

University of Patras

**Quantification at the Syntax-Semantics Interface:
Greek *every* NPs**

Anna-Maria Margariti

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Declaration

The present thesis is the product of my original endeavor, unless otherwise stated. It has not been previously submitted in any other institution, for any reason whatsoever.

Σε όσους διψούν για γνώση και έναν όμορφο κόσμο

Abstract

The present thesis offers a thorough examination of Modern Greek distributive determiner *(o) kathe* (*every, each, any*) nominal phrases and accounts for the different readings of these expressions. *Kathe* NPs exhibit a universal distributive *every* reading (definite use), a Free Choice *any* (indefinite use) and a kind interpretation. *O kathe* NPs exhibit a universal distributive *each* reading (familiar and definite use), a Free Choice *any* and an Indiscriminative Free Choice *just any* reading (indefinite uses). In line with previous proposals for *every*, I suggest that *kathe* determiners do not lexicalize a universal operator. Following Szabolcsi (2010) on *every* NPs, I argue that *(o) kathe* NPs are (inherently) indefinite expressions (in the sense of Heim 1982) that make part of a quantificational concord. A distributive operator binds the element variables of their NP set; a clause-typing operator in the left periphery, a Definiteness, a Generic or a Modal Operator binds the context set variables of the NP, rendering a universal, a kind or an FC reading to the expression, accordingly. The presence of different sentential operators under C determines the readings that arise. I argue that binding by these operators corresponds to two Agree operations in syntax: One is between the Distributive operator in C and Q on the DP as well as with Aspect on the vP. The other one is between the sentential operator and the relevant feature on Q but also on TP/ vP. The quantificational chains formed are argued to be, to some extent, similar to that of *wh*- chains.

In Chapter 1, I present the essential syntactic and semantic background, as well as an outline of my proposal to the riddle of *every* and *(o)kathe* NPs interpretational variability. In Chapter 2, I discuss and analyze the syntax of Determiner Phrases and Quantifier Phrases and in particular the syntactic structure of Greek *kathe*, *o kathe*, *oli i* NPs, as well as that of English *every*, *each*, *all* and *all the* NPs. In Chapter 3 I investigate the different readings the *kathe* and *o kathe* NPs give rise to and the semantics behind that, as well as previous approaches on the issue. In Chapter 4, I explain the interpretational variability of the expression in hand as a result of the binding of the NPs' context set variables by different Operators (a Definiteness, a Generic or a Modal Operator) and Operation Agree. In Chapter 5, I discuss how the theory proposed for Greek *kathe*, *o kathe* and English *every*, *each* NPs could explain relevant phenomena of quantificational variability in Chinese and

Japanese, as well as Greek Polarity phenomena. In Chapter 6, I conclude the discussion.

Περίληψη

Η παρούσα διατριβή προσφέρει μια αναλυτική εξέταση των επιμεριστικών δεικτών *κάθε* και *ο κάθε* της Νέας Ελληνικής και των Ονοματικών Φράσεων τους, όπως επίσης και μία εξήγηση για τις ποικίλες διαφορετικές ερμηνείες των εκφράσεων αυτών, αλλά και των αντιστοίχων της Αγγλικής. Οι Ονοματικές Φράσεις (ΟΦ) με το *κάθε* (*κάθε* ΟΦ) στην *οριστική* τους χρήση παρουσιάζουν μία ερμηνεία *καθολικής ποσοτικής δείξης*, όπως επίσης μία ερμηνεία *ελεύθερης επιλογής*, *αόριστης* χρήσης, και μία ερμηνεία *είδους*. Οι Ονοματικές Φράσεις με το *ο κάθε* (*ο κάθε* ΟΦ) παρουσιάζουν μία ερμηνεία *καθολικής ποσοτικής δείξης* ως *οριστική* και *οικεία* χρήση, μία ερμηνεία *ελεύθερης επιλογής* και μία *υποτιμητικής ελεύθερης επιλογής* ως *αόριστες* χρήσεις.

Σε συμφωνία με προηγούμενες αναλύσεις για τον αντίστοιχο προσδιοριστή της Αγγλικής, προτείνω ότι τα *κάθε* και *ο κάθε* δεν λεξικοποιούν τον *καθολικό ποσοτικό τελεστή* της λογικής. Αντίθετα, ισχυρίζομαι ότι οι Ονοματικές Φράσεις με τα *κάθε* και *ο κάθε* είναι κατά βάση *αόριστες* εκφράσεις, οι οποίες συμμετέχουν σε διαφορετικές ποσοδεικτικές αλυσίδες εκφράσεων κάθε φορά. Ένας *επιμεριστικός* τελεστής στην αριστερή περιφέρεια δεσμεύει την *στοιχειώδη μεταβλητή του συνόλου* της ΟΦ. Ένας *οριστικός*, ένας *γενικός* ή ένας *τροπικός* τελεστής, επίσης στην αριστερή περιφέρεια, δεσμεύει τη *μεταβλητή περικειμένου*, δίνοντας αντίστοιχα τις ερμηνείες της *καθολικής ποσοτικής δείξης*, του *είδους* και της *ελεύθερης επιλογής*. Η παρουσία διαφορετικών *προτασιακών τελεστών*, λοιπόν, καθορίζει την ανάδυση των διαφορετικών ερμηνειών. Επίσης, ισχυρίζομαι ότι η όλη διαδικασία της δέσμευσης αντιστοιχεί σε λειτουργίες Συμφωνείν στη σύνταξη. Οι ποσοδεικτικές αλυσίδες που σχηματίζονται είναι σε κάποιο βαθμό όμοιες με αυτές των ερωτηματικών προτάσεων.

Στο Κεφάλαιο 1 παραθέτω το απαραίτητο συντακτικό και σημασιολογικό υπόβαθρο, όπως επίσης και μια προεπισκόπηση της πρότασής μου. Στο Κεφάλαιο 2 παρουσιάζεται μια συντακτική ανάλυση των εκφράσεων αυτών και των αντιστοίχων αγγλικών. Το Κεφάλαιο 3 διερευνά την σημασιολογία και τις διαφορετικές ερμηνείες. Στο Κεφάλαιο 4 προσφέρω την θεωρητική μου ανάλυση, ενώ στο Κεφάλαιο 5 παρατίθεται μία σύγκριση με ανάλογα φαινόμενα στην Κινεζική και την Ιαπωνική, όπως επίσης και με εκφράσεις *πολικότητας* της Νέας Ελληνικής. Στο Κεφάλαιο 6 συνοψίζονται τα συμπεράσματα της έρευνας.

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List of Abbreviations

API	Affective Polarity Item
<i>c</i>	Context Set Variable
C	Complementizer
Chf	Choice Function
CP	Complementizer Phrase
D	Determiner (syntax)
Def Op	Definiteness Operator
Det	Determiner (semantics)
Dist	Distributive
DP	Determiner Phrase
DS	Determiner Spreading
DQPs	Distributive-Universal Quantifier Phrases
EPP	Extended Projection Principle
FC	Free Choice
FCI	Free Choice Item
Foc	Focus
GB	Government Binding
GEN	Genitive case
Gen Op	Generic Operator
GQ	Generalized Quantifier
GQPs	Group Quantifier Phrases
IMP	Imperfective (aspect)
IP	Inflection Phrase
LF	Logical Form
NOM	Nominative Case
NP	Noun Phrase
NPI	Negative Polarity Item
NQPs	Negative Quantifier Phrases
Op	Operator
PF	Phonological Form
Pl	Plural

Prt	Particle
Q	Quantifier
QF	Quantificational Force
QP	Quantifier Phrase
QR	Quantifier Raising
Sg	Singular
<i>t</i>	Time variable
TP	Tense Phrase
VP	Verb Phrase
Wh	Interrogative
WhQPs	Interrogative Quantifier Phrases

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Chapter 1: About *every-thing*

1.1 Syntax

The theoretical framework of the present thesis follows the Minimalist Program (MP) (Chomsky 1993, 1995, 2000, 2001, 2004). As its name implies, MP is a programmatic endeavor rather than a theory of grammar in the strict sense. Its main feature is expected to consist in an omnipresent economy in the tools applied and the derivations proposed. Linguists are expected to apply an Occam's razor logic to reduce the analysis to the bare essentials, since language is viewed as a system that utilizes only what is absolutely necessary.

This roughly means that each language is expected to employ the minimal linguistic apparatus possible, in number and complexity, with optimal results and without redundancy. There is a Universal Grammar with a set of Principles that pervades all different languages. Individual languages, however, differ from each other because of the different settings they have for a set of Parameters (Chomsky 1986) as specifications in a universal functional lexicon (Rizzi 2012). Principles are fixed, responsible for the homogeneity of syntactic forms cross-linguistically. Principles and Parameters (Chomsky & Lasnik 1993) constitute the core of a Universal Grammar (UG), which determines what qualifies as the generative procedure¹ that provides the 'instructions' for the interfaces, incorporated in each language (Chomsky 2013: 35-38). UG determines the conditions of how a generative, syntactic procedure should look like. Recent proposals in this spirit point towards a Strong Minimalist Thesis (SMT) "holding that language is a perfect solution to these conditions" (Chomsky 2013: 38). In this sense, linguistic theory is expected to meet the standards of the aforementioned perfection and non-redundancy of its subject matter.

All humans can speak. Language faculty in a broad sense refers to an internal component of the mind corresponding to a neurophysiological capacity (Hauser et al 2002) common to all humans, and to the abstract innate cognitive system in the more narrow grammatical sense. Language connects the sensory-motor (articulatory) and

¹ Otherwise termed: Internal / Individual / Intensional language, or I-language (cf. Chomsky 2013).

conceptual-intentional systems and it interacts with them in order to produce a linguistic expression (Chomsky 2000). The above two systems, levels or interfaces are termed as Phonological Form (PF) and Logical Form (LF), respectively. Grammar or narrow syntax constructs expressions that are fed to the levels of PF (through Spell-Out) and LF. So grammar constructs pairs of logical (+l) and phonological (+p) representations. The two interfaces do not see each other, under the standard view.

The building blocks of a linguistic expression are lexical items (LIs). An initial selection of those forms the numeration, the first step for deriving a sentence. The Lexicon of each language consists of LIs of substantive universals such as interpretable features of functional heads as well as the Extended Projection Principle (EPP) feature. According to the most recent version (e.g. Chomsky 2008), narrow syntax involves two basic operations: Merge and Agree. Merge is a binary operation. It amounts to combining two LIs together to form a new syntactic object. New syntactic objects can also Merge with other constituents to form complex phrases; they may also be dislocated in some other part of the sentence. External Merge is the algorithm that puts two expressions drawn from the numeration together; Internal Merge (Chomsky 2004) combines a constituent that has already been Externally Merged with another constituent in the structure. Internal Merge and the new operation of Agree (Chomsky 2000, 2001, 2008) mainly accounts for what the omnivorous *Move- α* operation (roughly, “move anything, anywhere”) used to do in the Government and Binding (GB) framework (before Minimalism). Movement of a syntactic object is effectuated compositionally. Chomsky (2000:101-2, 2001, 2004) proposes a Compositional Theory of Movement according to which movement is not a primitive but a composition of (at least) the basic structure-building operation Merge and the dependency-forming operation Agree. Agree is a mechanism that “matches” features on different LIs and creates a link between them, and a relation between all relevant copies, a chain. If the same LI, however, has multiple occurrences in a chain, only one, usually the last (highest) one is Spelled out, the other occurrences remaining silent copies.

In this spirit, Movement is subsumed under Agree and Internal Merge which re-merges an LI that has already been merged before, leaving its copy behind, in the initial position. So the GB notion of trace is obliterated and a copy theory of movement on the grounds of a principle called Inclusiveness is proposed (Chomsky 1993, 1995). This condition demands that a syntactic derivation merely combines the

elements that have been picked up by the lexicon straight from the beginning, as part of the numeration, without creating any new entities added to as the derivation proceeds. The building blocks of LIs are features, mental objects corresponding to some property concerning events or objects captured by human cognition.

Our main topic is a particular instantiation of Quantification, which, under Chomsky (2000) has been subsumed under Agree. Let us dive a little deeper into this notion which is important for the present study. Agree in Chomsky (2000 and 2001) is an operation that relates a Probe to a Goal by connecting uninterpretable with interpretable features, as defined in (1):

- (1) An uninterpretable instance of a feature F is in an agreement relation with an interpretable instance of F.

Agree values and deletes uninterpretable features (immediately or at the phase-level, Chomsky 2000:131, 2004) prior to LF, so uninterpretable features do not appear at LF. In a sense, Agree is a way of saying that two elements, the Probe and the Goal, need each other in order to have a sound, i.e. to be interpretable at PF, and to render a meaning, i.e. to be interpretable at LF. The deletion of uninterpretable features is a requirement imposed by the interfaces. Agree is usually assumed to apply top down: the probe with an uninterpretable feature on a commonly functional head like C probes for a goal that has a value for that feature (the same interpretable feature); however, the goal – head also has to possess an uninterpretable feature in order to be active, i.e. to be available for Agree. At this point I should note that the present analysis of *(o) kathe* NPs, following Manzini & Roussou (2000), does not utilize the distinction between uninterpretable and interpretable features as part of the Agree operation involved (cf. Chapter 4). Instead, Agree as utilized hereby simply involves a Probe and a Goal that carry the same kind of feature. Furthermore, Internal Merge (or lexicalization of a copy at a particular point) is dictated by the presence of an EPP feature (or diacritic cf. Roberts & Roussou 2003) on C, T or v Heads.

In the discussion that follows I will often refer to domains to indicate syntactic location on a syntactic tree structure. Complementizer (C), Tense (T or Inflection, I) and Verb (V) may encompass a whole array of functional projections that are hosted in the area they are in charge of, in the sense that they are the ‘chief’ Heads. Take the C domain, which for instance in Rizzi (1997) is related to Illocutionary Force, Focus,

Topic and Finiteness (see also Cinque 1999 and Starke 2001, for more elaboration). Domain T or I hosts temporal and inflection projections. Domain v/V hosts basic thematic role relations. I occasionally use the terms dC, dT and dv for C, T/I and v/V domains, respectively, for brevity (borrowed from Roussou & Tsimpli 2006). Last but not least, in this Chapter I refer to nominal phrases headed by Determiners as Determiner Phrases (DPs) and those headed by quantifiers as Quantifier Phrases (QPs). I assume that a Noun Phrase (NP) serves as a complement to a Determiner (D) or a Quantifier (Q), forming a DP or a QP, respectively. Also, *every* NP and *kathe* NP stand for *every* and *kathe* plus their NP complement throughout this thesis. In this Chapter, I use the terms DP and QP interchangeably. I adopt this notation for the sake of our preliminary presentation in this Chapter without any further elaboration. A detailed analysis in Chapter 2 clarifies the terminological and theoretical issues related to these phrases.

1.2 Quantification

In this section I present the basic semantic theoretical background our discussion assumes. A more detailed discussion on semantic issues is to be found in Chapter 3. Consider the following example:

- (2) Every student got an A.

The equivalent of *every* NP in standard first order / predicate logic is a Universal Quantifier ($\forall x \dots x$), which is also understood as a Distributive operator, binding the free variables of the predicates it ranges over. A basic predicate logic formula that corresponds to (2) is (3):

- (3) $\forall x,y ((\text{Student}(x) \wedge A(y)) \rightarrow \text{Got}(x,y))$

In predicate logic, the Universal-Distributive operator does not form a constituent with the nominal predicate whose variable it binds. On the other hand, semantics view the Universal-Distributive operator and its nominal predicate argument as forming one constituent (Keenan 2002:629), a Quantifier expression (Barwise & Cooper 1981).

Quantifier expressions such as *nothing*, *everything*, *every student*, *two students*, *more than three students*, *some students*, *students*, *John*, *only John* are commonly assumed to denote and correspond to Generalized Quantifiers (GQs) (as in Barwise & Cooper 1981, Heim & Kratzer 1998, Keenan 2002, among many others). *Every student* is viewed as an instance of universal quantification, whereas *some student* is viewed as an instance of existential quantification.

Because of the uncontested universal/distributive status of the $\forall x$ operator in predicate logic and the close affinity between the GQ theory in logic (Mostowski 1957) and in semantics (Montague 1970), the Universal and Distributive operators have been viewed as one and the same thing throughout the semantics literature. Also, the majority of researchers in the semantic GQ tradition such as Barwise & Cooper (1981), Keenan (2002), among many others, assume (tacitly, as they appear to take it for granted) that the Universal operator is lexically instantiated in semantic determiners, such as English *each* and *every*. This view also seems to be rooted in the widely spread assumption that semantic representations should correspond to predicate logic formulae. Due to this, a particular lexical paradigm, a quantificational semantic determiner is expected to lexicalize the Universal / Distributive Op of predicate logic in language.

So, the standard view is that the Universal / Distributive operator denotes a quantifying function which is situated in the semantic determiner; the latter forms a constituent with the nominal predicate it takes as an argument, binding its variable (quantifying it, in the mathematical sense). For example, in (2) *every* forms a syntactic constituent with the NP *student*. *Every* is seen as embedding a Universal operator that binds a variable on NP. *Every student* constitutes a Generalized Quantifier (GQ) (in a sense to be defined shortly). However, several recent works, which could be regarded as belonging to what I will refer to as the “second view” on universality, associate different types of quantificational force of noun phrases with heads situated higher in the extended projection of the clause such as Beghelli & Stowell (1997), Szabolcsi (1997, 2010) (for universal quantification), but also Hallman (2000), Kratzer (2005), Moulton (2013) (for other kinds of quantification).

Also, Szabolcsi (2010) holds that the universal operator is not directly lexicalized in the semantic determiners but that the quantificational force for noun phrases involves heads higher in the structure of the sentence. Universal / Distributive

quantification results from the interplay between a sentential distributive / universal operator and the nominal expression, instead. This means that quantification is computed on a sentence level, rather than on a DP level.

The literature also assumes a distinction between strong (*every student*) and weak quantifier expressions (*a student*) (Milsark 1974). Weak quantifier expressions such as *a student* and similar indefinite expressions are not deemed to be quantificational on their own right but to depend on a covert operator for their quantificational force since Kamp (1981) and Heim (1982). Szabolcsi (2010) proposes that strong quantifier expressions or definites essentially behave as Heimian indefinites; they depend on a sentential operator for their quantificational force.

Universal quantification is assimilated to Distributivity by most researchers. In more detail, strong, universal - distributive determiners such as English *every*, French *chacun*, Greek *kathe*, Chinese *mei*² are unanimously viewed as related (one way or another) to the presence of a Distributive operator which is equated to predicate logic's universal operator as in Choe (1985), Gil (1992), who regard the semantic Determiner as lexicalizing the universal operator of predicate logic, but also Beghelli (1997), Beghelli & Stowell (1997), Butler (2004), Szabolcsi (2010:111), who, to a lesser or larger extent, regard universal quantification as a phenomenon due to an operator external to the quantifier / determiner. Assimilation between Distributivity and universal quantification is also assumed in Etxeberria & Giannakidou (2010), Lazaridou - Chatzigoga (2010) for the Greek counterpart to *every*, *kathe*, as also in Cheng (1995) for Chinese, just to name a few relevant works.

The present thesis adopts Szabolcsi's (2010) view that the quantificational Determiner does not lexicalize the Universal/Distributive Operator as such, with the additional provision that Distributivity is distinct from Universality. I propose that the distributive reading is due to the presence of a covert distributive operator that binds variables in the DP / QP as well as in the VP. The universal reading, on the other hand, is taken to derive compositionally, as both a Distributive operator and a Definiteness operator need to bind different variables in the nominal predicate in order to effectuate it.

We start our investigation of the issue with some relevant standard assumptions from semantic theory. For the sake of the present analysis and simplicity

² I adopt the form *mai* for what is standardly viewed as the equivalent to *every* in Chinese throughout this thesis.

I assume an extensional semantics system (in which the denotations of expressions are extensions). Let us start with the inventory of denotations of this system (from Heim & Kratzer 1998: 15): “Let D be the set of all individuals that exist in the real world. Possible denotations are Elements of D , the set of actual individuals and Elements of $\{0,1\}$, the set of truth values and Functions from D to $\{0,1\}$ ”. In the Montague (1973) semantics tradition followed here, the label $\langle e \rangle$ is the semantic type of individuals and $\langle t \rangle$ is the type of *truth values*³ (Heim & Kratzer 1998: 28). The semantic type of Generalized Quantifiers (GQs) is $\langle \langle e, t \rangle, t \rangle$ (Heim & Kratzer 1998:141); roughly, this means that GQs express a function that receives a verbal predicate ($\langle e, t \rangle$) as an argument and yields a truth value. In other words, GQs are functions that map properties to values (Keenan 2002: 628). Quantificational determiners (*every*, *some*, *three*) are of type $\langle \langle e, t \rangle, \langle e, t \rangle, t \rangle$ (Heim & Kratzer 1998: 146); they express a function that receives an NP (a set of individuals) of type $\langle e, t \rangle$ as an argument (its restriction) and a Verb Phrase (VP, again a set of individuals), again of type $\langle e, t \rangle$, as a second argument (its nuclear scope), yielding the overall output of a truth value ($\langle t \rangle$, True or False) for the sentence. Definite determiners, on the other hand, deemed to be of type $\langle \langle e, t \rangle, e \rangle$ (Heim & Kratzer 1998: 75) while definite expressions such as proper names are often viewed as type $\langle e \rangle$ (as in e.g. Kripke 1980). More discussion on these issues with regards to *every* and *kathe* is to be found in Chapter 3.

Let us now return to semantic determiners, which, according to Milsark (1974), may be distinguished into weak and strong. Expressions with weak determiners are acceptable in existential sentences, whereas those with strong determiners are not. For example *a*, *some*, *three* are weak determiners whereas *all*, *no*, *every* are strong determiners, and thus excluded from *there-NP* constructions (unlike weak ones):

- (4) There is *a fireman* available.
- (5) *There is *every fireman* available.

According to Hallman’s (2000: 76) interpretation of Keenan’s (1996) Aristotelian, relational-theoretic semantic definition of various determiners⁴ (Dets), the distinctive

³ Apart from these two basic types, there are also derived types, such as $\langle e, t \rangle$, $\langle \langle e, t \rangle, t \rangle$ etc. The labels “*e*” for “entity” and “*t*” for “truth-value” are used in Montague (1974) (in Heim & Kratzer 1998:41, fn.9).

⁴ This view more or less equals to understanding quantifiers as relations between ordered sets (cf. Heim & Kratzer 1998:149).

feature between weak and strong quantifiers is intersectivity. Weak determiners are intersective, i.e. the denotation of the sentence involves only the part of the subject NP-set predicated that belongs to the intersection between set A, the subject nominal predicate, and set B, the verbal predicate, and nothing else. For instance, for the interpretation of the sentence “three dogs barked” we are interested in the *three* or *any three dogs that barked* and not in *all the dogs* or *any other dogs*. We are not interested in finding out whether all dogs barked, for instance. Strong determiners, on the other hand, are non-intersective. For instance, with *no* there is no intersection at all between the two sets. *Every* has its A set as a proper subset of B by Keenan’s definition, instead, (Hallman 2000:77). This means that we have to check all or most members of A, in order to decide if the predication of B about them is true or not. The set theoretic representations for the strong, non-intersective Dets illustrate this point below (from Keenan 2002:628, his 2a, c):

- (6) a. $ALL(A)(B) = \text{True iff } A \subseteq B$
 b. $NO(A)(B) = \text{True iff } A \cap B = \emptyset$

Every is viewed as a strong quantificational determiner, similar to *all* in (6a). *Every* is also viewed as distributive, whereas *all* is characterized as a collective universal quantifier (as in e.g. Gil 1992). According to Szabolcsi (2010:109), however, Distributivity is inalienable in all quantifiers⁵. Despite this observation, the author still views Distributivity as assimilating to universal quantification.

Under the common assumptions described previously, *every*, in particular, is regarded by the proponents of the first (standard) view as strong, non-intersective and inherently quantificational quantifier / determiner, in the sense that it encompasses in its lexical semantics a universal / distributive operator, which the GQ expression it forms together with its NP restriction introduces in the semantic representation at LF. Due to this, the proponents of this (standard) view assume that *each* and *every* NPs lexicalize the Universal operator in syntax. A result of this assumption is that English *each* and *every* phrases are expected to always and invariably exhibit a universal

⁵ She (ibid.) attributes this observation to Barwise and Cooper (1981) who “define all semantic determiners as relations between sets of atomic individuals...all quantifiers are construed as distributive...” As we will see later, collectivity has been interpreted as narrow scope Distributivity with regards to an existential operator over events by Beghelli&Stowell (1997) and, less openly, by Szabolcsi (2010).

interpretation. Szabolcsi (2010), on the other hand, argues that *every* (unlike *each*) does not instantiate a Universal operator in its lexical semantics. She bases her arguments on data that prove that *every* NPs receive various interpretations, exhibiting non-universal readings and an indefinite-like behavior. The standard view, which holds that semantic determiners are quantificational, also assumes that a difference between definites, strong determiners, and indefinites, weak determiners is that the former have quantificational force on their own. In particular, the former lexicalize an operator, whereas the latter instantiate simple variables, so they are devoid of inherent quantificational force and depend on an external existential quantifier for their semantic content (Heim 1982, Kamp 1981). In Szabolcsi's (2010) view, Keenan's semantic distinction between weak and strong Dets on the basis of intersectivity should nonetheless remain intact (as well as the rest of relevant semantic theorizing). Definites and indefinites are indeed distinct in their semantics and this is not put into question. The contestable issue is how this interpretation, which according to Szabolcsi's (2010) view that the present thesis endorses, involves the whole sentence, is derived from syntax.

Apart from being non-intersective and inherently (according to the standard view) or not (according to the view adopted here) endowed with quantificational force, strong quantificational determiners and DPs/QPs like *every student* are generally regarded as presuppositional, with presupposition here being understood as a precondition on the truth conditional evaluation of a sentence (Diesing 1992). For instance, if a sentence *S* presupposes the truth of a sentence *S'*, but *S'* is false, then the truth of *S* cannot be evaluated, i.e. *S* cannot receive a truth value (Hallman 2000:86). Weak determiners are not regarded as presuppositional; however, *some*, *a* may take a wide scope or *de re* interpretation and receive a specific or presuppositional, for that matter, interpretation. In other words, the borderline between specificity and presuppositionality, if there exists any, is very thin and, even more importantly, there is no consensus on what exactly presupposition amounts to in the literature (cf. Chapter 3 for more analysis). So presuppositionality cannot be regarded as a concrete and absolute difference between strong and weak Dets. The differences between these two categories rather come in many shades and shapes and are not as clear cut as we would like them to be. For instance, we may have indefinite, weak expressions, which we would expect to lack presuppositionality, to manifest a meaning of a certain degree or kind of presuppositionality.

One example is specific indefinite readings, like the one in example (7) that follows.

- (7) John met a singer.

The phrase *a singer* in (7) may have two interpretations: a strong one and a weak one. In (7) the presupposed true sentence for the specific indefinite (strong, *de re*, wide scope) reading is “there is a specific singer such that John met.” The weak (*de dicto*, narrow scope) reading, on the other hand, does not specifically relate the entity mentioned to the discourse, but it nevertheless presupposes its general existence: “there is a singer such that John met him”. The notion of *known* and *unknown* (cf. Haspelmath 1997) is related but distinct to specificity (possibly pertaining to familiarity). Weak expressions like *a singer* above may be attributed a specific – unknown reading, in which case they receive wide scope or a non-specific, unknown interpretation (in the terms of Haspelmath 1997), when receiving narrow scope. In the first reading, John met a specific singer, whose exact identity may however be either known or unknown. In the second reading, John met some unknown, non-specific person who was a singer. We can also have a strong, wide scope, specific and known reading for the same expression.

Familiarity is also a notion relevant to presuppositionality (as in, e.g. Heusinger 2010), the major difference between the two being that the former pertains to pragmatics rather than to semantics. I utilize this notion to explain the difference between the meaning of *kathe* and *o kathe* NPs and provide more details on the spectrum of notions of presuppositionality and specificity in Chapter 3.

Scope is another highly important notion for quantificational expressions. Semantic scope is mainly understood in terms of (asymmetric) c-command at LF, which usually, but not always, depicts syntactic ordering. A wide scope or a *de re* reading of a quantificational phrase is viewed as presuppositional (Diesing 1992) or familiar (Hallman 2000, amongst many others). Strong quantificational expressions are regarded as having an inherent tendency towards wide scope, whereas weak expressions may exhibit both a narrow (*de dicto*, non-specific), as well as a wide (*de re*, specific) reading, as we just saw for (7).

Unlike strong determiners (at least according to the standard view on universal quantification), weak determiners since Heim (1982) and Kamp (1981) are

commonly assumed to be quantificationally vacuous; the variables of the expressions are bound by a covert Existential Quantifier ($\exists x$), by existential closure, or by a Generic operator. The position of the Existential Quantifier binding the particular indefinite expression with regards to the other operators and expressions in the sentence, in other words, scope, determines whether the indefinite will receive a strong, *de re* (wide scope) or a weak, *de dicto* (narrow scope) interpretation.

Summing up, *every* and *each* are generally viewed as universal distributive, strong quantificational determiners yielding a wide scope interpretation for the phrases they involve. *Every* is related to the universal operator in predicate logic. Strong quantificational determiners are viewed in general as non-intersective, of inherent quantificational force and as presuppositional. However, as we saw, there is also a different view, which accepts all the above tenets (at least for the resulting GQ) except for the inherent quantificational force of the *every* paradigm. The presence of a Universal / Distributive operator in syntax / semantics has been so far uncontested. The two views are differentiated with regards to the default quantificational content they attribute to the *every* semantic determiner. If *every* embeds a universal operator in its lexical semantics, as the standard view assumes, then *every* NPs should not be expected to exhibit any other reading than a universal one. This is not the case, though, as the presentation in the following section shows.

1.3 The empirical data

In this section I present previous observations and proposals with regards to the dubious interpretation of *every* NPs, as well as plural indefinites distributive readings. The evidence presented concurs with the second, “sentential” approach on universal quantification. I then provide a first discussion of empirical phenomena that constitute the object of this survey more orderly. This preliminary examination starts with English and continues with Modern Greek data, which is the main point of reference for my proposal. The aim is to indicate some common patterns that emerge in the syntax and semantics of *every* NPs in English as well as in Greek and familiarize the reader with the relevant terminology that will be used throughout. I also provide a first flavor of my proposal and where it stands with respect to the background provided in the previous sections.

Every NPs do not exhibit only one interpretation. Chierchia (1993), while discussing pair list readings, observes some non-universally interpreted readings for *every* NPs, which he however considers marginal. Groenendijk and Stokhof (1993 in Beghelli & Stowell 1997:101) similarly observe quantificational variability for *every* in (8) (ibid: 101: 41):

- (8) For the most part, John knows which book *every student* bought.

Beghelli & Stowell (1997) note that *every* exhibits an unselective binding effect in that it seems to be interpreted like *most*, which scopes over it, rather than as a universal. Also, the less appreciated adverbial and other uses of *every* may in fact be telling of the true nature of this determiner. English *every*, apart from its universal distributive quantificational determiner use also exhibits an occasional partitive use (from Schwartzchild 1996: 78 his (185)):

- (9) One out of *every three handguns* in America is made by Smith and Wesson.

Beghelli, Shalom & Szabolcsi (1997: 33) comparing the scope behavior of *every* NPs and numeral NPs (e.g. *two buildings*) in object position suggest that *every* NPs function in tandem with plural NPs with regards to variation (referential dependency) and Distributivity. Distributivity seems to be clause bounded and distinct from variation (ibid: 29 and 33, their 2 and 12):

- (10) A fireman imagined that *every building* was unsafe.

- (11) A fireman imagined that *two buildings* were unsafe.

In (10) “two buildings” can have *de re* wide scope (entailing or presupposing the existence of two buildings), but not distributive wide scope. This means that we can construe the “two buildings” as being different for each fireman but not the firemen as varying with the buildings. In the same way, “every building” cannot induce variation in the firemen. This roughly means that in any reading of (10) and (11) we are talking about one fireman per different buildings. The objects can scope over the subject at LF, but the operator they are supposed to encompass ($\forall x$ for *every*) cannot bind the

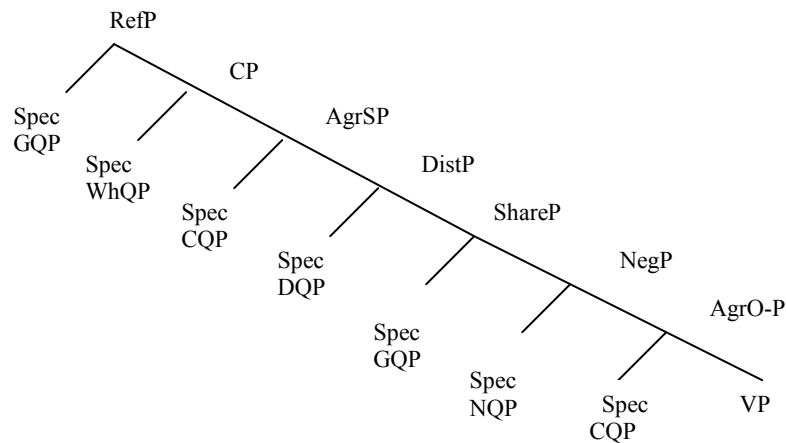
variable of the weak indefinite subject of the sentence. It looks as if there is no universal operator “embedded” in the *every* determiner at play here, after all.

In a work that is a point of reference for the present thesis, Beghelli and Stowell (1997) (henceforth, B&S) present and analyze the difference between *each* and *every*, exemplifying a lot of evidence for non-universal readings of *every* NPs. For example, they observe that *every* NPs, unlike *each* NPs, can receive a generic interpretation (ibid: 100, their 36 a, b):

- (12) a. Every dog has a tail.
b. Each dog has a tail.

On the basis of data such as the ones above, they argue that *each* is always distributive and universal, whereas *every* does not always behave like that. They propose that *every* is only optionally a strong (universal) Distributive Quantifier (DQP, in their terms) in opposition to *each*, which is an obligatorily strong DQP. In their proposal, *each* is specified for Distributivity; *every* is underspecified for Distributivity and specified for universality (ibid: 73). They also argue that different QP types occupy different positions at Logical Form (LF). They put forth the following different kinds of quantificational phrases occupying different LF projections: Interrogative QPs (WhQPs), Negative QPs (NQPs), Distributive-Universal QPs (DQPs), Counting QPs (CQPs), Group-Denoting QPs (GQPs) in a hierarchy that holds as follows (ibid: 76: 2):

(13)



Each and *every* NPs are situated in Spec, Dist P in the above schema. A “universal” distributive operator is generally viewed as relating the *distributor* (in B&S terms), *sorting key* (in Choe’s 1985) or *distributive key* (in Gil’s 1992 terms) to the distributed or distributive share. This means roughly that the relation between the DP subject, which very commonly the distributor amounts to, with either the DP object of the verb or the VP itself is mediated through this operator. B&S situate the Dist operator in head Dist. According to B&S (1997: 89) there are two kinds of Distributive Shares. The first one involves an overt indefinite phrase (*a, some* NP) functioning as a distributed share for another QP, the Distributor. Group QPs (*a, some*) that function as Dist Shares in this case occupy Spec, Dist Share. The object of the verb in a distributive sentence usually amounts to this kind of Distributive Share. The second kind involves a covert existential quantifier over events functioning as a distributed share on a distributed event construal. This is usually the case of atelic predicates, as we will see in Chapter 4. So, for B&S *each* and *every* DQPs occupy the Specifier (Spec) of the Distributive - Universal category DistP where they check their feature with the homonymous operator at Dist0.

Let us take a quick look at what this Distributive (Dist) operator consists of on the semantic type-theoretic level. Link (1983) and Roberts (1987) basically present the Distributive (D-operator, in their terms) as inducing universal quantification over individuals. According to them, groups of objects are not sets of type $\langle e, t \rangle$ but “complex individuals” of type $\langle e \rangle$. The underlying assumption is that groups are the same as individuals ($\langle e \rangle$). Lasnik (1990, 1995) and Schein (1993) on the other

hand, connect the notion of Distributivity to event mereology, while others such as Verkuyl (1994) have argued that the quantification is not over the members of the group but over cells in a partition or cover of this group (Laserson, 1998: 86, cf. also Schwartzschild 1996). In Chapter 3 we visit and largely adopt Tunstall's (1998) theory on Distributivity as relation between (sub)events and (sub)sets of individuals, hence favoring a view that rather pertains to Verkuyl's (1994) approach.

The semantic literature on the Distributive operator is nevertheless quite extended, so I am not going to elaborate on it more, as the present investigation does not necessitate it. With regards to the nature of the Distributive operator I invoke, it suffices to clarify that I follow the ideas proposed in Laserson (1998). In general, since (Link 1983, Roberts 1987) an abstract (covert) Distributive Op (D-Op) has been used to account for collective/ambiguous interpretations. This D-Op optionally attaches to one-place predicates, producing a collective/ distributive ambiguity only for subject arguments, leaving other cases, such as these of complement argument ambiguities unaccounted for. Laserson (ibid:92) proposes that "using a Distributivity operator does not commit us to the idea that Distributivity involves nothing more than quantification over individuals, but is compatible with more complicated representations of Distributivity, for example, in terms of event mereology". The author proposes a Generalized Distributive Quantifier, on the model of generalized conjunction and disjunction operators (cf. Vergnaud & Zubizarreta 2005 for wh-phrases). In this sense, the Dist Op may also range over events, subject, object and prepositional arguments. I follow this idea and assume a Distributive operator of this capacity. In more detail, with regards to the particular variables it binds within the NP, the Distributive operator I assume ranges over the elements of the set (on the element or individual variables, see Chapter 4 for more details) as in Beghelli and Stowell (1997), Szabolcsi (1997), who originally propose this idea, and not over the context set variables of the determiner's restriction (cf. also Stanley & Szabó 2000, Szabolcsi 2010). The latter are bound by other operators, yielding corresponding different readings for these expressions.

Each and *every* NPs are not however, the only distributive expressions there can be. B&S introduce the notion of pseudodistributivity for cases when we have a distributive reading without the presence of any Distributive Quantifier (*each*, *every*). More specifically, they claim that Distributivity comes in two flavors: it may ensue as a result of the presence of an overt Distributive operator (situated at the Head of DQP)

signaled by the presence of *every* or *each* or by the presence of a covert Distributive operator, a covert counterpart to floated *each* (cf. Beghelli 1997: 365 *silent each*) involved in the distributive readings of other expressions, such as indefinite plurals; the latter is an instance of ‘pseudodistributivity’ in their terms. So pseudodistributivity is supposed to apply to cases when we do not have an overt Dist determiner / operator.

Szabolcsi (2010) illustrates a pseudodistributive reading with the following example⁶ (ibid:111):

(14) Two men lifted three chairs.

The sentence in (14) may have three interpretations. The first two involve collective readings for the subject and object DPs, cited here for matters of congruence. The third reading is a (total) distributive reading of the plural indefinite subject and object phrases and the one exemplifying pseudodistributivity. Let us take a look at these different interpretations one by one. In the first one, both subject and object are interpreted collectively (as one thing): Two men simultaneously lifted a stack of three chairs together, in one lifting event. We have a group of men lifting a “group” of chairs. In the second one only the object *three chairs* is interpreted collectively: each man lifted three chairs (three chairs each) in a stack; so we have two separate events, one per man. In the third, (total) distributive reading each individual man lifted the chairs one by one, in three different events; so we have six separate events, three per man: both subject and object are interpreted distributively. The members of the set of *men* and *chairs* referred to are individuated (cf. Tunstall 1998 and more discussion in Chapter 3).

Apart from the plurality of the object nominal expression (e.g. as in *three chairs*), pseudodistributivity seems to also be related to the lexical semantics of the predicate, binding particular argument slots. Sentences that combine *every* NPs with non-distributive predicates are not grammatical, such as (15):

(15) *Every student is numerous.

(16) Every student is heavy.

⁶ The analysis of the example given here is mine and departs to some extent from Szabolcsi’s.

The particular lexical meaning of the predicate *be numerous* (its lexical aspect) poses limitations to the potential distributive (or not distributive) readings. For example, *be tall* is distributive, *be numerous* is collective, *be heavy* can be either (cf. Szabolcsi 2010:113).

Distributivity is also viewed as underlying collective readings. B&S (1997: 87, their 14) analyze the collective and distributive readings of ordinary sentences like (17) as follows:

(17) John and Bill visited Mary.

On the distributive reading, John and Bill are the agents of two distinct events involving visits to Mary; on the collective reading, John and Bill act together as joint agents of one and only visiting event. Assuming that there is a covert existential quantifier over events as in Davidson (1967), which reading will actually come up depends on which operator, the distributive operator over the elements of the set or the existential operator over events, scopes over the other. If the covert existential quantifier takes broad scope, we have the collective reading. If the distributive operator takes broad scope, the distributive reading comes up. Considering that B&S place the existential quantifier either in their Head of the Referential Projection, the highest projection of CP (Ref0), or in the dedicated Distributed Share projection they propose, Share0, according to the two authors collectivity and distributivity are distinguished by scope alone.

B&S's 'pseudodistributivity' crucially involves the presence of a covert Dist sentential operator, at the C domain, (dC). In particular, with regards to *every* and *kathe* NPs the case of pseudodistributivity is a real challenge against the common assumption that distributive scope equals universal quantification. Summing up, the above discussion shows that Distributivity is not confined to sentences with *each* and *every* nor to universal readings. Plural (in)definites can also obtain a distributive reading without exhibiting a universal interpretation. This phenomenon is termed as "pseudodistributivity". Note, however, that B&S also attribute the characteristic of non-obligatory Distributivity, a notion close to what they propose as pseudodistributivity, to *every*, without nonetheless questioning its DQP status. Furthermore, *every* NPs, as we saw above, and *(o)kathe* NPs, as we are about to show, exhibit non-universal readings, so they cannot be inherently universal. Distributive

readings that are not universal and distributive readings without a distributive semantic determiner (“pseudodistributivity”) call for a reexamination of the assumption that Distributivity and Universality constitute the same thing. The present thesis actually argues that *every* / *kathe* NPs Distributivity in English and Greek is overall subsumed to B&S’ ‘pseudodistributivity’ in that respect, as there is no overt sentential Distributive (Dist) (or Universal) operator as such in these languages. *Every* and *kathe* do not lexicalize the Distributive operator in their lexical semantics; they Agree with a covert Dist sentential operator. In this sense they are distributive but underspecified for Definiteness (cf. Chapter 4). English *each*, on the other hand, may be viewed as straightforwardly instantiating an overt distributive and Definiteness operator. More specifically, in this thesis I propose that *each* is specified as inherently distributive, as *every* in my definition is, but, contrary to *every*, it is also inherently definite, as it encompasses a Definiteness operator. In my view, this is what makes the difference between the two determiners.

