and their interpretation is a narrow scope existential (as Carlson (1977) observed for English bare arguments under negation). This is an interpretation akin to that of the non-emphatic NPI-existential:

- (153) a. Dhen efaje BUKIA.
 Not ate bite
 He didn't eat a bite.
- b. Dhen agorasa vivlíá.
 I didn't buy books.

Minimizers, interestingly, also bear accent (see the *a* example above) – but cannot be argued to scope above negation. Notice however, that the bare argument is *not* a quantifier; so, we can still maintain Giannakidou's

generalization that pitch accent on the *quantifier* indicates wide scope. The accent on the minimizer can be taken to constitute a marking of the conventionalization of the item as a minimizer NPI – maybe an overt reflex of NPI-EVEN *oute*, which can also be used in the minimizer NPI (Giannakidou 2007). Notice that the bare plural in the *b* example does not bear accent and is not conventionalized as an NPI.

6.6.3 Nonveridical Contexts: Only Existential NPIs

As mentioned earlier, the non-emphatic NPI is a narrow scope existential inside the scope of negation, so it is the Greek counterpart to NPI *any* – and just like *any*, its distribution is not limited to the scope of negation. The existential NPI appears in a broad variety of non-veridical contexts including questions, conditionals, modal verbs, the future, imperatives, subjunctive complements of non-veridical verbs. The emphatic NPI in these environments is systematically ruled out:

- (154) Píjes {poté/*POTE} sto Parísí?
 went.2sg ever in-the Paris
 Have you ever been to Paris?
- (155) An dhis tin Eléna {puthená/*PUTHENA}, na tis milísis.
 If you see Eléna anywhere, talk to her.
- (156) Elpízo na emíne {kanéna/*KANÉNA} komati.
 hope.1sg subj remained.3sg any piece
 I hope there is a piece left.
- (157) Pare {kanéna/*KANÉNA} mílo.
 take.imp.2sg any apple
 Take any apple.
- (158) Borí na írthe {kanénas/*KANÉNAS}
 can.3sg subj came.3sg any person.
 It is possible that anyone/someone came. (epistemic modal)

The nonemphatic NPI is further licensed in disjunctions, with various modalities, and habitual sentences. With a few exceptions (noted in the literature), these are also licensing contexts for *any*, though the free choice reading is considerably preferred (see my earlier work for extensive data). The Greek NPI does not have a free choice reading, and it is also non-scalar (Giannakidou 1997, 1998, 2009). Rather, it seems to be a narrow scope indefinite that contains a dependent variable, i.e., one that can never be interpreted as a free variable (Giannakidou 2011), and which therefore needs to be licensed via binding (either via \exists -closure

under negation and nonveridical operators, or via binding by a Q-operator). Additionally, *kanénas* brings in a condition of referential vagueness (Giannakidou and Quer 2011), and Holton et al. (1997) characterize it as ‘non-specific’.

As far as downward entailing (DE) contexts go, NPIs are OK with negative value judgement quantifiers, e.g. emphatic LIJI or *elaxisti* ‘very few’, but not with something more neutral (in terms of judgement) as *at most n*:

- (159) a. {Eláxisti/?LIJI} ánthropi ídhan típota.
Very few/Few people saw anything.
b. * To poli 5 ánthropi ídhan típota.
At most five people saw anything.

Notice the relative awkwardness of *LIJI* ‘few’ – the judgements I have collected through the years vary a lot regarding this quantifier. Given the impossibility of AT MOST, we must conjecture that the negative judgement is important for licensing, and not DE per se.

Finally, it is important to add that there are environments where *any* is fine, but the Greek NPI cannot occur. Some such environments are *only*, the complements of emotive factive verbs, and comparatives. We review these next, in connection with minimizer NPIs.

6.6.4 Non-licensing Environments for Greek NPIs

In English, *any* and minimizers like *say a word* are cited as appearing in the complement of emotive factive verbs (positive *and* negative), with *only*, and in comparatives:

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

Comparatives

- (161) a. Roxy is prettier than **anyone** of us. (phrasal)
b. Roxy ran faster than **anyone** had expected. (clausal)
c. He said the sky would sooner fall than he would **budge an inch**.

The Greek NPI and the minimizer – formed with a bare nominal, as must be recalled – are excluded from these contexts (see Giannakidou (2006), and Giannakidou and Yoon (2010), where the comparative examples are drawn from):

- (162) a. *Xérome pu *dhinis dhekára*.
I am glad you give a damn.
- b. *Metániosa pu ipa *típota*.
I regret that I said anything.
- c. */# Mómo i María {*dhini dhekára/idhe típota*}.
Only Mary gives a damn/said anything.
- d. #I María metániose pu *ipe leksi*.
Mary regrets that she said a word.
- (163) I María tréxi grigorótera apó {opjondhípote/*KANÉNAN/*kanénan}.
Mary runs faster than anybody.
- (164) *I María diavase perisótera arthra apóti tis ixé protini *kanénas kathijitís*.
Mary read more articles than suggested any professor
Mary read more articles than any professor has suggested.

So we see this asymmetry between Greek NPIs and minimizers, on the one hand, and English *any* and minimizers, on the other, as regards the possibility of *rescuing* (Giannakidou 2006), i.e. sanctioning by global pragmatic inferencing. Rescuing is a secondary sanctioning mechanism, which legitimizes NPI *in violation* of LF licensing: NPIs here are found in a *veridical* context without an ‘official’ licenser.

This concludes our discussion of NPIs. We move now to wh-quantifiers, our final topic.

6.7 Wh-Based Quantifiers and Free Choice

Greek has three paradigms of wh-quantifiers: one for interrogatives, one for relative clauses, and one for free relatives (called ‘correlative’ quantifiers in Holton et al. (1997)). In the relative clause, we see again the workings of the definite (D) article *o*, since it appears on top of the wh-component, either forming a unit with the wh-word (free relatives), or in addition to it (relative clauses). The free relative, D-containing construal is the source for free choice quantifiers (Giannakidou 2001, Giannakidou and Cheng 2006). So, overall we observe a manipulation of wh-forms (and meaning) by definiteness – a fact challenging the link, found in recent works (e.g. Kratzer and Shimoyama 2002), between interrogative (propositional) semantics and free choice. The Greek wh-patterns suggest a richer interaction between wh-words and definiteness that fits better classical models where the wh-words are sets of individuals (Cooper 1983), operated upon directly via e.g. exhaustification and intensionalization.

6.7.1 The Morphological Paradigms

The interrogative wh-paradigm is given below, followed by examples. I give the labels in the nominative, but bear in mind that wh-words, like the other quantifiers in Greek, also inflect for gender, number, case. I am also giving the variants in the Greek alphabet to see the relations between paradigms. We can think of the interrogative paradigm as the *p*-paradigm:

(165)	<i>pjos, pja, pjo</i>	‘who’	Greek: ποιός, ποιά, ποιό
	<i>pjos, pja, pjo N</i>	‘which N’	
	<i>ti</i>	‘what’	τί
	<i>ti N</i>	‘what kind’	
	<i>póte</i>	‘when’	πότε
	<i>pu</i>	‘where’	πού
	<i>pos</i>	‘how’	πώς
	<i>póso</i>	‘how much’	πόσο
	<i>jatí</i>	‘why’	γιατί

- (166) a. *Pjos efaje ti supa?*
Who ate the soup?
- b. *Pja mitera den irthe?*
Which mother didn’t come?
- (167) a. *Ti efages?*
What did you eat?
- b. *Ti anthropos íne?*
What kind of man is he?
- (168) a. *Pu ton idhes?*
Where did you see him?
- b. *Poso káni?*
How much does it cost?

The *p*-paradigm is used only with interrogative meaning. For relative pronoun use, the definiteness marker—which is the invariant form of the definite article as a bound morpheme (Giannakidou and Cheng 2006): *opios, opia opio*, etc.:

(169)	<i>opíos, opía, opío</i>	‘who.Rel.’	Greek: οποιός, οποία, οποίο
	<i>opíos N</i>		
	<i>opóte</i>	‘when.Rel.’	οπότε
	<i>ópos</i>	‘how.Rel.’	όπως
	<i>ópu</i>	‘where.Rel.’	όπου

- (170) a. ο άνδρας *(ton) *opío* agará i María
 the man.nom the.acc which.masc.sg.acc love.3sg the María
 the man that Mary loves
- b. i jinéka *(i) *opía* diamartirithike
 the woman.sg.fem.nom the.acc which.masc.sg.acc complained
 the woman who complained
- (171) a. to meros ópu sinandithíkame
 the place where we met
- b. (We agreed to meet at 9 pm), *opóte* ke pigame
 We agreed to meet at 9, which is when we went

Greek also has an uninflected relative pronoun *pu* (που) which is used in more colloquial speech as a relative *that*:

- (172) a. ο άνδρας pu agará i María
 the.masc.sg.nom man.msc.sgnom that love.3sg the María
 the man that Mary loves
- b. i jinéka pu diamartirithike
 the.sg.fem.nom woman.sg.fem.nom that complained
 the woman who complained

Greek employs yet a separate paradigm for free relative and correlative structures, which consists of the definite marker *o* plus the interrogative *p*-word – and a stress shift to *ó*, as indicated. *O* appears again as a bound morpheme on the *p*-word and remains invariant. I am using below the (*ever*) paraphrase as a handy way to show that this is free relative use, i.e. the complement of this pronoun is always a clause, just like with the *wh-ever* paradigm in English:

- | | | | |
|-------|-------------------|-----------------|-----------------------------|
| (173) | όρjος, όρjα, όρjο | ‘who(ever)’ | Greek: όποιος, όποια, όποιο |
| | ότι | ‘what(ever)’ | ό,τι |
| | ότι N | ‘what(ever) N’ | |
| | όποτε | ‘whenever’ | όποτε (vs. Rel: οπότε) |
| | όπου | ‘wherever’ | όπου |
| | όπως | ‘whichever way’ | όπως |
| | όσο | ‘as much as’ | όσο |

Some examples:

- (174) a. Parigila óti parigile o Jánis.
 ordered what ordered the John
 I ordered what John ordered.