Beghelli & Stowell (1997), together with Szabolcsi (1997, in the same volume) are the first in my knowledge to propose that strong quantification ensues as a result of the dependency between a covert operator and the QP that carries a feature that links it to that operator. We can say that the LF checking theory they propose for DQPs and (indirectly) for Wh-Ps and Negative QPs alike is in other words a claim for quantificational concord. Furthermore, B&S note that *every NPs* behave at times as indefinites (more or less as Group QPs in their terms, such as *a*, *some*, *several*, *all*, *the NPs*) in which case they can be positioned in a lower position, Spec, Share P in their hierarchy in (13). Despite all this, however, they hesitate to abandon the idea that *every NPs* are always universally quantified. Also, Kratzer (2005), in her discussion of German ambiguous indefinites, argues that all Quantifier Phrases (QPs) can be analyzed as plain indefinites that are bound by external operators, forming quantificational concord chains. According to her, Determiners may be regarded as void of quantificational force on themselves.

In the same spirit, Szabolcsi (2010) argues against the inherent universal character of determiners such as *every* and advocates a “unification”, as she calls it, between “universals” and (in)definites, parallel to the one between (non-universal) definites and indefinites by Heim (1982) and Kamp (1981). Szabolcsi (2010: 102-104) argues for a unification of universals and indefinites based on an analysis demonstrating that they essentially exhibit exactly the same scope behavior: the

distributive scope of universals and indefinites alike is clause bounded, while their existential scope can be free and wide. In other words, Distributivity is not a trait of “universals” alone and “universals” do not behave only as distributive-universals, but also as existentials. She derives the reading of “every dragon coughed”, in semi-formal (sic) terms⁷, as follows (ibid:190:2):

(18) Every dragon coughed.

<i>dragon'</i>	$f(Pow(dragon'))$
<i>every</i>	sends <i>every dragon</i> to Spec, Dist P
<i>Dist'</i>	$\lambda P \lambda Q \forall x [x \in P] [Q(x)]$
<i>Every dragon coughed'</i>	$\forall x [x \in f(Pow(dragon'))][cough'(x)]$

“The NP dragon denotes one element of the powerset⁸ of dragons that a contextually given choice function f selects... What the particular choice function is must be clearly contextually given: it is not enough for the existence of some choice function to be asserted or presupposed... This is what distinguishes “Every dragon coughed” from “Some dragons coughed”, although both sentences can be true when every element of a proper subset of all the world’s dragons coughed. The word *every* is not a universal quantifier; it merely signals that the set of dragons picked by f is going to be quantified over by a phrase-external universal quantifier...”

Szabolcsi then (ibid: 190) proposes that a *universal* quantifier occupies head Dist at LF, and that *every* NPs are moved in Spec, Dist P, adopting the schema from Beghelli and Stowell (1997). Importantly, she links this LF structuring to an equivalent syntactic positioning (ibid: 196). She parallels the structure she proposes to the dependencies formed between the Question feature on C and wh-phrases, as well as similar ones between Negation and Polarity Items and relevant Operators (ibid: 123 and 197, respectively). She also (ibid: 104) argues for the unification of the context dependence of indefinite interpretation as proposed in Kratzer (1998) for specific indefinites and the Quantifier Domain Restriction view in Stanley & Szabó (2000): the domain of Qs is always contextually restricted; this restriction is located in the NP and may contain a variable linked to another quantifier. In this thesis I argue that in the case of *kathe* and *every* NPs we definitely have these “contextual” variables and

⁷ According to the notation adopted in Szabolcsi (2010) the ' symbol designates “the denotation of”.

⁸ The powerset of a set with n number of members is 2^n .

that these “other quantifiers” that are linked to them may be either the Definiteness operator or the Generic operator in C, as well as a modal operator.

In this thesis, I adopt Szabolcsi’s (2010) theory, for the most part, offering extra empirical evidence from Modern Greek. As we just saw, Szabolcsi assumes Choice functions, so this last bit should be added to our theoretical artillery. Reinhart (1997, 2006) proposes that choice functions may be used to account for the free wide scope of indefinites (like *some*, *a*, *three* NPs). A choice function is a function that picks an element from a non-empty set⁹. The determiner *some* is viewed as instantiating the choice function in English; it is supposed to be placed in a Head D position. An existential closure is applied to the set it quantifies. Wide scope indefinite readings are the result of existential closure applied on a choice function variable, not on an individual variable of their restriction (NP). So a choice function closes off the NP and it is in turn closed off by existential closure (cf. Szabolcsi 2010: 103). Reinhart (2006) uses choice functions for the wide scope of indefinites but also retains Quantifier Raising (QR) for the inverse scope of universals. So she uses both tools in her system, retaining QR along with the choice functions she proposes. Note that QR was proposed in Chomsky (1977), May (1977, 1985) to explain the ambiguity of pairs of subject-object QPs, more specifically, how some objects take the subjects in their scope not in the syntax but at LF. QR, like Distributivity, is not island free but restricted to its tensed clause.

The present thesis adopts the “indefinite”, quantificational concord view on quantification and in particular Szabolcsi’s (2010) analysis for the most part. I endorse her view that Distributivity is distinct from “universality”, from a universal interpretation; in other words, I argue that (any kind of¹⁰) Distributivity does not constitute universal quantification, at least not on its own right. Departing from Szabolcsi (2010), I furthermore argue that (*kathe* and most probably *every* NP) universal quantification does not result from the presence of a universal operator in syntax. In fact, I argue that there is no external (sentential) or internal (embedded in the lexical semantics of the *kathe* determiner) universal operator in syntax as such. I

⁹ This is may be the reason why Choice Functions are combined with an Existential closure as we will see later on.

¹⁰ Cf. Tunstall’s (1998) “total Distributivity” vs. “partial Distributivity” for *each* and *every* respectively, extensively discussed in Chapter 3. According to the proposal of the present thesis, a universal reading is comprised of two different parts: “total Distributivity” between nominal and verbal predicates plus a contextual restriction by a Definiteness operator. So the universal reading is viewed as syntactically derivable.

argue instead that an external, i.e. sentential, Definiteness operator, in combination with the Distributive operator, are responsible for the universal reading of *(o) kathe* and probably also for *every* “totally distributive” phrases. I also propose that Distributivity is lexically encoded as a feature in *kathe*, *every* and *each*. For *kathe* and *every* NPs, an extra external operator is needed in order to quantify the context set variable of the NP that Szabolcsi (2010) proposes. Three different operators are the candidates for binding this context variable *c*, yielding three different types of interpretations. *Each*, on the other hand, is viewed as encompassing both a Distributive and a Definiteness operator in its lexical semantics, so its context set variable is not subject to binding by an external operator. Thus the constant distributive and definite, referential interpretation of *each* NPs.

So, in the case of a distributive “universal” reading of *(o) kathe* NPs the sentential operator binding the context set variable of the phrase is a Definiteness (Maximality or *i-*) operator as in Giannakidou & Cheng (2006). There’s a plethora of data that indicate that *(o) kathe* NPs and, to some extent *every* NPs as well, have existential and generic interpretations. It will become evident that other operators, apart from the Definite operator (rendering the universal reading) bind *(o) kathe* and *every* NPs. All this does not mean that the Universal operator is not a useful tool for logic or semantics, as it indeed abbreviates the same quantificational result, in a compound manner. It does not, however, serve the purpose of accounting for the syntactic behavior of *(o) kathe* / *every* NPs. It serves well as a brief term of a particular interpretation and for reasons of brevity throughout this dissertation I will continue to refer to the (total) distributive, definite, strong interpretation of *every* and *(o)kathe* NPs as a universal (distributive) reading. What is interesting and novel in Szabolcsi’s (2010) explanation adopted here as well as in Beghelli and Stowell’s (1997) theory is the syntactic dimension indirectly (through LF) attributed to the phenomenon of Distributivity and Universal Quantification. This is the side of the issue that gathers our attention in this thesis; I exploit the above semantic assumptions only as essential background to this end.

At this point, let us summarize the different readings of *every* NPs observed previously in the literature. The sentences that follow exemplify the different interpretations this expression gives rise to:

- (19) Every cat has four legs.

- (20) Everybody knows everything.
 (21) Every man has the same rights before law.
 (22) For the most part, John knows which book every student bought.
 (23) I pay a visit to grandma every now and then.

The examples above indicate that *every* NPs display an underestimated Generic reading as in (19), also observed by B&S as we saw before in a similar example in (12). In the above examples it is also obvious that the universal reading, which should refer to some specific group of cats present in the discourse, is totally different to the Generic reading (with no specific cats in the discourse) (19) yields. In the universal reading, the sentence is false if a single cat is found to have legs of any number other than four. In the generic reading, on the other hand, the sentence would not be false (or true) in this case. What applies to (19) also goes for (20), which may have a universal (definite and contextually grounded) reading in the appropriate context, but which is more readily understood as a generic statement if uttered out-of-the-blue. (21) has again a clearly generic reading with a kind interpretation for the *every* NP. Last but not least, here we repeat (8) as (22) (from B&S 1997: 101:41) in which the *every* NP seems to exhibit quantificational variability usually attributed to indefinites rather than universals. It is interpreted like *most*, not *all* or *each*. Ultimately, *every* may also “modify” locative or temporal adverbs giving a reading of “randomness” as in the idiom in (23).

Let us now turn to the focus of our survey, *kathe* NPs and the different readings they give rise to. The Modern Greek *kathe* NP data are more generous in number and clarity of different readings.

- (24) *Kathe mathitis* pire tria vivlia. *Universal*
 every student took.3sg three books.
 “Every student took three books.”
- (25) *Kathe ghata* exi tesera podhia. *Kind*
 every cat has.3sg four feet
 “Every cat has four feet.”
- (26) *Kathe xoreftis* evghaze ta paputsia tu prin bi mesa. *Kind*
 every dancer took.3sg the shoes his before get. 3sg. in
 “Every dancer took his shoes off before he came in.”

- (27) *Kathe etisi* tha meletithi dhieksodhika. *Free Choice any / Universal reading*
 every petition will be-studied.3sg thoroughly
 “Any / every petition will be thoroughly examined.”

As observed from the translations, *kathe* NPs in Modern Greek may render three different readings. A universal distributive one (24): this reading is more readily produced if the D is focused or emphatically pronounced. The second reading is a kind reading (25). We also have a kind reading with the habitual sentence in (26). In the last sentence (27) the expression may be read as a Free Choice (henceforth, FC) *any* NP and as a universal distributive, especially if there is a special emphatic stress on D.

A similar situation is attested with *o kathe* (commonly translated as *each*) modulo a few interesting differences.

- (28) *O kathe mathitis* pire tria vivlia. *Universal*
 the every student took.3sg three books.
 “Each student took three books.”
- (29) *I kathe ghata* exi tessera podia. **Kind / Universal*
 the every cat has.3sg four feet
 “Each cat has four feet.”
- (30) *O kathe xoreftis* evghaze ta paputsia tu prin bi mesa. *Universal only*
 the every dancer took.3sg the shoes his before get. 3sg. in
 “Each dancer took his shoes off before he came in.”
- (31) *I kathe etisi* tha meletithi dhieksodhika. *FC any / Universal reading*
 every petition will be-studied.3sg thoroughly
 “Any / each petition will be thoroughly examined.”
- (32) *Stin eurovision bori na traghudisi o kathe asxetos. FCI indiscriminative reading only.*
 at the eurovision can.3sg sing.3sg the every irrelevant
 “Just any amateur can sing at the eurovision (contest).”

As we can see from the above examples, *o kathe* (*the every*) NP receives three different readings as well: A strong distributive universal one as *each* (especially when “stressed”), an FC *any* one (especially when not stressed) plus an extra

Indiscriminative FC one (Horn 2000) its determiner-less counterpart does not have. *O kathe* NPs, on the other hand, do not exhibit the kind reading plain *kathe* NPs exhibit.

The adverbial uses of *kathe* NPs also exhibit an existential meaning:

- (33) *Kathe mera / kathe xrono / kathe tris meres* mu eferne mia freskia pita.
 every day/ year / ? three days to-me brought.3sg one fresh pie.
 “Every day / year / three days he brought me one fresh pie.”

In the above sentences, the interpretation of the phrase in question is distributive, but it seems to be existential rather than universal. The above uses cannot correspond to an “always” reading as in “he always brought me a fresh pie.” The rest of this thesis is dedicated to unraveling the mechanism that underlies the variety of interpretations (*o*) *kathe* NPs attest.

Let us now address one final issue, the relation between the interpretation of the *kathe* NP and the type of noun embedded in it. Abstract nouns are non-specific by definition. In the theory proposed here, they should fit better a kind or an FC interpretation of the (*o*) *kathe* NP. Let us see a few examples with abstract nouns in a subject position, with verbs in passive voice (34) and copular verbs (36):

- (34) *Kathe anamiksi* sta esoterika tis xoras theorite afthereti. *FC or Kind*
 any intervention in the internals of the country.Gen is considered.3sg arbitrary.
 “Every / any intervention in the internal affairs of the country is considered arbitrary.”
- (35) *Kathe ilikia* exi ta kala tis. *Kind*
 every age has the good hers
 “Every age has its own virtues.”
- (36) *Kathe eleftheria* ine kali. *FC, Kind*
 every freedom is good
 “Any / every (type of) freedom is good.”

As we observe from the data above, the non-universal uses seem better with an abstract noun. The same is observed when the expression occupies an object position:

- (37) I pedhia anadhiknii *kathe talento* / *to opjo talento*. *FC, Kind*

the education bring.3sg off every talent

“Education brings off every / any talent.”

- (38) To forema afto tonizi *kathe atelia / tin opja atelia*. FC, Kind

the dress this accentuate.3sg every imperfection

“This dress accentuates every / any imperfection.”

- (39) Pera apo *kathe prosdhokia*, me *kathe ilikrinia*, se *kathe efkeria*. FC, Kind

beyond every expectation, with every sincerity, in every occasion

“Beyond every expectation, with every sincerity, on every occasion.”

In the above sentences the object QPs receive a kind and a FC interpretation, equivalent to *o opjos* NP FC definite. Note that in all these sentences the nouns are abstract. In (39) the readings are “any existing imperfections” (FC) and “any kind of imperfections”. The universal reading is not (at least readily) attainable. We observe that the similarity to the FC *o opjos* is very interesting as its reading is equivalent to “which ever happens to exist”, an expression that does not presuppose existence for the entity denoted by the QP, despite the fact that it has the definite *o* determiner. This can be viewed as further indication for my argument that FC indiscriminative *o kathe* is not referential / presuppositional, despite the presence of “definite” *o*. Proper Greek FCIs (e.g. *o opjiosdhipote*, *o opjos*) seem to exhibit the same lack of Definiteness-presuppositionality, despite the “definite” *o*. The discussion in Chapter 4 will show that *o* NPs (*the* NPs) in Greek are also themselves ambiguous between a definite-proper and a Kind interpretation. The preference for an FC reading with abstract nouns is even more obvious in the adverbial uses as in (39) in which the FC reading of the expression is more common, as we will see again in Chapter 2.

1.4 Overview

The remainder of this thesis is structured as follows. In Chapter 2 we examine syntactic data and the internal syntactic structure of the (*o*) *kathe* phrases and draw the first conclusions about the categorial nature of the expression, as well as the distribution of the expression and the differences between *kathe* NPs and *o kathe* NPs. I also present the syntactic structure of the *kathe* and *o kathe* nominal phrases, according to the data reviewed. In Chapter 3 we examine the semantics of these expressions and relevant data more thoroughly, again concentrating on the conditions in the nominal phrase and the *kathe* – *o kathe* distinction. I present the semantic

specifics of my analysis, the proposed structure and how the Dist operator binds the element variables of the NP. In Chapter 4 we examine both the distribution and the interpretation of the two phrases with respect to the vP and the whole sentence, and present the syntactic mechanism that regulates the phenomena of different readings. Parameters such as Aspect, the presence of an overt Distributive Share as well as other factors are examined. The role of the sentential Definiteness operator, binding context set variables of the NP is also discussed. I present the syntactic structures of the different readings the *(o) kathe* expressions and an account of how Agree works between clause typing sentential operators and Q / Asp. In Chapter 5 I draw a parallelism between expressions equivalent to *every* in Chinese and Japanese, as well as other phenomena in Modern Greek that manifest similarities with the *(o) kathe* expressions' quantificational concord proposed in this thesis. Finally, in Chapter 6 I conclude the discussion.

Chapter 2: *Every* syntax

2.1 *DP structure and the position of quantifiers*

This Chapter addresses basic questions about the categorial status and the nature of *kathe*, so we examine the syntactic distribution of (*o*) *kathe* elements mostly within the boundaries of the nominal phrase; we then propose a syntactic structure for the phrase in question. The primary focus of this chapter is the distinction between *o kathe* NP and *kathe* NP. The Chapter is organized as follows. Section 2.1 introduces some background assumptions about the structure of Determiner Phrases (DPs) and the position of quantifiers within it. Sections 2.2-2.4 provide the analyses that have been put forward with respect to the Modern Greek DP in general and (*o*) *kathe* NPs in particular. It is next argued that *kathe* is a Quantifier Phrase (QP) and that *o kathe* is formed by left adjunction of *o* to *kathe*. The order and position of the element in question within the nominal phrase, in relation to relative clauses, demonstratives, adjectives and clitic doubling are also considered. In the final section I summarize the discussion and propose a syntactic structure for (*o*) *kathe* NPs.

The expressions under consideration are *kathe* and *o, i, to kathe* plus nominal phrase, which are roughly equivalent to English *every* and *each* respectively (but also to a kind, *any* and *just any* readings). *Kathe* is commonly assumed to be a distributive determiner. It does not decline for case (or number), a rather uncommon property for Greek nominal determiners. In *o, i, to kathe*, on the other hand, again only the definite article *o, i, to* is normally inflected. Both expressions are commonly regarded as denoting universal quantification. In more traditional grammars related expressions *katheis*, *kathemia*, *kathena* and *katheti* are regarded as universal pronouns, optionally preceded by the definite article *o, i, to* (*masculine, feminine, neutral*) (Holton et al. 1997: 311). The paradigms of the *kathe* family are illustrated below (NOM=nominative, GEN=genitive):

- (1) a. *Kathe*: uninflected, followed by a noun or a nominal phrase.

- b. *O, i, to kathe*: only the definite article (*o, i, to*) is differentiated for gender and normally inflected for case.
- c. *i kathemia / tis kathemias / *i kathemies*
the.Fem.NOM everyone.Fem.NOM /
the.Fem.GEN everyone.Fem.GEN

As said, the *kathe* element is, paradoxically for Greek, indeclinable whereas the pronoun part in *kathenas*, *kathemia*, *kathena* inflects for case, gender but not number. Note that these pronouns may be viewed as the flip side of *o kathe*; they indicate canonical morphological adjunction, while *o kathe* is a rare specimen of the latter, as I argue later on. *Kathenas* is morphologically complex: it is comprised by *kathe* and the indefinite pronoun *enas*, *mia*, *ena* meaning *one* (*masculine, feminine, neutral*). It is usually preceded by *o*. *O kathenas* may be viewed as an equivalent to *each one*. When (*o*) *kathenas* indicates each one of a particular group it may be followed either by *apo* + N, e.g. *o kathenas apo tus stratiotes*, *each of the soldiers*, or by a genitive plural form of the weak pronoun - clitic *mas*, *sas*, *tus* (*of our, of yours, of theirs*) to specify the person (Holton et al 1997: 313).

The pronouns *o kathenas*, *i kathemia*, *to kathena* are only examined occasionally in this thesis. We should, however, note that we expect to find some differences between the *kathe*-determiner and the pronoun, not only in the syntactic field, but also in the semantics since, as also noted by Szabolcsi (2010: 121) “*every* DP is different to *everyone*, which gives rise to collective readings”.

Another related item is (*to*) *katheti* which may be found in a predicate position, unlike what is expected from universally quantified, strong nominal expressions:

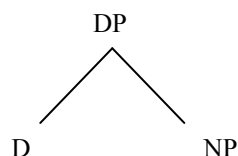
- (2) a. *Ise to katheti *(pu onireftika).*
be.2sg the everything that dreamed.1sg
“You are everything I dreamed of.”
- b. **He bought any book.*
- c. *He bought any book he could find.*

The (2a) example is a further indication of non-universal uses, like the ones we saw in the previous chapter. Note that the relative clause (or some other modification) is necessary for the grammaticality of the sentence. In English, as examples (2b) and (2c)

illustrate, Free Choice Item phrases such as *any book* (cf. discussion in Chapter 3, section 3.3), when modified by a relative clause obtain a universal-like reading and the grammaticality of the sentence is restored (cf. also “William’s puzzle” in Zamparelli 2000:37). This has been called *subtriggering* by Le Grand (1975). We will leave these considerations aside for the time being (cf. Chapter 3 for more discussion on subtriggering) and return to the core issue here, the syntactic distribution of *kathe* within the nominal expression.

The syntactic status of quantifiers and their position inside the DP is a debatable issue. In order to provide an account, I will first present some analysis regarding DP structure and quantifiers. The syntax and the semantics of the DP are tightly interwoven, under the desideratum of compositionality (cf. Partee 1997 for a discussion on the topic) and current theory; for reasons of illustration, however, I examine them separately. Abney (1987), Horrocks & Stavrou (1987) and Szabolcsi (1997) were the first ones to argue that nominal phrases are projected within a Determiner Phrase, (DPs) as in the schema that follows:

(3)



In (3) above the NP is the complement of D. Among the merits of postulating a head D is that it provides a straightforward account for Scandinavian, Romanian and Albanian affixal articles, in which the article is like a suffix to the noun. Given the structure in (3), the N-D order arises through movement of N to D (left-adjunction; the example from Swedish below illustrates affixal articles, from Julien 2002: 268:9):

- (4) de röda bil-ar-na
 the red car-PL-the
 “the red cars”

The structure in (3) captures the insight that D converts the nominal expression into a referential phrase that consequently can be used as an argument (see Longobardi 1994, and other subsequent work). In this sense D does for the nominal expression what C does for the clause¹¹.

The DP-structure in (3) has been subject to various modifications which have added more functional projections as part of the DP. These functional projections are regarded as hosting a number of different features (cf. among others Ritter (1991) for Number P or NumP, Zamparelli (2000) for various layers). The D head itself has been argued to act as a locus of referentiality (as in e.g. Longobardi 1994) or as a head lexically specified for the feature [+ demonstrative] and not necessarily for the feature [+definite] (Lyons 1999). According to the latter, the [+definite] feature is acquired structurally once a lexical item is in D or Spec, DP. Demonstratives are crosslinguistically observed to precede the noun (cf. Greenberg's 1963 "Universal 20" and the discussion that follows shortly in this Chapter). However, they are also thought to occur (or at least, to be base-generated) in a position lower than the definite article, according to Brugè (1996), Lyons (1999), Giusti (2001), among many others; for this position in Modern Greek in particular see Panagiotidis (2000), Manolessou (2000), Panagiotidis and Grohmann (2004) and Alexiadou, Haegeman & Stavrou (2007). The following examples illustrate this:

- (5) to pedhi afto
the child this
"this child"
- (6) l'enfant celui-ci
the child this
"this child"

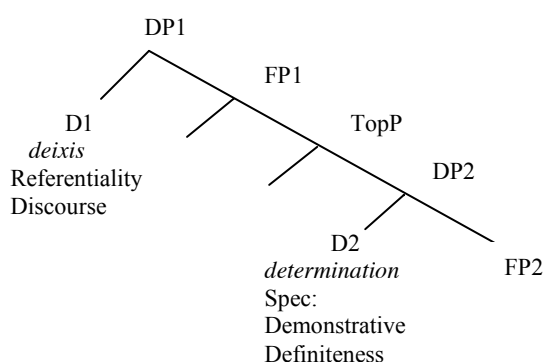
The Greek and French examples above are indicative of the low position of demonstratives, following the Noun. Note, however, that in Greek the demonstrative may also appear before the noun, in which case it has been argued to have a deictic interpretation, while in a postnominal position it gives rise to an anaphoric reading (Manolessou 2000).

¹¹ Cf. Szabolsci (1994), Alexiadou (2001), Giusti (2002), Brugè (2002) and Alexiadou, Haegeman & Stavrou (2007).

There are many different proposals regarding the internal structure of the DP and the projections encapsulated in it. We only illustrate a few more relevant here, in order to show the diversity of the different proposals based on a diversified empirical database. For reasons that will become apparent shortly, we particularly focus on two analyses that propose a two-D structure, namely, Alexiadou, Haegeman & Stavrou (2007) and Szabolcsi (2010).

Alexiadou, Haegeman & Stavrou (2007:127-156) (henceforth, AHS) propose a split DP structure, in analogy to the split Complementizer Phrase (CP) structure proposed by Rizzi (1999). They clarify that their account is tentative, motivated by the wish to derive post-nominal demonstrative positions without N-movement (*ibid*: 127). They present two structures, which I display here with minor adjustments as a general reference for DP structure and our ensuing discussion. In the first one (*ibid*: 128 their 94 b) presented here as (7), the authors present us with a general structure that mirrors Rizzi's (1997) articulated Complementizer Phrase (CP) hypothesis (cf. also Cinque 1999 for a TP hierarchy, as well as Cinque & Rizzi 2008). This rich internal DP structure consists of a DP1, encoding deixis, referentiality, discourse-pragmatic aspects, immediately followed by a Functional Projection (FP), which embeds DP2, expressing determination, (in)Definiteness. In the spirit of Bernstein (1997), Giusti (2002) and Brugè (2002), the authors assume that the demonstrative is generated as the specifier of DP2, adding a TopicP between FP1 and DP2 (*ibid*:128):

(7)



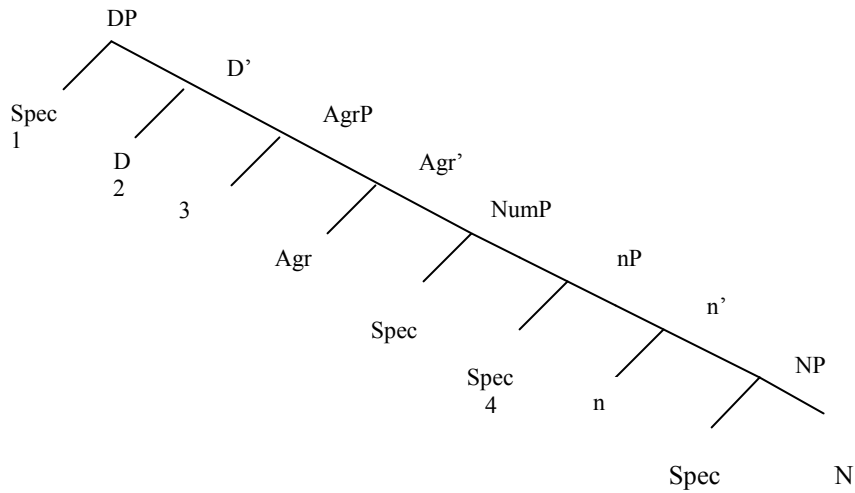
With respect to (7), two points are worth mentioning: First, there is no special provision for a Quantifier Phrase (QP), and second, the DP structure is assimilated to

that of the CP. We will focus on the first point, in relation to *every* NP / *kathe* NP expression. Interestingly, the lower (in)Definiteness position is paralleled to Rizzi's (1997) Finiteness (Fin) in the C domain as "finiteness 'delimits/anchors' the event in time, (in)Definiteness 'delimits/anchors' nominal reference in space" (Haegeman 2004:235, in AHS:2007:128:fn60). Preempting coming discussion, let us note here that this structure strongly resembles Szabolci's (2010) proposal we adopt (presented in more detail shortly). Also, "space and time anchoring", suggested above, is translated in the theory invoked here as binding of the context set¹² and time variables of the expression by a propositional operator, as we will see in detail in Chapter 4.

The position of possessives in the DP is another point of interest for the internal stratification of the phrase. The co-occurrence of possessives with *every*, as in *John's every wish* is one of the indications that lead Abney (1987: 272) towards the proposal that possessors occupy Spec, DP. AHS abide to this idea. The second more detailed structure that AHS discuss (ibid: 575, their 50), is mainly with regards to possessives. It again avoids giving a position for a QP. I present it here, however, as a point of reference for our discussion of Modern Greek *kathe* NP data, as it will be useful in helping us detect the position of *kathe* in phrases like "to *kathe* mu spiti" (*the every my house*, "each of my houses"). Their structure holds as shown in (8a). In (8b, c) I present some Greek phrases involving postnominal and prenominal possessives, as well as *kathe*, in order to provide a first taste of the positioning of each element in the (8a) structure:

¹² Also referred to as *domain variables* in the literature.

(8) a.



b. *tu Jiani to spiti, afto to spiti, afto to spiti tu Jiani, *tu Jiani afto to spiti*
 the.Gen the house, this the house, this the house the.Gen John, *the.Gen this
 the house

“John’s house, this house, this house of John’s.”

c. *(*tu Jiani) kathe (*tu Jiani) spiti tu Jiani, kathe tu spiti*
*(*the.Gen John) every (*the.Gen John) house, every the.Gen house*
 “Every house of John’s, every house of his.”

In (8a), AHS propose a structure for possessives, assuming that N moves to Num. Following their notation, Spec 1 is occupied by “*John’s (book)*”. D2 is occupied by French “*son (livre)*”, 3 by weak Italian pronoun possessives. Interestingly for our discussion, Spec, nP (position 4) is occupied by postnominal genitive DPs as Greek “*tu Jiani*” in the “*to spiti tu Jiani*” (“*the house of John*”), with the N having moved to Num. If we assume this schema, prenominal possessive in Greek should occupy Spec, DP (Position 1). Higher Demonstratives should occupy the same position, since the two phrases are mutually excluded, as the example in (8b) shows: *tu Jiani to spiti, afto to spiti, afto to spiti tu Jiani, *tu Jiani afto to spiti*. However, (8c) shows that *(*tu Jiani) kathe (*tu Jiani) spiti tu Jiani* that “higher” possessives are not compatible

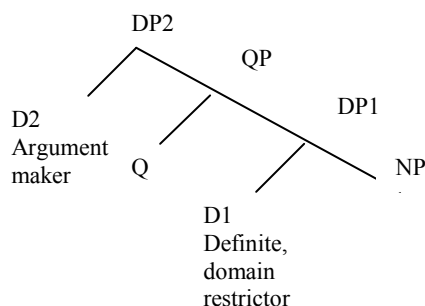
with *kathe*. This can be viewed as an indication that *kathe* does not select a referential DP but an NP, in other words, that it occupies a position below the DP as presented here, and above nP. An explicit analysis on this follows shortly. The ensuing discussion also clarifies the specific position of *kathe* within (8a).

The distinction between DP1 and DP2, as proposed by AHS and cited here as (7) does not seem to be obeyed in their proposed (8a). The two structures seem to be proposed by the authors independently in order to accommodate different data and aspects of the nominal phrase. One does not exclude the other. It seems that our *kathe* should be hosted above the position hosting the (lower) possessive in the schema above. In the forthcoming discussion, we assume (8a) as a reference for the internal structure of the Greek DP that is below the projections Q and DP1 that are the focus of our examination.

And we have finally reached the question of where Quantifiers are hosted within the DP structure. Preempting a more detailed discussion that follows promptly, let us have a quick overview of some relative proposals at this point. Abney (1987) places Quantifiers in the same position as Determiners, i.e. in D. However, as we saw, the position of *every* (as in *John's every wish*, parallel to *John's many wishes*, where *many* is a quantitative adjective) is viewed as a challenge (ibid:272). Despite the fact that most grammarians view DP as the top projection of the nominal phrase (eg. Longobardi 1994, AHS, among many others), many researchers lately view QP as the top projection. Roberts & Roussou (2003), following Cardinaletti & Starke (1999), but also Giannakidou (2004) and Giannakidou & Etxeberria (2010) assume a dedicated position for Quantifier Phrases above DP. In short, it seems that the exact position of quantificational elements in the structure creates implications with regards to the nominal phrase as headed by D.

Szabolcsi proposes a double D structure (2010: 197, her 19), resembling the AHS' structure we saw in (7) that in my opinion tackles this problem most efficiently. Putting together evidence from many different languages such as Hungarian and Lilloet Salish, she proposes a structure that reconciles the two converse intuitions, namely that we may have Quantifiers before and after D, by proposing a double D structure, with the Quantifier Phrase (QP) occupying the position in the middle:

(9)



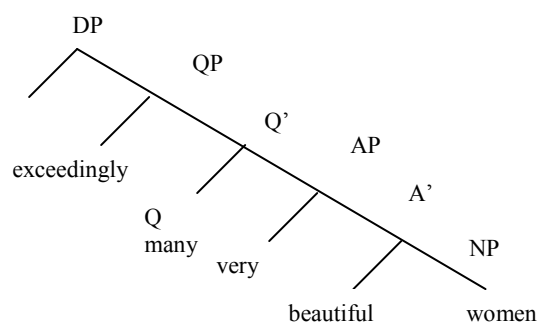
Based on Szabolcsi (1994), Matthewson (2001), Giannakidou (2004) and Cheng (2008), she proposes two positions for determiners: D2 (argument maker) above Q and D1 (definite, domain restrictor), right below Q, in order to account both for Lillooet Salish (where two definite markers *i...a* surround Q) and Hungarian data (where *az*, the definite article-subordinator, precedes Qs such as *minden*, *every*, example from *ibid*: 196:16):

- (10) az en minden / legtobb / ezen szavam
 the I-nom every/ most/ this word.poss.1sg
 ‘every/most/this word(s) of mine’

Our discussion assumes (9) above. This is the reason why it is given precedence in the presentation. But let us here take the discussion about Quantifier Phrases from the start. Lexical items such as *every*, the English equivalent of Greek *kathe*, but also *all*, *many*, *some* are known in the standard literature as quantifying words, quantifiers (Qs), strong or weak determiners (Dets, Ds). The semantic differences between strong and weak determiners are important; syntactic accounts reflect this differentiation with great diversity. There is no consensus in the literature on what exactly the syntax of Q words is and where the QP is situated in relation to the DP (if it is projected at all in the first place). QP has been argued to occur both “higher” and “lower” than the DP. Let us explore the literature on the issue in little more detail.

Abney (1987: 339) situates a QP (which comprises weak quantifiers, numerals and quantitative adjectives and not what we call strong quantifiers) right below DP:

- (11) [DP[QP exceedingly Q many [AP very A beautiful [NP women]]]]



He places determiners in D, i.e., in a head position. According to him *every* occupies the same position as D (despite the fact that he is temporally tempted to view it as a quantitative adjective *ibid*: 272) and words such as *someone* and *everyone* are tokens of the Determiner position being a head, as he takes this morphological merger to be made possible by head-movement (*ibid*: 286) (as we say today, N-to-D movement).

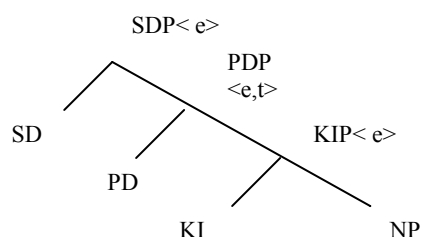
Interestingly, as we will analyze in the coming Chapters in more detail, this is close to what Giannakidou (2004) and Etxeberria & Giannakidou (2010) propose for *o kathe*. They propose something that later on I will describe as D1-to-Q left adjunction (in Szabolcsi's 2010 use of D1). Note that, in Etxeberria & Giannakidou (2010) own words, "adjunction is morphological-like" in the theory they propose. I will adopt a similar explanation for *o kathe*. What is interesting here is that, according to Abney, strong Qs and Ds occupy the same head. This early insight may reflect the difficulty to tell if we need two distinct projections for these elements; if we do, the question is which category should be higher than the other. It also hints at the different syntactic position that strong and weak determiners and quantifying words may eventually occupy in the structure, as has been suggested by many ever since. The present analysis of *o kathe* in Chapter 4, largely following Giannakidou (2004) and Etxeberria & Giannakidou (2010), in a way constitutes a return to this primary observation.

Sportiche (1988) is the first to propose that a quantifier is external to the noun phrase, adjoined to NP. Giusti (1990), Cardinaletti and Giusti (1992), among others,

depart from Abney's proposal and argue for separate D and Q heads with Q being situated higher than D. Also for Shlonsky (1991) (e.g. *eux tous*: pronominal DP *eux* is situated in Spec, QP), QPs are situated higher than the DP. Just to name a few more, Cardinaletti and Starke (1999) also propose that QP is a functional layer above DP and that it has the properties of C. Roberts and Roussou (2003:167) assume the aforementioned work and analyse QP as a functional projection, encoding operator properties.

Zamparelli (2000) tries to grasp the differentiation between strong and weak determiners (Milsark 1977, Barwise and Cooper 1981 and discussion in Chapters 1 and 3), by positing different layers in which determiners are inserted, according to their quantificational "strength". SD (strong determiner) is the position where strong quantifiers, (*both*, *most*, *every*, and *each*), demonstratives and the definite article, are inserted. They amount to type *entity*, $\langle e \rangle$. We will see what this exactly means in the next chapter. In the PD (predicative determiner) position, on the other hand, the indefinite article *a* and weak quantifiers such as cardinals and vague numerals are inserted; these denote properties and are of type $\langle e, t \rangle$ (recall that *t* stands for *truth value*, more in the next Chapter). KI (Kind) is the projection that denotes the kind in the semantic interpretation (Carlson 1977) and again it is of type $\langle e \rangle$. Thus in Zamparelli's account, the stronger the D, the higher it is situated in the structure. He treats at least some of the quantifiers as a special type of adjective, in this sense co-aligning with Abney's (1987) syntactic view that we saw before and Milsark's (1974) insight that strong quantifiers are determiners, while weak ones are modifiers; see also Cardinaletti and Giusti (2006:50) and their QP and AP hypotheses which partially use and partially contend this view. The basic structure he proposes looks as follows (Zamparelli 2000: 15: 25):

(12)



Matthewson (2001), examining Lillooet Salish, claims that quantifier words must combine with an argumental DP: a nominal surrounded by “*i . . . a*” and that the distribution and interpretation of *all* NP and *most* NP matches that of bare plurals on the generic reading, in line with Brisson (1998) and others. Interestingly, she only excludes *every* from this. The example is from Matthewson (2001: 146: 2a):

- (13) *tákem* [i smelhmúlhats-a]
 all [DET.PL woman(PL)-DET]
 “all the women”

While many researchers lately argue for a QP > DP order, the opposite DP > QP order is also invoked. Julien (2002: 267) assumes a structure similar to Abney’s, where CardP (Cardinal phrase) and AgrP (Agreement phrase) roughly correspond to Abney’s QP and AP:

- (14) [DP D [CardP (QP) Card (Q) [AgrP Agr [NumP Num [NP N]]]]]

As we have already mentioned, NumP is a category proposed by Ritter (1991) and broadly adopted in the literature ever since. Roehrs (2006: 26) assumes Julien (2002) for Germanic and proposes a similar structure, with the addition of the category art for Article and its projection artP:

- (15) [DP D [CardP Card [AgrP Agr [artP art [NumP Num [nP n [NP N]]]]]]]

Roehrs claims that all determiners (articles, definite and indefinite determiners, demonstratives) are base generated at Art and they may subsequently move to D (head to head movement), especially if they are to receive a strong reading. We could assume that CardP in his structure corresponds to QP, whereas artP and DP roughly to Szabolcsi’s DP1 and DP2, respectively. His explanation is tailored to fit Scandinavian pre-nominal and postnominal definite determiners, which in some cases co-occur in the same sentence (e.g. example 2). ArtP also hosts the “lower” position of demonstratives. It seems that researchers focusing on Scandinavian data opt for a DP over QP account.

Zamparelli (2000) also discusses universal quantifiers in Italian and proposes that *tutti*, and supposedly also *both* and *half*, are external to the noun phrase structure and adjoined as a constituent to StrongDP (SDP), parallel to what has been proposed by Sportiche (1988). This proposal is also present in Brisson (1998), who proposes that *all* and *both* are not quantifiers but modifiers, adjoined to the left of the DP. According to her, *all* and *both* are modifiers that place a boundary on otherwise contextually available interpretations with definite plurals. As we will see in Chapter 4, this is the explanation that I propose for *oli i* NPs. She also puts forth the idea (Brisson, 1998: 33) that “Distributivity is an optional D operator and a property of the verb phrase”. As we saw in Chapter 1, similar ideas are expressed by Szabolcsi (2010) and Beghelli and Stowell (1997) mainly for pseudodistributivity, as well as in Lasnik (1998). The present discussion largely follows these ideas, as we will see in Chapter 4 in more detail. Cardinaletti and Giusti (2006) also argue that the universal distributive quantifier word is not quantifying itself, but it needs a distributive operator. The syntactic differentiations observed between *every* and *all* according to Cardinaletti and Giusti boil down to the assumption that *every* is an adjective while *all*, *some*, *both* are not, because they cannot occur after a determiner (ibid: 44). However, this is definitely not the case for *kathe*, as the examination of the data that follows shows.

Summing up, in this section we reviewed the literature pertaining to the internal structure of DP and QP. We saw that a variety of proposals exist. Both DP>QP and QP>DP structures are proposed, with the latter being more prevalent among more recent proposals. Also, there is an emerging trend to dissociate quantification from an exclusive relation to the actual Q word and postulate a separate mechanism for rendering the quantification effect, involving sentential operators, and thus participation of the clause in deriving quantificational readings. For reasons that will become even more evident in the overall ensuing discussion, the scales are tipped here in favor of Szabolcsi’s (2010) DP structure that provides a solution in the middle ground.

2.2 The Greek DP

As we saw above, the definite article in all languages is most commonly viewed as being located under D. What features exactly the D head hosts is still a controversial issue. Alexiadou, Haegeman & Stavrou (2007:56-99) reviewing relevant literature,

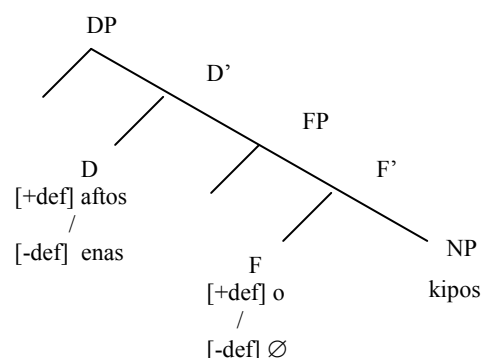
present four basic functions that have been attributed to the definite article: Definiteness (Lyons 1999), subordination (e.g. Abney 1987), referentiality (Abney 1987, Longobardi 1994), and use as a grammatical morpheme (Giusti 1997, 2002).

Giusti's latter view that the definite article is more or less a case marker is taken up for Greek by Marinis (2003), who labels the relevant projection as FP. Other labels for the same projection are AgrP (Karanassios 1990 – not to be confused with the Alexiadou, Haegeman & Stavrou 2007 AgrP we saw earlier) and DefP. FP is a projection lower than DP. In Marinis' (2003) proposal, D is occupied by the demonstrative *aftos*, which is specified as definite, [+def], requiring the presence of a [+def] element at head F, i.e. the definite article (*o, i, to*), whereas the [-def] element occupying D is for Greek the indefinite article *enas*, requiring an empty F Head. According to Marinis, definite (16) and indefinite (17) have the structures represented in (18):

- (16) *aftos o kipos*
 this the garden
 “this garden”

- (17) *enas kipos*
 one garden
 “a garden”

(18)



I will not adopt Marinis' proposal, though, as the standard view positioning the definite determiner under D has more advantages for our analysis, as we are about to see.

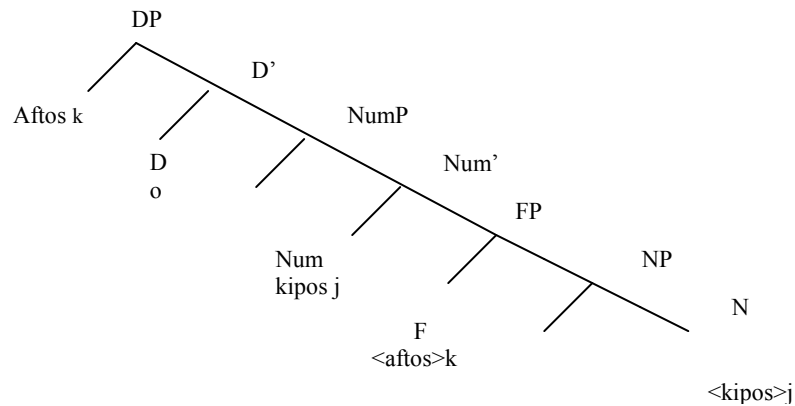
In line with the above discussion, let us return to demonstratives and consider them in more detail, since in Greek they obligatorily co-occur with the definite article. It has been observed crosslinguistically that when any or all of the items classified as demonstratives, numerals and adjectives precede the noun, they are always found in this order (Greenberg's 1963 "Universal 20"). Despite that, a lower position for the demonstrative is also observed in some languages. The idea that demonstratives raise from a lower position within the DP to Spec, DP has been proposed for Spanish by Brugè (1996, 2002), Giusti (1997) for Romanian, Irish (Gaelic), and Greek. Panagiotidis (2000) proposes that there are demonstrative operators in the nominal phrase, and the articles co-occurring with them are grammatical formatives; demonstratives occur as both heads or specs. According to him, if the demonstrative head is morphologically distinct from the definite article, it can appear alone, as in English. If not, feature checking is required. Either the demonstrative moves overtly to Spec, DP, or a null demonstrative operator moves to Spec, DP and forms a chain with the in-situ demonstrative.

Assuming Panagiotidis (2000), Manolissou (2000) among others, we opt for a structure that has the definite article under the head D, the landing site of the Greek N being the head Num. According to the original proposal by Ritter (1991), N moves to Num in order to be specified for Number. In the structure I propose as a point of reference for the Greek DP at this point of the discussion, the postnominal demonstrative is merged in a position lower than Num (F or Def, cf. Alexiadou, Haegeman & Stavrou 2007:123) and the "higher" demonstrative occupies Spec, DP, after having moved there from its initial position in F¹³:

- (19) a.
 aftos o kipos
 this the garden
 "this garden"

¹³ This analysis is well suited with diachronic changes and with the predominant view that the definite article commonly viewed as occupying D has historically evolved from Demonstratives (Haspelmath 1997) by leftwards moving grammaticalization (Roberts & Roussou 2003). As a general observation, this may be true for Ancient Greek, where the use of the definite article is more restricted than in Modern Greek and a historical relation to the demonstrative pronoun *hos*, *he*, *to* is possible.

b.



Panagiotidis (2000), Manolissou (2000), Grohmann and Panagiotidis (2004) all agree that if the overt demonstrative is in [Spec, DP] then we have a deictic interpretation. Otherwise, (in a position F as in (18)) the use of the demonstrative is anaphoric as in (21), meaning that the phrase refers back to an entity prementioned in the discourse:

(20) Aftos o anthropos ine piitis.

this the man is poet.

“This man is a poet.”

(21) Thimase ton Petro? O anthropos aftos itan kapote listis.

remember. 2sg the Peter? The man this was sometime robber.

“Do you remember Peter? He used to be a robber.”

With respect to the final position of the noun within the DP, the landing site of a presumed head movement, the N in Greek, French and similar languages according to Marinis (2003) may move to F in (18), if the latter is not occupied by the definite article (this is how *ena milo kokkino* vs. **to milo kokkino* is derived, according to him). In short, despite the controversy surrounding the exact nature of D, the general agreement is that there is an extra projection NumP, specified for Number, where the N moves to in order to be specified for Number (Alexiadou 2001, Panagiotidis 2000).

In (19) above as well as in (22a), the position of NumP is above FP (the “low Dem” position). The same seems to happen with “stranded reinforcers” (cf. Roehrs 2009) as in (22d), *edho* (*here*). Note that for the sake of the exposition I assume that adjectives in Greek can be hosted in an AgrP projection, which in (19) would be just above NumP and below DP. Despite the above observations, if the Greek DP includes an adjective as well as a possessive, the low Dem position appears to be above the final landing site of the Noun, presumably NumP, that is in AgrP, as I assume here (see 22c).

Observe the examples that follow:

- (22) a. (Ekino) to oreo (ekino) palto (ekino) mu arese.
 (that) the nice (that) coat (that) me. liked.3sg
 “I liked that nice coat.”
- b. (Ekino) to palto (ekino) tu Jiani me tis voules.
 (that) the coat (that) of John with the dots
 “That dotted coat of John’s.”
- c. (Ekino) to oreo (ekino) palto (*ekino) tu Jiani me tis voules.
 (that) the nice (that) coat of John with the dots
 “That nice dotted coat of John’s.”
- d. (Afto) to palio (*afto) vivlio (afto) edho.
 (this) the old book (this) here
 “This old book here.”

According to Roehrs (ibid: 53) data like (22d) with “stranded reinforcers” or locatives (generated together as Spec-Head according to Brugè 2002), indicate a NumP>FP order. In Greek, NumP seems to be situated above FP (“low Dem” position) in all structures (22a, b, d), except for those that include an adjective and a possessive (22c); note that we assume a Spec, nP position for postnominal possessives in Greek following AHS’s suggestion we presented previously in (8). So the exact position of NumP with regards to FP in Greek is not as straightforward as we would like. For the sake of the discussion here I assume a NumP>FP order as in (19).

Let us now return to the nature of the definite article in Greek, and examine an interesting phenomenon in this language. The adjective phrase is viewed as a part of the Degree Phrase (DegP) by Abney (1987:192) or as an AP below QP (ibid:339) as

we saw in (11). It is assumed to occupy AgrP (Roehrs 2009) in a structure like the AHS' (8a) one presented above and in Rohers' (2006) and Julien's (2002) structures presented as (15) and (14) earlier hereby. The adjective in Greek, unlike English, may combine with the definite article as we saw in (22c) above and as indicated in the example that follows:

(23) -Which coat do you prefer?

a. -To kokkino.

The red

“The red one.”

b. *the red

Greek also has the particularity of exhibiting Determiner Spreading (DS) (Androutsopoulou 1995, Alexiadou and Wilder 1998) or polydefiniteness (cf. Kolliakou 1994, 1995, 2004, Androutsopoulou 1996, Campos & Stavrou 2004, Szendroi & Lekakou 2012). In DS we have what appears to be a repetition of the definite determiner before the adjective, which can come before or after the noun. Determiner Spreading is illustrated with the examples below, where the adjectives modifying the noun are also preceded by the definite article:

(24) a. To meghalo to vivlio to kokino

the big the book the red

“The big red book”

b. *to meghalo vivlio kokkino

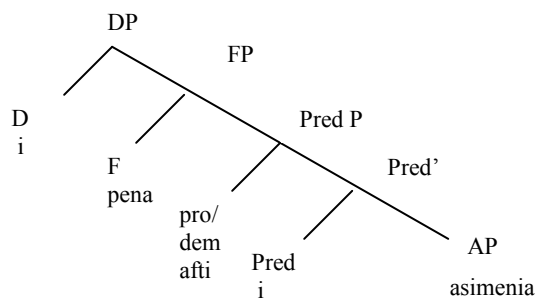
The exact nature of this phenomenon is a contestable issue. Campos and Stavrou (2004) propose an extra phrase PredP (Predicate Phrase) in order to account for DS with postnominal adjectives. An example of a PredP¹⁴ structure is given below (from Campos and Stavrou 2004:154):

(25) I pena afti i asimenia

the pen this the silver

¹⁴ Campos & Stavrou's (2004) Pred P could be assimilated to NumP in AHS' structure. However, here we have opted for a NumP>FP structure.

“This silver pen”



For Grohmann and Panagiotidis (2004), on the other hand, there is no special demonstrative or other head in Determiner Spreading (DS). The definite article that may appear is a grammatical formative that arises when the demonstrative (or an operator) moves up, rescuing an “anti-local” configuration (in the authors’ terms). The grammatical formative agrees with the demonstrative in relevant features because it is a copy. So, according to the two authors, the definite determiner in DS is semantically null, an idea also explicitly stated in Szendroi & Lekakou (2012), who propose a split-DefP for DS. Szendroi & Lekakou (ibid.) also view all instances of the Greek definite determiner in DS as semantically null and the (real) Definite Operator as being external to the DP and phonologically null (the proposal I develop in Chapter 4 actually defends a similar concept).

On the other hand, Leu (2009: 160) proposes that in Greek DS, the adjectival phrase has its own definite marker: “In Greek definite modified DPs, multiple definite markers are possible...The idea, suggested by Greek poly-definite DPs, that the left periphery of an adjectival constituent is a possible locus for a definite marker

morpheme is strongly supported by Scandinavian double Definiteness...”. Our analysis hinges more on the semantically null definite determiner approach, but this is an issue only tangential to the current proposal.

Concluding our brief excursus to DS, what is really important for the present analysis is that DS is standardly viewed as an indication of Definiteness for the DP (as in e.g. Etxeberria & Giannakidou 2010). We will use it in order to test the Definiteness of the *o kathe* NPs and draw crucial conclusions on the syntactic and semantic status of this expression in the coming sections.

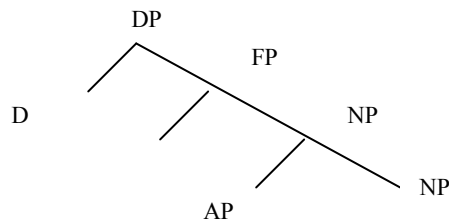
As the above discussion on DS reveals, the nature of the definite determiner in Greek is rather controversial. Let us briefly discuss this issue here. We have two reasons to do this: First, the definite determiner is implicated in the *o kathe* construction, creating an expression that is different to *kathe* NPs, as argued here and elsewhere in the literature. Second, expressions with the definite determiner in Greek exhibit an interpretational variability (between a generic and a definite reading), which we will visit in Chapter 4 and tentatively analyze in tandem with (*o*) *kathe* NPs. In other words, the analysis explains the different readings of (*o*) *kathe* NPs and *o*, *i to* NPs alike (without, however, purporting to provide an account of DS which is hereby only briefly visited for its value as a criterion for Definiteness). The different views on the subject boil down to whether the definite determiner is attributed (inherent) quantificational semantic content or not.

First of all, there is the view that the definite determiner in Greek does not embed an *i*-operator or any other quantificational content at all. Roussou & Tsimpli (1994) argue that in Modern Greek the definite article may be used as an expletive. They suggest (assuming Longobardi 1992) that in Greek N raises to D but not in the overt syntax. According to them, “in generic constructions, nominalized XPs and proper names, D is not specified for the +/-definite feature since it is an expletive element” (ibid: 75). The presence of the determiner is needed in order to satisfy the Empty Category Principle (“all lexical categories should be governed”) and to allow for the phrase to function as an argument, since only DPs and not NPs can function as such (following Longobardi 1992, 1994).

On the other hand, according to Giannakidou & Stavrou (1999) the definite article in Greek is always contentful and the DPs it forms may have a referential or a generic reading; in the referential use, the definite determiner denotes the *i*-operator; while in the generic use it is not expletive but contentful; it denotes the

intensionalized version, which corresponds to the nominalization operator. They propose the following structure (ibid.310):

(26)



The FP in (26) is basically an agreement category. The specifier of this category hosts evaluative/descriptive adjectives. Finally, in their analysis, weak Qs and numerals may be hosted between DP and FP in a QP. The *i-* operator is viewed as implicated in definite readings, evoked among many others by Russell (1919) for definites, Cheng (2009) for explaining Chinese *dou* as the Maximalizing operator, Giannakidou and Cheng (2008) for explaining Greek definite Free Choice Items (*o opjosdhipote*). This operator will prove to be useful for my explanation of the weak vs. strong uses of (*o*) *kathe* NPs.

Tsimplici & Stavrakaki (1999), interestingly for the view eventually assumed here, i.e. that the definite article is more of a grammatical morpheme than anything else, point out the similarity between the definite article and clitics in Modern Greek. They assume clitics to be “‘severely deficient’ in syntactic, morphological and semantic terms” (ibid: 38). Assuming that they cannot refer directly, they can function as expletives, contrary to strong pronouns. Furthermore, only clitic pronouns are heads lacking a full functional structure and appearing on a verbal head (vP). The authors argue that the semantic properties of clitic pronouns in Greek are similar to those of the definite determiner, so the claim they put forth is that they both belong to the category D (unlike strong pronouns).

Szendroi & Lekakou (2012), discussing Greek DS claim that it is best to assume that all instances of the Greek definite determiner are semantically inert, not only the ones found in DS. She further claims that Greek DPs do not denote an

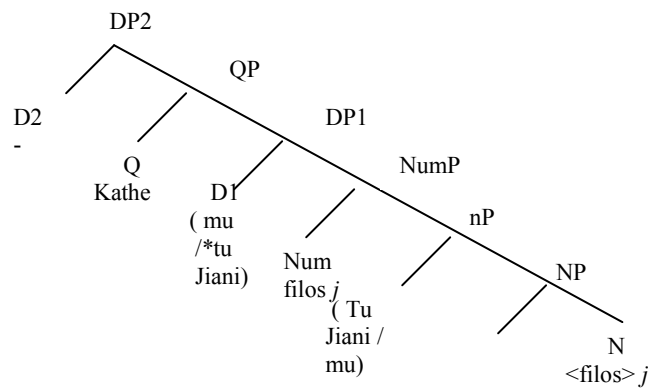
individual of type $\langle e \rangle$ (entity), but a set of type $\langle e, t \rangle$, so they are NP-like. She argues that the definite article is usually of type $\langle \langle e, t \rangle, e \rangle$ (taking a set-predicate as an argument and yielding an individual); however, in Greek the definite article combines with a proper name (of type $\langle e \rangle$, according to Kripke 1980 she assumes). In order to deal with this problem, she proposes that in Greek there is an extra KaseP projection, of type $\langle e, e \rangle$.

With regards to the quantificational content of the Greek definite determiner, as already hinted in the brief discussion on DS, I side with the spirit of Roussou & Tsimpli (1994), Tsimpli & Stavrakaki (1999) and Szendroi & Lekakou's (2012) claim for Greek D and Giusti's (1997) general idea on D and assume that the Greek definite determiner is specified for case agreement and bears the full set of interpretable phi-features, but that it is not inherently specified for referentiality, i.e. it does not always occupy a D2 position in Szabolcsi's structure in (9). According to this, I will argue that if the expression is not definite / referential, the definite determiner merges in D1. If it Agrees with a Def Op in C, it raises to D2, becoming referential (of type $\langle e \rangle$). In other words, the *i*-operator and the nominalization operator that Giannakidou & Stavrou (1999) (G&S) propose correspond to a Def / *i*-operator and a Generic operator on the C level in my proposal, respectively (cf. Chapter 4). The bottom line is that I agree with the semantic account the latter authors propose, but also with the syntactic intuition behind Roussou & Tsimpli's (1994) proposal that the definite determiner in Greek can have both a definite (in terms of the analysis proposed in Chapter 4, when it occupies D2) and an "expletive" use (when it occupies D1). Note that I take these semantics to be derived in syntax in a different manner: not through the semantic determiner carrying the operator in its lexical semantics, but through the interplay of operators situated on a sentence level and interacting with variables in DP through Agree.

With regards to the Greek QP, the focus of our discussion, some researchers propose that the Greek QP projection is situated higher than DP, while others situate it lower. As mentioned before, Roberts & Roussou (2003:167) assume Cardinaletti & Starke's (1999) idea that QP is a functional layer above DP, which has the properties of C, that is operator properties. They situate Greek *oli* (*all*) at Q. In Szabolcsi's structure as presented in (9) the DP the above authors refer to should correspond to the DP2. Giannakidou & Stavrou (1999), on the other hand, propose a QP lower than DP hosting numerals and quantifiers such as *many*.

I adopt Szabolcsi's (2010) view on the internal structure of the DP and place *kathe* at Q, under DP2. Furthermore, returning to the considerations about the position of the possessives and the final position of the noun as previously presented in AHS' (8a) and indicated in the Greek examples in (8b) and (8c), I make the following assumptions regarding Greek: I assume a final position of the noun in Num and two alternative and mutually exclusive positions for possessives, one in Spec, nP for both full genitive phrases and possessive pronominal clitics (*kathe filos tu Jiani*, *kathe filos tu*) and one in Spec, DP1 for possessive pronominal clitics alone (*kathe tu filos*). Please note that the schema (9') that follows illustrates the Greek *kathe* NP structure I propose here with focus on *kathe*; as the rest of the discussion, it is in no way conclusive about the rest of the DP structure, especially the positions below DP1, which I do not intend to investigate in any detail or make any novel claims about. The schema is an adaptation of Szabolcsi's proposal presented previously as (9):

(9') *kathe mu filos / kathe filos tu Jiani / kathe filos mu*



Concluding this section, from the previous proposals on the Greek DP structure presented here, the present thesis assumes the following: The final position of the Greek Noun is Num. High demonstratives are situated at Spec, DP2 (conventional Spec, DP), raising there from F; low Dems are situated at F, right below Num P (in the above schema it should probably be below NumP or even below nP). Assuming Szabolcsi's (2010) two Ds structure, I take the position of Quantifiers to be right above DP1 and right below DP2. As we will observe and analyze shortly, high demonstratives cannot co-appear with *kathe* NPs (**aftos kathe*).

2.3 The syntactic properties of (o) *kathe*

In this section we examine the syntactic distribution of the *kathe* elements. Let us consider singleton *kathe* and composite determiner *o kathe* (repeated here from 1):

- (27) a. *Kathe*: uninflected, followed by a noun or a nominal phrase.
 b. *O, i, to kathe*: only the definite article (*o, i, to*) is differentiated for gender and normally inflected for case.

The two expressions differ in distribution and in meaning. As already argued in Giannakidou (2004) and Lazaridou-Chatzigoga (2009) *o kathe* and *kathe* NPs correspond to *each* and *every* NPs respectively. So, anticipating the more detailed discussion in Chapter 3, we can simply note that Greek does not use two distinct lexical items for *each* and *every*; instead, it uses the same element with or without the definite determiner *o*. In this chapter we will investigate the syntactic properties of *kathe* and *o kathe* expressions, focusing on their differences that will allow us to structurally differentiate *kathe* from *o kathe*. It should be noted that in the examples that follow we will preferably use episodic sentences in order to avoid any meaning interference caused by mood or aspect (see Chapter 4).

Let us consider the following examples:

- (28) *Kathe jiatros / nosokoma / pedhi efighe.*
 every doctor/ nurse /kid left.3sg.
 “Every doctor / nurse / child left.”
- (29) **Kathe jiatri efighan.*
 every doctors left.3pl.
- (30) **Jiatros kathe efighe.*
 doctor every left.3sg.
- (31) *O kathe jiatros / i kathe nosokoma / to kathe pedhi efighe.*
 the every doctor / the every nurse/ the every kid left.3sg.
 “Each doctor / nurse / child left.”
- (32) **Kathe o jiatros efighe.*
 every the doctor left3.sg

The above data attest that *kathe* is not inflected for gender, case and of course, number. It is only grammatical with a singular noun. The definite article can only

precede *kathe*; it cannot follow it (32). Also, *kathe* cannot follow the noun, so we have no quantificational “floating” (30).

Let us now check *o kathe* NPs for availability of DS:

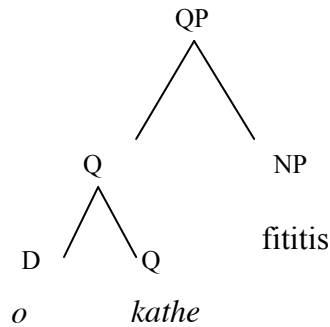
- (33) a. **O kathe o jiatros efije.*
 the every the doctor left. 3sg.
 b. *O enas o jiatros efije.*
 the one the doctor left 3sg.
 “One of the doctors left.”
- (34) **O kathe o kalos o jiatros efije.*
 the every the doctor left.3sg.

As we see from (33a and 34), *kathe* does not allow Determiner Spreading (DS). This means that it cannot be separated from the noun by an intervening definite determiner, unlike other definite expressions as the example in (33b). As we commented earlier, this raises an important issue, as we cannot take *o kathe* NP to be a pure definite expression as it is.

At this point it is useful to take a look at two previous analyses of (*o*) *kathe*. Etxeberria & Giannakidou (2010:10) argue that *o kathe* does not constitute a DP (that should, according to (9’), translate into a referential DP2 of type *e*) because it cannot spread and because it cannot co-occur with demonstrative *aftos*, *ekinos* (*this*, *that*) which in Greek *must* embed DPs (Stavrou 1983; Stavrou and Horrocks 1989, Alexiadou et al. 2008). More specifically, Etxeberria & Giannakidou (2010:11) argue that *o kathe*, like other Determiner-Restricted Qs, i.e. Qs that are modified by a D and by the specific semantic tool of Determiner Domain Restriction they propose, does not create a DP, and therefore it does not yield a referential expression. They propose that D *o* adjoins to *kathe* Q to circumvent this problem. In particular, Giannakidou (2004), Etxeberria & Giannakidou (2010) propose that D attaches to the *kathe* Q element in syntax; D then performs domain restriction on the Q (more details on that in the next Chapter). Their structure is given below¹⁵ (Etxeberria & Giannakidou 2010:8:17):

¹⁵ Giannakidou’s (2004) structure is exactly the same but for a composite Q-Det head (instead of Q) projecting a QP and selecting an NP.

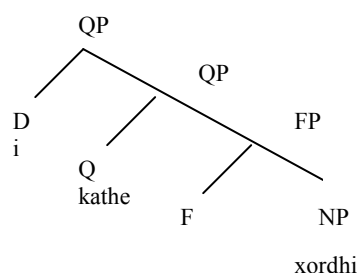
- (35) *o kathe fititis*
 the every student
 “each student”



So in their proposal *o kathe* NPs are not DPs but QPs. Translating this in Szabolcsi’s (2010) terms, as in structure (9’) that I endorse here, we assume that the determiner *o* cannot be a D2 definite; it cannot be a “real” definite. It has to be a D1. This is a major issue that our discussion addresses, and its ramifications reach far in the syntax and semantics of the expression in question and quantificational determiners in general. We will have to partially revisit our assumptions about Definiteness and quantification en route to an explanation.

In the same spirit, Lazaridou-Chatzigoga (2011) observes that *o kathe* cannot spread, so it cannot be viewed as building a definite noun phrase. The unavailability of DS is syntactic evidence that *o kathe* is not definite. Lazaridou-Chatzigoga (2009, 2011) proposes that the definite article left-adjoins to the QP headed by *kathe*. She assumes a functional projection (FP) between the Quantificational Phrase and the Noun Phrase, which can host any of the following: adjective/quantitative-pronoun/possessive clitic/numeral (ibid: 109: 33), forming the following structure (ibid: 110: 35):

- (36) *i kathe xordhi*
 the-Fem every string
 “each string”



If I interpret her proposal right, the definite article *i* is adjoined to a QP headed by *kathe* in a manner similar to an adjectival modifier. More detailed presentation of these works and a semantic discussion of the *kathe*, *o kathe* in Chapter 3.

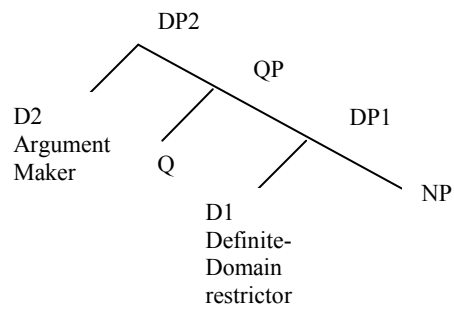
The present analysis assumes that *kathe* Merges at Q, as proposed in the works presented above. I also follow and agree with all the relevant empirical remarks cited in the aforementioned works, as they will be in detail laid out and enriched in Chapter 3. In general, the two previous proposals reviewed here succeed to sketch the different readings the data give rise to with great efficiency. The analyses offered also explain to some extent the interpretational variety of the expressions in hand. Apart from that, though, they do not offer a detailed syntactic explanation that may be viewed as a holistic analysis that could explain this attested interpretational variability in terms of a single syntactic mechanism. The present thesis will try to explain the *kathe*, *o kathe* NPs semantic variability by proposing a mechanism that eventually may apply to all different kinds of quantification (universal, generic, definite, indefinite). Let us now take a look at what exactly I propose for the syntactic structure of *kathe* and *o kathe* NPs.

The syntactic structures I propose follow Szabolcsi's (2010) DP structure in (9), my version of it in (9') and some elements from Etxeberria & Giannakidou's (2010) explanation for *o kathe*. The reason why I believe this structure accommodates better Greek data is the wide range of phenomena it explains. As I will show, the structure Szabolcsi (2010) proposes (9), repeated here as (35a), straightforwardly accounts for many different DP-QP ambiguity phenomena in Greek, namely *kathe* (37b) and *o kathe* NPs (37c), as well as for the kind (37d) and the definite (37e) use of the Greek definite article DP *o*, *i*, *to* (plural form *i*, *i*, *ta* NPs, see detailed discussion in Chapter 4). For matters of congruence, I also present the structure I assume for *oli i* NPs (37f), as entailed by the precincts of the theory invoked here. Note that here for

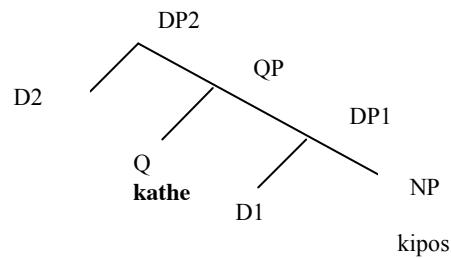
the sake of simplicity I present an “abridged” version of the Greek DP structure assumed, especially with regards to its internal stratification from DP1 down. For the rest of the internal structure, the reader is referred to (19) and (9’) as well as (56) of the present Chapter.

(37)

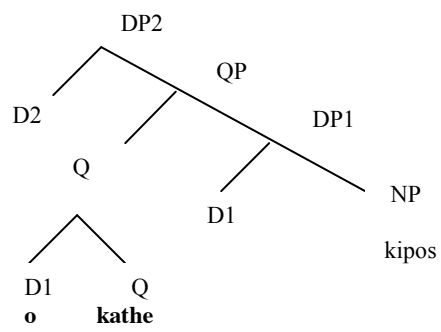
a. *Szabolcsi (2010): DP structure*



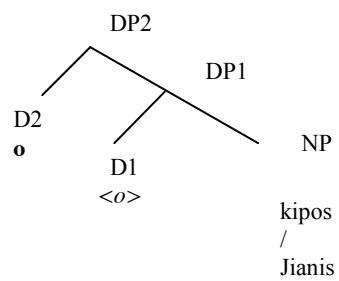
b. *kathe kipos*



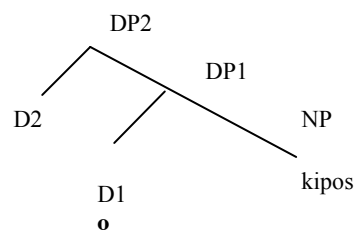
c. *o kathe kipos*



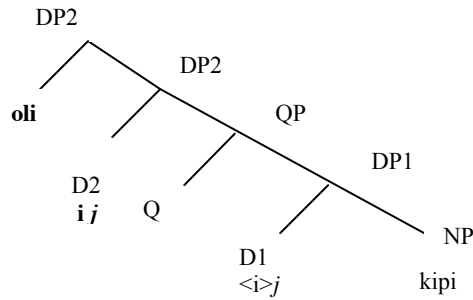
d. *o kipos (definite reading), o Jiannis*



e. *o kipos (kind reading)*



f. *oli i kipi*



Kathe always merges in the Q position (37b, c). In (37c) *o* is merged in the D1 position and *kathe* in the Q position. I assume for the sake of the analysis that *o* left-adjoins to *kathe* forming a complex head (*o kathe*), in the way of Etxeberria & Giannakidou (2010). I will not provide a full fledged explanation for this assumption here; I think however, that it has to do with phi-features and case agreement (and Giusti's 1997 approach as we saw previously in 2.2). *O kathe* NPs do not form a really definite DP, that is a DP2 in current terms, as we are about to see, and the postulation of a “non-definite / referential” D1 implicated seems to straightforwardly explain why this is so.

The postulation of two distinct positions, D2 and D1, provides a versatile schema that can accommodate the different positions and thus readings of the Greek definite article/determiner as well, within the same DP2 projection. Lazaridou-Chatzigoga's structure implies that the definite determiner syntactically behaves as a kind of a modifier/adjective, an underlying assumption not explicitly stated which is however refuted by the data in (39) that follows. Moreover, both previous analyses seem to adopt a Q-headed QP projection for the Greek DP, which may satisfy the analysis of *o kathe* but not other uses of *o*, *i*, *to* DPs. I argue that (37c, d, e, f) covers all these uses of the definite determiner/ article in Greek and provide one simple and potent explanation.

Thus the D1 position, however redundant it may initially seem, is proven valuable for accounting for a variety of phenomena. In particular, with regards to *o kathe* expressions, the initial Merge of *o* in D1 makes agreement with the Noun possible. Then *o* moves to Q so that a discourse Criterion is met (cf. Rizzi 1991, 2004). A direct left adjunction of *o* in the Q position, on the other hand, does not account for the *o* – Noun agreement observed in *o kathe* expressions (or inflection, on the whole). Also, as we will later observe, the fact that *o kathe* may be (however

marginally accepted) followed by a demonstrative (*aftos*) in the latter's anaphoric use (*o kathe aftos anthropos*), while, on the other hand, in the reverse order the sentence is totally ungrammatical (**aftos kathe anthropos*) shows that the Spec of DP1 may be occupied by the demonstrative in its anaphoric use, explaining this divergence (cf. examples 59 and 60 in the discussion that follows in this Chapter). One more argument or at least an indication for positing a D1 position may be the pronoun *kathenas*, which is only tangentially visited in the present analysis. *Enas* (meaning *one*) can be viewed as occupying D1 and satisfying agreement before merging morphosyntactically with *kathe* in a manner that has to be left unaccounted for due to space restrictions.

Furthermore, I propose that (37b, c) account better for the Modern Greek DP phenomena in hand, exactly because the D2/D1 distinction utilized also adequately explains other forms of quantification in Greek as well (37d, e, f). So (37b, c) constitute part of a wide range explanation for the Modern Greek DP structure. The discussion in Chapter 4 discusses and explains (37d, e, f) for Modern Greek definite determiners *o*, *i*, *to* and *oli i* DPs, for various reasons that are (only) in part reviewed here, preempting more detailed discussion. First of all, the different uses of the definite article in Greek may be straightforwardly explained by a different positioning, in D2 or D1, as we noted above. As it will be exhibited in the subsequent overall discussion, diverse uses of the definite article in phrases such as *oli i* (*all the*) and *o Jianis* (*the John*) are also straightforwardly accountable by the D2 position of *i*, *o*¹⁶. On the other hand, the kind use of a plain “definite” DP in a generic Greek sentence such as *ta pedjia aghapun tis ghates* (*kids love cats*) may be explained by the D1 position of the D *ta,tis* as we will see in Chapter 4.

In more detail now, if we assume (37c), then the mystery of why *o kathe* NPs do not behave as real definites in Greek is solved (considering that Greek definites allow DS as in 39):

- (38) * *To kathe to kalo to pedhi*
 the every the good the child
- (39) *to eksipno to psilo to pedhi*
 the smart the tall the child

¹⁶ This goes against Longobardi's (1994) proposal for an expletive use of the definite determiner.

“the smart tall child”

I propose that *to* in (39), unlike *to* in (38), occupies a D2 position, thus forming a referential DP2. DP2s can spread, QPs or DP1s cannot. So *o kathe* cannot occupy a position in DP2 (more detailed analysis of my proposal follows soon). I take attributive adjectives to be located in a position above NumP, possibly AgrP. For matters of congruence, I should also preempt later discussion and note that I take Greek universal collective *oli* (*all*) to be a modifier to DP2 (37f).

With respect to *kathe* NP’s internal structure and (37 b,c), note that in all cases of (37) the complement to Q is a DP1. As we are about to see, *kathe* is always followed by a NumP or a vacant DP1. D1 cannot be occupied when appearing with (*o*) *kathe*, cf. Rizzi (1991) and (2004) on Criterial (the final, as well as unique) position in a chain assigned a unique discourse property. I propose that this is due to the morphological features deficiency of *kathe*, which needs *o* to left adjoin to Q in order to satisfy phi-features agreement. A relevant idea has been proposed for German *jeder*. In particular with respect to the complement of *every*, Leu (2009), discussing the morphological composition of German *every*, *jeder* argues that the complement of *je-* is NP, not DP. Matthewson (2001) also proposes that the complement of English *every*, in contrast to *all*, is an NP, not a DP. Cardinalletti & Giusti (2006), on the other hand, in order to explain the dubious syntax of *every* propose that *every* is an adjective. We will only occasionally visit the syntactic nature of English *every* in the subsequent discussion. For the time being, let us note that the following data rule out the possibility that Greek *kathe* is an adjective:

- (40) (O) *kathe kalos jiatros efije*.
 (the) every good doctor left.3sg
 “Each / every good doctor left.”
- (41) a. **Kalos, kathe jiatros efije*.
 every good doctor left.3sg
- b. *Zestos, ksiros aeras fisaje*.
 warm, dry air blew.3sg. IMPERF.
 “A warm, dry air was blowing.”
- c. *toso zestos, aforita ksiros aeras*
 so hot, unbearably dry air

“So hot, unbearably dry air”.

- d. **toso kathe*, **aforita kathe aeras*
so *kathe*, unbearably *kathe* air

As we can see from the above examples, (*o*) *kathe* is always placed before adjectives (40). It does not behave as an adjective, for that matter (41a), as adjectives have a freer distribution in Greek (41b). Also, unlike adjectives, *kathe* cannot be modified by degree words (41c) or adverbs (41d).

Before we move to an account of the differences between *o kathe* and *kathe* NPs, let us take a quick look at *o kathenas*. (*O*) *kathenas*, *-mia*, *-ena* is a pronoun with features similar to *o kathe* NPs. It is used only pronominally (42), as expected. It exhibits the readings we have observed for *o kathe* NPs: a definite, universal distributive *each one* reading (43a), a binominal *each / each one* reading (43b) and a Free Choice (FC) *anybody* reading (43c):

- (42) * *O / kathenas jiatros efije*.
the /everyone doctor left.3sg.
- (43) a. *O kathenas pire dhio mila*.
the everyone took.3sg two apples
“Each one took two apples.”
- b. *Piran tria mila o kathenas*.
took.3pl three apples the everyone
“They took three apples each.”
- c. *O kathenas kseri oti i ji ine sferiki*.
the everyone know.3sg that the earth is round
“Anybody knows that the earth is round.”

The above examples illustrate an *each (one)* use for *o kathenas*, together with a FC *anybody* reading. We will not stay on this issue any longer, but we will concentrate on the differences between Greek *kathe* and *o kathe* NPs. As previously presented, *kathe NP* and *o kathe NP* correspond to *every* and *each* English NPs, as the examples below indicate:

- (44) a. *Kathe pedhi pire dhio mila*.

every child took.3sg two apples.

“Every child took two apples.”

b. *To kathe pedhi* pire dhio mila.

the every child took.3sg two apples.

“Each child took two apples.”

Anticipating a more detailed analysis in the next chapter, let us note that both expressions can be characterized as distributive, and in the above uses discussed, as also definite or presuppositional; however, *each* has a more prominent referentiality. Beghelli and Stowell (1997) characterize it as a wide scope variant to *every*. Kratzer (2005) characterizes it as a more “exhaustive” variant to *every*, cf. also Tunstall’s (1998) relevant theory and overall detailed discussion in Chapter 3. The following examples illustrate the difference between *each* and *every* (from Beghelli & Stowell: 1997: 100: their 37 and 38):

- (45) After devoting the last three decades to a study of lexical semantics, George made a startling discovery.
 Every language has over twenty color words.
 All languages have over twenty color words.
 ?Each language has over twenty color words.
 ?The languages have over twenty color words.
- (46) George has just discovered ten hitherto-unknown languages in the Papua New Guinea highlands.
 ?Every language has over twenty color words.
 ?All languages have over twenty color words.
 Each language has over twenty color words.
 The languages have over twenty color words.

Every patterns in tandem with *all* (not presuppositional, kind reading), whereas *each* patterns with *the* (definite, presuppositional) expressions. As I argue in Chapter 4, this is due to the fact that *every* is bound in this case by a Gen (not-definite) operator, whereas *each* is bound by a Def operator, in C. As we can see, *every* may be interpreted both as an indefinite as well as a definite (45) and (46). In Greek, *kathe*

NPs co-align with *every* NPs (47a), as they suit the context of (45) while *o kathe* NPs with *each* NPs (47b), as they fit in the context of (46):

- (47) a. *Kathe ghlosa* exi pano apo ikosi leksis jia ta xromata.
 every language has over from twenty words for the colors
 “Every language has over twenty color words.”
- b. *I kathe ghlosa* exi pano apo ikosi leksis jia ta xromata.
 The every language has over from twenty words for colors
 “Each language has over twenty color words.”

Let us now turn to the *kathe* / *o kathe* NPs a little closer. Observe the following:

- (48) *(To) kathe pedhi* pire apo tria mila.
 (The) every child took.3sg from three apples.
 “Each / every child took three apples.”

Both *kathe* and *o kathe* are often used with the distance distributing prepositional numeral *apo*+NumP, which contributes a distributive meaning on its own. According to Grillia (2007), this prepositional phrase (PP)- the PP Distributive Share in this sentence- causes the plural DP to move to the Specifier of the Dist P (in Beghelli & Stowell’s 1997 terms). In other words, the PP seems to be responsible for the pseudodistributivity effect with (in) definite plurals. The role of the Distributive Share, together with a few other parameters that seem to boil down to the common feature of Definiteness and contextual anchoring (or binding of the contextual variable *c* of the NP) are in fact so crucial that the discussion will lead us to recognize the latter as equal “partners in crime”, as a kind of agreement markers for universal quantification.

There are no great differences in the syntactic distribution between *kathe* and *o kathe* so far. Their major difference lies in the semantics. However, we can detect the following differences in the syntactic distribution of *kathena* versus *to kathena* (from Lazaridou- Chatzigoga 2009):

- (49) *Ta pedhjia* efaghan dhio mila **(to) kathena*.
 the children ate.3pl two apples the each one

“The kids ate two apples each.”

As we can see in (49), only *to kathena* pronoun form of *o kathe* can behave as floating and binominal English *each*, a fact that provides some syntactic grounds for the proposed distinction between *kathe* (*every*) and *o kathe* (*each*). A second difference with regards to the syntactic distribution of the two items is found with constituent Negation:

- (50) Piran ta pedhia mila?
 took.3pl the children apples
 “Did the kids take any apples?”
 -Ohi (*to) *kathe pedhi*.
 no every child
 “Not every child did.”

As we observe in (50) above, only *kathe* may receive constituent negation, whereas *o kathe* cannot (cf. Lazaridou-Chatzigoga 2009). This again is in line with the proposed *every-each* distinction. Another difference is the availability of an adverbial use. *Kathe* has an adverbial use whereas *o kathe* does not have one:

- (51) (*To) *kathe Savato* pai sto parko.
 (the) every Saturday go.3sg to the park.
 “Every Saturday he goes to the park.”

Restrictive Relative Clauses (RRCs) data also provide useful insights on the nature of *kathe* and *o kathe* NPs as well as on their differences:

- (52) *Kathe mathitis* o opios piastike me skonaki apovlithike.
 every student the which was-caught.3sg with note was-expelled.3sg
 “Every student who was caught cheating was expelled.”
 (53) *Kathe mathitis* pu piastike me skonaki apovlithike.
 every student which was-caught.3sg with note was-expelled.3sg
 “Every student that was caught cheating was expelled.”
 (54) **Kathe mathitis*, o opios piastike me skonaki, apovlithike.