- b. Káne óti su pi i mitera su.
do what you tell the mother your
Do what your mother tells you.
- c. Ópjós irthe sto parti efxaristithíke.
Whoever came to the party had a great time.
- d. Kándo ópos thélis.
Do it whichever way you want.
- e. Ópu pao, me akoluthi.
Wherever I go he follows me.
- f. Fae óso thélis.
Eat as much as you want.

- (175) *Dhiavase ópja efimerida.
read wh-ever newspaper
*Read whichever newspaper.

Note the inability of the free relative *p*-word to take an NP complement – it always requires a clause. Free relatives in English have been analyzed as definite descriptions by Jacobson (1995), who argues for a covert iota operator on top of the *wh*-set. In Greek, Alexiadou and Giannakidou (1998) argue that *o* is the overt counterpart of iota, hence the Greek free relative is overtly a definite description.

In English –*ever* is obligatory for free relative use – *whoever came to the party*, but not **who came to the party* – but in Greek plain free relatives are possible, as we saw in the examples above. A free choice variant of the free relative *p*-word can be formed by adding the free choice marker –*dhípotē* (Giannakidou 1997, 2001), which then bears the main stress in the word. The addition of free choice marking to a *wh*-form for free choice is a common strategy cross linguistically.

- | | | | |
|-------|--|----------------------|--------------|
| (176) | opjosdhípotē, opjadhípotē, opjodhípotē | ‘whoever’ | οποιοσδήποτε |
| | opjosdhípotē, opjadhípotē, opjodhípotē N | ‘whichever’ | |
| | otidhípotē | ‘whatever’ | |
| | otidhípotē N | ‘whatever N’ | ο,τιδήποτε |
| | ópotedhípotē | ‘whenever’ | οποτεδήποτε |
| | ópudhípotē | ‘wherever’ | οπουδήποτε |
| | óposdhípotē | ‘definitely’ | οπωσδήποτε |
| | ósodhípotē | ‘no matter how much’ | οσοδήποτε |

There is a long-standing debate on whether free choice quantifiers are variants of universal quantifiers or not. Giannakidou (1998, 2001) argues that Greek FCIs are best analyzed as variable contributing elements without force of their own – i.e. indefinites (see Horn (2000, 2006) for a similar analysis of English *any*).

Giannakidou and Cheng (2006) further identify free choice free relatives as *definite* FCIs, relying on the analysis of free relatives as plural definites of Jacobson. So jointly, the universal effect of FCIs, when it arises, can be accounted for by (in)definiteness and there is no need to recourse to a universal analysis.

6.7.2 *Distribution of FCIs: Polarity and Variation*

Greek FCIs appear to have limited distribution too, and are excluded from positive veridical sentences (in the simple past). So FCIs are polarity items in this broad sense. Unlike NPIs, however, FCIs do not improve with negation, as long as the sentence remains episodic (Giannakidou 1997, 1998, 2001). I give below examples from Greek and Spanish, Catalan:

- (177) a. * Idha **opjondhípote.** (Greek; Giannakidou 2001)
 saw.perf.1sg FC-person
 ‘*I saw anybody.’
- b. * Dhen idha opjondhípote.
 not saw.perf.1sg FC-person
 Intended: ‘I didn’t see anybody.’⁸
- (178) * (Non) Expulsaron del partido a **cualquier** disidente. (Spanish)
 not expel.3pl from-the party ACC FC dissident
 Intended: ‘They didn’t expel any dissident from the party.’ (Quer 1999)
 ‘*They expelled any dissident from the party.’
- (179) * (No) Li va comprar **qualsevol** ram. (Catalan)
 Not her/him aux.3sg to.buy FC bouquet
 Intended: ‘S/he didn’t buy him/her any bouquet.’ (Quer 1998)
 ‘*S/he bought him/her any bouquet.’

Rather, FCIs are licensed via binding: they contain a world variable that needs to be bound, so they must be found in the scope of intensional and modal operators (all nonveridical) that can bind it. This is why FCIs cannot be used in an episodic context. I give some examples here. Notice that I am using the *–or other* paraphrase to get the difference between the FCI and the NPI:

⁸ Giannakidou (1998, 2001) mentions a so-called ‘indiscriminative’ (after Horn 2000) use of DCI with negation, in cases such as:

- (i) Dhe milise me (*enan*) *opjondhipote*—milise me ton proedro!
 not talked.3sg with a FCI.person—talked.3sg with the president
 She didn’t talk with *just anybody*—she talked with the president!

Such uses of FCIs are common crosslinguistically, and usually are marked, e.g. with *just* in English, and the indefinite article in Greek.

Protasis of conditionals

- (180) An kimithis me {**opjondhípote/kanénan**} tha se skotoso.
 if sleep.2sg with FC-person/NPI-person FUT you kill.1sg
 If you sleep with anybody, I'll kill you.