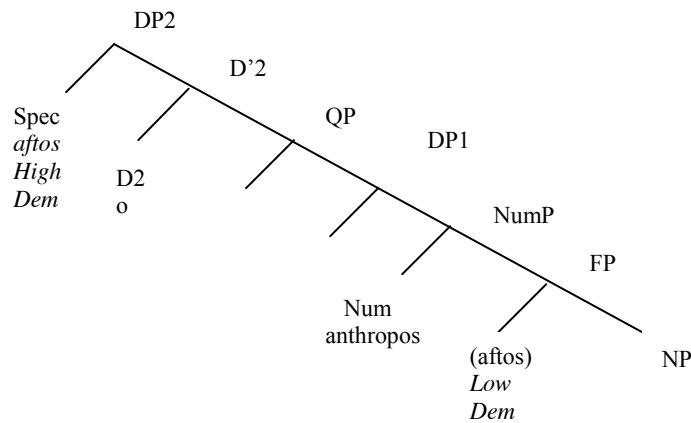
- every student the which was-caught.3sg with note was-expelled.3sg
 (55) **O kathe mathitis pou / o opios piastike me skonaki apovlithike.*
 the every student that/the which was-caught.3sg with note was-expelled.3sg

Kathe NP may combine with restrictive relative clauses introduced by *C pu (that)* or a relative pronoun at Spec, CP (*o opios, which*). *Kathe* NPs cannot combine with non-restrictive relative clauses as in (54). On the other hand, *o kathe* cannot combine with any of the above, not even with RRCs, as (55) shows.

This may be an indication that the *each* reading of *o kathe* NPs in that episodic sentence is “more” referential and definite (more accurately, familiar, as I argue later on) and somehow blocked with RRCs. The FC reading of the expression is also blocked by the episodic tense of the predicate. Episodicity has been argued to block Free Choice Items (e.g. Giannakidou 1998). Preempting the detailed explanation that follows, here I should note that according to Etxeberria & Giannakidou’s (2010) theory I adopt here on *o kathe*, the expression is subdued to Determiner Domain Restriction (DDR): the determiner contextually restricts the domain of quantification, the NP, endowing the expression with a notion of familiarity. This means that *o kathe* NPs convey a meaning of being familiar to the interlocutors’ common ground. The latter term can be defined as background information among the participants of a conversation (Stalnaker 2002). At this point I hypothesize that this already existing restriction can ban any additional ones, such as RCs (both RRCs and N-RRCs).

Let us now turn to the distribution of these items with demonstratives. As assumed previously, “low” demonstratives originate in an FP below NumP (cf. Manolessou 2000, Panagiotidis 2001), but prenominal ones have moved to Spec, DP. The structure of the DP comprising a demonstrative, according to the structure I proposed for the Greek DP previously in (37) should look as follows:

(56)



I argue that the unavailability of *(o) kathe aftos N* shows that *(o) kathe* does not select a DP or, in Szabolcsi's 2010 terms, a DP2, to be more precise.

- (57) **Kathe aftos anthropos* prokopse.
every this man did.3sg.
- (58) **O kathe aftos anthropos* prokopse.
the every this man did.3sg.
- (59) **Aftos (o) kathe anthropos* prokopse.
this (the) man did.3sg well
- (60) a. ? *O kathe anthropos aftos*, prokopse.
The every man this, did.3sg well
"Each man did well in his life."
b. ? *Kathe anthropos aftos* prokopse.
The every man this did.3sg well
"Every person did well in his life."
- (61) *Oli afti i anthropi (afti)* prokopsan.
all these the men (these) did well
"All these people did well in life."

We observe that *kathe* is totally ungrammatical when immediately preceded or followed by a demonstrative as in (57), (58), (59) whereas *oli* in (61) is not. On the

other hand, *(o)kathe* is accepted by some speakers when the demonstrative appears after the noun (60 a, b).

Let us here recall the discussion in section 2: the noun in Greek raises to Num to check the features of Num. Dem originates lower in the structure and moves to Spec, DP (Spec, DP2, in Szabolsci's 2010 terms) when it appears before the noun (as in, e.g. *aftos o anthropos*), otherwise it stays in situ. *(O) kathe* does not select a DP (DP2 in Szabolcsi's terms) which could host a "raised" Dem in its Spec, DP. *(O) kathe* NPs, however, are marginally acceptable with the lower in the structure anaphoric deictic which does not involve a DP2 projection; as we saw, the demonstrative in this case is supposed to occupy F, a position lower than Num, where the noun is positioned. The schema in (56) above depicts this structure.

The ungrammaticality of *(o) kathe* with a Spec,DP2 demonstrative can also help us understand why *kathe* excludes DS/polydefinites. On the basis of the above, I will agree with Etxeberria and Giannakidou (2010) and Lazaridou-Chatzigoga (2009), who conclude that *kathe* is not a DP but a QP. Definite DPs (DP2s) allow DS and are compatible with demonstratives. QPs, on the other hand, are not like that.

In Chapter 1 I proposed that *kathe* but not *o kathe* NPs may exhibit a kind reading. Let us now see how *kathe* and *o kathe* behave with the adjective *tetjios*, meaning "of this kind":

- (62) *(*O) kathe (tetjios) anthropos tetjios* aksizi tin simparastasi mas.
(The) every such man (such) deserve.3sg the help ours.
"Every (any) such person is worthy of our help."
- (63) **Oles i tetjies prospathies* aksizun tin voithia mas.
All the such efforts deserve.3pl the help ours.
- (64) **Tetjies oles prospathies* aksizoun thn voithia mas.
The such all efforts deserve.3pl the help ours.
- (65) *Tetjies prospathies, oles aksixoy (oles) tin voithia mas.*
Such all efforts deserve.3PL (all) the help ours.
"All this kind of efforts are worthy of our help."
- (66) *Se (*stin) kathe tetjia periptosi, kaleste tin astinomia.*
In (in the) every such case, call.2PL the police.
"At any such event, call the police."

(62) confirms the proposal that *kathe* NPs exhibit a kind reading, whereas *o kathe* NPs do not. We also recall from Brisson (1998), mentioned earlier, that *all the* NPs cannot appear in generic contexts (63) whereas *all NPs* can. The same reason could apply for the ungrammaticality with *oles i tetjes prospathies* here (63), the only option available for Greek, since **oles prospathies* is not an option in the first place. It seems that definite descriptions are not admitted in generic contexts and so do *o kathe* NPs. The full explanation is given in Chapter 4. In (65) we also note that *tetjios* behaves as a hanging topic (cf. Cinque 1977 on the term). The (syntactic) reason why it should be ungrammatical with *oli* in (63), (64) and not in (65) nonetheless escapes us. We can only imagine a semantic reason for this ungrammaticality or unacceptability: *tetjios* can be translated as “of this kind” thus it must be compatible with generic, kind-reading contexts. Hence *kathe* (kind reading) is compatible with *tetjios*, whereas *o kathe* is not.

As we will see in the next Chapter in more detail, English *every* is viewed as partial distributive, compatible with generic contexts, while *each* is viewed as total distributive (Tunstall 1998). *Every* and *each* are regarded as instances of weak and strong Distributivity in Beghelli and Stowell’s (1997) terms, respectively. In this sense, *o kathe* cannot be compatible with a kind reading¹⁷. This is why it is incompatible with *tetjios*. In the context of my proposal, this means that *o kathe* NPs context set variable cannot be bound by a Gen operator, whereas that of *kathe* NPs can.

So far we’ve seen that (*o*) *kathe* takes an NP (or an empty DP1) as its complement; its syntactic distribution is different to other quantifiers (e.g. *oli*, *polli*); it is also different to *oli* with regards to its distribution with wh-phrases. Consider the following examples:

- (67) Irthan oli? Pji oli?
 came. 3pl all? Who all?
 “All of them came?” (lit: Who all of them?)
- (68) Oli irthan? Oli pji?
 all came.3pl. All who?
 “All of them came?” (lit: All of them who?)

¹⁷ In its strong *each* use, since, as we have seen, it also has weak Free Choice uses.

- (69) a. ?Dhen boris (*tin) *kathe pja katastasi*?
 not stand.2sg (the) every which situation?
 “Which situation you can’t stand?”
- b. ??*Kathe pja katastasi* den boris?
 every which situation not stand.2sg
- c. **Pja kathe* katastasi den boris?
 which every situation you can’t stand?

Here we observe that, unlike *oli*, which may appear both before and after a wh-pronoun both in an in situ and in an ex situ wh-question, *kathe* may only appear before the wh-pronoun, in an in-situ, echo question. However, I only offer this as an observation, as at this point I cannot pin down exactly what the above data and differentiation indicate. A possible explanation could be that the echo wh-pronoun is *in situ*, so *kathe* can select the DP1/ NP that contains it, while it cannot do so when we have wh-*ex situ*, in which case the wh-word should occupy a C position. *Oli*, on the other hand, selects a DP2 as a complement, so this configuration is possible. Another interesting observation could be that **pja kathe* does not agree with Beghelli & Stowell’s (1997) proposed schema, where Interrogative Quantifiers are placed higher than Distributive Quantifiers.

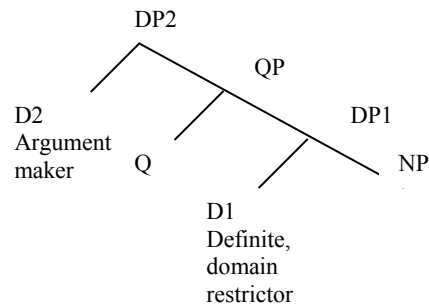
Let us now check the interaction between our elements and intensional adjectives:

- (70) (*O) *kathe ipotithemenos ipopsifios* irthe.
 Every supposed candidate came.3sg
 “Every (*each) supposed candidate came.”
- (71) (O) *kathe tixeos troxonomos* mpori na su kopsi prostimo.
 The every random traffic policeman can to you cut.3SG ticket
 “Just any / every random traffic policeman can give you a ticket.”

Here we observe that *kathe* is grammatical with intensional adjectives, such as *ipotithemenos* (*alleged*) in an episodic context, whereas *each-* interpreted *o kathe* is not. The *each* reading is not available with intensional adjectives. What an intensional adjective may do is force the Free Choice interpretation of *o kathe* NPs simply because this interpretation is the only one compatible with modal contexts.

At this point we are in a position to go back to the syntactic structure for (*o*) *kathe* phrases I presented previously in (37b, c) in more detail. First, I remind the reader that I adopt Szabolcsi's (2010:197: 19) structure which I repeat here from (9) and (37a):

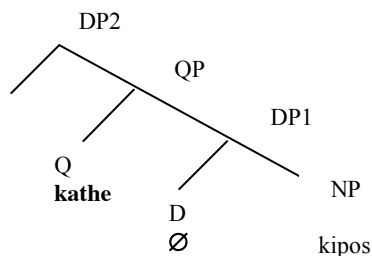
(72)



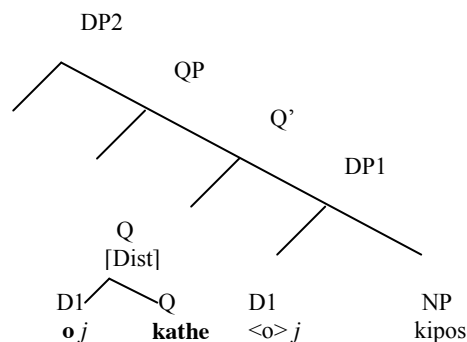
Adopting this structure allows us to capture not only the *o kathe* phenomena in Greek, but also the definite vs. kind or expletive use of the definite article in Modern Greek, cf. (35 d, e, f) and Chapter 4. Furthermore, this structure may provide a syntactic account for the co-occurrence of the definite article with *kathe* in *o kathe*. The QP projection as home to non-definite *o kathe* explains syntactically why the phrase is not definite-referential.

Based on (72), and given the distribution of (*o*) *kathe* NP we've seen so far, I propose the following structure for *kathe* and *o kathe* NPs, respectively:

(73) a.



b.



Let me explain the structures proposed above. The structure I adopt also includes NumP and FP, which I omit here for simplicity reasons. I assume along with Giannakidou (2004), Lazaridou-Chatzigoga (2009) and Etxeberria & Giannakidou (2010) that *kathe* merges under Q. On top of that, I propose that *kathe* carries an interpretable [Dist] feature which, as will be shown in Chapter 4, Agrees with a Dist operator in the C domain. I assume that the DP1 position, as in Szabolcsi's above structure, is more or less equivalent to AgrP of AHS's structure. In D1 position determiners satisfy agreement features. So what the DP1 *kathe* seems to select is not a "real" DP, but, descriptively put, a projection of the Noun's inflection. In this sense, the Greek DP1 projection can be viewed as close but not identical to Ritter's (1991) Num P. In essence, *kathe* seems to select an NP (more accurately, a Num P, since I have previously assumed that in Modern Greek N raises to Num).

The syntactic data examined so far indicate Q as the most appropriate position of *kathe* in the DP. Given the above structures, we also need to account for the different readings. Anticipating the discussion in Chapter 4, I argue following Szabolcsi (1997, 2010) and Beghelli & Stowell (1997) that Distributivity is present in *kathe* but not in the sense of a Distributive operator as such. Instead, I argue that *kathe* expressions involve element variables on the NP that need to be bound by a sentential Distributive operator. In syntactic terms, *kathe* carries a [Dist] feature that Agrees with a Distributive operator which is situated in the left periphery. On top of that, the context set variable of the NP also has to be bound by a contextual, clause typing operator residing in C. Until then the expression is neither a complete, referential expression, nor a Generalized Quantifier, yet. When the (o) *kathe* expression is bound

by the Definiteness operator, the expression acquires a universal reading. If, on the other hand, the element variable of the *kathe* NP is bound by a Gen Op, the phrase acquires a kind interpretation. The FC reading involves binding by an Existential operator plus an extra intensional (or modal) operator (detailed analysis in Chapter 4).

Let us now examine the difference between *o kathe* and *kathe* in more detail. When *o* enters the computation, it merges at D1 in order to satisfy case and gender agreement with the NP. Because *kathe* is deficient with respect to these features, *o* adjoins to *kathe*, as a morphological affix would do. The definite determiner, being fully inflected for case and gender, disambiguates agreement for uninflected *kathe*. Here remember Abney's views we saw in 1.1. (that Q and D may be hosted under the same head or, if that is not the case, that we can have N to D movement) and our hypothesis of the morphological provenance of pronouns like *o kathenas* in line with Abney's explanation of *everyone*.

In any of the above structures, I argue that the definite article in Greek in general may occupy either D1, when it is used as an expletive (or as an *art* in Roehrs (2006) and Julien (2002) proposal), or D2, via movement, when it is used referentially, as a real definite determiner. In other words, the position where the definite article is first merged is D1, due to the agreement features it carries. It moves to D2 in referential contexts, in which case it gives rise to a definite interpretation associated with referentiality. This should happen with simple definite *o*, *i*, *to* NPs when the context set variable of the *o* NP is bound by a Definiteness (Def) sentential operator (more details in Chapter 4). However, *o*, *i*, *to* in the *o*, *i*, *to kathe* expression never moves to a D2, by virtue of being adjoined to *kathe*, which is situated in Q, below DP2.

So the definite article does not have any referential properties here, since it cannot further raise to D2. Movement to D2 would necessarily involve the *o kathe* complex (assuming that excorporation is not possible), something which is independently excluded due to the properties of *kathe*. *Kathe* NPs can be bound by the Definiteness operator; however, they cannot be referential "proper". In Beghelli & Stowell's (1997) theory, largely followed here, this would amount to *kathe* being like *every*, a DQP that can occupy a position either in Share P (in its "weak" reading) or in DistP (in its "strong" reading), but not in RefP which is destined for referential expressions and situated higher than DistP in the LF structure they propose. This is why we do not have Determiner Spreading or compatibility with demonstratives for *o*

kathe, unlike what happens with referential DP2 expressions¹⁸. However, I do not propose that the different readings (*o*) *kathe* NPs yield are the result of occupying a different position in the DP or CP structure. On the contrary, I propose that *kathe* invariably occupies a Q position, offering a context variable to be bound by a different sentential operator each time. It is the latter that determine the actual quantificational force and interpretation of the expression (more on this in Chapter 4).

Furthermore, since Q is a quantificational position, bound by the Distributive operator, the definite article in that position does confer some restriction on the element variables of the NP that the Distributive operator binds. To be more precise, it further individuates the elements of the set the Distributive operator binds. In this way we get the result described by Giannakidou (2004) and Etxeberria and Giannakidou (2010) as Determiner Domain Restriction (DDR), an issue we discuss in Chapter 4.

At this point, we take into consideration what happens inside the DP. In Chapter 4 we will further examine how the DP interacts with the distributive operator in the clause structure, giving rise to the desired interpretation(s). Anticipating the discussion that follows, the idea is that (*o*) *kathe* NP is not syntactically and semantically ‘complete’ as an expression before it enters an Agree relation with a designated operator in C.

2.4 Greek and English: A comparative view of QPs and DP2s

In this section we examine the distribution of the element in question in comparison to the distribution of Greek *oli i* NPs, and English *every*, *all the* NPs and *all* NPs. This discussion brings to the fore the English *all* and *all the* NPs distinction. I briefly discuss some relevant data from the syntactic distribution of these expressions in Greek and English and present a tentative analysis of English *all*, *all the* and *every* NPs in the spirit of my proposal for (*o*)*kathe* NPs presented in the previous section. The data provide evidence for our analysis of (*o*) *kathe* NPs as QPs but also for an analysis of Greek *oli i* NPs and English *all the* NPs as DP2s. On the other hand, *all* NPs seem to be either NPs or DP1s by A’ adjunction. English *every* NPs also seem to constitute QPs, like their Greek counterparts, whereas *each* NPs seem to constitute referential DP2s.

¹⁸ Some indicative examples could be: *o Jiorghos (George) to ena pedhi (one of the two children)*.

Let us observe the data that lead to these conclusions¹⁹:

- (74) a. *Emis (i) *kathe* Elinidha.
we (the) every Greek
b. *esi (i) *kathe* Elinidha.
you.sg (the) every Greek
c. **kathe* esi Elina.
every you Greek
d. **kathe* o Elinas.
every the Greek.
e. **kathe* aftos Elinas.
every this Greek.
- (75) a. oli i Elines.
all the Greeks
“All the Greeks.”
b. oli emis (oli) *(i) Elines.
all we (all) the Greeks.
“All we Greeks.”
c. oli afti i Elines.
all these the Greeks
“All these Greeks.”
- (76) Ola ta kala (ta) pedhjia edho mazeftikan.
all the good the children here gathered.3PL.
“All the good children gathered here.”
- (77) a. All you Greeks.
b. All the Greeks.
c. *you all Greeks.
d. All these Greeks.
e. *all they Greeks.
f. They all call themselves (*all) Greeks.
- (78) a. *every you Greek.
b. *every the /this Greek.

¹⁹ I present elliptical sentences with only the nominal phrases here in order to focus the attention on the internal structure of the DP.

- c. *you every Greek.
 - d. every me and every you.
 - e. *every him / they Greek.
 - f. *they every call themselves Greeks.
- (79)
- a. *each you Greek.
 - b. *each the / this Greek.
 - c. *you each Greek.
 - d. *each me and each you.

Let's start with *oli i* NPs. I do not intend to provide a full account, but a few remarks are necessary here. A possible analysis is to take *oli* as a modifier adjoining to a DP2, as in the above examples we indeed observe that *oli* seems to modify a DP2. The presence of the definite article (75a, b) as well as the demonstrative (75c) in its complement phrase indicate this. *Oli* is also compatible with a personal pronoun (75b), which is definitely an occupant of a position in the DP, as we saw previously, discussing Modern Greek DP structure (cf. Panagiotidis 2002). Finally, the DP that *oli* modifies exhibits DS, as (76) shows. This means that *oli* (immediately) modifies a DP2, a referential phrase and not a DP1, because the latter is not referential and it cannot spread. In the general structure for the DP I adopted from Szabolcsi (2010) as (9'), *oli* could only select a DP2 if we take it to be a modifier. In this case the *oli i* NP is a DP2 phrase itself.

On the other hand, *(o)kathe* phrases are not grammatical with the structures in (74a - e). The reason why *(o) kathe* is not admitted with personal pronouns may be the same as the one why *(o) kathe* is incompatible with non-restrictive relative clauses: *(o)kathe* is incompatible with apposition. Another possible explanation, if we adopt Panagiotidis' (2002) view on personal pronouns as D heads also encoding phi-features, is that personal pronouns occupy a D1 position and that *kathe* cannot select a DP1 with an overt D1. The reason why *kathe* cannot do this is that it needs the phi-features of D1 to check agreement because it is uninflected. Alternatively, personal pronouns could also possibly occupy a D2 position but in this case again *kathe* selecting a DP2 is totally out of the question.

English data with *all* in (77 a - d) may be also explained by this reasoning: *all* is a modifier that selects a DP2 with *the* and *you* in D2 or D1. *Every*, on the other hand is a Q that must select an NP or even a DP1. The reason why I say this is

because of (78b); *every* cannot be followed by the definite article or a demonstrative which could be viewed as occupying a D2 position in this case, while *all* can. Another reason is that *every* phrases, as we saw, exhibit quantificational variability, which would be inexplicable if it was a (real) definite determiner that could only occupy a D2 position. English *every*, in line of relevant suggestions by B&S, is susceptible to binding by different sentential operators. In the frame of my proposal this means that English *every* may occupy a Q when interpreted generically or as an indefinite (which could be the case for the idiom in 78d) and a D2 position when interpreted definitely, unlike *each* that receives a stable referential, definite D2-position reading as (79) indicates. (79a - d) can be viewed as evidence that *each* is in complementary distribution with demonstratives, definite determiners and personal pronouns. This combined with the fact that *each* NPs invariably exhibit a definite, referential (as well as distributive, universal) interpretation lead me to conclude that it must always merge in the D2 position. So, unlike *kathe* and *every* which are restricted to Q, *each* is a D element.

In the same line of thought, the incompatibility of *all the* NPs with a generic reading constitutes more evidence that in *all the* NP *all* selects a DP2:

- (80) a. All the girls came in.
b. *All girls came in.

Brisson (1998:7) observes that *all* always selects a definite DP, not an NP in episodic sentences. In other words, episodic sentences with *all* NPs are not felicitous (or even grammatical). This, in the context of the proposed analysis which evokes quantificational dependence of the DP to sentential operators, may be interpreted as follows: unlike *all the* NPs, *all* NPs do not constitute DP2s, but DP1s that are bound by a Generic sentential operator and yield a kind interpretation (as it happens with generically interpreted *kathe* NPs). This is how (77f) may be explained. Anyway, *all* is a modifier that may adjoin either to an DP1/NP or a DP2. *All the* NPs are DP2s, proper definite expressions that match the Definiteness operator that ranges over the (unique) event argument and the context set variable of the expression. *All the* NPs are compatible with the Def Op in C, being DP2s, whereas *all* NPs, not being DP2s but DP1s (or even simple NPs), are not. In other words, *all the* NPs could Agree and

be compatible with the sentential Def Op, whereas *all* NPs don't. This is a possible explanation for the English data in the context of the analysis I propose here.

My approach is in line with previous observations in the literature. Dowty (1987) proposes that *all* is an adverbial, since it can combine with numerals. It has a maximizing effect, distributing over sub-entailments. This proposal is taken up by Brisson (1998) for *both* and *all*. Zamparelli (2000) observes that *tutti*+N in Italian has the restricted distribution of a bare plural. According to him, this shows that *tutti* is not syntactically a Det, in the sense that it doesn't itself license a DP.

With regards to *all* NP, the situation is different. As Szabolcsi (2010: 193) points out: “*all* NP and *most* NP matches that [reading] of bare plurals on the generic reading (Partee 1995; Brisson 1998; Gil 1995) or on Condoravdi's (1994) so-called functional reading”. This observation suits the proposed analysis that *all* is a modifier – adjunct that can adjoin to NP as well (or to DP1, which would be the same), rendering an NP, i.e. a non- definite, non referential expression: *all* NP. This indefinite expression can then be subdued to quantificational binding by different sentential operators in the same manner as I propose for (*o*) *kathe* expressions in this thesis.

Let us now return to Greek *oli* and check some data with clitics:

- (81) a. Tus idha olus.
 them saw.1sg all
 “I saw them all.”
- b. Ola ta vivlia ta dhiavasa (ola).
 all the books them read.1sg.
 “I read all the books.”

As we observe from the above data, the DP modified by *oli* may exhibit clitic doubling (81b) and clitic left dislocation (81a). This can again be viewed as evidence that *oli* modifies a DP2. As observed before, the DP following *oli* can spread, as the following sentences show, so it must be a DP2. Furthermore, *oli* can also float (*ola* is neutral plural form of *oli*) (81 and 82):

- (82) Ola ta pedhia ta kala (ola) edho mazeftikan.
 all the children the good all here gathered.3pl.

“All the good children gathered here.”

Summing up, *oli i* NPs, in opposition to *(o) kathe*, exhibit a more definite-like behavior, since they allow for clitic doubling of the following DP; plus, the DP following *oli* (in the *oli i* construction) can spread. This is an indication that *oli* precedes / modifies a DP2, which can individually spread. This in the context of the current approach can be viewed as evidence towards a DP2 analysis of the phrase: *oli* in this case should be a modifier to DP2, projecting a DP2.

The fact that *oli*, like English *all*, can float (82) can also be explained by a modifier-adjunct analysis of *oli*: In this case, the DP2s should have moved to a higher Topic or Clitic position, *oli* remaining in situ. On the other hand, clitic doubling is not possible with either *kathe* or pronoun *kathenas*, unless there is adverbial modification denoting distribution (*xorista*, *enan-enan*, “*separately, one by one*”):

- (83) a. *Ton idha (ton) *kathe mathiti*.
 him saw.1sg him every student
 b. Ton idha (ton) *kathe mathiti xorista*.
 him saw.1sg him every student separately
 “I saw each student separately (individually).”

In this case, only the *o kathe* phrase is acceptable; this may be viewed as an indication that the counterpart to English *each*, *o kathe*, is “more referential” than *every*, as May (1985) puts it for *each*, but, unlike *each*, still not a definite expression DP2. However, *o kathe* NPs yield a more “familiar” reading (than *kathe* NPs). The latter difference is related to the different degree of familiarity due to DDR (Determiner Domain Restriction) the *o kathe* NP encompasses. With regards to the distribution adverb (*xorista*) needed, we can stipulate that it makes a salient reading for the *kathe* NP more prominent, thus in a way facilitating clitic doubling. It is a distributive or a focus adverbial, which can be viewed as encompassing either a Dist, a Focus or even a Def operator. This is not a sufficient explanation, though, and we should look into this further in subsequent chapters.

The discussion in this section shows that English *all* under the proposed analysis for *(o) kathe* NPs can be analyzed as a modifier adjoining either to DP1/ NPs forming *all* NPs, subject to a kind interpretation, or to a DP2, forming *all the* NPs, and

receiving a definite interpretation, projecting a DP2. English *each*, being invariably definite in all environments and readings, must constitute a D2, forming a DP2. In line with the above, English *every* can be viewed as occupying a Q position and as being subject to the binding of different sentential operators. Given the permitted readings of the expression reviewed in Chapter 1, *every* NPs should receive a kind interpretation when bound by a Gen Op or a universal interpretation when bound by a Def Op, pretty much like it happens with Greek *kathe*. There is a lot to be said about this proposal, but due to space limitations I will leave any further considerations for future research.

The issue of how weak and strong determiners behave in syntax is tangential to our analysis, since I propose an alternative approach on how quantification is rendered. Let's see an example of how the two categories are allegedly differentiated in Greek. For Greek it has been argued that the definite article may only combine with strong determiners (Quantifiers), as in Etxeberria & Giannakidou (2010) and Lazaridou-Chatzigoga (2009). For instance, Lazaridou-Chatzigoga (ibid: 94) assumes that "the definite article cannot combine with weak quantifiers". As we saw previously, despite the fact that a hierarchy of quantifiers has been proposed and generally accepted since Ioup (1978), the question of what exactly a weak quantifier is and where it is situated in the syntax is still open.

Let us observe the following data and see which determiners can actually combine with the "definite" article:

- (84) a. *O opjiosdhipote jiatros efevje.*
 The whichever doctor left.IMP. 3sg
 "Whichever doctor could leave."
 b. *I opjidhipote jiatri efighan.*
 The whichever doctors left.3pl
 "Whoever was a doctor left."
- (85) a. **I meriki / kapji jiatri efighan.*
 the some doctors left.3pl
 "Some doctors left."
 b. **I ligi / poli jiatri efighan.*
i LIGI / POLI jiatri efighan.
 the few/many doctors left.3pl

- “The minority / the majority of doctors left.”
- (86) a. *O kathe jiatros efevje.*
 The every doctor left.IMP.3sg
 “Each doctor left.”
- b. **I oli jiatri efighan.*
 the doctors left. 3pl.

As we can see, the definite article may combine with weak determiners as well as with (standardly assumed) strong *kathe*. My view on the issue is that quantification is a sentential phenomenon, since this is where scope is determined, so determiners do not incarnate quantifiers²⁰ per se; they rather (as part of a DP, together with the NP) express a variable that is bound by the sentential operator / quantifier or, in syntactic terms, a feature that Agrees with an operator in C.

In this sense, all the above examples show that determiners such as *opjiosdhipote*, *opjios*, which are considered to be weak, may combine with a definite and an indefinite article. I argue that this is evidence that the compatibility with the definite article is not a solid criterion for telling if a syntactic determiner is per se strong or not. Determiners do not form Generalized Quantifiers (GQs) as QPs (or DPs). GQs result on a sentence level. In other words, as Kratzer (2005) and Szabolcsi (2010) propose, quantification is a phenomenon involving the whole sentence, not just the DP / QP. This does not mean that the different features attributed to semantic strong and weak determiners do not hold under the present analysis. I do not make a claim on the semantics of these expressions. The point this thesis makes pertains to how syntax relates to the semantics of these expressions.

2.5 Summary

The most important conclusion that comes up from the discussion in this Chapter is that, judging from a clearly syntactic point of view, *o kathe* is not a definite expression. Its incompatibility with DS and demonstratives leaves no doubts about this. In syntactic terms and according to my proposal that assumes Etxeberria & Giannakidou (2010), this means that *o* occupies a D1 position and that it adjoins to *kathe* in Q. According to Szabolcsi’s (2010:197:19) proposed structure for DPs which

²⁰ This argument involves quantificational determiners such as *kathe* and *every* and not adverbials such as *panda*, *xorista* etc. I take such adverbial phrases to straightforwardly embed sentential operators.

I adopt, the D1 position involves agreement features. D2 encodes referentiality and argument-making or, in semantics talk, a Generalized Quantifier status (as we will see in detail in the next Chapter). In the case of *(o) kathe* this position is left empty. This is very important for the theory of sentential dependency for Greek indefinites that the present work invokes. The definite article does however restrict the denotation of Q, conveying familiarity as in Ettxeberria & Giannakidou (2010). We examine more details of how this happens in the next chapter.

The discussion of the syntactic distribution of *(o) kathe* in this Chapter allows us to reach some initial conclusions, as it also leaves a number of issues open. First of all, *o kathe*, Greek *each* has a slightly different syntactic distribution than *kathe*, *every*. Another fact is that *(o) kathe* selects an NP, or a DP1, not a DP2. This becomes evident from the RRCs, demonstrative and Determiner Spreading (DS) data we examined. I propose that *kathe* is an indefinite lexically specified for the feature of Distributivity. The *kathe* NP, unlike *o kathe NP*, is compatible with CLLD and marginally with clitic doubling, unless a RRC comes to the rescue, creating a subtriggering effect. The morphology of *kathenas* indicates that cardinals are situated lower than Q, as generally expected.

My proposal is that *kathe* occupies the Q position. The evidence we have so far is that *kathe* is a Q that selects a DP1 that cannot be overt. The latter in turn selects an NP / NumP. In the case of *o kathe*, the D1 has to left adjoin to *kathe* as Giannakidou (2004) and Ettxeberria & Giannakidou (2010) propose, in order to provide phi-features to *kathe*, which lacks it. In the case of *kathe* NPs I assume that there is no *o* in the numeration in the first place so there is no D1 present. The phi-features of *kathe* are satisfied by Num, since there is no overt D1 to intervene between Q and NumP / NP.

In this chapter we have visited and analyzed the distribution of the *(o) kathe* elements mainly within the limited environment of the nominal phrase. When we had to examine the element in the clause, we tried to restrict the discussion to episodic sentences- a few generic and modal contexts came up occasionally. The reason why we chose episodic contexts is that the readings we get in different clausal environments are richer than the ones we examined here. So we have not examined the phrase in relation to different types of clauses, tense, aspect, and modality. This is the subject matter of Chapter 4. Thus, examining the nominal data, I offered a

proposal of the internal syntactic structure of the (o) *kathe* NPs as well as an analysis of English *all*, *all the*, *each* and *every* NPs.

Chapter 3: *Everything, anything*

In the previous Chapter we proposed a syntactic structure for the *kathe* and *o kathe* QPs. In this Chapter we dig a little deeper into the interpretations of the two expressions, with an emphasis on the QP. Our purpose is to detect and explain the semantic notions relevant to an LF account of the phenomena in hand, not a strict formal semantic analysis. We concentrate, as in the previous Chapter, on how Distributivity and universality are manifested by *(o) kathe* NPs. We begin our investigation with a relevant semantic review on *each* and *every*, followed by an analysis of various data with *kathe* and *o kathe* NPs. The second part (section 3.5-3.6) discusses *(o) kathe* NP adverbial, kind and Free Choice (FC) uses, refraining from an in depth-analysis of the role vP and CP play in the interpretation of the particular phrase; this is discussed in Chapter 4.

3.1 The GQ type

In this section we return to the basic semantic notions discussed in Chapter 1 (1.2). Syntax remains the focus of this thesis, so the purpose of the brief survey here is to explain the syntactic and LF background of our analysis, following the Generalized Quantifiers tradition. Elements of two relevant theories, Discourse Representation Theory (DRT) as in Kamp (1981) and File Change Semantics (FCS) as in Heim (1982) also appear in the discussion.

Montague (1970, 1973) was the first to propose that, in natural language, all nominal phrases that current syntactic theory regards as QPs and DPs we saw in Chapter 2 denote Generalized Quantifiers (henceforth GQs). Before him, Mostowski (1957) had launched this idea in predicate logic (in Barwise & Cooper 1981:159 as well as in Szabolcsi 2010:7). Barwise and Cooper (1981) further elaborated the notion of GQs for natural language semantics. As we saw in 1.2, the semantic type of such nominal expressions in (a purely extensional logic²¹) according to the standard GQ

²¹ Roughly, the difference between extensional and intensional semantics is that the former involves one world comprising a specific number of individuals, while the latter takes into consideration more

framework (Barwise & Cooper (1981), Higginbotham & May (1981), Westerståhl (1985), Partee (1987), Keenan (1996), Keenan & Westerståhl (1997), Giannakidou and Rathert (2009), among a plethora of others) is $\langle\langle e, t \rangle, t \rangle$, e standing for “entity” and t for “truth value”. Abstracting from a strict definition, we can say that a GQ is a function that takes a VP (predicate) as its argument and yields a truth value (True or False) for the proposition.

Traditional grammars refer to all quantificational determiners as definite or indefinite pronouns (Giannakidou 2012: 293). In these terms, determiners are understood as noun-accompanying words totally different from adjectives or numerals. A quantificational determiner (cf. Partee 1995, Keenan 2012) in the GQ framework is of a type $\langle\langle e, t \rangle, \langle e, t \rangle, t \rangle$. Quantificational Determiners combine with a first order predicate NP $\langle e, t \rangle$, to form a quantificational nominal second order predicate QP, which denotes a GQ, a set of sets, of type $\langle\langle e, t \rangle, t \rangle$. Partee (1987) noticed that it is rather difficult to view expressions such diverse as predicate nominals, strong quantified subjects or proper names as denoting the same type (a GQ, in Montague’s initial proposal) as in the examples that follow:

- (1) John is *a doctor*.
- (2) *A doctor* gave me pills.

She proposed that the semantics of a nominal expression are also determined by syntax and that the basic NP types are e (referential), $\langle e, t \rangle$ (predicative) and $\langle\langle e, t \rangle, t \rangle$ (quantificational), with the latter type being the most general (ibid: 115). A nominal expression, she argues, can usually have all or any of the above denotations, through “type-shifting”. According to her view, nominal expressions may be of type $\langle e \rangle$ for referential DPs (such as proper names-at least in their standard denotation), $\langle e, t \rangle$ for predicative nominals (properties, i.e. sets of individuals, in the extensional logic used by Partee) and $\langle\langle e, t \rangle, t \rangle$ (sets of properties, i.e. sets of sets of individuals)

parameters, such as different possible worlds that may exist inside or outside of the mind of the speakers. Intensions are functions from possible worlds to appropriate extensions (Heim & Kratzer 1998: 302). In an extensional semantics, the denotation of, say, a DP, is the actual individual referred to, an entity $\langle e \rangle$. In an intensional semantics, the denotation of a DP is a function that ranges over possible worlds (among other parameters) and yields $\langle e \rangle$.

for GQs. Indefinite expressions may shift between different types by the use of lexical type-shifting operators such as BE (the copula verb “be” in natural language). According to Kripke (1980), proper names, on the other hand, constitute rigid designators, having a fixed reference to an individual in all possible worlds and models; so they can be more conveniently viewed as type $\langle e \rangle$ expressions, even though they can derivatively be of type $\langle \langle e, t \rangle, t \rangle$ (Partee, *ibid.*).

However, the type-shifting theoretic approach cannot possibly explain all different denotations of nominal expressions, such as the one posed by the specific readings of indefinite expressions (*an X*, *a certain X*, *certain* being a specific marker). Observe (3, 4):

- (3) A man walked in. It was just a normal guy. But everyone panicked.
- (4) A man walked in. It was Jack the Ripper. # But everyone panicked.

In the first example “a man” is not interpreted specifically (*non-specific, unknown* in Haspelmath’s 1997 terminology), while in the second example, it is (specific and known). A *man* may have an $\langle e, t \rangle$ denotation but also an $\langle \langle e, t \rangle, t \rangle$ and an $\langle e \rangle$ denotation, (cf. Partee 1987: 116). Presenting a type analysis for sentences such as (3) and (4) above is out of the range for the discussion here. Glossing over the relevant theoretical controversy, for the sake of the presentation here, let us assume that “a man” can be of type $\langle \langle e, t \rangle, t \rangle$ in both (3) and (4). In (4), it could also be interpreted as of type $\langle e \rangle$. However, the specific / non specific differentiation of indefinite phrases cannot be totally grasped in type- theoretic terms alone.

Specificity in all its different accounts always involves the notion of “referential intention”, i.e. the particular object the speaker really intends to mention or talk about, the object she has in mind. Much of the relevant literature has to do with specific indefinites, alias wide scope indefinites, or *de re* vs. *de dicto* readings of indefinites, or referential vs. attributive use indefinites, to name just a few of the other terms these indefinites have been characterized by.

According to Heusinger (2010), there are seven different types of phenomena that have been involved in the notion of specificity: (i) *referential specificity*, related to existential entailment, (ii) *scopal specificity* involving island-escaping indefinites, (iii) *epistemic specificity* (speaker’s knowledge), (iv) the type associated with

different types of familiarity such as d-linking (Pesetsky 1987), partitivity (Enç 1991), and presuppositionality (or the contrast between weak and strong quantifiers Diesing 1992, de Hoop 1995), (v) specificity related to the topicality potential of indefinites, (vi) *specificity as noteworthiness*, and last (vii) *specificity as discourse prominence*.

Type (iv) is the one that interests us here because of the notion of determiner domain restriction (DDR), contextual salience and familiarity that we will advocate. These notions bear resemblance to the core notion of specificity as described by Heusinger, the notion of “referential anchoring”: The referent of a specific indefinite is functionally dependent on the referent of another expression. What comes up from the above discussion is that in order to account for specific and, I propose, definite uses of nominal phrases we have to take into consideration pragmatic, contextual information. How we will embed this in the syntactic analysis of the quantificational phenomena in hand is a matter of choice. We can assume along Rizzi (1997) that properties like Definiteness, Focus, Topic may also be encoded in syntax; core properties are also syntactically present before they get contextually enriched. The overall subsequent discussion will reveal the details of the particular approach the present thesis adopts.

3.1.1. *Specific indefinites*

Specific indefinites like *a man* in (4) above are supposed to acquire their specificity through wide scope or Quantifier Raising (henceforth, QR), at LF. QR and Logical Form (LF) were first introduced by Chomsky (1976), May (1977) mainly to account for the inverse scope of existential indefinites (in traditional, pre-Heimian terms) and universals. In general, the quantifier scope of *every* NPs is clausebounded (5), the scope of singular indefinites on the other hand is not (6), while singular indefinites even escape islands such as complex DPs as in (7) (examples from Szabolcsi 2010:91-92, her 1, 2, 3) :

- (5) A colleague believes that every paper of mine contains an error.
‘for every paper of mine there is a potentially different colleague who believes that it contains an error.’
- (6) Each colleague believes that a paper of mine contains an error.
‘There is a paper of mine such that each colleague believes it contains an error.’

- (7) Each colleague overheard the rumor that a paper of mine contains an error.
 ‘There is a paper of mine such that each colleague overheard
 the rumor that it contains an error’

Within Partee’s (1987) framework, Diesing (1992) proposes that specific indefinites (such as indefinites modified by a partitive, e.g. “a student of mine”) behave like the quantifiers *both* and *every* which are presuppositional and undergo QR at LF. This amounts to the formation of a GQ denotation.

Diesing’s view faced the empirical challenge that it is possible to coordinate specific with non-specific indefinites in a sentence. I give the following example in Greek where definite-specific *that friend of yours* is coordinated with the Free Relative, non-specific, indefinite *whoever you want*:

- (8) Pes se *ekinon ton filo su ke opjon alon thes* na erthun sto parti.
 Tell.2sg to that the friend yours and to whoever else want.2sg prt come.3pl to-
 the party.
 “Tell *that friend of yours* and *whoever else you want* to come to the party.”

This is not expected under Diesing’s view, since under the Same Type Coordination Principle (Munn 1993) two (or more) syntactic conjuncts are expected to be of the same type and therefore Q-raise together, turning both specific²². The free scope of existentials is effectively tackled with by Reinhart’s (1997, 2006) theory of choice functions, in which QR is retained only as a last resort operation. In that particular framework, QR is a tool used to explain the wide scope of universals, which obey islands, while choice functions explain island-disobeying indefinites. Reinhart assumes the standard DRT / FCS view that indefinites are not GQs, but free variables available for binding usually by an existential operator applying existential closure at LF (as a particular technicality, the Specifier in the DP projections of those indefinites is empty in her system). She proposes that bare indefinites denote sets; choice functions are applied on set variables. The existential closure they are related to may occur at different positions at LF and this is how the different readings come about.

²² Coordinations such as *John and every woman* are also, according to Partee (1987:117) a reason for wanting to analyze at least some occurrences of proper names as generalized quantifiers.

In addition to the above, Reinhart also proposes the operation of QR for cases where we may have two readings, an inverse scope reading for the “universal” expression as in “an American flag was hanging in front of *every* building”. The latter involves reference set computation at the level of discourse. Interestingly, she assumes that reference set computation, apart from scope disambiguation and QR, applies to Focus application, adopting the standard analysis of Rooth (1992) on comparing focus sets. Reinhart says that it is not the interface that imposes its needs on syntactic structure, but rather the opposite: the limitations of the structure impose themselves on the interface.

3.1.2 *Distributivity*

In 1.3 we saw a brief discussion on the notion of Distributivity, the nature of the Distributive operator, the notion of pseudodistributivity (roughly, Distributivity with plural indefinite subjects induced by a component in the verbal domain), as well as Szabolcsi’s (2010), crucial for our discussion, proposal about the unification of (in)definites and universals that the present thesis endorses. Here I will not repeat this discussion. I will, however, discuss some background properties of GQs pertaining to Distributivity and present B&S (1997) and Tunstall’s (1998) view on Distributivity and the differences between *each* and *every* in more detail.

The underlying property that makes Distributivity possible is referential variation as in Szabolcsi (1997, 2010). A GQ cannot induce referential variation if its witness set (i.e. a set of individuals that is an element of the GQ and also a subset of the determiner’s restriction set: in “all dogs” the witness set is the set of dogs denoted and not any set of other things) consists of a single element. In other words, singleton witness sets cannot induce variation, and this is what happens with singular *some*, the paradigm used almost always to test the Distributivity of indefinites. It is not a surprise that with a singular determiner like that we cannot attest Distributivity. Szabolcsi (2010) noted that indefinite plurals, on the other hand, may give rise to a distributive reading, on top of a non-distributive one. Compare (9) and (10) below, where plurality in (10) may assign a hat to each person (of the set of people), while lack of plurality in (9) simply excludes a distributive reading:

- (9) Some student forgot to sign his sheet.
- (10) Some people forget their hats.

Indefinite plurals may thus exhibit distributive readings without being universal, due to the fact that they can induce referential variability. The conclusion is then that not only universals but also (plural) indefinites can trigger a distributive reading, along with their standard existential reading. The claim then is that the two categories could be unified under the label of indefinites.

Let us at this point resume some discussion from Chapter 1. The quantifiers that are usually viewed as distributive in the traditional approach are *every* and *each*. But we just saw that Distributivity is not induced by these determiners alone. Apart from indefinites, occasionally *all the* NPs as well as *the three* NPs may yield a distributive reading, depending on the context:

- (11) *Every* boy ate two apples.
- (12) The three friends had two pizzas and a glass of wine.
- (13) All the boys had a pizza each.

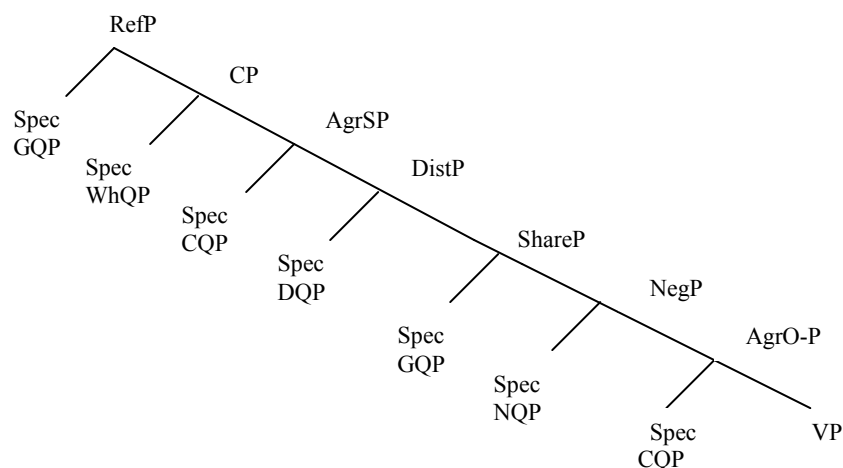
In (11) the QP containing *every* is the distributive key (term by Choe 1987, Gil 1992) (or *distributor*) and *two apples* is the distributive share (or *distributee*). In (12) *the three friends*, the distributors, shared two pizzas, so *two pizzas* is the distributive share, and *had a glass of wine (each)* is also a distributive share. In this example there is no special determiner or adverb to introduce Distributivity. Lastly, in (13) the distributive reading is conveyed by the presence of binominal *each*. Binominal *each* appears to be part of the vP, as it always follows the verb. In Beghelli & Stowell's (1997) hierarchy binominal *each* occupies Spec, ShareP, below DistP in this way forcing *every* NP to occupy the Spec, Dist P position and to be interpreted as universal. Note that according to Beghelli & Stowell (1997, henceforth, B&S), *every* can also occupy other positions, such as Spec, ShareP, in which it doesn't receive a universal distributive interpretation.

Alternatively, the whole of the vP/VP can also be viewed as the distributive share, especially when there is no overt indefinite noun phrase complement:

- (14) [Mary and John] D-key [went to the cinema] D-share.

B&S assume a covert existential quantifier over events, as suggested by Davidson (1967) and Kratzer (1988) among others. They also distinguish between different types of Distributivity, implemented in terms of feature checking theory (at LF) across a quantificational hierarchy (see also Szabolcsi 1997). More precisely, they propose that Quantifier scope is determined by c-command relations at LF, by undergoing movement to designated quantifier positions, thus rejecting the view that all QPs have the same scope possibilities as in May (1977, 1985), Hornstein (1995) among others. They distinguish between five different QP-types, Interrogative QPs, Negative QPs, Distributive-Universal QPs (DQPs), Counting QPs (CQPs: *few, fewer than, at most six*) and Group QPs (GQPs: *a, some, several*). The structure they propose looks as follows (ibid: 76: 2, repeated here from Chapter 1.3, example 13):

(15)



Each and *every* (DQPs) move to the Spec of the DistP, where they undergo Spec-head agreement with the distributive-universal head Dist. Crucially, *every* can also occur in a ShareP position, when it is not used as a distributive, as it is only optionally distributive (whereas *each* is obligatorily distributive). GQPS may also occur in RefP above AgrSP (independent referential use) and in Share P (indefinites with dependent specific reference).

DQPs move overtly in some languages. Despite the fact that the two authors characterize *every* as underspecified for Distributivity but specified for universal quantification [+Universal], while *each* is [+Distributive], they rather seem to

assimilate distributive to universal interpretation in their analysis (ibid:73). They divide the former into strong Distributivity, which may be obligatory (*each*) and optional (*every*) and pseudo-Distributivity or weak Distributivity (*all*). The true distributive quantifier is *each*. *Every* is underspecified for Distributivity and exhibits a quantificational variability similar to that of licensed and bound indefinites “in the sense that its set variable can be bound by negative and generic operators” (ibid:105). I think the criterion for this distinction is that *each* always seems to obtain widest scope. It also seems that for them widest scope plus distributivity equals strong Distributivity, universality. *Each* is not ambiguous, while *every* is.

In short, according to B&S the differences between *each* and *every* are the following: *Each* is endowed with a [+Distributive] feature that must be checked in the specifier of Dist P, while *every* is underspecified for [Distributivity]. The DQP always ends up in the same LF scope position, namely in the Specifier of the Distributive Phrase. *Every-QPs* move to Spec,DistP, only when their set variable is not bound by a lower operator such as negation or the generic operator, under the condition that the set variable introduced by *every* must be bound by the closest potential binder available. So we see that B&S recognize a generic reading for *every* NPs, just as we observed a generic reading for Greek *kathe* NPs in 1.3. What they propose is summarized below (ibid: pp. 91 and 94 respectively):

(16) Strong Distributivity

- a. DQPs headed by *each* / *every* are Strong Distributors.
- b. Strong Distributivity is obligatory.
- c. Strong Distributivity can arise under an inverse scope construal, e.g., where the distributee is in Spec of AgrSP and the distributor is in Spec of AgrOP.

(17) Pseudo-Distributivity (weak Distributivity):

- a. Plural definite and indefinite GQPs (including QPs headed by *all*) are Pseudodistributors.
- b. Pseudo-Distributivity is optional.
- c. Pseudo-Distributivity cannot arise under an inverse scope construal, e.g. where the distributee is in Spec of AgrS-P and the distributor is in Spec of AgrO-P.

Their data and discussion hint towards the fact that *every* is not a strong distributive, in fact; that is probably why they distinguish it from *each* by characterizing it as *optionally distributive*, a trait they attribute to pseudodistributors.

3.1.3 *Every and Distributivity*

So B&S observe that *every NPs*, unlike *each NPs* are a bit of quantificational chameleons (as already seen in 1.3). In a generic context (18a) and (19) (their (100): 36), they receive a kind interpretation. In a different context, they look “definite” (20). Thus, *every* patterns with *all* NPs and, arguably, indefinites, whereas *each* has a constant behavior (18b, 20c) and patterns with definites (examples from *ibid.* 100: 37, 38):

- (18) a. *Every* dog has a tail.
b. *Each* dog has a tail.
- (19) After devoting the last three decades to the study of lexical semantics, George made a startling discovery.
a. *Every* language has over twenty color words.
b. All languages have over twenty color words.
c. ?*Each* language has over twenty color words.
d. ?The languages have over twenty color words.
- (20) George has just discovered some hitherto-unknown languages in Papua New Guinea highlands.
a. ? *Every* language has over twenty color words.
b. ? All languages have over twenty color words.
c. *Each* language has over twenty color words.
d. The languages have over twenty color words.

As we can see, *every* sometimes patterns with *all* + bare NP (indefinite, generic reading) as in (19a), while it also patterns with *each* (definite, with a contextually determined domain of quantification), as in (20). This looks as if the *every* NP behaves as a restricted variable bound by whichever operator happens to c-command it (a Generic Op over events, for instance). This means that these phrases do not act as true GQs of type $\langle\langle e, t \rangle, t \rangle$ we saw before on their own right. More specifically, when *every* DQPs occur in generic contexts they contain restricted variables ranging over

sets; they are bound by a silent generic quantifier, just as if they were indefinites. *Each* NPs, on the other hand, seem more similar to definite *the* NPs. In the above examples the difference between *every* NPs and *each* NPs does not lay with the Distributivity of the two expressions, but rather with the Definiteness the two expressions denote. This is also what distinguishes weak from strong uses of *(o) kathe* NPs according to the main claim this thesis puts forth. The above data already point towards this direction. It is B&S who first, however reluctantly, phrase similar observations.

The two authors subsequently observe vis-a-vis the universal distributive reading of *every* NPs in episodic sentences that the discourse referent *every* introduces (cf. Szabolcsi 1997) in this case must be bound by a silent definite determiner that ranges over the single situation and time or event described by the sentence: an existential quantifier over events.

(21) *Every* boy lifted the piano.

What this means is that there is a particular, past situation *s* and a set *X* of all boys in *s*, such that all the members of *X* lifted the piano. The set variable of *each* is also bound by a definite operator. The sentential Definite Operator (Op) that I propose as responsible for the strong, universal reading of *(o) kathe* NPs (as well as *every* NPs) in Chapter 4 may be viewed as a reformulation of this original idea by B & S.

Here I also note that the universal quantification of the phrase in question in episodic sentences is indirectly linked to the Definiteness of the event, and, in my view, for Greek but not for English, to the Aspect of the verbal predicate (cf. Chapter 4). I exploit this idea and propose that Definiteness and Distributivity of both DPs and VPs (i.e. individuals and events) play a role in the universal reading of *kathe* NPs in general, and not only in episodic contexts. In particular, I propose that Definiteness (maximal or exhaustive reference) combined with Distributivity yields the universal reading. In other words, there is a Definite operator (in the C domain above the Dist operator), like the covert definite determiner Szabolcsi (1997) and B&S (1997) propose for (21), that is implicated in the universal readings of *(o) kathe* in all cases, not only in episodic sentences. In the latter case its presence is simply more evident than in the rest of the cases. If their line of thought is correct, then the (covert) Def Op

in C I propose could constitute an Existential operator, scoping over other operators, in parallel to the silent Def Determiner B&S describe here.

In any case, the solution B&S propose assumes Stowell's (1993) indefinite existential quantifier ranging over situations or times, an existential counterpart of the generic operator²³. The bottom line is that in B&S's view the set variable of the underspecified for Distributivity *every* raises at Spec,DistP only if it is not bound by a c-commanding Generic operator. Rephrasing B&S, this in other words means that *every* NPs receive a Universal interpretation iff they do not receive a kind interpretation (which would ensue as a result of binding by a Gen Op). In the first case, their set variable is bound by the silent definite Det in B&S proposal. Following this line of thought, and anticipating the detailed discussion in Chapter 4, I propose that there is a Def Op in C that is responsible for the universal reading of *every* NPs and (*o*) *kathe* NPs, doing away with the necessity of an extra "silent Def determiner". In sum, the data and analysis that the two authors present us with cast doubts on the inherent universal quantification view for the *every* NP, despite the fact that they choose to focus on other aspects and not to expand on these observations. The present thesis constitutes follow-up research in the direction of these first seminal observations.

Let us now turn to another proposal on the issue of Distributivity. Tunstall (1998) regards Distributivity as a pervading relationship between elements of the nominal and the verbal predicates, a view that fits perfectly the proposal I put forward. According to her (1998: 90), *each* and *every* are distributive; first, because they pick out the individual members of their restrictor set, and second, because the predicate they combine with is understood as applying to each individual member in the quantified set and not the set as a whole. In other words, the elements of the NP and the subevents predicated by the VP are in a way viewed as individuated in distributive readings. The two expressions require multiple, or distributive, event structures, and a number of different sub-events the members of their restrictor set can be associated with. In this way, Tunstall recognizes Distributivity as applying both on the DP and the VP and as connecting the two. As we will see in Chapter 4, in tune with Tunstall (1998), I propose that this happens because the Dist Op resides in the C domain binding / Agreeing with DP and VP internally.

²³ Stowell assumes that the Generic operator is found at T, we assume it to be at C, together with the rest of the clause typing sentential operators.

As we mentioned before, Tunstall (1998) distinguishes between partial Distributivity (*every*) and total Distributivity (*each*). The following example and discussion illustrate her theory:

(22) Mary lifted all the packages.

This sentence can correspond to the following different part-whole structures between instances of lifting and packages:

- (23) type (a): purely collective
 type (b): (quite) partially distributive
 type (c): (less) partially distributive
 type (d): completely distributive

There is a scalarity in the above types of Distributivity Tunstall proposes; note that I have adapted her terms above to make this scalarity more salient and the difference between type (b) and (c) more directly intelligible in this brief presentation here. In the purely collective event in (a), all of the packages are lifted together at once, in one lifting event *e*, by Mary. In the completely distributive event in (d), each package is mapped onto its own lifting subevent, indicating that Mary lifted the packages one by one. These subevents are combined to form one larger event. 23(b) and (c) show two different ways of partially distributive events: all packages are associated with lifting subevents in which Mary is the agent, but the mapping is neither all-to-one nor one-to-one. In both instances there is some amount of Distributivity, but in (c) there are some subevents of individual packages being lifted, while in (b) Distributivity is only down to subgroups of the packages. So (c) is more distributive than (b). If we add the modifier *together* as in “Mary lifted all the packages together”, the sentence could only be true of the collective event in (a). If, on the other hand, we added the modifier *individually*, the sentence could only be true of the completely distributive event in (d).

The conditions for *every* and *each* (Tunstall 1998: 99-100: her 19 and 20 respectively) are given as follows:

(24) *The Event Distributivity Condition*

“A sentence containing a quantified phrase headed by *every* can only be true of event structures which are at least partially distributive. At least two different subsets of the restrictor set of the quantified phrase must be associated with correspondingly different subevents, in which the predicate applies to that subset of objects.”

(25) *The Differentiation Condition*

“A sentence containing a quantified phrase headed by *each* can only be true of event structures which are totally distributive. *Each* individual object in the restrictor set of the quantified phrase must be associated with its own subevent, in which the predicate applies in that object, and which can be differentiated in some way from the other subevents.”

Rephrasing the two conditions, the bottom line is that there is a requirement for a plurality of elements in the restrictor set, which we can connect to the referential variability requirement we previously saw, but also to the availability of multiple subevents of the nuclear scope (the verbal predicate). All the elements of the restrictor set should be predicated individually by a corresponding subevent, if we want to have a completely distributive event and total Distributivity (*each*). *Every* can get away with this and be partially distributive just in case there are two such “one to one” mappings, involving two elements and subevents and not all. In other words, the difference between *each* and *every* is according to Tunstall that, whereas *every* requires that there be at least two distinct subevents related to two different objects, *each* requires all the subevents to be distinct (which has to do with the differentiation condition she proposes). The following examples illustrate that (Tunstall 1998: 99: 18 a, b, c, d):

- (26)
- a. Jake photographed *each/every* student in the class.
 - b. Jake photographed *all* students in the class.
 - c. Jake photographed *#each* student / *every* student in the class, but not separately.
 - d. Jake photographed *all* students in the class, but not separately.

In (26), it is evident that only *each* cannot be stripped off its total Distributivity by the use of a negated modifier that denotes individuation (26c). This means that the

individuation, as well as the definite, exhaustive meaning is inherent to the *each* paradigm.

In the frame of my proposal, the difference between the two elements lies in the Definiteness feature. *Each* is specified as distributive and definite; On the other hand, *every* is just distributive and its (in)Definiteness is determined by the operator that each time binds its set variable. The Generic operator is non-Definite and renders to it a kind (non-definite) reading, whereas the Definiteness operator yields a definite interpretation (more analysis in this chapter).

3.1.4 *Existential Quantifiers, Universal Quantifiers*

Under the standard assumptions of GQ theory, existential quantifiers (quantificational syntactic determiners, for that matter) are different to universal ones, in that the existential quantifier (Q) expresses the intersection between the domain argument of the Noun Phrase (NP) and of the Verb Phrase (VP) (Giannakidou 2012: 295). They are often treated as adjectival and not as semantic determiners or Qs of the type $\langle\langle e, t \rangle, \langle e, t \rangle, t \rangle$ (Link 1983, Landman 2002). Ionin and Matushansky (2006) argue that at least weak numerals are modifiers. In that regard, Existential Qs may be simply viewed as relational expressions of existential quantification and not necessarily as syntactical or grammatical Quantifiers-Dets. Universal quantifiers, on the other hand, are co-intersective Qs (roughly, denoting a proper subset to set relation between NP and VP in a logical formula, as in Heim & Kratzer 1998). Keenan (2012) puts *all*, *every*, *each* under the rubric of this group (adding *any* and *–ever* as occasionally behaving similarly), and introduces a third class, that of Def-quantifiers (definite quantifiers and partitives). Following Partee (1995), Keenan also distinguishes two classes of Qs on syntactic criteria: Adverbial quantifiers (A-Qs) bind predicates, Determiner-Qs (D-Qs) bind arguments of predicates. Otherwise said, D-Qs relate properties of entities, A-Qs properties of events or times: the basic difference between nominal and verbal predicates is always assumed to be the lack of T of the former (but see Pesetsky & Torrego (1987), Ioannidou & Den Dikken (2006) for a T projection in DP).

However, as we have already seen, Heim (1982) and Kamp (1981) treat indefinite noun phrases not as Existential Qs but as variables introducing discourse referents that are to be bound by an Existential (or a Generic Operator) provided elsewhere in the sentence. This means that the value of the variable they introduce is

anaphoric to the context of the discourse, the common ground, the information shared between two speakers. Indefinite noun phrases or weak semantic determiners do not carry an operator in their lexical semantics. A similar idea, this time involving Negative Concord between a Negative operator and relevant indefinites, has been defended in Zeijlstra (2004), where the presence of the (meaning inducing) operator may be signaled by phonologically overt elements.

Kratzer (2005) proposes a unified treatment of definites with indefinites in her discussion of *irgendein* German indefinites, which are proven to be quantificationally vacuous, exhibiting a Free Choice (FC) as well as an Existential Negative Polarity Item (NPI) behavior. She argues that other factors, such as contrastive stress, differentiate NPI vs. FCI *irgendein* readings. In the scope of negative quantifiers and other downward entailing operators, *irgendein* indefinites behave like negative polarity *any*. However, if they carry contrastive stress and/or combine with the affective particle *einfach (nur)* a FC *any* reading emerges. Therefore, it looks as if those indefinites interact with a sentential operator in order to be bound and receive an interpretation. Kratzer also expresses doubts about even the quantificational status of *all* and *every*, invoking Brisson (1998) and Beghelli & Stowell (1997) respectively.

According to Kratzer (2005), the true source of Distributivity could not be the lexical semantics of the determiner but a non-overt adverbial operator that obligatorily co-occurs with the apparent quantifier. This seems to be in line with Beghelli and Stowell's (1997) proposal about the presence of a silent *each* in distributive constructions with indefinites. Szabolcsi (2010) uses the latter constructions as an argument for the (sic) unification of the distributive scope of indefinites' and universals'. Kratzer (ibid.) argues that an overt version of such a quantification strategy exists in Chinese (as in Lin 1998), an idea we further explore in Chapter 5. She also points out that even English Universal Quantifiers may see their status being contested by the emerging of the importance of DPs interplaying with non-overt operators. The present thesis provides evidence towards this hypothesis.

3.2 Distributivity, universality and sentential operators

At this point let me sketch my proposal and its connection to the theories previously presented. The conclusions that we draw from the discussion so far is that, first, English *each* is more "definite" (presuppositional, strong) than *every*, exactly as we saw that *o kathe* NP is more "definite" than *kathe* NP in the previous chapter. As

mentioned, *each* seems to encompass a Definiteness feature or operator in its lexical semantics, as *each* NPs always receive a definite interpretation. On the other hand, *every* NP and *kathe* NP data surveyed so far indicate that the reading these expressions yield is not always definite. So we have good reasons to believe that, unlike *each*, *every* and *kathe* do not encompass a definite feature or operator or any element of that sort in their lexical semantics. The number of different readings that (*o*) *kathe* NPs exhibit make it impossible to view the determiner as always encompassing a Def Op or a [+Definite] feature (or a Universal Op or feature, for that matter).

It has become evident from the analysis of (*o*) *kathe* NP data in Chapters 1 and 2 that (*o*) *kathe* NPs behave as indefinite expressions in that their interpretation is affected by the presence of designated operators in the sentence. Thus they are not semantically autonomous and external, (sentential) operators must be involved in their quantification. A (covert) sentential definite operator, like the covert definite determiner that B&S propose for *every* seems to be needed for the definite, universal readings of *kathe* and *o kathe* NPs.

Recasting B&S (1997) proposal of scope assignment (as feature-checking) in an Agree framework, again anticipating the full presentation in Chapter 4, I propose that *kathe* and possibly *every* NPs are distributive indefinites, with no inherent universal quantificational force. Following B&S (1997: 85, 10c), I assume that the Dist operator binds the element variables of the NP in *every* NP expressions. As we saw, Tunstall (1998:90) also speaks of a similar notion of individuation to the elements of the set that *each* and *every* convey. In other words, the elements of the NP and the subevents of the vP/VP are in a way viewed as individuated in distributive readings. The two expressions require multiple, or distributive, event structures, and a number of different sub-events the members of their restrictor set can be associated with. In this way, Tunstall recognizes Distributivity as applying both on the DP and the vP/VP and as connecting the two. The B&S approach more or less amounts to the same thing. Lasersohn (1998) also allows for such a utilization of the Dist Op (cf. 1.3)

In current terms, this can be understood as having a Dist Op in C that binds variables both in the DP and the VP, creating a dependency between them. So I assume that Dist occupies a position in (lower) C because it seems to form a dependency with variables spread throughout the nominal and verbal expressions in the whole of the sentence, following and expanding an idea proposed in Lasersohn (1998), linking the D-Op to event mereology (cf. discussion in 1.3). Following

Manzini & Roussou (2000), I also assume that a Quantifier / Operator can bind any relevant available variables in its scope - domain. I also follow their idea (ibid: 428) that “a generic operator in C determines the generic interpretation for both the non-lexicalized argument and for tense in “*it is hard to work*” [AMM], while the presence of a specific operator in C (“*it was hard to work on that beautiful sunny day*”) determines a specific interpretation for them...”. Note that the two authors use the above idea in the context of explaining arbitrary control and that they specify that the interaction between temporal and argument interpretation is strictly confined to arbitrary control (which in standard approaches involves an empty category, PRO); according to them, there is no such correlation between a lexical argument and temporal context. If an overt argument is associated with the matrix predicate as *for us* in *it is hard for us to work* (ibid:429), “it takes the role of obligatory controller, thus we may have a specific argument in a generic context”. Their treatment of *each* as occupying a DistP, the highest quantificational position below the inflectional ones, (ibid:443:fn7) is also relevant. I suppose that the two authors had binominal *each* in mind, which usually occupies a postverbal position, despite the fact that it may “modify” the subject DP. Despite the fact that the two authors clarify that the correlation they propose does not apply to lexical (overt) arguments, here I propose that this idea can apply to overt, lexical items that are however quantificationally “underspecified” (indefinite). In particular, in Chapter 4 I argue that this idea may successfully be extended to *kathe* NPs; the latter may be lexical, but they are however underspecified for Definiteness (that in my proposal roughly corresponds to what the two authors call *specificity*), so they are susceptible to being bound by any operator in C, the generic or the definite (*specific*) one, which also binds temporal variables.

So the Dist, Def and Gen Ops I propose function in the same way as Manzini & Roussou’s (2000) Generic (and *specificity*) Op described above. In particular I propose that the Dist Op occupies C, but it could alternatively be hosted in a separate projection in the left periphery or even in the Inflection / Tense domain (as Manzini & Roussou 2000:443:fn7 propose) without serious implications for the rest of the theory. So, both alternatives being equal for my case, for the sake of simplicity I choose to assume that the Dist Op is situated in C. In Chapter 4 I argue that, apart from element variables bound by the Dist Op, (*o*) *kathe* NPs also have context set variables (as in Stanley & Szabó 2000, Szabolcsi 2010, Giannakidou 2004) which have to be bound

by a Def or Gen operator in C. A full account of how and why this happens is given in Chapter 4.

At this point allow me to summarize my proposal. I propose that a Dist Op in C applies unselective binding (as in Lasnik 1998) to the elements of the NP set, as well as to the event variable *e*, of the VP. Whether we need to postulate unselective binding of a VP argument or we can simply take the necessity of having multiple, distributable subevents for the VP as a result of the Dist Op scoping over the covert existential operator over events of the VP is a matter of choice. A binding requirement which in my syntactic proposal translates into an Agree requirement between similar features seems to be more orderly. A Definiteness or a Generic operator also applies in C, binding in its turn the context set variables of the same NP sets (as proposed by Szabolcsi 2010, relative to Stanley & Szabolcsi's 2000 proposal and as presented in Chapter 1), providing the nominal and verbal expressions with contextual anchoring. So in my view there are two operators in place for these expressions and each one of them binds a different type of variable: for universal *kathe* NPs, for example, we have a Dist and a Def operator in place. The Dist Op binds element variables, whereas the Def Op binds the context set variables of the NP.

Unselective binding seems a good explanation for the quantificational concord spread throughout the clause observed with the different readings of the *kathe* QP. So, Dist unselectively binds²⁴ element variables in both DP and clausal / verbal domains. Szabolcsi (1997, 2010), Beghelli & Stowell (1997) have already proposed that the Dist Op binds element variables in the DP. The novel idea I propose here, following relevant observations in Tunstall (1998) is that events and subevents may also be individuated, so the Dist Op also binds element (event) variables in the verbal / aspect domain. In the same way, the context set variable of the *kathe* NP can be bound by any neighbouring propositional unselective operator: The Definiteness operator in C, or the Generic Op in C or a modal operator.

²⁴ Talking about *t* unselective binding, the universal quantifier that is traditionally viewed as being lexicalized in *every* DPs is regarded as an unselective binder of the indefinite variable under one explanation of donkey anaphora.

(i) Everyone who owns a donkey, beats it.

More specifically, unselective binding analyses take the pronoun as a variable 'unselectively' bound (Lewis 1975) by *every*, resulting in a universal quantification over pairs, as in (ii).

(ii) All" $\langle x, y \rangle$ (x owns donkey y) (x beats y)

This approach, which requires a non-quantificational interpretation of indefinite NPs that function as donkey antecedents, has been implemented in Discourse Representation Theory (Kamp 1981) and File Change Semantics (Heim 1982).

The preceding discussion has revealed that *every* NPs have been found guilty of indefinite – like behavior. What I argue for in this thesis is that *(o) kathe* NPs do indeed have a GQ interpretation but only after their context set variable c has been bound by the Def or a Gen or a Modal operator. When the context variable c is bound by the Gen Op the denotation of the expression amounts to $\langle e, t \rangle$ (kind reading). So the GQ status of *(o) kathe* NP expressions does not derive entirely from the lexical semantics of the determiner *kathe*, but from context-variable binding operators in C. The discussion that ensues here and in Chapter 4 will elucidate this proposal.

Summing up, the core idea is that these determiners alone cannot turn an expression into a GQ without the aid of a sentential operator or, to be more accurate, two in our case here (e.g. in the case of the universal reading of *kathe* NP we have a Def and a Dist operator in play). In type theoretic terms this means that *(o) kathe* NPs are not of type $\langle \langle e, t \rangle, t \rangle$ on their own right, i.e they have to be bound by the Definite, Generic or Modal Op in C in order to become such.

With regards to the semantic explanation of the behaviour of *kathe*, we adopt Heim's (1982) tripartite structure (based on Lewis 1975 for quantificational adverbs) for the structure of *kathe* NPs. It consists of an operator (overt, such as an adverb, or covert, a relevant functional projection, a Def Op, a Modal Op, a Gen Op) which binds unselectively the relevant free variables provided in the rest of the two parts of this construction: the restriction, which is typically assumed to coincide with the nominal phrase, and the nuclear scope, which is typically identified with the verbal phrase. The tripartite structure and unselective binding account for the interpretation of *kathe* indefinites. In our system *kathe* NPs are of basic type $\langle e, t \rangle$. They are indefinites endowed with an extra feature of distributivity. Their semantic contribution consists in free context set variables that are to be bound by the first relevant available operator that may bind context set variables (like the Def Op, but not the Dist Op, which binds element variables). So the covert operator should be of type $\langle \langle e, t \rangle, \langle e, t \rangle, t \rangle$, as a standard quantificational determiner is viewed to be. Once they are bound by any such operator *(o) kathe* NPs become $\langle \langle e, t \rangle, t \rangle$ expressions, GQs. So *(o) kathe* NPs eventually become GQs, after their context set variable has been bound by a sentential operator. GQs are interpreted as such at the CP not at the DP level.

Let us now illustrate the proposal with a few examples:

(27) *Kathe mathitis eline askisis.*

every student solved.IMP.3sg exercises

a. “Every / any student could solve exercises.”

b. “Every student was solving exercises.”

c. *Kathe mathitis xorista eline askisis.*

every student separately solved.IMP. 3sg exercises

“Every student separately was solving exercises.”

In (27a, b) the *kathe* NP is ambiguous. It has a kind reading if the sentence is interpreted as a habitual (27a) and a strong universal reading if the imperfective aspect is interpreted as a progressive (27b). The verb complement that may be understood as the distributive share is a bare plural indefinite, which is compatible with either reading since there is no distributive PP or an adverb like *xorista* (*separately*) in (27c) to disambiguate the reading. In the first reading (27a), the context set variable of the *kathe* NP expression is bound by the Gen Op; in the second case (27b), it is bound by the Def operator occupying a higher C head. In (27c) the expression has an unambiguous universal reading due to the presence of the overt adverbial.

Consider now the following modified examples:

(28) *Kathe mathitis pu ithele tin protia, eline askisis.*

every student who wanted.3sg the first solved.IMP.3sg
exercises

“Every student who wanted to be the best used to solve
exercises.”

“Every student who wanted to be the best was solving exercises.”

In opposition to (27a, b), (28) leans more on the definite, universal reading because of the presence of the Restrictive Relative Clause (RRC) and subtriggering (cf. 2.1 and 3.5 for more details). This means that there is contextual, further restriction so the NP restriction becomes contextually salient and definite; thus, a universal distributive reading arises (note, however, that the generic reading is not excluded, either; in my view, it is nonetheless less salient. I do not have a handy explanation for this at this point. However, I can note that RRCs provide more information on the DP they relate to. In this way, the expression acquires a denotation that is more salient and definite.

In other words, RRCs make the DP more specific, definite. I can only suggest here that RRCs could be viewed as overt Definiteness operators. The same happens with other kinds of rich modification (cf. *kathe mathitis stin taksi mas, every student in our class* and more discussion in Chapter 4).

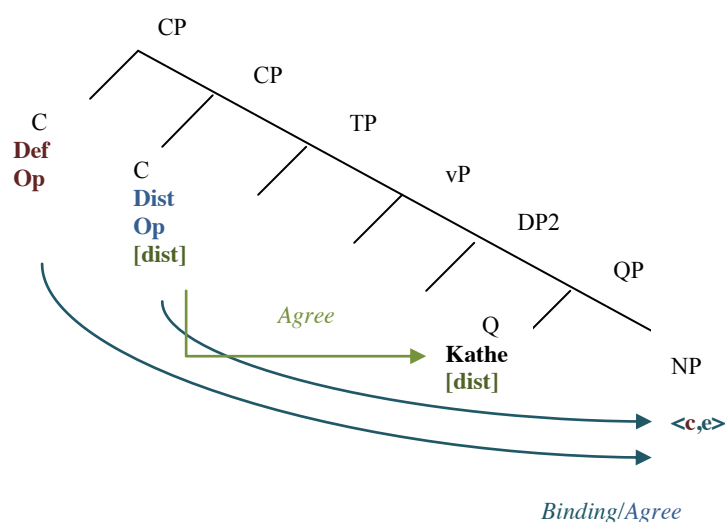
O kathe is more tightly contextually restricted than universal *kathe*, due to the definite article *o* and Determiner Domain Restriction (DDR), as we are about to see in 3.3 and 3.4. However, this does not mean that it is always interpreted as a universal. It is attributed universal quantificational force only if the same conditions as for the universal *kathe* apply: a covert definite operator has to be in place under C. Otherwise, it may be interpreted as an existential indiscriminative use Free Choice Item (FCI) (Horn 2005) or as a mere FCI.

- (29) a. *O kathe mathitis pu ithele tin protia eline askisis.*
 the every student that wanted.3sg the first solved.3sg exercises
 “Each student who wanted to be the best was solving exercises.”
- b. *O kathe mathitis eline askisis.*
 the every student solved.3sg exercises
 “Just any student was solving exercises.”
- c. *O kathe mathitis ebhene mesa ki eleghe o,ti ithele.*
 the every student entered.IMP.3sg in and said.IMP.3sg whatever wanted.
 3sg.
 “Just any student was coming in and saying whatever he wanted.”

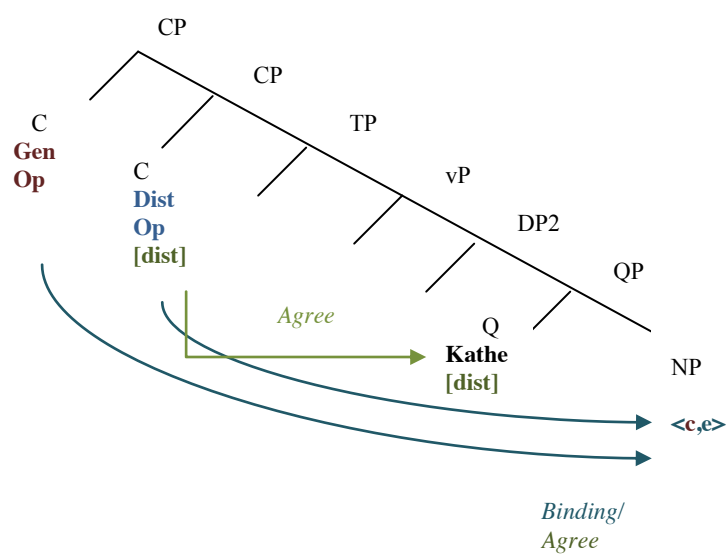
In (29a) the DP has an unambiguous *each* reading. On the other hand, (29b), without the RRC, is grammatical, however a little degraded under the *each* reading, while it is more acceptable under the indiscriminative FC reading as in “just any student could do exercises”. The FCI indiscriminative reading of the *o kathe* NP is more obvious in (29c). We attribute *o kathe* FC readings the same interpretation as other FCIs such as *opjiosdhipote*, utilizing the notion of domain widening in the discussion that follows shortly. *O kathe* is different to *opjiosdhipote* in that it introduces a low scale implicature as in Fauconnier (1975) and as it is also assumed for indiscriminative use *just any* by Horn (2005). This means that the domain of *o kathe* is widened - assuming widening to include the most unlikely, low end individual in a scale of evaluation.

The discussion in this section prepares the discussion in the next Chapter and our main claim that the denotation of *(o)kathe NPs* depends on sentential operators that bind the expression in a different level – binding their context set variable, according to Szabolcsi’s (2010) proposal for *every* NPs we saw in Chapter 1. The denotation of the expression is “constructed” according to the operator that binds it, with the participation of the vP/ VP, since we saw that aspect also plays a role. Note that the structures proposed here are not complete in the sense that they ignore the role of the vP/VP, which we discuss in Chapter 4. *O* in *o kathe* adjoins to *kathe* as D to Q adjunction, as I proposed earlier (in Chapter 2, (35c)). The notations *c* and *e* in the following schemata stand for *context set variable*, or, more simply, *context variable* and *elementary variable* respectively. The *Def*, *Gen* and *Modal* Operators bind the *context variable*, while the *Dist Operator* binds the *element variable* inside the NP. These binding relations are associated with corresponding Agree operations. According to the evidence that we have presented so far and the analysis I evoke, the syntactic structures for *kathe* and *o kathe* NPs are as follows:

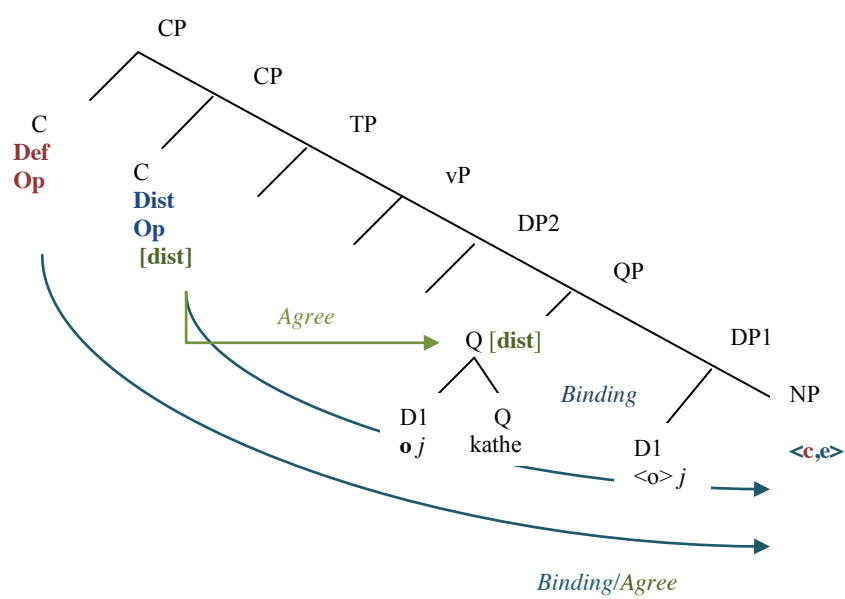
(30) *kathe NPs- universal reading*



(31) *kathe NPs- kind reading*



(32) *o kathe NPs-universal reading*



In the above structures the Dist Operator resides in C. I argue that from that position it can scope over the whole sentence and bind the (element) variables in both QP and vP. I place it below the Def and Gen Ops because the latter seem to apply after its application. Also, the Dist Op seems to be deeply involved in the connection between verbal and nominal predicates, an involvement reminiscent of the role of the Inflection / Tense domain; that is why I place it in lower C. In the next Chapter I cast this dependency in terms of Agree and elaborate on issues involving locality and nested dependencies.

3.3 Free Choice

Since we have attributed an FCI reading to *o kathe*, it is useful to see what FC means and how it is otherwise expressed in Greek. Greek *opjiosdhipote* (Vlachou 2007, Lazaridou-Chatzigoga 2007, 2009, Giannakidou & Quer 2010) is analyzed on a par with plain indefinites like those denoted in English with *a*, but differs from them in that it additionally involves domain widening in the sense of Kadmon & Landman (1993:361):

- (33) Widening: in an NP of the form any CP, *any* widens the interpretation of the common noun phrase (CP) along a contextual dimension.

The widening condition dictates that in order to interpret an utterance involving an FCI, we need to widen the domain in order to include individuals that we did not take into account previously.

FCI *any* has received a lot of attention and has been long and hard debated. There are two opposite schools: the univocal universalist analysis by Reichenbach (1947) and Quine (1960), who take *any* to be always a wide-scope universal quantifier that differs from *every* in that it always has to scope under other operators like negation or material implication. On the other side, there is the ambiguitist view that takes *any* to be an existential when it is used as an NPI and a universal when it is used as a FCI (defended by scholars like Dahl 1970, Horn 1972, Dayal 1998, Ladusaw 1979, Carlson 1980, 1981). Under the indefinite analysis of *any*, the interpretation of the NP depends on the context: *any* is treated as a Heimian indefinite by Haspelmath (1997), Kadmon and Landman (1993), Lee & Horn (1994), Horn (2005),

Giannakidou (2001) and Kratzer & Shimoyama (2002), among others. Following the indefinite analysis of FCIs, I assume along with Vlachou (2007) and Lazaridou-Chatzigoga (2007) that [*opjiosdhipote* + Noun] should be treated as a Heimian indefinite. I also side with Roberts and Roussou (2003) who take on the hypothesis that FCIs are indefinites, and regard them as non-specific and as elements which do not presuppose the existence of a referent for the Quantified DP. In line with this approach of FCIs, I propose that in their FCI reading *o kathe* and *kathe* NPs are non-presuppositional and non-specific indefinites, contra to what Giannakidou (2012) proposes for FC *o kathe*.

Let us now compare the sentences that follow that demonstrate that the *o kathe* NP is not read as a specific indefinite (nor as a definite, of course).