Directive intensional verbs (selecting subjunctive)

- (181) I Ariadne epémine na afisoume {**opjondhípote/kanénan**}
 the Ariadne insisted.3sg subj let.1pl FC-person/NPI-person
 na perasi mésa.
 subj come.3sg in
 Ariadne insisted that we allow anyone in.
 With *kanénan*: 'Ariadne insisted that we allow *someone or other* to come in.'

- (182) Borí na ánapse {**opjosdhípote/kanénas**} to fos.
 can.3sg subj lit.3sg FC-person/NPI-person the light
 Anyone may have turned on the light.
 With *kanénas*: 'Someone or other must have turned on the light.'

- (183) Borís na dhanistis {**opjodhípote/kanéna**} vivlío.
 can.2sg subj borrow.2sg FCI / NPI book
 You may borrow any book.
 With *kanéna vivlío*: 'You may borrow *some book or other*.'

- (184) Dhiálekse {**opjodhípote/kanéna**} vivlío.
 choose.2sg FCI / NPI book
 'Choose any book.'
 With *kanéna vivlío*: 'Choose *some book or other*.'

- (185) **Opjadhípote ghata** kinigai pondikia.
 Any cat hunts mice.

For the differences between FCIs and Greek NPIs in non-veridical contexts, see Giannakidou and Quer (2011), and Giannakidou (2011).

6.8 Epilogue

Greek and English, both Indo-European languages, obey the basic GQ syntax and employ quantificational determiners that select NP arguments. The two languages, however, were found to exhibit some interesting differences in the morphological make-up of quantificational determiners that, if adequately appreciated, can be instructive for uncovering what we can think of as the finer structure of quantification. One fact that needs to be singled out, and

which impacts a number of areas, is the systematic employment of the definite article in quantifier composition. The involvement of the definite article in wh-formation and with universal quantifiers, has been a constant in the diachrony of Greek (Tzartanos 1945). Regarding D-universals, if the suggestion that D expresses domain restriction (Giannakidou 2004, Etcheberria and Giannakidou 2010) is correct, then Greek grammaticalizes the contextual domain restriction argument, so domain restriction is not merely a factor in pragmatics. Concerning wh-words, the involvement of D can offer valuable guidance in assessing current ideas about the nature of quantification, especially when it comes to proposals that establish a link of ‘classical’ quantification with interrogative semantics via Hamblin alternatives (Kratzer and Shimoyama 2002). Any such attempt to use propositional alternatives as the source of quantification would be challenged by a language like Greek, where we see overtly *individual*-based operations on the wh-words, such as definiteness, domain restriction, or exhaustification.

Acknowledgements I would like to thank Ed Keenan for inviting me to write this paper. This project is much needed, and I am honored to be able to contribute with my piece on Greek quantifiers. Greek is a language with such long documented history – but it is quite remarkable how little of it is known in formal semantic discussions of quantification. I hope this paper will fill the gap, and inspire more curiosity about the Greek data. Many thanks are also due to the anonymous reviewer, as well as to Ed Keenan and Denis Paperno for their comments, suggestions, and overall editorial assistance. In the course of writing, I benefited a lot from discussions with Melita Stavrou, Despoina Papadopoulou, and Josep Quer. Many thanks, finally, to Katerina Chatzopoulou, Tasos Papakonstantinou, and Melita Stavrou for judgements and discussion of the data.

References

- Abney, S. 1987. *The English noun phrase*. MIT: PhD thesis.
- Alexiadou, Artemis, and Elena Anagnostopoulou. 1998. Parametrizing AGR: Word order, V-movement and EPP-checking. *Natural Language and Linguistic Theory* 16:491–539.
- Alexiadou, Artemis, and A. Giannakidou. 1998. Specificational pseudoclefts and the semantics of lists. *ZAS Working Papers in Linguistics* 10:1–21.
- Alexiadou, Artemis, and C. Wilder. 1998. *Possessors, predicates and movement in the DP*. Amsterdam: John Benjamins.
- Alexiadou, Artemis, L. Haegemann, and M. Stavrou. 2008. *NP in the generative perspective*. Berlin: Mouton de Gruyter.
- Alonso-Ovalle, Luis, and Paula Menéndez-Benito. 2010. Epistemic indefinites. *Natural Language Semantics* 18:1–31.
- Babiniotis, G., and P. Kontos. 1967. *Κοινή Νεολληνική*. Athens, Greek Letters.
- Baltazani, Mary. 2002. *Quantifier scope and the role of intonation in Greek*. Unpublished PhD thesis, UCLA, Los Angeles, CA.
- Barwise, J., and R. Cooper. 1981. Generalized quantifiers and natural language. *Linguistics & Philosophy* 4:159–219.
- Beghelli, F., and T. Stowell. 1997. Distributivity and negation. In *Ways of scope taking*, ed. A. Szabolcsi, 71–107. Dordrecht: Kluwer.

- Brisson, Christine. 2003. Plurals, all, and the non-uniformity of collective predication. *Linguistics and Philosophy* 26:129–184.
- Campos, H., and M. Stavrou. 2004. Polydefinites in Greek and Aromanian. In *Balkán syntax and semantics*, ed. Olga M. Tomic, 137–173. Amsterdam: John Benjamins.
- Carlson, G. 1977. *Referents to kinds in English*. PhD dissertation, University of Massachusetts, Amherst, MA.
- Chatzopoulou, Catherine. 2011. Negation selection in Attic Greek: A non-veridicality approach. *Studies in Greek Linguistics* 32 (to appear).
- Chatzopoulou, Catherine. Forthcoming. *Negation in Greek: A diachronic study*. PhD thesis, University of Chicago, Chicago, IL.
- Chierchia, Gennaro. 1998. Reference to kinds across languages. *Natural Language Semantics* 6:339–405.
- Chung, S., and B. Ladusaw. 2003. *Restriction and saturation*. Cambridge, MA: MIT Press.
- Cooper, R. 1983. *Quantification and syntactic theory*. Dordrecht: Reidel.
- Ettxeberria, U. 2005. *Quantification and domain restriction in Basque*. Doctoral dissertation, University of the Basque Country (UPV-EHU).
- Ettxeberria, U. 2009. Contextually restricted quantification in Basque. In *QP structure, nominalizations, and the role of DP*. Oxford studies in theoretical linguistics series, eds. A. Giannakidou and M. Rathert. Oxford: Oxford University Press.
- Ettxeberria, U., and A. Giannakidou. 2010. D as a domain restrictor. In *Perspectives on contextualism and relativism*, eds. F. Recanati, I. Stojanovic, and N. Villanueva, 93–126. Berlin: Mouton de Gruyter.
- Farkas, D.F. 1998. *Dependent indefinites*. LRC report, University of California, Santa Cruz, CA.
- Farkas, D.F. 2002. Varieties of indefinites. In *Proceedings of SALT 12*. Ithaca, NY: CLC Publications, Cornell University.
- Farkas, Donka. F., and Anastasia Giannakidou. 1996. How clause-bounded is the scope of universals? With Donka Farkas. In *Proceedings of semantics and linguistic theory (SALT 6)*, ed. T. Gallway, 35–52. Ithaca, NY: CLC Publications, Cornell University.
- Francez, I. 2007. *Existential propositions*. PhD thesis, Stanford University, Stanford, CA.
- Francez, I. 2009. Existentials, predication, modification. *Linguistics and Philosophy* 32:1.
- Van Geenhoven, Veerle. 1998. *Semantic incorporation and indefinite descriptions: Semantic and syntactic aspects of noun incorporation in West Greenlandic*. Dissertations in linguistics. CSLI Publications, Stanford, CA.
- Giannakidou, Anastasia. 1994. The semantic licensing of NPIs and the Modern Greek subjunctive. In *Language and Cognition* 4, Yearbook of the Research Group for Theoretical and Experimental Linguistics, 55–68. University of Groningen, Groningen.
- Giannakidou, Anastasia. 1995. Subjunctive, habituality and negative polarity. *Semantics and Linguistic Theory (SALT)* V:132–150. Cornell University, Ithaca, NY.
- Giannakidou, Anastasia. 1997. *The landscape of polarity items*. PhD thesis, University of Groningen, Groningen.
- Giannakidou, Anastasia. 1998. *Polarity sensitivity as (Non)veridical dependency*. Amsterdam: John Benjamins.
- Giannakidou, Anastasia. 1999. Affective dependencies. *Linguistics & Philosophy* 22:367–421.
- Giannakidou, Anastasia. 2000. Negative ... concord? *Natural Language and Linguistic Theory* 18:457–523.
- Giannakidou, Anastasia. 2001. The meaning of free choice. *Linguistics and Philosophy* 24:659–735.
- Giannakidou, Anastasia. 2004. Domain restriction and the arguments of quantificational determiners. In *Proceedings of SALT 14*. Department of Modern Languages, Cornell University, Ithaca, NY, 110–128.
- Giannakidou, Anastasia. 2006. Only, emotive factive verbs, and the dual nature of polarity dependency. *Language* 82:575–603.