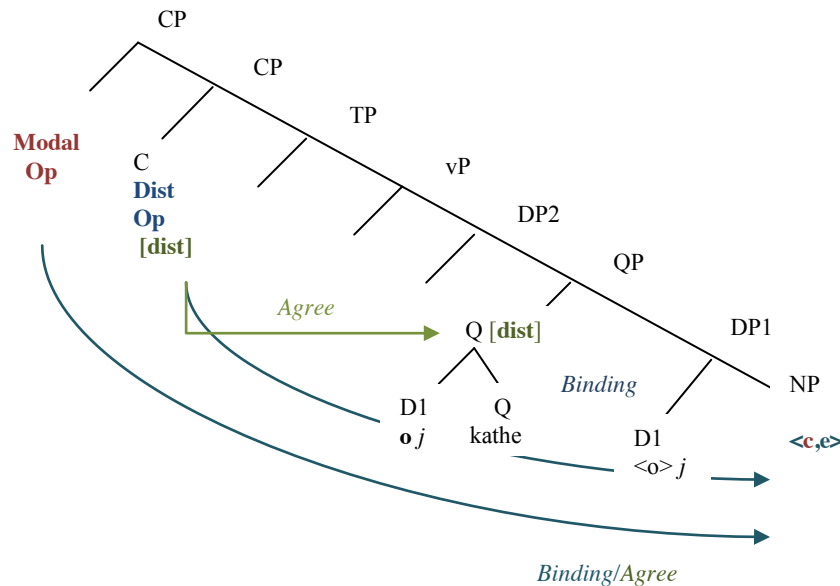
- (34) a. *O kathe epitidhios* ekleve to paghari. # To Jiani enoo, fisika.
 The every skillful robbed..IMP.3sg the bench. # The John mean.1sg naturally.
 “Just any crook could steal / was stealing from (the church’s) bench. # I mean John, of course.”
- b. *O opjiosdhipote epitidhios* ekleve to paghari. # To Jiani enoo, fisika.
 The whichever skillful robbed.IMP.3sg the bench. # The John mean.1sg naturally.
 “Whichever crook could steal / was stealing from (the church’s) bench. # I mean John, of course.”
- c. *Kapjios epitidhios* ekleve to paghari. To Jiani enoo, fisika.
 Some skillful robbed..IMP.3sg the bench. The John mean.1sg naturally.
 “Some crook was stealing from (the church’s) bench. I mean John, of course.”

In (34a) and (34b) the perpetrators of the stealing are unknown and not specific. Furthermore, the sentences refer to either the possibility of (modal reading) or to many actual events of stealing perpetuated by many different people (progressive reading). This is why the follow up sentence, identifying one and only particular perpetrator, is not felicitous in this context. In (34c), on the other hand, the prevalent reading is that of a single perpetrator participating in many events of stealing. The

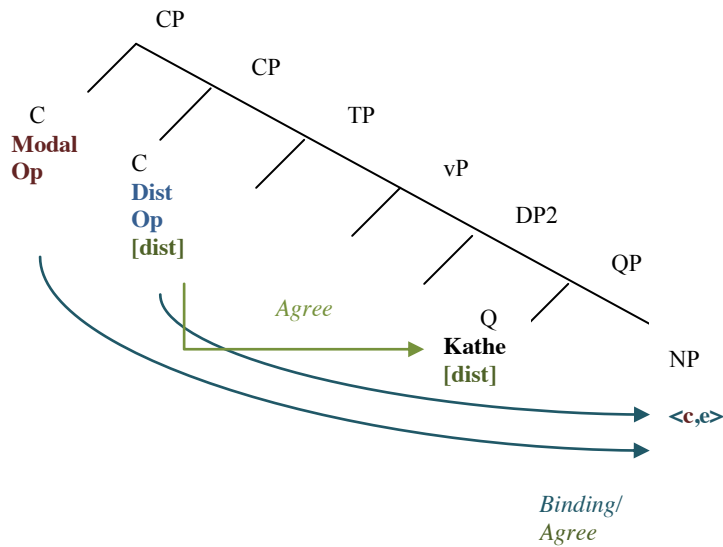
follow up sentence specifying the identity of the culprit is felicitous in this context. From the above we may infer that the *kapjios* NP in (34c) is interpreted as a specific indefinite, whereas *o kathe* and *opjiosdhipote* NPs cannot receive a specific interpretation. So I view (*o*) *kathe* NPs as lacking presuppositionality (cf. 3.5) and specificity (cf. 3.1.1) in the above use and contexts. However, these notions can be added up to its denotation compositionally.

Following the discussion in this section, the structures for the FC readings of *kathe* and *o kathe* NPs have as follows:

(35) *o kathe* NPs- FC reading



(36) *kathe NPs- FCI reading*



3.4 *kathe* vs. *o kathe*

In general, Tsili (2001), Giannakidou (2004, 2012), Etxeberria and Giannakidou (2010) Lazaridou-Chatzigoga (2009), all consider *kathe* to be a strong, Universal Quantificational determiner. The discussion in this section largely follows Giannakidou (2012) but also draws independent conclusions. Presenting a general overview of Greek determiners, Giannakidou (2012: 307) places *kathe* among other strong quantifiers in Greek such as universal *olos*, *ke i dhio* and *i perissoteri* (both, most); she however, recognizes an FCI indiscriminative use for *o kathe*, which she takes to be referential. She does not specify if the expression is universal in this reading; however, note that according to the same author (2001) other Greek FCIs are of an indefinite, existential nature.

Let us examine some data that illustrate the difference between *each* and *every* B&S observed in our 1.4. for our Greek *kathe* vs. *o kathe* (examples from Giannakidou 2012: 311: her 80, 81, 82):

(37) I looked for *every typo* in the manuscript (but there wasn't any).

(38) An vris *kathe lathos*, tha su dhoso bonus; ala bhoru ke na min iparxun

katholu lathi.

if find-2sg every mistake will you give-1sg bonus; but may.3sg and prt not exist.3pl at all mistakes

“If you find *every* mistake, I’ll give you a bonus; but there may be no mistakes at all.”

- (39) An vris *ola ta lathi* tha su dhoso bonus; ala bori na min iparxun katholu lathi.
 if find.2sg all the mistakes will you give.1sg bonus; but may.3sg and prt not exist.3pl at all mistakes
 “If you find *all the* mistakes, I’ll give you a bonus; but there may be no mistakes at all.”

Etxeberria and Giannakidou (2010) argue that *o kathe* NPs bear an extra presupposition, as, unlike *kathe* NPs, they are not tolerated in generic sentences, in line with Beghelli and Stowell’s (1997) observations on *each*. They relate this to the property of (non)veridicality²⁵, which is in turn correlated with an opaque reading (of the indefinite DP) with intensional predicates of the sort *look for*. In this frame, *every* is non-veridical, whereas *each* is veridical. Examples like the above involving *every* can give rise to an opaque reading, which does not imply the existence of typos in the manuscript²⁶. This means that there may be no mistakes at all in the manuscript.

On the other hand, *o kathe*, *each*, *both* do not give rise to an opaque reading in the above sentences: the follow up sentence stating the possibility of the non-existence of mistakes is not a good match to the veridical meaning (Giannakidou 1998, 1999) of *o kathe* NP and *ke ta dhio* in the first sentences:

- (40) #An vris **to *kathe* lathos**, tha su dhoso bhonus; ala bori ke na min iparxoun katholu lathi.
 if find.2sg the every mistake will you give-.1sg bonus; but may.3sg and prt not exist-3pl at all mistakes

²⁵ Etxeberria and Giannakidou (2010: 13:ft 8) define (non) veridicality of quantificational determiners as follows:

“(Non)veridicality of quantificational determiners (Giannakidou 1999):

A determiner δ is veridical iff it holds that:

$[[\delta \text{ NP VP}]] \text{ c} = 1 \rightarrow \Box x \text{ NP (x)}$; otherwise, δ is nonveridical.

²⁶ Cf. Moltmann (1997) and Van Geenhoven & McNally (2005) for such a claim. Also, these examples are cited by Lazaridou-Chatzigoga (2009).

“If you find *each* mistake, I’ll give you a bonus; but there may be no mistakes at all.”

- (41) #An vris **ke ta dhio lathi**, tha sou dhoso bhonus; ala bhoru ke na min iparxun katholu lathi.
 if find-2sg and the two mistakes will you give.-1sg bonus; but may.3sg and prt not exist-3pl at all mistakes
 # “If you find both mistakes, I’ll give you a bonus; but there may be no mistakes at all.”

Bare *kathe*, *all* and *every* NPs do not presuppose the existence of mistakes in the manuscript. On the other hand, *ola ta*, *o kathe*, *ke ta dhio*, *each* and *both* NPs do presuppose the existence of mistakes. This is the reason why Giannakidou (1998) characterizes *o kathe* (and the rest of the second group) as veridical, while the first group (*every* and *all* (the) NPs) as nonveridical²⁷. The difference between the two *kathe* expressions (*kathe* vs. *o kathe*) is derived from the pragmatic operation of Determiner Domain Restriction (DDR) that the definite article is argued to encode, adding the context variable *c*, as Etcheberria and Giannakidou (2010) argue. More details on DDR in the coming section.

Another semantic difference between the two phrases in question involves reference to kinds, an observation attributed to both Lazaridou (2009) and Giannakidou (2012):

- (42) *Kathe monokeros* exi ena kerato.
 every unicorn has one horn
 “Every unicorn has one horn.”
 (43) #*O kathe monokeros* exi ena kerato.
 the every unicorn has one horn
 “Each unicorn has one corn.”

²⁷ According to Etcheberria and Giannakidou (2010: 13) this means that the phrase quantifies only over non-empty domains, this way becoming presuppositional and veridical. In the same (2010: 13:their 29 and 30) they define the two closely related notions as below:

(1) Presuppositionality of quantificational determiners

A determiner δ is presuppositional iff for all $A, B \subseteq D$, if $A = \emptyset$ then, $\langle A, B \rangle \notin \text{Dom}(\delta)$ (based on Heim and Kratzer 1998:163)

(2) (Non)veridicality of quantificational determiners (Giannakidou 1999) (repeated from fn.10, pp. 84):

A determiner δ is veridical iff it holds that:

$[[\delta \text{ NP VP}]] c = 1 \rightarrow \exists x \text{ NP}(x)$; otherwise, δ is nonveridical.

O kathe cannot refer to non-existing kinds, whereas *kathe* and *every* can (Giannakidou *ibid*: 311). So, if we understand it correctly, this could mean that *o kathe*, unlike *kathe*, cannot be bound by a generic operator due to the presence of the potentially semantically definite *o* (the definite determiner). For the time being let's just say that *o kathe* NP cannot have a kind / generic reading at all, i.e it cannot refer to any kind, existing or non-existing, as we will see.

One possible counterexample to the above claim is that, as noted in the same work by Giannakidou, *o kathe* is fine in characterizing sentences which do not involve the predication of a kind, but a particular set of students, instead:

- (44) Sto programma mas, *o kathe fititis* prepi na epileksi dhio mathimata simasiologhias.

In-the program ours the every student must.3sg prt choose.3sg two classes semantics

“In our program, each student has to/must choose two classes of semantics.”

I observe that in the above sentence *o kathe* has obligatorily wide scope in relation to “two classes of semantics”. This means that the sentence may not have the reading that there are two specific classes of semantics that students cannot skip (in the numeral phrase wide reading the “choice” would somehow be cancelled, as the “two (specific) classes” would then have to become specific and thus kind of obligatory). In the above example *o kathe* DP is in its definite universal, wide scope distributive *each* use. The same sentence, however, allows a wide (inverse) scope for “two classes”, if we have *kathe* instead of *o kathe*:

- (45) Sto programma mas, *kathe fititis* prepi na epileksi dhio mathimata simasiologhias.

In-the program ours every student must.3sg prt choose.3sg two classes semantics

“In our program, every / any student has to choose two classes of semantics.”

This interesting fact must be related to the tendency of universal *o kathe* to always obtain widest scope (like English *each*), in opposition to *kathe*, which can live without

it. In any case, the above data are in line with B&S's observations regarding the generic reading of *every* and its optional Distributivity in opposition to the strong Distributivity of *each*.

Turning to the pronoun form, the first observation is that unlike *everyone*, *o kathenas* is awkward without an overt distributor, a distributive PP such as *apo ena vivlio* (Giannakidou 315: 95, a, b. The examples c and d are my own):

- (46) a. *O kathenas efere apo ena vivlio.*
 the everyone brought.3sg from a book
 ‘‘Each one brought a book.’’
- b. # *O kathenas efere ena vivlio. Out-of-context.*
 the everyone brought.3sg a book
- c. *O kathenas efere ena vivlio. In a context such as: ‘‘Three students came.’’*
 everyone brought.3sg a book.
 ‘‘Everyone brought a book.’’
- d. *O kathe fititis efere ena vivlio. In a context such as: ‘‘Three students came.’’*
 the every student brought.3sg a book.
 ‘‘Each student brought a book.’’

Giannakidou (2012) argues that strong *o kathenas* seems to need an overt distributive share. She attributes strong Distributivity (by DRR) to *o kathenas* and she relates strong Distributivity with the obligatory presence of an overt distributor. As we saw before, the vP can function as a distributive share. Giannakidou however notes that in the absence of an explicit nominal ‘‘distributed’’ phrase, for instance when the verb is intransitive (so there is no object to be possibly understood as a distributive share) or when we have an Individual Level (IL) predicate (e.g. as in 46 a,b), the result is problematic for *o kathenas*, but not for *kathe* and English *everyone*. In (46 b,d) we note that *o kathenas* and *o kathe* NPs are also good. The reason for this discrepancy is that the FC indiscriminative use of *o kathenas* is the first reading that comes to mind and the listener needs a strong cue to read the expression in its universal strong distributive *each* reading; a clear-cut distributive share provides this cue for the existence of a covert Def Op in C, thus a universal reading for the QP in question. The existence of a relevant context creates the possibility for a definite, partitive

interpretation of *o kathenas*, *o kathe* NPs and that is why (46 c, d) are totally grammatical and felicitous.

In relation to this, I would add the observation that in Carlson's (1977) event ontology IL predicates describe states or a fixed property, so the predicate cannot really distribute over sub-events. This means that we should expect IL predicates to be incompatible with ("more") presuppositional universal *o kathenas* and *o kathe* and this is indeed what seems to happen: in environments where there is no intensionality, the FC reading of these expressions is unavailable, as in (47a-d). However, here I observe that when *o kathenas* is used as a floating *each* it acts as binominal *each*, so it plays the role of the distributed share and the sentence becomes grammatical (47c). When the predicate is distributable *o kathenas* is fine as in (47d):

- (47) a. **O kathenas* ine 7 xronon.
the everyone is 7 years.
- b. **O kathenas* kimithike / kimotan.
the everyone was-slept-3sg / was-slept. IMP.3sg
- c. Ine 7 xronon *o kathenas*.
is 7 years the everyone
"They are seven years old each."
- d. Ine 100 kila *o kathenas*.
are.3pl 100 kilos the everyone
"They weigh 100 kilos each."
- (48) Faghame apo tria mila *o kathenas*.
ate.2pl from three apples the everyone
"We ate three apples each."
- (49) a. *Kathe fititis* ine 20 xronon.
every student is 20 years
"Every student is 20 years old."
- b. *Kathe fititis* kimithike.
every student was-slept.3sg
"Every student slept."

The lexical aspect of the predicates in (47a, b) seems to ban individuation to subevents, so the Dist Op cannot bind any individuated "element"- subevent variables,

hence, I argue, the ungrammaticality. In (47b) grammatical aspect seems not to matter, as both perfective and imperfective aspect yield the same ungrammaticality. It must be the lexical aspect of the predicate that inhibits the grammaticality of the sentence with *o kathenas* here. (47d), however, has the *o kathenas* as binominal *each* which indicates it as a Share, making the sentence grammatical, as we saw in (46). It seems that, like English binominal *each*, when *o kathenas* acts as a binominal, it prefers the postverbal position. I propose that like the binominal *each*, *o kathenas* is a Dist Share that indicates the existence of an operator Dist in domain C and triggers Distributivity in this way: it is an outright Definiteness and Distributivity agreement marker, so the presence of a Def Op and a Dist Op in C is inferred; the operators are understood as binding element variables in VP and DPs alike. In (49) the sets of students referred to are not meticulously individuated, sort of speak, as we have *kathe*, not *o kathe*. We understand, however, that the students in question are contextually salient or already known in the discourse. So in this case we have a universal definite, distributive reading for *kathe* NPs.

Giannakidou (2012) identifies another distributive construal with *kathe*: *kathe enas*, which can be best thought of as “*each one*”.

(50) Context: I met with a group of students.

Kathe enas / o kathenas ixe kati endhiaferon na mu pi.

every one / the everyone had.3st something interesting prt me say.3sg.

“Every single one had something interesting to say to me.”

She argues that the presence of *enas* makes both phrases anaphoric in the sense that they need an antecedent, hence the strong requirement that there is a set of students pre-mentioned in the context.

Giannakidou (2012: 310) claims that *kathe* may be thought of as equivalent to *every*. However, *o kathenas* does not seem to be equivalent to *everyone*, but to *each one* and *any*. Other distributive expressions are reduplicated numerals, which are viewed as Distributivity markers (as also in Chinese, see Chapter 5). Distributive indefinites need plurality in order to be able to distribute, so they are not good with singular NPs, as we see next:

(51) O Janis efaje ta sokolatakia (*to sokolataki) ena ena.

the John ate.3sg the chocolates (the chocolate) one one

“John ate the chocolate sweets one by one.”

(52) Ta etroje dhio-dhio.

them ate.IMP3sg two-two.

“He was eating them two at a time.”

(53) ??Ta efaje dhio-dhio.

them ate.3sg two-two.

The sentence with the expression “*to sokolataki ena ena” (*one by one*), is ungrammatical. Here again, as we observed in relation to Tunstall’s (1998) theory, there is an implicit requirement for the plurality of eating sessions, although the verb is in the aorist (one event). It looks as if the plurality of the sweets has to match the plurality of eating events, if we want to have a distributive reading even with numeral reduplication as we see more clearly in (51) as well as in (52) vs. (53) (my data and observation): the episodic sentence (53) does not allow the reduplicated numeral expression or Distributivity. On the other hand, (51) seems to disregard the aorist because the sentence describes the result of a process of individual eatings. “Two at a time” does not permit a result reading; it needs to describe a process. These observations are particularly interesting for our discussion, as they show from first hand that distribution requires a plurality of things / subevents pairings to distribute over. Lexical aspect seems to play a role; we discuss this issue in detail in the following chapter.

Last but not least, Giannakidou (2012) presents an Indiscriminative free choice reading for the presumed uniquely universals *o kathe* and *o kathenas*. Note that the Greek free choice item *opjiosdhipote* can also appear with definite *o* (Lazaridou-Chatzigoga 2007, Vlachou 2007). Giannakidou and Etxeberria (2010) identify a free choice reading for *o kathe* in the following example:

(54) a. Tin periodho ton eksetaseon erxete *o kathe fititis* ke me enoxli me anixtes erotisis.

the period the exams come.3sg the every student and me annoy.3sg with open questions

“During the exams, just any student may annoy me with open questions.”

b. Tin periodho ton eksetaseon erxete *o opjiosdhipote fititis* ke me enoxli

me anixtes erotisis.

the period the exams come.3sg the whichever student and me annoy.3sg
with open questions

“During the exams, whichever student may annoy me with open
questions.”

O kathe NP / *o kathenas* make reference to a salient set in the discourse due to the familiarity caused by DDR and express a generalization about this set, while also being indiscriminative, (Horn 2005, 2006) having an arbitrary pejorative reading, common with Free Choice Items (FCIs) (Giannakidou 2012: 316). The indiscriminative pejorative reading is not available with *kathe* NP. My data in (55) show the FC indiscriminative use of *o kathenas* (55a) and the simple FC use of *kathe* NPs (55b).

- (55) a. Stis meres mas, *o kathenas* bori na vghali dhiploma odhijisis.
In days ours the everyone can.3sg prt take.3sg licence driving.
“Nowadays just anyone can get a driving licence.”
- b. Stis meres mas, *kathe enilikas* bori na vghali dhiploma odhijisis.
In days ours every adult can.3sg prt take.3sg licence driving.
“Nowadays any adult can get a driving licence.”

Regarding the nature of the FC *o kathe* NPs, I cannot side with Giannakidou’s (2012) claim that FC is referential. For instance, I understand sentence (54a) in a context in which *o kathe fititis* does not refer to a specific student in particular, but just to a “less probable to ask questions” sample of students that are possibly familiar to the speaker. In this respect, it rather behaves as an indefinite bound by a modal operator as it is believed for FCIs in Greek in general. The literature regarding Greek FCIs such as *opjiosdhipote* views these items as undoubtedly existential (cf. Vlachou 2007, Lazaridou-Chatzigoga 2007, Giannakidou 2001).

The indefinite nature of *kathe* may be more obvious with adverbials. In Chapter 1, I presented adverbial *kathe* NP data as a token of the expression’s indefinite nature. Giannakidou (2012:305) actually includes *kathe* in *kathe tris kai ligho* in existential A-Quantifiers, Q-adverbs denoting frequency (together with *sixna*, *spania*, *pote-pote*: frequently, rarely, from time to time). However, in her view *kathe*

tris kai ligho involves a universal quantifier and a coordinate structure. She characterizes the whole construction as an idiomatic, conventionalized expression together with *kathe pote-pote*. She does not discuss in detail how the adverbial use and the conventionalized structure end up having existential quantification instead of the expected universal quantification. I believe that this issue is solved if we assume that *kathe* is an indefinite as I propose in this thesis, so it is not due to a conventionalized use that we have an existential reading in this case: *Kathe tris ke ligho* may be conventionalized, but not all *kathe +plural* NP adverbial uses are. On the contrary, the element in question freely produces non-idiomatic existential adverbial phrases, together with universal adverbial phrases. In any case, the fact here remains that we have an existential frequency reading for the adverb in the environment of a habitual sentence. In the frame of the present proposal this is due to the binding of *kathe* NP's context set variable by the Gen Op.

In sum, Giannakidou (2012) identifies five distinct quantificational expressions within the *kathe* family, two of which are semantically equivalent. Apart from her standard differentiation between *kathe (every)* vs. *o kathe (each)* in Giannakidou (2004) and Etxeberria and Giannakidou (2010), she also identifies *o kathenas* as well as *kathe enas* with *each one*. She recognizes an FCI indiscriminative use for *o kathe* NPs. The adverbial use of *kathe* is labeled as existential²⁸. For *kathe enas* (equivalent to *each one*), Giannakidou (2012) proposes that *enas* induces domain restriction in the same way that definite D does in *o kathe*, without explicating further. As discussed earlier in Chapter 1, this is tangential to Abney's (1987) proposal on *everyone* and to the formation of *o kathe* through adjunction, which, siding with Etxeberria and Giannakidou (2010), I propose for *o kathe*.

As we saw previously, Lazaridou-Chatzigoga (2009) also discusses at length the semantics of *o kathe* and *o opjiosdhipote* phrases. She takes up Giannakidou's distinction between *kathe* and *o kathe* (as *every* and *each*), assuming all the differences we discussed in our *each* vs. *every* and *kathe / o kathe* sections to apply for the Greek equivalents. She proposes two conditions, *count-as-unique* and *weak familiarity* (Roberts 2003) to account for the differences between *o kathe* and *kathe* NPs. Russelian (1905) uniqueness is replaced by the *count-as unique* condition on the basis of the ontology of Badiou (1988), while familiarity is understood as the

²⁸ Cf. also Margariti (2007) and Margariti (2011).

condition of *weak familiarity* (Lazaridou-Chatzigoga 2009:53) in the sense of Roberts (2003), a notion also adopted by Etxeberria & Giannakidou (2010) for DDR. The framework of her proposal is on the side of Poesio & Vieira (1998), Birner & Ward (1998), who claim that both the logical uniqueness approach on Definiteness (Russell 1905, Neale 1990, Kadmon 1990, Abbott 1999, among others) and the pragmatic familiarity approach (Heim 1982, Kamp and Reyle 1993, Roberts 2003) should be combined in order to theoretically capture Definiteness.

My final proposal converges with the above views. For the *o kathe* NP reading as *each*, I propose that we have both Definiteness (due to the Def Op binding the context set variable of the NP that is necessary for this reading under the current assumptions) and familiarity (in the *o*), which, combined together, provide a familiar, definite referential reading. On the other hand, there is no Def Op applying in the case of FC *o kathe*, but a Modal / Intensional Op instead. The expression does not have a universal or a definite denotation in any sense. It may however convey a meaning of familiarity due to DDR through *o*. Nevertheless, without the Def Op there can be no notion of Definiteness or specificity conveyed. Here I should note that the above author's treatment of *o kathe* focuses on the semantics and pragmatics of the expression. The alleged uniqueness-Definiteness of the *o kathe* expression is attributed to the semantic property of uniqueness and the pragmatic property of familiarity. Lazaridou-Chatzigoga's *count-as-unique* condition, which is in a way similar to Giannakidou's (2004) and Etxeberria & Giannakidou's (2010) DDR, has as follows (ibid. 2009:48):

(56) *count-as-unique condition*

condition: $[Ax: P(x)]$ [count-U (x)]

to be read: for *every* x that has the property P, x is counted-as-unique

Let us now turn to some other issues concerning *kathe* and *o kathe* NPs. According to Giannakidou (2012), *kathe* but not *o kathe* NPs can appear in an object position with a kind interpretation, as the examples below illustrate:

(57) Katevalan *kathe prospathia* na lithi to thema.

put.3pl every effort prt be-solved.3sg the issue.

"They made every effort to solve the issue."

- (58) *Katevalan tin *kathe prospathia* na lithi to thema²⁹.
put.3pl the every effort prt be-solved.3sg the issue.

Another observation is that *o kathe* cannot be modified by *sxedhon*, *almost* while *kathe* NPs can (also cf. Tsili 2001:793). Note that *almost* modifies scalar endpoints:

- (59) Ena aghori efaje sxedon *kathe* /**sxedhon* to *kathe milo*.
A boy ate.3sg almost every / almost the every apple.
“A boy ate almost every apple.”

Kathe can co-occur with cardinal numerals like *ena* (one), and even in the plural *dhio* (two) or ordinal ones like *protos*, *first*, *defteros* (second). This is found in the adverbial use. I propose that in this case *kathe* is bound by a Gen operator, so we do not have a universal reading in this case:

- (60) Pijeno / pijena / *pigha sto panepistimio *kathe dhio meres*.
go.1sg / went.IMP.1sg / went.1sg to.the university every two days
“I go to / used to go to the University *every* two days.”
- (61) *Kathe dhefteri Paraskevi* exo mathima xoru.
every second Friday have.1sg lesson dance
“Every second Friday I have a dance lesson.”

Note that the above environments are generic and that the prevalent meaning is that of iteration or repetition (concerning the past), not of universal quantification. Other adverbial uses that betray a non-universal-like interpretation of *kathe*, (cf. Chapter 1) is that *kathe* but not *o kathe* can also modify interrogative pronouns referring to time or quantitative pronouns like *poso* ‘how much’, *posa* ‘how many’:

- (62) *Kathe pote* pijenis jia banio?
every when go.2sg for swimming
“How often do you go swimming?”

²⁹ If we add the adjective *dhinati* (possible) as in *katelavan tin kathe dhinati prospathia* the reading could be ameliorated due to the modality inherent in the adjective, thus a Free Choice reading may be possible.

- (63) *Kathe poso plironis to IKA?*
 every how-much pay.2sg the IKA
 “How often do you pay for the Social Security Services?”

Crucially, the environments in the above sentences are habitual. As a matter of fact, the adverbial use of *kathe* does not emerge in episodic contexts at all, an observation also made by Giannakidou (2012). This indicates that the sentences that show frequency have a Generic operator in C that binds the *kathe NP* expression’s contextual set variable, yielding a kind, generic interpretation for the frequency expression, which cannot have a specific spatio-temporal anchoring denotation; it is by definition approximative and not definite (unlike the universal reading, according to my proposal).

With regards to Tunstall’s (1998) partial vs. total Distributivity distinction, Lazaridou-Chatzigoga (2009) notes that *separately* modification data demonstrate the already known distinction between *each* and *every* as well as for *o kathe – kathe* NPs.

- (64) I Ino fotoghrafise *kathe / to kathe zoo* tu zoologiku kipu.
 the Ino photographed.3sg every / the every animal of-the zoologic garden
 “Ino photographed *each* animal of the zoo.”
- (65) I Ino fotoghrafise *kathe/# to kathe zoo* tu zoologiku kipu,
 the Ino photographed.3sg every/ the every animal of-the zoologic garden,
 ala oxi ksexorista.
 but not separately.
 “Ino photographed every animal in the zoo, but not separately.”

Kathe resembles *every* in that the subevents can be only partially differentiated, under the condition that there are at least two different subevents. *O kathe*, on the other hand, requires a total distribution of all the subevents. With regards to the type of predicate, we should note that Tunstall (1998: 109) says that Distributivity is important to the process of the event but not to the result, so *each* is better with predicates which stress the process (such as *photograph* above and not the result e.g. *destroy* or *break*). In other words, here again we see that the lexical aspect of the verb is crucial for the availability of the distributive reading.

With respect to the combination *kathe* + noun in the plural number (*eklojes*, *Xristujena*), again an adverbial use denoting frequency, Lazaridou-Chatzigoga notes that *kathe* can quantify over atomic or plural individuals (in the sense of Link 1983). An example of mine follows:

- (66) *Kathe Xristujena* perimenum ton Ai Vasili.
 every Christmas wait.2pl the saint Basil
 “Every Christmas we wait for Santa Claus.”

In this use *kathe* is grammatical with an interval, time or periodicity denoting N, such as *day*, *night*, *Christmas* etc. This use is not different to the *kathe tria xronia* use or *kathe tria bukaljia*:

- (67) *Eklojes exoume kathe tria xronia*.
 elections we have.2pl every three years
 “We have elections every three years.”
- (68) *Se kathe tria bhukaljia* to ena ine dhoro.
 in every three bottles the one is gift
 “Every three bottles, you get one for free.”

In the above examples *kathe* quantifies over a plural individual (formed by eg. *tria bhukaljia* or *tria bhukaljia*), which serves as the minimum unit *kathe* quantifies over. The quantification is only possible over groups of three, which means that we have no access to the sub-parts of the plural individual. The above data also prove that *kathe* is like *every*, i.e. partially distributive while *each* is totally distributive. Based on the analysis of data similar to the above, Lazaridou-Chatzigoga proposes a generalization (2009: 140:155):

- (69) *Generalization over the kind interpretation:*
kathe can have either a kind or an instance-of-a-kind interpretation, while *o* *kathe* only refers to instances of a kind.

I assume this generalization to be correct, and further show why this happens: the context set variable of *kathe* NPs may be bound by a Gen Op, while the one of *o kathe*

NPs cannot. In the next section we will try to understand what the definite *D o* does in *o kathe* that makes it immune to the kind interpretation.

3.5 The semantics of *D* and *DDR*

In an effort to better understand *DDR* and the *kathe-o kathe* distinction, let us consider the properties of the Determiner (*D*). *D* is traditionally considered to be the locus of familiarity (Heim 1982), Definiteness (Lyons 1999), uniqueness (Russell 1905), and existence presupposition (Strawson 1950), while for others such as Giusti (1997) it just encodes grammatical features. Giannakidou (2004) argues that it is used for generic-reference nominals obligatorily in Greek, French, Hungarian (also Giannakidou and Rathert 2009) and for denoting contextual domain restriction, by introducing a context set (Westerståhl 1985).

As we saw in Chapter 2, regarding the nature of the definite determiner in Greek, Roussou and Tsimpli (1994) argue for an expletive use with Greek generics. Giannakidou and Stavrou (1999:15-17), on the other hand, distinguish two main uses: one with definite descriptions and proper names, where we have a referential use, and one with generic DPs with a generic use. They argue that the two uses can be both viewed as referential, as “generic DPs can of course also be characterized as referential in the sense that they make reference to kinds, i.e., to intensional individuals (cf. Carlson 1977)³⁰.”

Let us now turn to the notion of familiarity and *DDR* we invoke in more detail. Etxeberria and Giannakidou (2010) and Giannakidou (2004) propose the pragmatic mechanism of Determiner Domain Restriction (*DDR*) to account among other phenomena, for the distinction between *o kathe* and *kathe* NPs. *DDR* essentially consists of *D* contextually restricting (in the sense of lexical modification) either a strong Q-det (as in Greek, Hungarian), or the NP, as in Salish and as originally proposed by Stanley (2002) whose work the above authors follow. This is the operation that applies to the *o kathe* NP construct and differentiates it from the *kathe* NP one. *O kathe* is thus more “presuppositional” than *kathe*, or, rather, more familiar. The same operation is argued to apply covertly for *each* and its sort crosslinguistically.

³⁰“Reference in these cases is coupled with an existential and a uniqueness presupposition. The device encompassing these presuppositions is the *i*-operator, and definite descriptions are generally translated by means of it: (517) [the woman in black] => ix [WOMAN (x) IN-BLACK (x)] The *i*-operator is understood as a uniqueness operator when translating in singular terms, and as a maximality operator when it is defined on a plural domain (e.g., with plural definites)” (ibid.:17).

Since D in DDR is a modifier *and* a head, Etxeberria and Giannakidou (2010) assume that the D attaches to the Q (direct adjunction without movement, *ibid*:12), modifying the lexical meaning of Q³¹. Giannakidou (2004) under a slightly different view had previously proposed that D is adjoined to Q after moving to this position (not by direct adjunction).

According to the two authors, the point is that DDR is a pragmatic mechanism. It does not trigger semantic type shift. Since D directly “attaches” to Q (and does not move from a lower position to Q, as assumed here), it cannot take a set NP ($\langle e, t \rangle$) as an argument, as it usually does, to render an individual referential entity of type $\langle e \rangle$, a DP. Thus, it restricts the Q only pragmatically³². The result is a *familiar* Q: such a Q will impose on the context the constraint that there be a nonempty set that Q will quantify over. This leads us to the much debated issue of the representation of pragmatic information in syntax and semantics and the issue of presuppositionality. The semantics of DDR rely heavily on the notion of presupposition. Since this notion is destined to come up frequently in the discussion as it has so far, a brief excursus to it should be allowed.

Ever since Russell (1905) and Strawson (1956) linguists have shared the intuition that there is some kind of presupposition induced by certain elements making part of DPs or QPs (in the current syntactic sense discussed in Chapter 2). There has also been the idea that strong Qs are somehow distinguished by weak ones in terms of some “special” presupposition that they are supposed to carry with them, in opposition to their weak counterparts. Presupposition has been viewed as an explicit or implicit contextual restriction on the domains of those phrases. As we saw in (1.1) of the present Chapter, presupposition is related to specificity.

³¹ As Etxeberria and Giannakidou (2010:12) note: “The thing to remember is that D ends up in a position where it has to take Q, and not NP, as its argument. Because of this misplacement, D cannot function “normally” since there is no set argument. The emergence of DDR then follows as a ‘side effect’ of avoiding type conflict, and the referential ability of D is traded towards the pragmatic only function of domain restricting.”

³² In their words (*ibid*: 8): “DDR is thus a function that introduces *c*, the context set variable. This implies that we can have familiarity without reference, since DDR does not create a referential expression, but is simply a modifier of Q. By supplying just the context set variable, DDR triggers the presupposition that the common ground contain a property that can function as the antecedent, or identifier for *c*. “*c*” needs this property to specify its content, since *c* itself is pretty empty. Following our earlier work (Giannakidou 2004, Etxeberria 2005, 2008, 2009), we assume that in DDR D attaches to the Q, so the result is a QP with the following structure:
(16) a. [QP *o* D + *kathe* Q [NP *fititis*N]]”

Reuland and Ter Meulen (1987:4) further state a distinction between weak and strong quantifiers: “A noteworthy result of this [*the Barwise and Cooper, GQ*] set-theoretic analysis of determiners is that for a weak determiner the verification of a sentence *Det N is/are Pred* is based only on the intersection of the N- and Pred-interpretations, that is, information provided by the sentence itself, whereas strong determiners require for their verification consideration of some other set, often a head given in the interpretation or otherwise available as part of the conversational background or common ground.” In other words, the above authors argue that what strong Qs, such as universals, have on top of what weak Quantifiers convey is contextual information backing the NP in question, some “presupposition”, information in the common ground.

So context restriction, anchoring or however one would wish to call it, is important not only for the specific / non specific readings of the indefinites, but also for the pragmatic content of definites and expressions that are deemed as having inherent quantificational properties such as strong quantifiers and in particular universal quantifiers. My approach converges with the above observation: the distinctive feature of universal quantification is Definiteness. The context set variable of (*o*)*kathe* NP expressions has to be bound by a contextual Definiteness operator. In general, current GQ-framework semantics regard weak Qs as asserting the existence of their domain, whereas strong Qs are viewed as presupposing a contextually salient domain (and its existence); cf. Heim & Kratzer (1998).

Quantificational, strong expressions presuppose existence of the restriction in some model (Reinhart 2006), or context. Presuppositional indefinites (in the semantic sense) are those which yield an undefined value when the N-set is empty (Reinhart: 2006:93), thus denoting a partial function in this case (cf. Heim & Kratzer 1998: 153). Normally, QPs or GQs denote total functions, i.e. functions that do yield a truth value t : T or F. The Presuppositionality hypothesis is relevant at this point (Heim and Kratzer 1998: 163): “... Diesing (1990, 1992): all type $\langle\langle e, t \rangle, \langle e, t \rangle, t \rangle$ expressions (quantificational determiners) are presuppositional in natural languages.... The *every* det is expected to behave as (4) (a): $F \text{ every} = \lambda \langle A, B \rangle : A \neq \emptyset . A \in B$.” The above logical formula does not reflect relevant linguistic meanings in a precise manner. Strong GQs are however expected to presuppose the existence of their domain, while

weak existentials, even if we posited that they do constitute GQs, simply assert this existence.

Etxeberria and Giannakidou (2010) claim that “the result of DDR is a presuppositional Q, i.e. a Q imposing on the context the constraint that there is a non-empty set to quantify over.” If I understand this right, DDR makes the nominal phrase construct denote a total function, i.e. it turns it into a GQ, so the sentence may be attributed a value T or F. This is a detail though, that I do not endorse, evoking the data in (36), in 3.3 which show that *o kathe* appears to lack specificity or presuppositionality. I argue that turning the *(o)kathe* NP into a GQ happens only by virtue of binding of the context set variable of the NPs by an operator in C. DDR does not turn the *o kathe* expression into a GQ in my view: binding by the sentential operator Def does so and in the next Chapter we will see how this happens. Preempting the analysis, the Def operator in the system proposed here more or less performs a kind of DDR, which, in the latter case, is however of semantic nature. DDR in the view proposed here is also strictly pragmatic and pertaining to familiarity.

Giannakidou (2004 and subsequent relevant work) presents DDR as introducing Robert’s (2003) *c* (context) variable, simply modifying Q without inducing type shift. She uses Westerståhl’s (1984, 1985) idea that the definite article contributes a *c* variable anyway. The context variable *c* renders the QP anaphoric to a salient discourse set (property). Note that the context set variable my proposal uses is in the sense used by Reinhart (1997, 2006) and Szabocsi (2010) as being present in all NPs; all NPs are also closed by a Choice function operating from D in these frameworks. The context set variable I refer to turns the expressions into GQs once it is bound by a relevant external Op³³.

Etxeberria and Giannakidou (2010) argue that DDR is an instance of weak familiarity. According to them, contextual domain restriction relies on the presupposition of a contextually salient domain. In this way it involves strong Qs only. It thus concerns the notion of familiarity (Heim 1982, Kamp and Reyle 1993, Roberts 2003) and speaker and hearer reference, i.e. the common ground. Weak quantifiers

³³ I think that the divergence between Etxeberria & Giannakidou’s (2010) and the present tackling of the familiarity of *o kathe* NPs seems to be rooted in a different perspective on the notion of context variable: In my view, familiarity has to do not with spatio-temporal anchoring, as context is largely defined here, but with a micro-context arising from the information shared between the two interlocutors (*common ground*) strictly through the previous discourse between them.

(existentials), on the other hand, may have a specific use but even in this case they only assert existence, they do not presuppose it. If they are specific, they only concern speaker reference and not common ground (information shared by both speaker and hearer). Thus, the domain restriction Giannakidou proposes and specificity are two different things. According to her, weak Qs may be specific; they may not, however, be Determiner Domain Restricted. This may apparently run counter to my utilization of DDR, since I consider *kathe* as inherently indefinite. What I particularly argue for is that *kathe* starts indefinite, but it does not have to stay that way: it is the interaction with a sentential Operator in C that occasionally renders it definite, when there is a Def Op at C. As I have argued, I consider the FCI use of the expression in hand not to be referential, either (cf. 3.1, 3.3).

A few words on the differences between FC *kathe* and *o kathe* NPs are relevant here. *O* in the FC version of *o kathe* performs the type of Determiner Domain Restriction (DDR) adopted here and conveys an FC indiscriminative reading, which indicates the lowest end point in a pragmatic scale of evaluation (cf. Fauconnier 1975 and discussion in 3.3). The present analysis does not, however, intend to provide a full explanation of how this happens here, due to space limitations; this issue is left open for future investigation. I can, however, add at this point that a possible analysis should take into consideration a seemingly analogous (at least at first appearances) phenomenon in Korean, in particular the “anti-honorific” use of Korean deictic *ku* via DDR, (Kang 2014, personal communication).

3.6 A fresh look on *kathe* vs. *o kathe*.

As the discussion in this chapter has revealed, despite the fact that the traditional assumption is that *every* is a universal, there is also a lot of evidence and data already provided in the previous literature against this. We saw that there are many analyses that run into data with an indefinite use of *every* and *kathe* NPs. For *kathe* NP in particular, we saw that its indefinite reading arises in generic and habitual contexts, in its adverbial use, in the FCI indiscriminative use of *o kathe* and the kind reading of *kathe*.

The different readings *kathe* NPs exhibit according to what I’ve said so far are exemplified (repeated from Chapter 1: examples 20-28):

- (70) *Kathe mathitis pire tria vivlia.* *Universal*

every student took.3sg three books.

“Every student took three books.”

- (71) *Kathe ghata* exi tesera podia. *Kind*

every cat has.3sg four feet

“Every cat has four feet.”

- (72) *Kathe xoreftis* evghaze ta paputsia tu prin bi mesa. *Kind*

every dancer took.3sg the shoes his before get..3sg. in

“Every dancer took his shoes off before he came in.”

- (73) *Kathe etisi* tha meletithi dhieksodhika. *FC any/ Universal*

every application will be-studied.3sg thoroughly

“Any / every application will be examined thoroughly.”

According to the above data, *kathe* NPs exhibit three readings: a Universal *every*, a kind *every* and a FC *any* NPs interpretation. *O kathe* NPs exhibit the following three readings: a Universal presuppositional *each* use, a FC *any* use and a FC indiscriminative *just any* use. There is no kind reading available for *o kathe* NPs.

- (74) *O kathe mathitis* pire tria vivlia. *Universal*

the every student took.3sg three books.

“Each student took three books.”

- (75) *I kathe ghata* exi apo tessera podia. *Universal / *Generic / *FC*

the every cat has.3sg four feet

“Each cat has four feet.”

- (76) *O kathe xoreftis* evghaze ta paputsia tu prin bi mesa. *Universal*

the every dancer took.3sg the shoes his before get. 3sg. in

“Each dancer took his shoes off before he came in.”

- (77) *I kathe / I kathe etisi* tha meletitthi dhieksodhika. *FC / Universal*

every petition will be-studied.3sg thoroughly

“Any / each petition will be thoroughly examined.”

- (78) *Stin eurovision bori na traghudhisi o kathe asxetos.* *FCI indiscriminative / *Universal*

at the eurovision can.3sg prt sing.3sg the every irrelevant

“Just any amateur can sing at the eurovision (contest).”

The different readings lead us to the conclusion that there must be a different operator present in the structure each time for the different readings to arise. Let us now see what the specific contexts may be. The presence of different operators seems to affect the interpretation accordingly: Definiteness and contextual grounding is related to universal readings, modality to the FC readings and a generic operator to the kind readings. Episodicity triggers an *each* reading only, while FC readings require anti-episodicity.

Let us examine (75) closer. Here, despite the fact that we have a non-episodic context, the kind and the FC readings of *o kathe* are not available (hence the asterisk in *Gen, *FC). This unavailability must be due to the presence of the distributive PP, which acts as a definite distributed share. The presence of a definite distributed share indicates the presence of a covert Definiteness operator at C. This operator unselectively binds the context set variables of the nominal expressions in the sentence, that of the subject – distributor as well. In other words, the presence of an unambiguous definite distributed share (like a PP) entails that the distributor is definite as well. Definite distributors may only receive a universal interpretation. This is why the kind and FC readings are excluded in the above sentence. The same sentence, on the other hand, without the PP allows an FC reading as well as the universal one:

- (79) *I kathe ghata exi tessera podia.* *Universal /*Generic / FC*
 the every cat has.3sg four feet
 “Each / any cat has four feet.”

What (75) and (79) indicate is that the *apo* PP somehow makes the Definite reading the only one available.

B&S argue that the presence of distributive shares occupy Spec, ShareP and make the distributive reading obligatory by sending the *every* NP to their Spec, DistP. Gryllia (2007) claims that the same applies in Greek with *apo* PPs. In current terms, since I claim here that *kathe* NPs are always distributive (one way or another), what differentiates the universal reading from other readings is contextual anchoring or Definiteness. So data such as (75) above show that certain phrases, like the *apo* PP, indicate the presence of a covert definite operator (Def Op) in the sentence. *Apo* PPs could also be viewed as a definite operator themselves, similar to the specific operator

Manzini & Roussou (2000) invoke while discussing arbitrary control, as we saw earlier. Note that this is reminiscent of Zeijlstra's (2004) theory of Negative Concord and phonologically expressed semantic operators. On the other hand, (79) shows that we may have a universal reading for the phrase in question without the *apo* PP, after all. In this case, I propose that a covert Def Op is at play. The question then is not how the universal reading emerges, but why the generic / kind reading is excluded in (75) and (79). The obvious answer is that *o* in *o kathe* is responsible for this. As we saw already in Chapter 1 as well as in the presentation of Lazaridou-Chatzigoga's kind generalization, *o kathe* NPs, unlike *kathe* NPs, never give rise to a kind interpretation. This must be due to the DDR effect of *o* on *kathe* we described earlier: The notion of familiarity we assume DDR to convey is not compatible with a kind reading.

The presence of a Definite operator in C excludes the presence of other operators there, such as the Gen or a Modal operator which could derive the kind and the FC interpretation for the *kathe* NP respectively. In the same way, we expect that some readings will be available at the presence of some particular adverbs and operators whereas others will not. As we will see in the next chapter in more detail, definite distributed shares seem to pattern with the presence of the Def Op under C.

Let us now check *kathe* / *o kathe* NPs with respect to Milsark's (1977) test for distinguishing between strong and weak quantifiers³⁴:

(80) **Iparhi kathe erghalio mesa se afti tin tsanta.*

Exist.3sg every tool inside in this the bag

(81) *Mesa se afti tin tsanta iparxi (*to) kathe erghalio pu (*to opio) tha xriastis.*

Inside in this the bag exist.3sg the every tool that the which will need.2sg

"In this bag, there is every tool that you will need."

We observe that for *kathe*, but not for *o kathe*, the acceptability of the sentence increases dramatically with the addition of a RRC and a locative Prepositional Phrase (PP). So the more "contextual information" we have about the NP set predicated by

³⁴ Note however that Mc Nally (1992, 2009) Etxeberria and Giannakidou (2010) doubt the validity of this test.

kathe NP, the better³⁵. The purpose that RRCs and locative PPs serve here is that of providing a certain degree of Definiteness for the NP predicated. The reading the above sentence has is a universal, definite, contextually anchored one. So the validity of this test for Greek is contested by the above example.

Despite that, McNally (1992) and McNally & Van Geenhoven (1997) have shown that when *there*-insertion contexts are associated with quantification over kinds, *every* can be grammatical in existential constructions. In terms of the current analysis, this can be viewed as further evidence pointing towards an indefinite-like behavior of English *every* NPs, which in generic sentences are associated with the generic operator of the sentence, yielding a kind denotation. The same holds for *kathe* whenever there are no RRCs, PP or extra modification. This is another indication that the *kathe* NP in its kind reading behaves as an indefinite, i.e. as a free variable available for unselective binding. Whenever there is a definite operator under C, as in the case above, the *kathe* NP gets bound by it. If no such operator is around, as in the following examples, the phrase's context set variable gets bound by existential closure:

(82) There is *every kind of luxury bag* on sale.

(83) Ipirxe *kathe loghos* na ton pistepso, ala fovomun.

existed-3sg every reason prt him believe.1sg but was-scared-1sg

'There was *every* reason for me to believe him, but I hesitated.'

(84) Ipirxe *kathe diathesi* ja ekdromi ala mas ta xalase o keros.

existed.3sg every mood for excursion but us them ruined.3sg the weather

"There was every good will for an excursion, but the weather spoiled it."

Note however, that this option is only available with abstract nouns and not with countable nouns as the following examples indicate:

(85) *Ipirxe *kathe ergalio* ja na dhulepsune ala mas ta xalase o keros.

existed.3sg every tool for prt work.1pl but us them ruined.3sg the weather

(86) *Ipirxe *kathe aftokinito* ja na metakinithume ala mas ta xalase o keros.

³⁵ Note that a RRC with a relative *pu* at C is preferred over the option of a *wh*-item *to opio* at Spec, CP, possibly because the latter easily gives rise to a specificity reading more appropriate for an *each* reading of *kathe* NPs: iparxi kathe ergalio (*to opio) / pu tha xriastis.

existed.3sg every car for prt be-moved.1pl but us them ruined.3sg the weather

We conclude that *kathe* NP plus abstract noun can be used with existential predicates with a kind or even a mere existential reading, while *o kathe* can under no circumstances do that (*pace* Lazaridou-Chatzigoga 2009).

Let us now see more data with RRCs. This time we will compare (*o*) *kathe* to FC (*o*) *opjiosdhipote* since we have seen that *o kathe* and *o kathenas* have very fairly been attributed an indiscriminative FCI reading in some contexts:

- (87) *Kathe pedhi* pire ena vivlio.
every child took-3sg a book
“Every child took a book.”
- (88) *Kathe pedhi* ipostirikse ton Panionio.
every child supported-3sg the Panionios
“Every child supported Panionios.”
- (89) **opjiodhipote pedhi* ipostirikse ton panionio.
whichever child supported-3sg the panionio
- (90) *Kathe pedhi* pu erxotan sto ghipedho, ipostirize ton panionio.
every child that came.IMP.3sg to-the match supported.3sg the Panionios
“Every child that came to the match supported Panionios.”
- (91) *Opjiodhipote pedhi* erxotan sto ghipedho, ipostirize ton panionio.
whichever child came.3sg to-the match supported.IMP.3sg the Panionios
“Whichever child came to the match was on Panionios’ side.”
- (92) **to kathe pedhi* ipostirikse ton panionio.
the every child supported.3sg the Panionios
- (93) **to opjiodhipote pedhi* ipostirikse ton panionio.
the whichever child supported.3sg the Panionios
- (94) **to kathe pedhi* pu irthe sto ghipedho, ipostirikse ton panionio.
the every child who came.3sg to-the match, supported.3sg the Panionios
- (95) **to opjiodhipote pedhi* irthe sto ghipedho, ipostirikse ton panionio.
the whichever child came.3sg to-the match supported.3sg the panionio

We have already observed in Chapter 2 that *o kathe* NPs cannot take a Restrictive Relative Clause (RC), while *kathe* NPs can; both are unacceptable with a Non-

Restrictive RC (NRRC). We have explained this as another failproof indication that *kathe* selects an NP, not a DP.

In the above data we observe an interesting similarity between *(o) kathe* and *(o) opjiosdhipote* NPs. They are both incompatible with an episodic context. In (90, 91) *opjiodhipote* needs imperfective aspect. These two sentences are habitual and we can thus infer the presence of a Generic operator, which binds the variable of the *kathe* NP and gives it a kind interpretation. The grammaticality of *o kathe* and *o opjiosdhipote* NPs is not influenced by the presence of RRCs.

Let us stay with the Relative Clause examples for a while. As we saw in the previous Chapter, the term ‘subtriggering’ (Le Grand 1975) is used to refer to cases where FCIs are modified by a relative clause which provides rich descriptive content. This has been observed somehow to make FC *any* good in sentences like the following (repeated here from 29:2b and c):

- (96) a. *He bought any book.
b. He bought any book he could find.

The RRC yields a universal-like reading of the FCI. These contexts may involve environments that are in general FCI- friendly, like habituals with imperfective aspect, as well as FCI-hostile environments like episodic sentences in the perfective past. The following examples involve ‘subtriggering’ (the Free Relative Clause that is placed within brackets) and Greek FCI *opjiosdhipote* (from Lazaridou-Chatzigoga 2009: 168:50 -51):

- (97) Sinithize na aghorazi *opjiodhipote vivlio* *(tis sistine i Ino).
used.3sg prt buy.3SG any book (her recommended.3sg the Ino
“She used to buy any book Ino recommended.”
- (98) I eteria apozimiose *opjondhipote pelati* *(ixe katathesi grapti dhiamartiria).
the company reimbursed.3sg any client (had.3sg presented written protest.
“The company reimbursed any client that had presented a written protest.”

The FCIs are licensed by nonveridicality and anti-episodicity (cf. Giannakidou 1998) because we have a habitual sentence. In both sentences the FCI needs a Free Relative Clause in order to be licensed.

The fact that *kathe* NPs exhibit all these different interpretations proves their non-GQ nature. Assuming that Greek FCIs are indefinites / existentials (Giannakidou 2001, Vlachou 2007) then subtriggering makes “existential” FCIs become contextually restricted, thus yield a universal- like, definite interpretation³⁶. This is exactly how universal interpretation is understood under the proposed analysis. Under the standard assumption about *kathe* NPs (that they are universal), it would come as a surprise that subtriggering holds for them as well. Why should a universal quantifier need a Free Relative or another relative clause, or, in fact, anything to provide it with contextual restriction and a universal-like reading, if it is universal on its own right in the first place? The answer that again emerges as the most logical explanation is that *kathe* NPs cannot be inherently universal, as argued in the present thesis.

The data above indicate that the thing we perceive as universal quantification may be broken down into two properties: contextual restriction of the nominal phrase and total distribution between the elements of the distributor set and the elements of the distributive share-verbal predicate (entities, as in a distributive share object, or subevents, as in imperfective aspect). So here we have the same situation as with a GQ: two arguments. The difference is that the nominal provides context restriction, while the verbal phrase is construed as subevents.

In this case, the universal distributive reading of *kathe* NPs amounts to type (c) Distributivity, i.e. “partially distributive”, in Tunstall’s (1998) definition. Total Distributivity belongs only to *o kathe* and *each* NPs, type (d), i.e. “completely (totally) distributive”. The FC reading of *o kathe*, *o kathenas* can be viewed as type (b), i.e. “partially distributive”.

³⁶ Quer (2000) also proposes an analysis of subtriggering as an underlying conditional-like structure, where the content of the relative clause functions as the restriction of the implicit conditional operator. In this account the relative clause headed by *that-* in our case, *pu-* provides the restriction on the conditional. When we do not have an imperfective aspect in the sentence and thus no generic or habitual reading, the iterativity of the event predicated is what is more important (as noticed by Dayal 1998).

Let us now examine our element with the intensional adjective *tixeos* (*random*). The semantics of this adjective do not permit a definite (roughly, presuppositional, veridical) interpretation for the sentence or the DP. This roughly means that the sentence may not be judged as T or F with criteria that have to do with the particular world of the discourse. The NP modified cannot have an extensional, specific denotation. We expect the environments in which the *tixeos* NP can be accommodated to be generic or modal ones (both openly and implicitly intensional). This expectation is indeed verified by the data: *kathe tixeos* NP is not grammatical in definite, veridical episodic contexts with a clear distributive share:

- (99) **Kathe tixeos mathitis* pire dhio mila.
 every random student took.3sg two apples.

Because of the episodic and the distributive share, in the (99) as well as in the following one, we could only have a universal reading (not the FC or the Indiscriminative FC reading). The FC interpretation is equally disallowed in this context due to episodicity:

- (100) **O kathe tixeos mathitis* pire dhio mila.
 the every random student took.3sg two apples.

Therefore *tixeos* cannot modify *(o)kathe* in episodic contexts. On the other hand, in (101) below, “ke”accentuates the scalarity-domain widening (Kadmon and Landman 1993) functioning as *even* (cf. Giannakidou 2000) and it allows for the FC reading.

- (101) Tora to pezi firma ke *o kathe tixeos traghudhistis*.
 now it play.3sg diva and the every random singer
 “Just any random singer thinks he’s a big shot.”

The above data attest a clear FCI reading for *o kathe* NP and that indeed its FCI distribution co-aligns with the other standard (*opjiosdhipote*) FCI uses, as they emerge in the same environments.

Now let us follow Keenan (2012) who takes up the old partition by Partee (1995) between adverbial quantifiers (A-Qs) and nominal or determiner like

quantifiers (Determiner Quantifiers or D-Qs, in his notation). Bear in mind though, that we take *kathe* and *o kathe* to always be D-Qs, even when *kathe* is used adverbially, as bare or numeral nominal phrases or other plain indefinites are in Greek (cf. NP adverbs and Giannakidou 2012). In this case the NPs are in the accusative case, and most of the times they don't need a preposition. Thus, the adverbial uses are particular to the same paradigm that we examine and we expect their semantics to be identical. This may be quite telling of the element's nature.

As we saw previously, Giannakidou (2012:305) includes *kathe* in *kathe tris ke ligho* in existential Adverbial Quantifiers, as frequency adverbs and idiomatic, conventionalized expressions together with *pote-pote*. According to the overall analysis here, all adverbial uses of *kathe* (except for the focused ones) are existential. So I propose that the existential adverbial use is not an exception but on the contrary, an indication of the item's true nature. Furthermore, the use of *kathe* + *plural* NP in adverbial phrases is very productive, forming not only idioms but regular adverbial phrases as the examples below indicate:

- (102) *kathe* 2 lepta / *kathe* 3 lepta / *kathe* mia ora / *kathe* 10 xronia/ *kathe* tris ke ligho / *kathe* xristujena / *kathe* eklojes / se *kathe* olimpiakus aghones
 “every 2 /3 minutes, every one hour, every 10 years, every once in a while, every Christmas, every elections, in every Olympic games”

In the works we have reviewed so far, all researchers have observed that the adverbial use of *kathe* is not permitted in episodic contexts.

Giannakidou (2012: 306) underlines the fact that the verb with *kathe* Q adverbs appears in the imperfective, because these sentences are habitual / generic statements and involve quantification of events (Krifka et al 1995, Giannakidou 2012 for Greek). As just noted above, adverbial use *kathe* NP only appears with imperfective aspect, as the following sentences show:

- (103) a. Erxotan / erxete *kathe* mera.
 came.IMP.3sg / come.3sg every day
 “He kept coming / he comes everyday.”
 b. *irthe *kathe* mera.
 came.3sg every day

- (104) a. *ta pedhjia efaghan tria mila *kathe mera*.
the kids ate.3pl three apples every day
- b. Ta pedjia etroghan tria mila *kathe mera*.
the kids ate.IMP.3pl three apples every day
“The kids were eating three apples a day.”
- (105) a. Eperne ena xapi *kathe tris ores*.
took.IMP.3sg one pill every three hours
“He was taking one pill every three hours.”
- b. *pire ena xapi *kathe tris ores*.
took.3sg one pill every three hours

As we have already observed in Chapter 2, the prevalent reading of the *kathe* NP adverbial when it appears with a noun denoting time measure is that of iteration, not of universal quantification. Plus, the contexts are always generic or habitual.

I explain this as follows: The particular adverbial phrases require a plurality of events or subevents to distribute over so that they can satisfy the prerequisite of referential variability that Distributivity necessitates. This is why they are incompatible with episodic contexts, which denote one event only, thus (often) excluding referential variability, and, as a consequence, Distributivity. Beghelli and Stowell (1997) assume that an existential operator may be in place at Spec, Share P or Spec, TP. Tunstall (1998) also argues that Distributivity is related to the differentiation and event Distributivity conditions which presuppose a plurality of subevents. As denoted by the very word, adverbial phrases attach to the verbal phrase. Therefore, the *kathe* NP is related to the verbal domain (dv). The scope of the adverbial phrase is the vP/VP. The explanation I propose is that when *kathe* surfaces in the dv domain (for example attached to vP, as it is the case here with these adverbials) it may only have an existential interpretation, in this particular case a frequency interpretation because its context set variable is bound by existential closure. Unlike distributive *kathe fora*, universal-definite *panda* gains scope over the whole TP, this is why it appears to be stronger. Unlike *kathe fora*, it does not individuate subevents, but describes a single indivisible set of events. It is in this sense closer to collective strong *all the* NPs.

Frequency is different to universal quantification. The former requires the existence of a plurality of events or subevents referred to by the sentence, or the segmentation of a single event and the individuation of its different subevents or stages. The difference in the semantics of the two sentences below with emotive verbs is strikingly telling:

- (106) Tha se aghapo panda.
 will you love.1sg always
 “I will always love you.”
- (107) ?Tha se aghapo *kathe fora*.
 will you love.1sg every time
 ?“I will love you every time.”

So, it is not only the grammatical Aspect but also the Aktionsart, the lexical Aspect of the verb that plays a role in the emergence of the distributive reading for the expression in hand. The verb *aghapo* (*love*) denotes a situation (stative verb) which does not have a beginning nor an end; therefore, the predicate has no subevents. As we saw, according to my initial proposal and adoption of Tunstall’s Distributivity assumptions, the nominal phrase and the verbal phrase have to be accordingly individuated in order to have a distributive reading. This is how we would phrase this situation if we thought of individuation as a precondition for the emergence of Distributivity, a “licensing condition” that allows or facilitates this reading. But this is not how I have chosen to describe and phrase the explanation of the phenomenon at hand. As already mentioned, I propose that a distributive operator Dist occupying a position in the C domain binds Q and the event variable in VP and Agrees with *kathe* and (lexical / grammatical) Aspect (as if these were its *agreement markers*). More details on that in Chapter 4.

Let us consider more examples supporting this claim:

- (108) *Kathe tesera xronia* psifizoume dhio fores.
 every four years vote.1pl two times
 “Every four years we vote two times.”
- (109) *Kathe dheka xiliometra* stamatusame jia nero.
 every ten kms stopped.IMP.1pl for water

“Every ten kms we used to stop for water.”

(110) *Stis kathe tris episkepsis ston odontiatro i mia ine dhoro.*

In-the every three visitis to-the dentist the one is gift

“Every three visitis to the dentist one is free of charge.”

We observe that in the above cases the expression we examine has wide scope over the rest of the sentence and that it acts as the distributive key, as it does in its non-adverbial use. However, the reading is not one of universal quantification, but merely of frequency. In this case it looks as if the phrase is bound by the existential or Generic operator of the habitual / generic phrase. However, we can get a universal reading, i.e. a reading that does not allow exceptions for the event / state / process predicated if we either have focus or an additional adverb like *anekseretos* “without exception”:

(111) *Kathe Kiriaki erxotan sto episkeptirio.*

every Sunday came.IMP.3sg to the visit

“He kept coming to visit every single Sunday.”

(112) *Anekseretos kathe Kiriaki erxotan sto episkeptirio.*

without exception every Sunday came.IMP.3sg to the visit

“He kept coming to visit every single Sunday.”

When *kathe* (at least in its adverbial use) is focused, it is bound by the Focus operator or by an appropriate adverbial operator (such as *aneskeretos*); it is then and only then that it can yield a strong quantificational reading. Therefore in this case we observe that strong quantification even in the case of *kathe* NPs used as adverbs depends on other operators that may bind it, such as Focus or emphatic adverbs like the one above. Again the adverbial use of *kathe* NPs shows that *kathe* is specified for Distributivity but it behaves as an indefinite, providing a variable available for binding to a near-by operator.

There are also some adverbial uses that have a one-to-one distributive reading. They involve not temporal, but spatial modification or ratio:

(113) *Kathe limani ke kaimos, kathe kaimos ke dhakri.*

every port and pain, every pain and tear

“Every port and one sorrow, every sorrow and (one) tear.”

- (114) *Kathe dhio spitjia* ke enas skilos na ghavjizi.

every two houses and one dog to bark.3sg

“Every two houses there was one barking dog.”

- (115) *Gia kathe pente mplouzes* ixe ke mia asorti fusta.

for every five shirts had.3sg and one matching skirt

“She had five matching t-shirts per skirt.”

Kathe may also be followed by a relative *pu* phrase, again in a generic or habitual sentence with imperfective aspect, rendering a frequency reading (116, 117, 118). *Kathe* may also occur with the noun *fora* meaning *turn, time*, again rendering a frequency adverbial modification (117).

- (116) *Kathe pu* nixtone, eperne to dhromo jia to vuno.

every that got-dark.IMP.3sg took.IMP.3SG the road for the mountain

“Every night he used to take the road to the mountain.”

- (117) *Kathe fora pu* tin evlepe tis edhine mia sokolata.

every time that her saw.IMP.3sg her gave.IMP.3sg a chocolate

“Every time he saw her he gave her a chocolate.”

A *pu* relative may also follow after time expressions such as *proi, vradhi*:

- (118) *Kathe proi pu* kinagha na pao stin dhoulia traghudhusa.

every morning that moved.IMP.3sg prt go.1sg to-the work sang.IMP. 3sg

“Every morning, I used to take off for work singing.”

All the above sentences are habitual. In most cases *kathe* NPs give adverbial expressions that are synonymous to adverbs of non-universal habitual reference: *sinithos, sixna*. It seems that *kathe* NPs are bound by a covert generic operator in these cases³⁷. Of course, *kathe* NP may be bound by a Def Op and convey a definite

³⁷ Another adverbial use is *kathe alo para, everything but*:

- (1) I Maria kerdhise to laxio ala *kathe alo para* xarumeni ine.

the Maria won.3sg the lottery but every else happy is

“Mary won the lottery but she is everything else but happy.”

distributive reading as we saw in (112). Another interesting use is with *wh*-adverbials denoting time or place. The complex adverbial phrase denotes low frequency. The reduplicated structure is also grammatical on its own, so it is again as if *kathe* does not contribute any semantics at all, since reduplication on its own already creates a distributive reading (119b):

- (119) a. *Kathe pu ke pu / kathe pote-pote eperne kana telefono.*
 every where and where / every when when –took.IMP.3sg any telephon.
 “Every now and then, he telephoned.”
- b. *Pu ke pu / pote-pote eperne kana telefono.*
 where and where / when when took.IMP.3sg any telephon.
 “Every now and then, he telephoned.”
- (120) *Kathe toso eperne telefono.*
 every much took.IMP.3sg. telephon.
 “Every once in a while, he telephoned.”

My estimation is that in the latter structures a specific kind of duplicated words such as *wh*-words, form a plural construct that can be distributed. Reduplication creates a plural implication or a reference variability implication and a distributive reading, without the presence of *kathe* being necessary. Reduplication (with or without an intervening preposition) is a common way of denoting Distributivity for languages so diverse such as Chinese (*ge-ge* as in Cheng 2009), English (*one-by-one*), French (*un par un*).

3.7 Summary

In this chapter we demonstrated that (*o*) *kathe* NPs are like indefinite expressions with regards to their quantificational content. We also proposed a way to obtain the different readings of the (*o*) *kathe* NPs through the collaboration of the whole sentence. I proposed that the expression in hand is bound by sentential operators that provide it with all its different meanings. The *o kathe / kathe* NP interpretational differentiation was explained by adopting DDR. In this chapter the emphasis was on the nominal expression with regards to the sentential operator Dist. In the next chapter

Context: the tax office keeps all the money.

In (1) the idiomatic phrase receives a universal interpretation.

we will see how Dist interacts with the verbal phrase and how *kathe* NPs interact with other sentential operators and the sentence as a whole.

Chapter 4: *All about everything*

In the previous Chapter we identified the host of different readings *kathe* and *o kathe* NPs may have. It was proposed that these different readings are the result of the indefinite nature of these expressions and their interaction with different operators in the clause. Furthermore, it was indicated that the Universal operator of predicate logic is not fleshed out in the form of a determiner, at least not in the case of Greek *(o)kathe*. Greek Universally Quantifying expressions seem to be construed by the syntax of the whole sentence; they are the result of a combination of Distributivity with Definiteness (in the sense of domain restriction, contextual salience). The explanation we proposed in the previous Chapter will be further enriched here.

In this Chapter we focus our attention on the participation of the vP/VP in the composite phenomenon of quantification with the *(o) kathe* NP. We resume the discussion of the previous Chapter by laying out in detail the specifics of the sentence-based analysis of *(o) kathe* NPs quantification. First, the proposal is laid out in full detail. I describe the Agree mechanism that syntactically regulates this binding as well as the different operators that are involved in each different reading. Then we examine a body of data that bears witness to the analysis put forth. We examine Greek sentences with *(o) kathe* NPs as well as with *o* definite DPs with respect to a number of parameters, such as the telic / atelic aspect distinction, the perfective / imperfective aspect differentiation, the role of (+/-past) as well as of definite and indefinite Distributive Shares. The data show that Distributivity is spread in a harmonious manner over the whole sentence, the vP and DP, subject and complement included. For this reason we place Dist in C. We will also observe that the distributive share (or Share, usually the complement of the verb or a PP attached to VP) affects the Aspect of the verb and in this way it also affects the availability of referential variation for the different (sub) events, thus the availability of a potential distributive reading for the vP and the subject *(o) kathe* NP.

4.1 *The proposal*

In the previous Chapters I have argued that *(o)kathe* NPs behave as indefinites, as well as definites, and that context seems to play a role. The problem that remains is how all the different readings these expressions yield are rendered. Here's a brief preview of my proposal: I propose that *kathe* is not lexically specified as a universal and that universal quantification ensues as a composite phenomenon in syntax. The determiner is specified for Distributivity. So I propose that Distributivity does not equal Universal Quantification. The latter rather involves two core notions combined, Distributivity and Definiteness. These two notions are expressed by covert sentential operators in C. These operators bind relevant variables in the nominal and verbal domains, creating a quantificational concordance. I cast this dependency in terms of Agree between features.

In particular, *kathe* is a distributive element, carrying a distributive feature which has to Agree with the same feature related to a covert Dist Op in C. This may at first sound redundant: if *kathe* is lexically specified as a Distributive, why can't it embed the Dist Op itself? Why do we need to postulate the existence of a covert Dist Op in C? The answer is first, that Distributivity involves the whole sentence, i.e. both the nominal and the verbal predicates (cf. Tunstall 1998 and relevant discussion in 3.1.3), so for this reason an operator at C offers a reasonable explanation. Second, pseudodistributivity³⁸ (Beghelli & Stowell's term 1997, cf. discussion in 1.3 and 3.1.2), in other words, distributivity that ensues without the presence of *every* or *each* (cf. Szabolcsi 2010) can only be explained by the presence of a covert Dist Op of some sort. These different instantiations of Distributivity are uniformly explained by the concept of a covert Dist Op in dC. This uniform explanation covers all cases, so it seems to be more "minimal".

I furthermore propose that with *(o)kathe* NPs quantification is rendered in a similar way as with *wh*-words, which Agree with a Q feature under C in order to render the meaning of a *wh*-question, under Chomsky's (2000) proposal on Agree / Quantification, (cf. Vlachos (2012) as an example of implementation of this idea in Greek *wh*-questions, also Rizzi (1991) for a discussion on criterial checking and selection vs. modification with regards to relevant dependencies). In this, I also follow Beghelli & Stowell's (1997) initial relevant idea about a covert Dist Op, as well as

³⁸ Recall from Chapter 1 (1.3) that B&S' pseudodistributivity is mainly understood as Distributivity that is not of universal quantificational force, such as the distributive reading of plural indefinites we saw previously. It pertains to the "indefinite" uses of *every* NP they observe.

Szabolcsi's (2010) analysis of English *every* NPs reviewed in our Chapter 1 (1.3). All the readings of the expressions in hand are explained in a similar manner.

It is evident from the above presentation that the analysis employs the idea that quantificational expressions form a kind of a dependency; this goes hand in hand with an Agree-based explanation of quantification, as just put forth. It is useful to point out that a similar explanation has also been independently referred to as quantificational concordance³⁹ (already mentioned in our discussion a few times) in Kratzer (2005), who, to the best of my knowledge, coins the term, and Szabolcsi (2010). The aforementioned authors put forth this notion while discussing different (in)definite expressions. The notion of Negative Concord has also been used for negative expressions (Zeijlstra 2004). Based on the data that follow in this Chapter, I argue that this is indeed the case for Greek *kathe* and *o kathe* but also for *o*, *i*, *to* NPs, as they are subdued to an Agree relation with sentential operators. So the analysis here combines these two, in my view parallel, views. The first evidence in favor of this quantificational concordance / Agree approach has already been provided by the discussion so far, in the analysis of the various readings the *(o)kathe* and *every* expressions exhibit. In the data that follow in this Chapter, I also observe that the different readings are related to different TP/IP and vP/VP properties. In fact, different temporal and aspectual specifications of the verbal predicate seem to co-align with the different readings of the expressions under examination. The proposed dependency is shown to run deeper, into the VP as well as the DP domain. As a final general remark, I should note here that under the present assumptions Agree is related to corresponding binding relations.

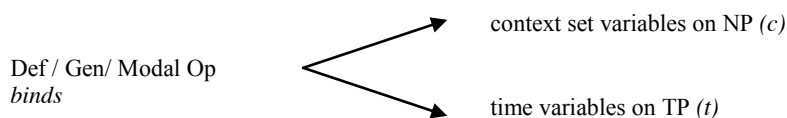
Now allow me to unravel the theoretical specifics of my proposal, saving empirical support for the remainder of this Chapter. In line with Szabolcsi's (2010) analysis of English *every* NPs, I argue that QP and DP interpretation involves three different kinds of variables that are bound by three different kinds of operators. The Distributive Operator binds the element (individual) variables of the NP. The Definite, Generic or Modal Operators bind the context set variable of the NP. The set variable of the NP is bound by a choice function. As Szabolcsi (ibid: 190) proposes, the choice function has to be contextually given; the context set variable of the NP has to be quantified. In the case of the FC readings of *(o) kathe* NPs, I propose that the context

³⁹ I should point out here that these two authors do not make any explicit connection between this notion and Agree.

set variable of the NP restriction is bound by existential closure (as Reinhart 2006 proposes for cases of simple indefinites when there is no other appropriate operator available). A modal or intensional operator is also present in the latter cases. Expanding Szabolcsi's approach, I furthermore propose that the above LF binding relationships are mirrored in the Greek syntax by the operation Agree. On the syntactic level, the features the operators involve enter the Agree relation with features on the QPs/DPs whose NP variables they bind, as well as with features in the verbal domain (more analysis to follow).

Putting it simply, Agree is a relation between α , β , an operator and a variable (cf. Chapter 1, section 1.1). The Operator looks for a variable. The Dist Op, for example, finds the relevant (individual/element) variables inside the NP of *kathe* and inside the event vP. Here, in particular, I assume that the Dist Op looks for individual/element variables on the *kathe* NP as well as for relevant event variables on AspP/vP. The Def, Gen and Modal Ops, on the other hand, look for context set variables on the NP and Time/Situation variables on the TP/IP. The schemata (1 and 2a) illustrate the binding relations between the Operators and variables⁴⁰ implicated in *(o)kathe* NP quantification at LF. The schema (2b) illustrates the binding relations between different operators and their variables as well as the relevant Agree operations at play. Note that *c* stands for context variables⁴¹, *t* for time variables, *e* for element variables and *v* for event variables:

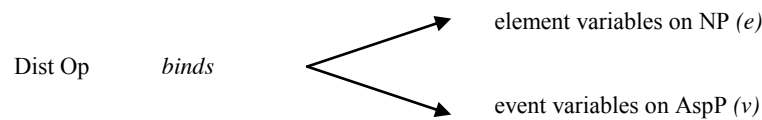
(1) a.



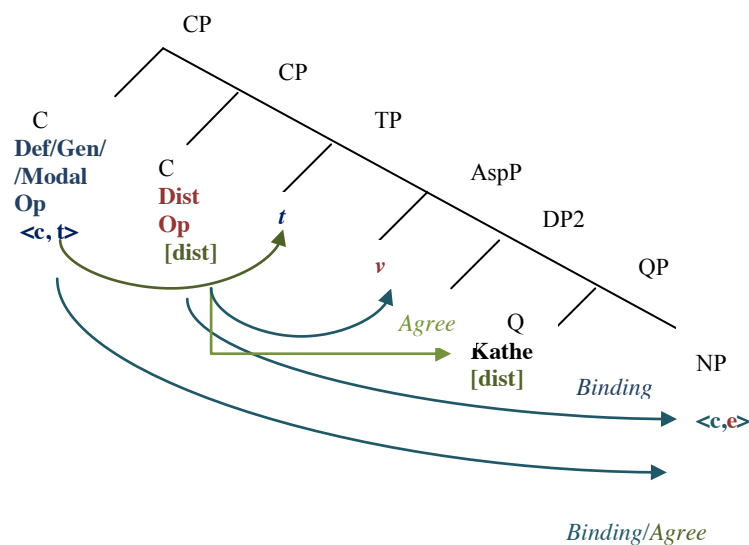
⁴⁰ For some semantic work treating tense phenomena as related to time (or tense) variables cf. Heim (1994), Abusch (1988) among others.

⁴¹ This term is borrowed from Szabolcsi (2010) and it is meant to designate what Etxeberria & Giannakidou (2010) and related works refer to as *domain variables*.

(2) a.



b.



So the Def Op binds t (on TP) and c variables (context set variables of the NP); binding of t , the time variable, yields a definite reference of time (cf. Gueron 2008 for the encoding of spatial construal and time contrual in the verb phrase and TP, respectively, and Ramchand 2008 for perfectivity as Aspectual Definiteness). I follow Manzini & Roussou (2000) in that an operator in C can bind (and *attract*, in their system) available free variables on different elements (in the terms of their analysis, C can *attract* both lexical predicates such as a verbal predicate, as well as Tense). Note, however, that each NP is endowed by a single, unique context variable; so we cannot have the emergence of the same element in a different position within the DP such as in “*to to kathe pedhi”. The “extra” *to* cannot emerge because it cannot be bound /Agree with an Op, since the NP context variable can only be only once bound. The generic operator creates the kind readings of arbitrary control and PRO whereas a *specific* operator (in the authors words *ibid*: 431) creates specific readings for non-lexicalized arguments (PRO). In the authors own words: “...While a generic reading

for the non-lexicalized argument is associated with the generic context in [C[*it is hard [to work*⁴²]]], a specific reading is associated with the non-lexicalized argument given the specific temporal context in *It was hard to work (on that beautiful sunny day)*” (ibid: 428). Assuming, for the sake of the argument, that the non-lexicalized argument above can be viewed as a kind of indefinite, since the former is commonly viewed as a pronoun, (“PRO” stands for pronoun, after all) the analogy with the hypothesis defended here becomes evident: Operators in C may attribute a generic or a specific reading to an indefinite expression, which may be a non-lexicalized pronoun-argument (PRO), as in Manzini & Roussou (2000), but also a lexicalized, yet not determined for genericity or specificity *kathe* NP in our case here. Extending this observation, we can say that possibly all assumed nominal arguments (DPs) should be expected to be contextually grounded (bound by an Operator in C) regardless of whether they are lexicalized or not, under the present analysis and as appearing in Szabolsci (2010).

So the analysis here largely follows Manzini & Roussou (2000) in that operators from C determine the genericity or the specificity of relevant, indefinite (*per se*) DPs. The Generic Operator in C creates the *kathe* NPs kind readings, whereas the Definite / Definiteness Operator (relevant to the *specific* operator in Manzini & Roussou 2000), creates the universal and definite readings for the expressions in hand. I propose that in this way the Def operator is also responsible for the episodic interpretation of the [+past, + perfective] specification in Greek, the only one available for this specification. To put it plainly, the Def Op on the sentence level yields a definite (spatio) - temporal anchoring for the situation predicated. The agents and themes implicated in the definite situation are given a definite reference within the context of the definite situation. The Greek [+past, +perfective] aorist⁴³ has been viewed as the only “regular” tense in Greek, since the latter is seen as lacking Present tense (Giannakidou 2012). So this specification yields only one reading, a definite episodic one. This is the reason why episodic sentences cannot host a kind or FCI interpretation of (*o*) *kathe* NPs; these readings need Gen and modal / intensional (non-veridical) operators, respectively. So episodic sentences can only host the definite, universal reading of those expressions. The *t* variable is bound by the Def Op, which ranges over the whole sentence, the subject and object DPs included. Episodic

⁴² The examples are moved here from the previous discussion in (ibid:428) by me.

⁴³ According to the same author, this tense is also veridical (Giannakidou 1998).

sentences are unambiguously “definite” (presuppositional, veridical and with a specific time reference). I assume that in these sentences the time / tense variable is bound by the Def Op.

Contrary to the unambiguous definite reading of the [+past, +perfective] specification, the [-past, -perfective] specification may yield two readings, a habitual and a progressive one. Sentences containing the latter TP and AspP specifications may function as definite in their progressive reading, in the sense that speech, event and reference time seem to coincide in this case (cf. terms in Reichenbach 1947). In the progressive reading the situation predicated seems to fall within the common ground of the discourse and it is in this sense verifiable against this common background in real time (“definite” in the sense used here). In this case the Def Op binds the *t* variable of the VP⁴⁴ (as well as the *c* variable of the NP). In the case of the habitual reading, on the other hand, there is a Gen Op in C which binds *t* (as well as *c*). So present tense by lacking specification can be unselectively bound. This gives rise to either a progressive or a habitual reading. If the Def Op is present, it gives rise to a progressive reading, whereas the Gen Op gives rise to a habitual reading.

The ambiguous DPs in “definite”, episodic sentences are interpreted accordingly to the [+past,+perfective] specification we saw above (that is, “definitely”). Furthermore, again following Manzini & Roussou (2000) I assume an Agree operation that does not involve any (un)interpretability for the features implicated. I propose that the Def Op Agrees with a feature situated on either DP2s or QPs (following Szabolcsi’s 2010 DP structure). DP2s are referential while QPs (as defined here) can be definite, but not referential (cf. Chapter 2 for *o kathe* NPs). DP1s can be neither referential nor definite, as more data in this Chapter will show. The presence of a Def Op under C is also indicated by other elements. These elements (adverbials like *here*, *now*, RRCs) can be viewed as encompassing a Def Op, since they either provide explicit contextual anchoring or rich modification to the sentence and the QP in question, turning it definite.

As we saw earlier, the imperfective Present and Past verbal predicates in Greek are ambiguous between a progressive, (definite) and a habitual interpretation. What is important for our case here is that the habitual reading of the verb is in its turn connected to a kind / generic interpretation of both the subject and the object, whereas

⁴⁴ This creates a “*now, here*” reading.

the progressive reading is related to a definite interpretation. The Gen Operator in C Agrees with a feature on the TP, yielding a habitual reading. It also binds a feature on DP1, providing it with a kind reading. In other words, the kind reading of the *o* (*the*) NPs and *kathe* NPs may accordingly be related to a Gen Op in C that performs the same type of binding to the variable *c* of the NP restriction and to the time variable *t*, yielding a habitual or generic reading for the sentence and a kind reading for the nominal expressions it ranges over. On the other hand, the specificity or Definiteness of the complement DP affects the (a)telicity of the predicate and hence the Distributivity of the verbal component, as we will observe later. The Free Choice reading is forged under the influence of a Modal or another intensional Operator, which binds again the *t* and *c* variables of the verbal and nominal predicates, respectively⁴⁵.

The idea that I employ here, that one operator may bind multiple relevant (free) variables both in the nominal and in the verbal domain is not novel. If we consider the way operators function in predicate logic, where one operator may bind all the free occurrences of the same variable, both in the nominal and the verbal predicate, but one variable /occurrence must only be bound by one operator, then the emergence of this proposal in a natural language semantic frame seems rather natural. This idea has been proposed in different contexts and for different phenomena and Operators as in Lasnik (1998) for the Distributivity Operator (cf. Chapter 1, section 1.3), in Manzini & Roussou (2000) for arbitrary control phenomena (as we just saw), as well as in Kratzer & Shimoyama (2002), Shimoyama (2006) for the quantification of Japanese indefinites (cf. Chapter 5, section 5.4).