- Giannakidou, Anastasia. 2007. The landscape of EVEN. *Natural Language and Linguistic Theory* 25:39–81.
- Giannakidou, Anastasia. 2011. Negative polarity and positive polarity: Licensing, variation, and compositionality. In *The handbook of natural language meaning (second edition)*, eds. Klaus von Stechow, Claudia Maienborn, and Paul Portner, 1660–1712. Berlin: Mouton de Gruyter.
- Giannakidou, Anastasia. 2009. The dependency of the subjunctive revisited: Temporal semantics and polarity. *Lingua* 120:1883–1908.
- Giannakidou, Anastasia. 2011. Indefinites, scope, and epistemic judgement: Theoretical and experimental perspectives. *Studies in Greek Linguistics* 32 (to appear).
- Giannakidou, Anastasia, and Lisa Cheng. 2006. (In)definiteness, polarity, and the role of wh-morphology in free choice. *Journal of Semantics* 23:135–183.
- Giannakidou, Anastasia, and Jason Merchant. 1997. On the interpretation of null indefinite objects in Greek. *Studies in Greek Linguistics* 18:141–154.
- Giannakidou, Anastasia, and Josep Quer. 2011. *Against universal free choice: Distinguish free choice from referential vagueness in Greek, Spanish, and Catalan*. Pompeu Fabra: University of Chicago and ICREA.
- Giannakidou, Anastasia, and Monika Rathert. 2009. *QP structure, nominalizations, and the role of DP*. Oxford studies in theoretical linguistics series. Oxford: Oxford University Press.
- Giannakidou, Anastasia, and Melita Stavrou. 1999. Nominalization and ellipsis in the Greek DP. *The Linguistic Review* 16:295–332.
- Giannakidou, Anastasia, and Suwon Yoon. No NPI licensing in comparatives. *Chicago Linguistic Society* 37 (to appear).
- Giannakidou, Anastasia, and Suwon Yoon. 2011. The subjective mode of comparison: Metalinguistic comparatives in Greek and Korean. *Natural Language and Linguistic Theory* 29:621–655.
- Giannakidou, Anastasia, and Frans Zwarts. 1999. Aspectual properties of temporal connectives. In *Greek linguistics '97: Proceedings of the 3rd international conference on Greek linguistics*, ed. A. Mozer, 104–113. Athens: Ellinika Grammata.
- Giannakidou, Anastasia, Despoina Papadopoulou, and Melita Stavrou. 2011. Scope differentiation and anti-specificity marking: Experimental study of two Greek indefinites. *Chicago Linguistic Society* 47:(to appear).
- Groenendijk, J., and M. Stokhof. 1981. A pragmatic analysis of specificity. In *Ambiguity in intensional contexts*, ed. F. Heny, 13. Dordrecht: Reidel Publishing Company.
- Gutiérrez-Rexach, J. 2001. The semantics of Spanish plural existential determiners and the dynamics of judgment types. *Probus* 13:113–154.
- Haspelmath, M. 1997. *Indefinites*. Oxford: Oxford University Press.
- Holton, David, Peter Mackridge, and Irene Philippaki-Warbuton. 1997. *Greek: A comprehensive grammar of the modern language*. London: Routledge.
- Horn, L.R. 2000. Pick a theory: Not just any theory. In *Negation and polarity: Syntactic and semantic perspectives*, eds. L. Horn and Y. Káto, 147–192. Oxford: Oxford University Press.
- Horn, L.R. 2006. Airport '68 revisited: Toward a unified indefinite any. In *Reference and quantification. The Partee effect*, eds. G. Carlson and J.F. Pelletier, 179–205. Stanford, CA: CSLI.
- Horrocks, G. 1997. *Greek: A history of the language and its speakers*. Longman Linguistics Library.
- Horrocks, Goeff, and Melita Stavrou. 1987. Bounding theory and Greek syntax: Evidence for wh-movement in NP. *Journal of Linguistics* 23:79–108.
- Iatridou, S. 1986. An anaphor not bound in its governing category. *Linguistic Inquiry* 17:766–772.
- Ioannidou, A., and M. den Dikken. 2009. P-drop, D-drop, D-spread. In *Greek syntax and semantics*, 393–408. MITWPL.
- Ionin, T. 2006. This is definitely specific: Specificity and definiteness in article systems. *Natural Language Semantics* 14:175–234.

- Ionin, T., and O. Matushansky. 2006. The composition of complex cardinals. *Journal of Semantics* 23:315–360.
- Jacobson, P. 1995. On the quantificational force of English free relatives. In *Quantification in natural languages*, eds. E. Bach et al., 451–486. Dordrecht: Kluwer Academic Publishers.
- Jayez, L., and L. Tovena. 2006. Epistemic determiners. *Journal of Semantics* 27(3):217–250.
- Kadmon, N., and F. Landman. 1993. Any. *Linguistics & Philosophy* 16(3):353–422.
- Kamp, Hans, and Uwe Reyle. 1983. *From discourse to logic*. Dordrecht: Springer.
- Keenan, E. 1987. A semantic definition of ‘indefinite NP’. In *The representation of (in) definiteness*, eds. E. Reuland and A. ter Meulen, 286–317. Cambridge, MA: MIT Press.
- Keenan, E. 1996. The semantics of determiners. In *The handbook of contemporary semantic theory*, ed. S. Lappin, 41–63. Oxford: Blackwell Publishers.
- Keenan, E.L., and D. Westerståhl. 1997. Generalized quantifiers in linguistics and logic. In *Handbook of logic and language*, eds. J. van Benthem and A.G.B. ter Meulen, 839–893. Amsterdam: Elsevier.
- Kolliakou, D. 2004. Monadic definites and polydefinites: Their form, meaning and use. *Journal of Linguistics* 40:263–333.
- Kratzer, Angelika, and Junko Shimoyama. 2002. Indeterminate phrases: The view from Japanese. *The proceedings of the third Tokyo conference on psycholinguistics*, 1–25. Tokyo: Hituzi Syobo.
- Krifka, Manfred 1999. At least some indefinites are not indefinites. In *The semantics pragmatics interface from different points of view*. Current research in the semantics/pragmatics interface I, ed. K. Turner, 257–291. North Holland: Elsevier Science.
- Krifka, Manfred, F.J. Pelletier, Greg Carlson, A. ter Meulen, G. Chierchia, and G. Link. 1995. Genericity: An introduction. In *The generic book*, eds. G. Carlson and F.J. Pelletier, 1–124. Chicago, IL: University of Chicago Press.
- Laka, Itziar. 1990. *Negation in syntax: On the nature of functional categories and projections*. PhD dissertation. MIT, Cambridge, MA.
- Landman, F. 2002. Predicate-argument mismatches and the adjectival theory of indefinites. In *From NP to DP*, eds. M. Coene and Y. D’Hulst. Proceeding of NP to DP movement conference 2000, Anvers.
- Lazaridou-Chatzigoga, D. 2007. Free choice items and definiteness: Evidence from Greek. In *Proceedings of Sinn und Bedeutung 11*, ed. E. Puig-Waldmuüller, 403–417. Barcelona: Universitat Pompeu Fabra.
- Lekakou, M., and K. Szendroi. 2009. Close apposition with and without noun ellipsis: An analysis of Greek polydefinites. *Studies in Greek linguistics* 29:151–166. .
- Link, G. 1984. The logical analysis of plurals and mass terms: A lattice theoretical approach. In *Meaning, use, and interpretation of language*, eds. R. Bäuerle, C. Schwarze, and A. von Stechow, 302–323. Berlin: Walter de Gruyter.
- Longobardi, G. 1994. *Proper names and the theory of movement in syntax and logical form*. Venice: University of Venice.
- Mackridge, Peter. 1985. *The Modern Greek language*. London: Clarendon.
- Martí, L. 2008. Restoring indefinites to normalcy: An experimental study on the scope of Spanish *Algunos*. *Journal of Semantics* 24(1):1–25.
- Martí, L. 2009. Contextual restriction on indefinites. In *QP structure, nominalizations, and the role of DP*. Oxford studies in theoretical linguistics series, eds. A. Giannakidou and M. Rathert, 108–132. Oxford: Oxford University Press.
- Matthewson, L. 1998. *Determiner systems and quantificational strategies: Evidence from Salish*. The Hague: Holland Academic Graphics.
- Matthewson, L. 2001. Quantification and the nature of crosslinguistic variation. *Natural Language Semantics* 9:145–179.
- McNally, L. 1992. *An interpretation for the English existential construction*. Doctoral dissertation. University of California, Santa Cruz, CA. [Published 1997 by Garland Publishing Inc., New York, NY.]

- Merchant, Jason. 2009. Phrasal and clausal comparatives in Greek and the abstractness of syntax. *Journal of Greek Linguistics* 9:134–164.
- Milsark, G. 1977. Toward an explanation of certain peculiarities of the existential construction in English. *Linguistic Analysis* 3(1):1–28.
- Milsark, G. 1979. *Existential sentences in English*. New York, NY: Garland Publishing Inc.
- Montague, R. 1974. The proper treatment of quantification in ordinary English. In *Approaches to natural language*, eds. J. Hintikká, J. Moravcsik, and P. Suppes, 221–242. Dordrecht: D. Reidel.
- Partee, B.H. 1987. Noun phrase interpretation and type-shifting principles. In *Studies in discourse representation theory and the theory of generalized quantifiers*, eds. J. Groenendijk, D. de Jongh, and M. Stokhof, 115–143. Dordrecht: Foris.
- Partee, B.H. 1988. Many quantifiers. In *Proceedings of Fifth ESCOL*, eds. J. Powers and K. de Jong, 383–402. Columbus, OH: The Ohio State University.
- Philippaki-Warbuton, Irene. 1993. The subjunctive mood and the syntactic status of the particle *na* in Modern Greek. *Folia Linguistica* 28(3–4):297–326.
- Puskás, Genoveva. 1998. On the Neg-criterion in Hungarian. *Acta Linguistica Hungarica* 45:167–213.
- Quer, Josep. 1993. *The syntactic licensing of negative items*. MA thesis, Universitat Autònoma de Barcelona, Barcelona.
- Quer, Josep. 1998. *Mood at the interface*. PhD dissertation, University of Utrecht, Utrecht.
- Quer, Josep. 1999. The quantificational force of free choice items. Amsterdam: University of Amsterdam.
- Reinhart, T. 1997. Quantifier scope: How labor is divided between QR and choice functions. *Linguistics & Philosophy* 20:335–397.
- Roberts, C. 2002. Demonstratives as definites. In *Information sharing: Reference and presupposition in language generation and interpretation*, eds. K. van Deemter and Roger Kibble, 89–196. Stanford, CA: CSLI Press.
- Roussou, A. 2000. On the left periphery; modal particles and complementizers. *Journal of Greek Linguistics* 1:63–93.
- Sioupi, Athina. 1998. *The middle construction in Greek and German*. PhD thesis, Aristotle University of Thessaloniki, Thessaloniki.
- Sioupi, Athina. 2002. On the syntax and semantics of verb-complement constructions that involve “production” or “creation”: A comparative study in Greek and German. In *Issues in formal German(ic) Typology*, eds. W. Abraham and J.-W. Zwart, 263–284. Amsterdam: J. Benjamins.
- Stavrou, Melita 1983. *Aspects of the structure of the noun phrase in Modern Greek*. PhD thesis, SOAS, University of London, London.
- Stavrou, Melita 2003. Semi-lexical nouns, classifiers and the interpretation(s) of the pseudo-partitive construction. In *From NP to DP*, eds. M. Coene and Y. D’Hulst, 329–354. Amsterdam: John Benjamins.
- Stavrou, Melita. 2011. *O Vocative!* Ms. Aristotle University of Thessaloniki.
- Stavrou, Melita, and G. Horrocks. 1989. Clitic and demonstrative pronouns in the NP. *Studies in Greek Linguistics*.
- Stavrou, Melita, and Arhonto Terzi. 2008. Types of numerical nouns. In *Proceedings of the 26th West Coast conference on formal linguistics*. eds. Charles B. Chang and Hannah J. Haynie. Somerville, MA: Cascadilla.
- Stavrou, Melita, and Arhonto Terzi. 2010. *Cardinal numerals and other numerical expressions*. Ms. Aristotle University of Thessaloniki & Technological Educational Institute of Patras.
- Surányi, Balázs. 2006. Quantification and focus in negative concord. *Lingua* 116:272–313.
- De Swart, Henriette, and Ivan A. Sag. 2002. Negation and negative concord in French. *Linguistics and Philosophy* 25:373–417.

- Szabolcsi, Anna. 1981. The semantics of topic/focus articulation. In *Formal methods in the study of language*, eds. Jeroen Groenendijk, Theo Janssen, and Martin Stokhof, 513–540, Amsterdam: Mathematical Center.
- Szabolcsi, Anna. 1987. Functional categories in the Noun Phrase. In *Approaches to Hungarian 2*, ed. I. Kenesei, 167–190. Szeged: JATE.
- Szabolcsi, A. 2010. *Quantification*. Cambridge, MA: Cambridge University Press.
- Triandafyllidis, M. 1941. *Νεοελληνική Γραμματική της Ελληνικής*. [Modern Greek Grammar (of Demotic)]. Athens.
- Tsangalidis, Anastasios. 1998. *WILL and THA: A comparative study of the category future*. Θεσσαλονίκη: University Studio Press.
- Tsimpli, I.M., and A. Roussou. 1996. Negation and polarity items in Modern Greek. *Linguistic Review* 13(1):1–33.
- Tzartanos, A. 1945. *Γραμματική της Αρχαίας Ελληνικής*. [Grammar of Ancient Greek]. Athens.
- Varlokosta, Spyridoula, and Norbert Hornstein. 1993. Abound pronoun in Modern Greek. *Natural Language and Linguistic Theory* 11:175–195.
- Veloudis, Ioannis. 1982. *Negation in Modern Greek*. PhD thesis, University of Reading, Berkshire.
- Vendler, Z. 1967. *Linguistics in philosophy*. Ithaca, NY: Cornell.
- Vlachou, Evangelia. 2007. *Free choice items in and out of context*. PhD thesis, University of Utrecht, Utrecht.
- Watanabe, Akira. 2004. The genesis of negative concord: Syntax and morphology of negative doubling. *Linguistic Inquiry* 35:559–612.
- Westerståhl, D. 1984. Determiners and context sets. In *Generalized quantifiers in natural language*, eds. J. van Benthem and A. ter Meulen, 45–71. Dordrecht: Foris.
- Westerståhl, D. 1985. Logical constants in quantifier languages. *Linguistics & Philosophy* 8:387–413.
- Winter, Yoad. 1997. Choice functions and the scopal semantics of indefinites. *Linguistics and Philosophy* 20:399–467.
- Yoon, S. 2008. From non-specificity to polarity. In a special edition of *UW Working Papers in Linguistics*, Vol. 27, eds. S. Moran, D.S. Tanner, and M. Scanlon. Washington, DC: University of Washington.
- Yoshimura, Keiko. 2007. *Focus and polarity in Japanese*. PhD dissertation, University of Chicago, Chicago, IL.
- Zanuttini, Raffaella. 1991. *Syntactic properties of sentential negation: A comparative study of romance languages*. PhD dissertation. University of Pennsylvania, Pennsylvania, PA.
- Zwarts, J. 1986. *Categoriale Grammatica en Algebraische Semantiek. Een studie naar negatie en polariteit in het Nederlands*. PhD thesis, University of Groningen, Groningen.
- Zwarts, F. 1995. Noveridical contexts. *Linguistic Analysis* 25(3–4):286–312.