With regards to the Definite Operator now, I propose a covert Def Op parallel to the (overt) Operator Cheng & Giannakidou (2006) and Cheng (2009) propose for Chinese *dou*, but also to the idea in Szendrői & Lekakou (2012) that in Modern Greek the definite determiner is semantically null, while a “real” Def Op is located outside of the DP. Like the idea of an Operator binding many (instances of) variables, this idea can also be traced back, apart from the aforementioned analyses relevant to Definiteness, to previous proposals relevant to universal quantification. In particular, according to B&S (1997) and Szabolcsi (1997, 2010), in an episodic sentence, the

⁴⁵ In case we have a definite interpretation of (*o*) *kathe* NP in an apparently modal-only context, a Def Op must also be at play, situated at higher C. The definite (*o*) *kathe* NP then functions as a Topic.

Existential event operator ($\exists e$) scopes over the whole clause, thus the DP as well, and this makes the latter “unique” and thus definite. Note that the $\exists e$ refers to one event, that’s why it renders the DP “unique”, i.e. making it understood as *one* instantiation of a kind (borrowing the term from Lazaridou-Chatzigoga 2009).

Let us discuss one last issue here. One could ask why we shouldn’t just posit the existence of a covert Universal Quantifier instead of a Definiteness Operator to bind the context set variable of the *(o)kathe* NP. In this case, a covert “always” adverb would seem fit to serve the purpose. However, as we have seen, this covert quantifier cannot really convey all the meanings conveyed by the so-called universal distributive QPs. A less formal and more intuitive explanation should proceed as follows.

The sentences containing universal *(o) kathe* NP readings seem to be contextually anchored in a particular time and world, they refer to a particular situation. So “at all times” that “always” translates into is not really relevant to the reading we get with universal distributive *(o) kathe* NPs. The sentences containing *(o) kathe* do not always, if ever, refer to a situation happening “at all times” or “all the time”; they usually refer to a particular situation containing particular sets of individuals (with an exhaustive reference) and particular sets of sets of individuals (actions) in a particular time or times. The universal distributive effect can thus be factored out in two: First the distributive operator binds the elements of the set individually, offering the restriction what we may call a service of individuation. The second step consists in showing that this set of individual elements is exhausted or maximally selected, i.e. that all the individual elements or segments (subsets) of the set predicated are selected. Exhaustive *only*, a focus adverb, does a similar job, as it can make a situation and its participants salient in the discourse. This operator may also apply to the distributive readings of plurals (distributive by virtue of the presence of a covert Dist Op), without rendering a universal effect but a meaning of definite agents (i.e. the plural (in) definite subject) relating to many distributed (sub) events (i.e. the Dist Share). The above reasoning also explains how the child acquires the use of *kathe* as a Distributive element of universal quantificational Force *use*. As proposed, *kathe* bears a [Dist] feature, not a “universal force” one. The child at the time of acquiring this word is not endowed with an understanding of possible worlds, modality, future or in some cases, past events. Her reality is strictly entrenched in the present, in a “right here, right now” context and spatio-temporal anchoring. In terms

of the proposed analysis, this amounts to binding of the context variable of *kathe* NP by a Definiteness Operator, resulting to a universal interpretation. Hence, due to the circumstances described above, the universal interpretation of the expression in hand is expected to emerge first in order during first language acquisition.

The notion of Definiteness I propose relates to the interlocutors' common ground (cf. Heim 1982, Stalnaker 2002, among others). This is a quite extended issue which this study cannot address sufficiently. For the sake of a brief account as a background to the main analysis, however, allow me to present the following thoughts in the most basic and extensional-like semantic terms. In the simple terms of the present analysis, Definiteness indicates that the sentence is verifiable or falsifiable against the common ground of the given discourse. The truth value that the sentence is to be given should be the same for both interlocutors, as the evaluation of the sentence is entrenched in the same world and model. The Def Op indicates that the interlocutors must evaluate the truth or falsity of the sentence against their common knowledge of specific situations (common ground). The Gen Op, on the other hand, indicates that no such process is necessary or possible. In fact, it indicates that the interlocutors are not expected to assign any truth value to the sentence. In other words, the sentence cannot be attributed a truth value based on common ground, or a given context. So in the circumstances of the given discourse, it cannot be attributed a truth value at all⁴⁶. In this sense only sentences with a Def Op in the C domain may denote total functions, whereas those with the Gen Op may denote a partial function. Both operators may form expressions that constitute Generalized Quantifiers (GQs), with the sole difference that partial functions in practice do not return a truth value (*t*).

Sentences may denote total or partial functions, meaning that their denotations can yield a truth value, T or F, or they cannot yield a truth value, respectively (cf. Heim&Kratzer 1998 and discussion in Chapter 3). I propose that assertions and declarations may be regarded as definite in the sense that they have a Def Op in C; they denote a total function and yield a truth value, T or F. These sentences involve a declaration over a definite situation. Drawing a relation to previous views in the literature (as visited in Chapter 3) we could say that in Roussou and Tsimpli's (1994) terms the DPs predicated (or even the sentences themselves) are presuppositional, or,

⁴⁶ This can be paralleled to basic inference: If we have the same exact precincts, we will reach the exact same conclusion.

in Giannakidou's (1998) terms they are veridical⁴⁷. On the contrary, sentences that constitute generalizations over (undefined, non-definite in number or identity) situations cannot denote a total function; the truth or falsity of their denotation cannot be verified or falsified based on common ground; it could possibly be verified in a particular world or model but, for the sake of the argumentation here, let us assume that is not enough for a sentence to be evaluated truth conditionally under the current assumptions on Definiteness. In the above terms, we could say that they are non-presuppositional or non-veridical⁴⁸. So, the Def operator in C shows that the sentence is intended to denote a total function. The Gen and modal operators show that the sentence is intended to denote a partial function. In other words, under the current assumptions intensionality can never yield a (T or F) truth value for the sentence. The speaker selects the relevant operator as an element in the numeration (that eventually ends up in the left periphery under C) depending on the kind of statement that she wishes to make.

When there is reference to a specific time (and / or place) the reference to the entities predicated is usually specific and definite as well. The entities referred to may be unknown, but they are specific, definite. The interlocutors know that who and what they talk about must have a specific identity, regardless if that specific identity escapes both of them (specific-unknown indefinites, in Haspelmath's 1997 terms). Observe the following example:

- (3) John was killed by hunters.

In the above example, the killers are specific but unknown individuals, but they cannot be "hunters, in general" or "general hunters". So we cannot just arrest any hunter and put him into trial for John's murder. All utterances are circumscribed in the context of a certain temporal and spatial axis. The equivalent Greek definite and indefinite phrase offers two interesting observations:

- (4) O Jianis skotothike apo (tus) kinighus.

⁴⁷ By this I mean that they presuppose reference to a common ground. Cf. also Chatzopoulou (2012) for a (non)veridicality projection in Greek, relevant to this idea.

⁴⁸ In simple terms, these sentences constitute "opinions" that cannot be falsified or refuted but only vindicated or not vindicated. "Opinions" do not denote total functions. They cannot be true or false in the sense used here.

the John was-killed.3sg by (the) hunters

“John was killed by (the) hunters.”

Here we observe that only the indefinite bare phrase is equivalent to the bare *by*-phrase of the previous English example. The “apo tus NP” phrase has only a definite denotation, i.e. it denotes a specific set of hunters, presumably known or pre-mentioned in the discourse⁴⁹. The same holds for English “the hunters”. We examine more relevant examples in the coming sections. We will observe that Def and Gen Ops determine the verifiability, presuppositionality or (non) veridicality of a sentence but also of the DPs involved in it. As we saw in Chapter 3, referential expressions are presuppositional and veridical, whereas indefinite or kind expressions are non-veridical.

Concluding this section, I proposed that the covert Def operator invoked here is implicated in the emergence of the universal reading of ambiguous (*o*)*kathe* NPs; it occupies a position in the left periphery of the sentence, indicating that the sentence denotes a total function in the sense explained here. The operator binds unselectively the context set variable *c* of the NP and *t* on TP, turning the expressions definite. A Gen operator and an Existential operator (in combination with modality) are in a similar manner responsible for the kind and FC readings of the expressions, respectively; the presence of Gen and Modal Ops entails that the sentence denotes a partial function.

The Dist Op essentially individuates the elements of a set, as in Szabolcsi (1997), Beghelli and Stowell (1997). Following Tunstall’s (1998) distinctions we saw in Chapter 3, I propose that this means that the Dist Op may individuate and distinguish the elements into different subsets, ranging from larger subsets (partial Distributivity) down to subsets consisting of one individual element (total Distributivity). On top of that, the Def Op exhaustively refers to the context of all these subsets, thus binding a different variable (from that of the Dist Op) on the NP. In the same way, the Gen Op refers to some or most of these subsets. The Modal Op, on top of the Dist Op, on the other hand, combined with Existential closure ensures *some* modal context in which the predication holds true.

⁴⁹ As we will see in the coming section 4.5.2, this must be a characteristic of Greek passive voice.

4.2 A few notes on Operators and Agree

Having visited the general proposal, let us now consider a few issues specific to the Agree operation proposed in the previous section. There has not been an explicit Agree account of similar quantificational phenomena previously, in my knowledge (but see Butler 2004 for a feature checking analysis of English *every*). For this reason, I would like to revisit a few points I made previously, restate the connections to previous literature and briefly review some points from Kratzer&Shimoyama's (2002) Hamblin semantics approach, in order to provide extra vigor to the hypothesis of "multiple" Agree.

As often repeated in the discussion, the present analysis utilizes many ideas from Beghelli and Stowell's (1997) LF checking theory of scope. At this point it is however useful to highlight three important differences between the aforementioned proposal and the present one: First of all, I evidently cast the interdependency between the distributive operator and the *every-kathe* NP within a system of Agree, which applies at the syntactic level and is carried over to LF. Secondly, I do not assume the rich hierarchical structure B&S propose, but for the sake of simplicity I place the Dist Op in the (low) domain C head; here I assume that dC (the C domain) can host a multitude of different operators. Thirdly, I propose that for the universal reading of (*o*)*kathe* NPs the phrase needs more operators to bind the relevant variables, the Dist operator and the Definiteness (Def) operator. The latter must be situated higher than Dist, possibly in a position like the RefP B&S propose.

In the light of the above, an Operator (the Probe) in C looks for the Goal in the DP as well as the vP. I propose this "double goal" type of Agree by transferring in syntax the ideas by Lasnik (1998) that the Dist Op may bind variables both in the nominal and the verbal domain, a relevant idea in Manzini & Roussou (2000) and others referred to in the preceding section, as well as Tunstall's (1998) analysis, presenting the Dist Op as uniting these two domains. I also exploit the idea that quantifiers can range over alternatives of different types as in Kratzer and Shimoyama (2002) and Shimoyama (2006) who propose a Hamblin semantics approach.

This Hamblin semantics approach can provide (an extra) semantic basis for a corresponding Agree operation in syntax. At first look, a syntactic, Agree implementation of this idea could also predict that the Goal seeks for the Probe, as the alternatives – variables of the indeterminate phrase "expand" as they seek the first

operator c-commanding them up in the structure⁵⁰. In this way intervention effects are straightforwardly predicted by the system (Kratzer&Shimoyama 2002:5): “The intervention effects follow from the very architecture of the interpretation system, in interaction with structural configurations. No locality principles have to be stated in the grammar.” This bottom-up binding scenario is pretty reminiscent of Agree as in Zeijlstra (2012), according to which the Goal probes for the Probe and not the other way round (also cf. Zeijlstra 2004 for the notion of concord). This happens in the case where we have an Operator-variable dependency, as in the case of licensing Negative Polarity Items.

The analysis here does not necessitate assuming an “inverse” Agree. On the other hand, being able to read the dependency on either direction (bottom-up, or top-down) hints towards a representational view of grammar. I adopt the previous line of thought only with respect to the availability of multiple goals for a single Probe multiple Agree (cf. Hiraiwa 2000 for and Haegemann & Lohndal 2010 against multiple Agree) that I propose here as a syntactic explanation of the concord attested between the nominal and the verbal domain. I cite this view as an extra argument for my proposal here, namely that we have one operator binding various instances of variables. Apart from that, I assume that a Probe from the operator C position probes for the Goal(s). Dist, Def and Gen operators are Probes. The reason why I need to do that is because all these types of Operators seem to scope over both the nominal and the verbal domains. *Ceteris paribus*, assuming a top-down Probe-Goal Agree works fine for the phenomena in hand, as we are about to see.

Let us see how Distributivity, as depicted in (2a and 2b) schemata at the beginning of this Chapter, works. The Dist Op in C enters into an Agree relation with *kathe* NP. The Operator probes for the Goal (on the NP). If it finds any, we have the formation of Agree. If the Probe does not find a matching feature, the derivation crashes. *Kathe* NPs are specified for distributivity and they have to Agree with the feature related to the Dist operator in C, otherwise the derivation crashes. Furthermore, *kathe* NPs as well as TP/ Asp P also enter in an Agree relation with a Def, a Gen (cf. Carlson & Pelletier 1995 for generics) or a Modal Op / feature pertaining to context spatial-temporal anchoring. The Agree operation (as well as the corresponding binding relation at LF) between features pertaining to Def / Gen / Modal C heads and

⁵⁰ Such an Agree / Quantification operation would deviate from the standard mechanism of Agree (as in, for instance, Chomsky 2000 and 2001).

their matching features in the nominal and verbal domains is relevant to the *where*, *when*, *who* circumstances of the predication.

Allow us at this point, summarizing our proposal on the different operators involved in (*o*) *kathe* NPs quantification to present it step by step. In a higher position in the C domain (dC) we have a Def or a Gen Op in C or a Modal Op (plus Existential closure), whereas in a lower position in dC, we have a Dist Op; following Szabolcsi's (2010) analysis of *every* (presented in Chapters 1 and 3) to the detail, we also have a choice function at D. All these operators operate on different variables on the NP. According to Szabolcsi (2010:197) a choice function ranges over all NPs. A Choice function binds the set variable of NP. The NP restriction of Q is thus bound by a choice function, possibly occupying D (cf. Szabolcsi 2010: 104-106). The element variables (as proposed in B&S) are not yet bound. The context variable *c* of the expression is also free.

The Dist Op binds the element variables of *kathe* NP restriction. *Kathe* is merged in Q. If *o* is present in the numeration, it merges under D1 and it then adjoins to *kathe* at Q. The article *o* performs (an adapted version of the original) DDR to Q. As argued, *o kathe* NP always stays a QP; it does not become a DP2, i.e. a referential, definite expression in the Szabolcsi (2010) structure we assume here. Then, if a Def Op merges in C it enters into an Agree relation with Q. The Def operator binds the context variable *c* of the NP⁵¹.

The kind reading is similarly constructed: The Generic operator occupies C and Agrees with the context set variable of the NP⁵². The *c* context set variable is bound by the Generic operator and the QP receives an indefinite, kind interpretation⁵³ in that position (Spec, TP). Similarly, in the FC reading, the modal operator restricts the vP and existential closure is applied to the context variable *c*. The subject *kathe* or *o kathe* QP stays in Spec,vP, unless moved in the C domain for independent topicality purposes.

⁵¹ The different syntactic positioning of the “definite”, universal QP may be explained by different EPP specifications on C or v heads: If C is a carrier of the EPP diacritic, C*, the subject QP and its components directly merge at C (resulting in a preverbal subject). Alternatively, the Def Op may bind the context variable *c* in the variable position, the thematic position for the subject of a verb that we discuss here which is spec, vP. In that case it is v that carries the EPP diacritic(v*) so the subject QP is lexicalized in Spec, vP (post-verbal subject) (cf. Roussou&Tsimpli 2006).

⁵² Here we can assume that T is always T* in this case so the QP subject always Merges in Spec, TP.

⁵³ The Gen op also Agrees with Aspect on the AspP/vP.

4.3 More notes on Operators

In this section I provide some further clarification on the nature of the Dist and Def Ops, how my proposal works and how previous theories presented in the discussion so far relate to it. The reader is asked to forgive some inescapable repetition, as I return to some previous remarks. I also discuss the difference between *kathe* and *o kathe* NPs and the mechanism of Etxeberria & Giannakidou's (2010) Determiner Domain Restriction (DDR) I adopt, with some adaptations necessary for the current analysis.

As already explained, I pretty much adopt B&S' (1997: 85) view who, departing from standard DRT and following Szabolcsi (1997), assume that Distributive (and Universal, in their system) Quantifier phrases or DQPs (their term for *each* and *every*) introduce variables (discourse referents in Heim's 1982 terms) of a however different type than those introduced by simple indefinite expressions headed by *a*, *some*, *several* (Group-Denoting Quantifier Phrases or GQPs, in their system). Contrary to (singular or plural) GQPs, which introduce individual, restricted group variables⁵⁴, DQPs introduce set variables.

Following Szabolcsi (2010) and Stanley & Szabó (2000), I propose that the set variables B&S refer to as set variables introduced by DQPs can be assimilated to what the former authors, as well as the current analysis, refer to as *context set variables*. These are restricted variables ranging over the witness sets of the quantifier (which roughly means that the denotation of the GQ includes elements that are also subsets of the determiner's restriction set and nothing else: the denotation of "all cats" includes cats and no other things). Crucially, as the analysis of B&S more implicitly points towards to, and as we explicitly demonstrated with Greek *kathe* NPs' behavior, these (context) set variables are not bound by the Dist Op. The latter, following B&S, ranges over element variables; by element variables I mean individual and subevent or (single) event variables. So the context set variable introduced by the *every-each* QP is left free for other operators to bind.

B&S refer to the Existential Operator as a possible binder, for some cases. In the frame of the current discussion, the different readings (*o*) *kathe* phrases take are due to the fact that their context set variables are associated with different operators, such as the Definiteness, Generic or Modal operators, depending on which operator is

⁵⁴ In B&S (1997) as well as in my analysis element variables are bound by the Dist Op.

available each time. This has to do with a property characteristic of both “universals” and indefinites, their ability to be dependent on a higher operator (cf. Szabolcsi 2010). As already mentioned, I additionally follow an idea in Lasnik (1998) that the Dist Op may unselectively bind both individual and event (or subevent) variables. This is why the Dist operator, which as we will see seems to operate on the (subject) DP as well as on Asp/vP, ranges over both arguments, according to my proposal. What follows as a consequence of the above assumption is that the Dist Op should be located in a position from which it can scope over both of its arguments. This can only be a position in the C domain. In short, Dist Op binds element (individual) variables, that is, individuals (NPs) and (sub)events (Asp/vP).

The Def operator I propose bears similarities to operators proposed previously in the literature to tackle related quantificational phenomena. In particular, the Def Op I assume is largely adopted from Cheng and Giannakidou (2006) Definiteness / Maximality operator proposed for Chinese *dou* (as in *dou mai*⁵⁵ constructions yielding a reading of *every* NP). The latter is viewed as contributing Definiteness in the form of contextual grounding. I however depart from their view that *dou* is a definite determiner providing contextual domain restriction to strong quantifiers (with regards to the “determiner” and “strong” Quantifiers points, in particular). Siding with Tsoulas and Gil (2009), I retain the traditional view that there are no determiners in Chinese, additionally regarding *dou* as a definite particle standing for an overt Definiteness operator that binds variables of indefinite expressions, thus rendering a strong interpretation (the view is certainly tentative, cf. Chapter 5). This operator is similar to the operator performing Domain Restriction as in Stanley and Szabó (2000), adopted in Szabolcsi’s (2010) analysis and elsewhere. The operator of Domain restriction in Stanley and Szabó’s (2000) sense applies to the context set variable (elsewhere referred to as *domain variable*) assigned to English *every* NP (but also cf. Keenan 2003 and Pelletier 2003 for a critique of Stanley & Szabó 2000). A similar operator, the exhaustive operator applying on pair list questions is proposed in

⁵⁵ I choose this orthographic representation for Chinese *mei*, typically glossed as *every* and *dou*, typically glossed as *all* throughout this thesis.

Vergnaud & Zubizarreta (2005). For Greek,⁵⁶ a similar proposal is the Emphasis operator (subsuming the Focus operator), by Agouraki (2010).

For the purposes of the current exposition it is necessary to postulate an operator that binds the context set variable of the NP restriction of *(o)kathe* and performs an operation of contextual anchoring, a notion more or less related to all of the above different proposals in the literature. As said before, the data show that this operator cannot be a universal adverb such as “always”, but it has to be an operator that makes the DP salient and applies on all the members of the restriction exhaustively.

So the covert Def Op that I propose applies on Greek *(o) kathe* NPs and *every* NPs strong universal readings can be paralleled to Chinese *dou* (Cheng&Giannakidou 2006). I furthermore propose that however covert, the presence of a Def Op in C can be deduced by virtue of unambiguous definite phrases in the vP or the DP, such as RRCs, locative and temporal adverbs (such as e.g. *now, here, there*). Another option is that these expressions encompass the Def Op. An adverbial such as *now*, for instance, gives rise to a progressive (definite) reading for the verbal predicate, anchoring the sentence to a very particular context (when used literally). Similarly, *here* provides an anchoring to a particular spatial circumstance. In any case, when such overt adverbs-operators are not present, covert Def or Gen Ops bind the context set variables of the restrictions that are left astray. In Greek, the context set variables of Expletive Ds’ restrictions, plural indefinites and *kathe* NPs may fall prey to this kind of binding.

With regards to the Definite or Definiteness Op discussed here, I should note that the latter is hereby evoked mainly to explain the different interpretations of

⁵⁶ Relating to this let me note, leaving the issue for future investigation, that for many speakers the Greek universal - strong distributive use of *(o)kathe* NPs is distinguished by a distinct intonation pattern telling the FC, kind and the universal readings apart (cf. Baltazani 2002). In other words, as we will observe in the next Chapter, what is expressed as a separate lexical item in Chinese as *dou* (and possibly in Japanese as the particle *-mo*) may be viewed as phonologically expressed in Greek as a particular melodic pattern. We will observe in the next Chapter that in Modern Greek phonological stress or special melodies (not as a sole criterion, though) are used in order to distinguish different categories of wh-phrases, but also “universal-force, focused” NPI *KANENAS* (*nobody*) from “existential, non-focused” API *kanenas* (*anybody*) (as in e.g. Veloudis 1982, Tsimpli & Roussou 1996, Giannakidou 1998).

(*o*)*kathe* NPs, as well as the definite (as opposed to the kind) readings of Greek indefinite *o*, *i*, *to* NPs. The analysis does not aspire to provide any account of other phenomena related to definiteness, such as Determiner Spreading, which is hereby utilized for the purpose of pointing out the lack of syntactic definiteness (that *o* does not occupy a D2 position, in the current frame) for *o kathe* expressions.

The analysis up to this point explains *kathe* NPs, but what about *o kathe* NPs? *Each* and *o kathe* NPs do indeed yield more “presuppositional”, “context salient” or familiar readings than *every* and *kathe* NPs. Recall that under the present analysis *oli i* NPs as well as *all the* NPs always receive a strong, universal interpretation by virtue of being modifiers of DP2s and thus by selecting a DP2. In this way they are collective (in other words, denoting a 1:1 total distribution between a collective nominal set and a verbal predicate) and definite (exhaustive), thus of universal denotation. I propose that English *each* encompasses the Def Op, so *each* NPs always receive a definite, universal interpretation. In the case of the universal *each* reading of *o kathe*, on the other hand, we have two separate functions in place. One is the binding of the *o kathe*’s restriction context set variable performed by the Definiteness operator in C as described previously. This, under the present analysis, produces a Generalized Quantifier (GQ), a quantificational expression. The other one is performed on the Q *kathe* by *o* through Determiner Domain Restriction (DDR, Giannakidou 2004 and Etxeberria & Giannakidou 2010), which I adopt here with some modifications.

Here I propose that the context variable binding operation is performed independently by a semantic operator in C⁵⁷; in the approach proposed here this operation is totally irrelevant to the present adapted version of DDR performed by *o* on *kathe*. DDR as originally proposed in Etxeberria & Giannakidou (2010) is, contrary to my adaptation here, supposed to perform “context set variable binding”, which, however, does not have the same meaning as the one endorsed here; it is still of a “more pragmatic” nature, in their words, rendering a notion of extra familiarity, modifying Q without altering its semantics (it has no semantic effect). It is the latter remark on DDR’s nature that I further fully endorse and exploit here.

The binding of the context set variable of a DP2/QP’s restriction in the way proposed here, has a serious semantic effect: it changes the expression from the type

⁵⁷ In my understanding, this is DDR as Stanley & Szabó (2000) mean it.

of $\langle e, t \rangle$ to a GQ type of $\langle \langle e, t \rangle, t \rangle$ (cf. extended presentation and discussion in Chapter 3). In other words, the expression does not become a GQ unless there is binding of the context set variable by a Def or a Gen operator or Existential closure⁵⁸. This is a divergence from Giannakidou's (2004) and Etxeberria & Giannakidou's (2010) original definition of DDR. The above authors propose DDR as a mechanism applying typically to (strong) Quantificational determiners in Greek and Basque which they assume as quantificational *per se*, but also to (weak) NPs in Lilloet Salish. Here, contrary to this assumption, the analysis proposes that *kathe* is not (strongly or weakly) quantificational on its own. (*O*) *kathe* NPs (before the application of contextual variable binding) are like simple NPs, from a semantic point of view. Their theory does not exclude the general possibility of DDR applying to an NP; quite the contrary, they argue that this is what happens with Lilloet Salish. The present view assimilates Greek *o kathe* DDR to the case of Lilloet Salish DDR. The reason for this divergence is that *kathe* is not viewed as inherently universal, i.e. it does not carry such a feature in its lexical semantics.

So, slightly departing from Etxeberria & Giannakidou (2010) I propose that the context set variable of the *o kathe* NP (in the authors' term *domain variable*) is bound not by the *o* but by the sentential Def Op in the case of the *each* reading of the expression, and by a Modal / Existential Op in the case of the FC *any* / *just any* readings. In this sense, I take context variables to apply on the NP as in Stanley (2002) and Szabolcsi (2010). Following the rest of the above two authors' analysis, I assume that *o* confers to the *o kathe* expression an extra notion of familiarity. This assumption makes my present adaptation of DDR very close to what the above authors propose for Lilloet Salish.

Note again that the main semantic difference between the original proposal of DDR and the adapted version utilized here is that I take the universal *o kathe* NP expression to eventually amount to the same semantics as the ones proposed in the original version of DDR by Etxeberria & Giannakidou (2010); the difference is that this happens *after* the external Def Op has been applied (for the *each* reading). The difference is that this happens *after* the external Def Op has been applied. According to the view put forth presently, *kathe* is not a strong Q on its own in the first place.

⁵⁸ Note that GQs may be related to denotations of either total or partial functions (cf. Chapter 3). The expressions in which a Def is involved are related to the former, the ones with Gen or Modal (Existential Op) with the latter.

The external Def Op is needed in order to render to the *(o) kathe* NP expression a universally quantified denotation. In the above authors view, *every*, as well as *kathe*, is quantificational (universal) on its own right. In contrast, in the approach presented here, these two expressions are not quantificational as such. In other words, according to the present view, neither *o* nor *kathe* are quantificational on their own right. External operators have to apply. In particular, *o* is not inherently definite as such and *kathe* is not inherently universal as such, either. So, under the present view, *o* NPs and *(o) kathe* NPs are like indefinite expressions *before* the application of relevant external operators. In terms of the current analysis, *o* does not have a semantic content on its own so it cannot affect the denotation of *o kathe* NPs on its own, at least not semantically. It may, however, have a pragmatic impact. Thus we essentially arrive at the same idea as the DDR and its familiarity effect proposed by Ettxeberria & Giannakidou and endorsed here (with the necessary adaptations for the congruency of the current view) disregarding the above different assumptions undertaken as first steps.

So I assume that the Def Op on top of the Dist Op specifies a particular context, a range of particular individuals, space and time involved in a sentence such as “(Many people came to the party last night); every student got drunk.” In Ettxeberria & Giannakidou (2010:3) this is analyzed as: “Relative to a context *c*, [*domain variable*, *context variable* in terms of the current proposal *AMM*] *f* maps *e*, a student who came to the party last night to the set of students that came to the party last night. This set is, then, the nominal argument of the Q ‘every’.”

The final logical formula for the denotation of *o kathe* NPs is essentially the same as the one for *kathe* NPs in Ettxeberria & Giannakidou (2010), as well as in the present analysis. According to the proposal of the two authors that I endorse here, the semantics between *kathe* and *o kathe* expressions are identical; it is the pragmatics that differ. *O* does not convey a semantic differentiation. So the formula for the final interpretation of universally interpreted *kathe mathitis* as well as *o kathe mathitis* has as follows:

- (5) a. $[[\text{kathe mathitis}]] = \lambda P. \forall x. \text{student}(x) \rightarrow P(x).$
 b. $[[\text{o kathe mathitis}]] = \lambda P. \forall x. \text{student}(x) \rightarrow P(x).$

The external Def Op is part of the Generalized Quantifier that applies on Distributive Restriction as well as nuclear scope⁵⁹. The effect of DDR is not semantical. Etxeberria & Giannakidou's (2010) formal definition for DDR is given below (ibid:8:15):

- (6) “DDR on the Q $[[\text{DDR}]] = \lambda Z \text{ et, ett } \lambda P \text{ et } \lambda R \text{ et } Z (P \cap C) (R)$; where Z is the relation denoted by Q .”

One last issue should be elucidated here. Etxeberria & Giannakidou (2010) claim that the FC indiscriminative reading of *o kathe* NPs is “more familiar” than that of *kathe* NPs. On the other hand, according to the two authors (as well as the analysis here, cf. Chapter 3), on the syntactic grounds of its unavailability of Determiner Spreading (DS), the phrase does not constitute a definite expression. As we just saw, my suggestion is that two distinct operations are at play for the *each* reading of *o kathe* NPs: I propose that the Def Op in C is responsible for Definiteness, whereas DDR is responsible for the familiarity conveyed by these expressions (the thing mentioned is familiar to both interlocutors, it makes part of the common ground). Definiteness as meant here is of deictic nature, a kind of “pointing out which”, whereas familiarity is more of a pragmatic implicature (Grice 1975).

In the case of FC *o kathe* NPs, according to my proposal, the restriction's context set variable is not bound by Def in C (as it does in the *each* reading) but by a Modal operator and existential closure. There is no Def operator with the FC reading and the fact that the FC reading is lost once we introduce RRCs, locative / temporal adverbials and any other form of contextual anchoring-Definiteness or markers that indicate the presence of a covert Def Op in the sentence, shows that *o kathe* / *kathe* NPs FC readings are not definite, specific, thus converging with the observations in the works of the two authors referred to hereby. Allow us to examine one more example (cf. discussion in Chapter 3, section 3.4). Observe the following sentence, in which rich modification and specificity renders the sentence with the FC reading infelicitous:

⁵⁹ This could be a bit simplistically represented as follows: $[[\text{Def}_{\text{DIST}}]] = \lambda P. \lambda Q. \forall x. P(x) \rightarrow Q(x)$.

- (7) #Dhen tha anexome ton *kathe* asxeto pu odiji mavro podhilato
 not will tolerate.1sg the every irrelevant who drive.3sg black bicycle
 ke ton lene Jiani na mu lei ti na kano.
 and him call.3pl John prt tell.3sg me what prt do.1sg.
 “I will not tolerate just any unknown man who rides a black bicycle and his
 name is John to tell me what to do.”

The fact that a sentence with an FC Indiscriminative reading is not felicitous in a context of specific reference is one more indication of the “not-definite” nature of this reading (along with the inability to exhibit DS and other evidence). Regardless of that, in terms of the analysis here, the FC *o kathe* NP denotation can be familiar by virtue of *o* and (the current adaptation of) DDR without being definite.

Summing up, I follow Etxeberria & Giannakidou’s (2010) view on DDR as applying on the Q and as accounting for both the FC and the *each* reading of *o kathe* NPs, but with some divergence from their proposal. In the proposed analysis here, *o* modifies *kathe* without binding the context set variable of its NP restriction. So it does not have any semantic (type) contribution; it offers a pragmatic notion of familiarity. I argue that a Def or a Modal Op binds the context set variable of the *o kathe* NP, instead. Greek empirical data (as 5, above) indicate that the *o kathe* NP does indeed receive a strong universal presuppositional *each* interpretation, in its definite reading; on the contrary, its indiscriminative FC use is not presuppositional, strong, definite or universal. So I adopt (and adapt) DDR as a strictly pragmatic function. If this analysis is correct, universality or strong quantification can be traced down to a combination between Definiteness and Distributivity.

So DDR applies on the Q *kathe*; *o* acts as a modifier. The Definiteness (Def) operator I propose closes off the context set variable for the whole expression. The Def Op / Gen Op applies after, or, in the case of plain *kathe* NPs, regardless of DDR. The difference between *kathe* and *o kathe* NPs lies in the extra familiarity implicature *o* DDR- type of modification creates, making the expression have an enhanced “presuppositionality” through pragmatic means.

4.4 The role of Aspect and Distributive Shares

As already noted in Chapter 3, the Dist Share plays an important role in the emergence of different readings of the (*o*) *kathe* NPs. It is related to Aspect, that is

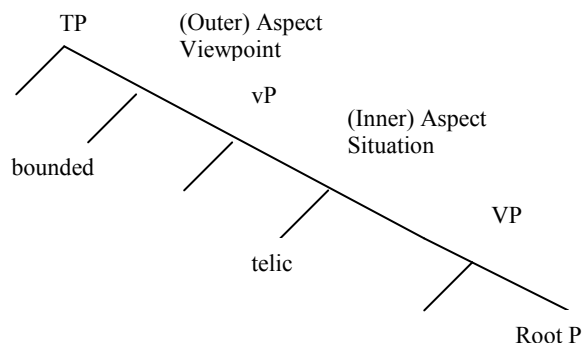
why in this section we go through the basics of this notion. The telicity / boundedness of predicates in general have to do with grammatical aspect and the strength of the internal complement. We have already observed occasionally that imperfective verbs may favor a weak FCI interpretation, especially for the *o kathe* NP, mainly because they may give rise to a modal reading. Perfective and telic verbs, on the other hand, especially when there is an overt definite Distributive Share in the sentence, favor a universal interpretation. Here I assume, following Ramchand (2008), that perfectivity is aspectual Definiteness. In these terms, Aspect may be Definite or Generic, according to the binding of time and event variables of the verbal phrase by a Def or a Gen Op, respectively (cf. the previous discussion of Manzini & Roussou 2000). The idea of spatial and temporal anchoring mediated explicitly and overtly (by adverbials) or covertly is analyzed in Gueron (2008).

In particular for our case now, the Aspect of the verbal predicate determines whether we may have a reading of referential variability and Distributivity for our QP or not. In this section we review some relative facts from the theory of Aspect that will help us define in what way the Dist, Gen and Def Operators interact with Aspect. The literature on Aspect is nevertheless vast, and an exhaustive discussion is out of the scope of this thesis. So this presentation is kept as minimal as possible, focusing only on the points that are directly linked to our investigation.

All sentences are considered to present information about aspectual situation type and view point (Smith, 1991:3) or inner and outer aspect (Travis 1991: 7 in Mac Donald 2008), or, in more traditional grammar terms, lexical and grammatical aspect. On the one hand, we have *situation (inner)* aspect that is concerned with inherent boundaries of events or the telic / atelic distinction, which is a lexical property of the predicates. On the other hand, there is the *viewpoint (outer)* aspect that is concerned with actual boundaries of events or the bounded / unbounded distinction (Verkuyl 1993, Smith 1991, Slabakova 2001), which may or may not be grammatically encoded.

Both types of aspect, *situation* and *viewpoint*, have been argued to be encoded syntactically: situation aspect is encoded by a vP-internal or an *inner* aspect projection, situated right below vP, while viewpoint aspect is encoded by a vP-external or *outer* aspect projection, situated right below TP and above vP. An indicative tree structure representation follows (from Nossalik 2010):

(8)



Inner AspP is linked to the $[\pm\text{telic}]$ feature and the outer AspP to the $[\pm\text{bounded}]$ feature (Slabakova 2001). Inner and outer aspect essentially encode similar aspectual information, but at different levels of clause structure cf. Verkuyl (1989), Nossalik (2010).

Situation type (inner, lexical) aspect is of the following five different types defined in terms of durativity, dynamicity and telicity, according to (Smith 2007):

1. stative: durative (love, know the answer)
2. activity: dynamic, durative, atelic, (stroll in the park)
Examples: “Mary walked in the park”, “Ed smoked cigars”
3. accomplishment: dynamic, durative, telic, consisting of process and outcome (build a house, walk to school, learn Greek)
Examples: “Mary walked to the park”, “Ed smoked a cigarette”
4. semelfactives: dynamic, atelic, instantaneous (tap, knock)
5. achievement: dynamic, telic, instantaneous (win a race, reach the top)

Viewpoint types (outer, grammatical aspect):

1. perfective: it focuses on the entirety of a situation, both initial and final endpoints
2. imperfective: it focuses on a part of a situation, either initial or final
3. neutral: it is a flexible type, including an initial endpoint and at least some internal stage.

Vendler (1967) assumes not five but four basic aspectual types: statives, activities, accomplishments and achievements. Grammatical aspect may be differently

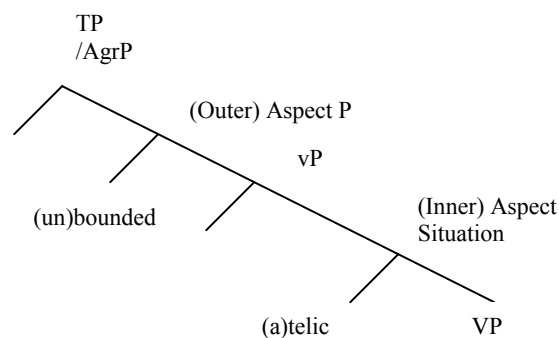
instantiated across languages. As regards to inner aspect, its properties are manifested only inside the verb phrase (Mac Donald 2008). Inner aspect refers to how a predicate describes an event. A predicate that describes an event as having an endpoint is a telic predicate, while a predicate that describes an event as lacking an endpoint is an atelic predicate.

Continuing with the relation between Aspect and (a)telicity (from Mac Donald 2008), stative predicates lack AspP while eventive predicates (the rest three) have an AspP. Activities and statives are atelic, accomplishments and achievements are telic (cf. Mac Donald 2008). Regarding beginning and end points now, a predicate that describes an event as possessing a beginning only is an activity predicate. A predicate may also describe an event as possessing both a beginning and an end (achievement or accomplishment predicates), or as possessing neither (i.e. a stative predicate). Achievement predicates describe events where no time elapses between the beginning and the end of the event. Achievement predicates have an endpoint, whereas accomplishment ones have a beginning and an end point. Accomplishment predicates describe an event that has a beginning and an end and time elapses between the two.

An issue relevant to our discussion is the role of Aspect in argument structure. As we are to see in more detail below, predicate interpretation involves the interaction of the verb's situation type and the specificity of the direct object (e.g. Smith, 2007). What concerns us here in relation to this is the role that the (Distributed) Share and hence lexical Aspect play in the emergence of Universal Distributive readings for *kathe* NPs. This interaction between verb and object has various manifestations in the various languages. The same is also true for the manifestation of grammatical aspect across languages. As Tsimpli and Papadopoulou (2006:pp.1596) observe, "different languages grammaticalize different aspectual notions for language-specific reasons, e.g. verbal particles marking +/-telicity (Germanic languages: van Hout 1996), morphological marking of +/-perfectivity (Greek, Slavic and Balkan languages: Joseph, 1983) or +/-progressive (English: Comrie, 1976; Smith, 1990)". All this variety, combined with other cross-linguistic variation, provides a multitude of possible interactions between the category of Aspect and argument structure.

For the purposes of the present discussion I assume a structure of the Greek clause that looks as follows:

(9)



So grammatical aspect in Greek is expressed morphologically through a [+/- perfective] distinction (Joseph (1983) in Tsimplici & Papadopoulou (2006) above). Imperfective aspect allows for an interpretation of multiple events or subevents for the predicate (unbounded aspect), whereas perfective aspect allows for a single event-no subevents interpretation of the predicate (bounded aspect). Also, in Greek, both tense, telicity as well as the type of the argument-complement plays a role in Aspect. For instance, episodic [+past, +perfective] predicates combined with a definite complement yield a predicate of bounded aspect. In terms of the present theory, this combination may render a non-distributive verbal phrase if the complement is in singular, but a distributive one if the complement is in plural number (see the example in 10). The point is that the verbal predicate has to allow for referential variability in order for a distributive reading of the subject QP to arise.

- (10) *Kathe pedhi kerdhise* (*to) vravio / vravia.
kathe child won.3sg the reward / rewards
 “Every child won a reward / rewards.”

In other words, the combination of (a)telicity and (non)specificity of the complement can enable or disallow a reading of referential variability, and hence Distributivity⁶⁰.

⁶⁰ In general, in order for a telic interpretation to result, a DP with a particular property α (α e.g. for Borer 1994 is quantity, for Verkuyl 1993 is specificity) must move into Spec, AspP (Inner, Situation Aspect Phrase) and assign range to Asp. If no range is assigned to Asp, the derivation crashes (Mac Donald 2008): So AspP does not project when we don't have an α -endowed internal complement, such as “houses” in “John built houses”, in which case we have an atelic reading.

It seems that in Greek, as we will see in the examination of relevant data shortly, grammatical aspect, (un)boundedness in the form of the [+/-perfective] distinction play a role in the emergence of a Distributive reading.

So, in the theory of aspect, and, as we also saw, in the case of Distributivity, there is an interaction between the verb and its internal argument (lexical aspect). Regarding this otherwise put “interaction between Aspect and the internal complement”, which Mac Donald (2008) names *Object to Event mapping* (OTE), the argument is that the specificity of the direct object affects the (lexical) aspect of the predicate⁶¹. Furthermore, Mac Donald (2008:27) proposes that this takes place via Agree, a very welcome idea for the present discussion⁶². Verkuyl’s (1993) similar proposal on the Specificity of the object affecting the aspect, unlike Mac Donald’s (2008), conveniently for our view, involves the DP and not the NP. So here I assume that in Greek the whole DP complement (the Dist Share) affects lexical Aspect.

Summing up the discussion so far, the Dist Op in C Agrees with Asp/vP. Unboundedness seems to be more compatible with a Distributive reading, in general. However, lexical Aspect, the specificity or non-specificity of the complement also play a role for the availability or not of distributivity. In terms of the current analysis, the (in)Definiteness of the complement, in combination with its plurality, affects (a)telicity and Distributivity. An atelic predicate has more chances of being distributive than a telic one (examples discussed later). The kind of the complement of the verb (“Quantity of a” for Borer 1994, “Specificity of a” for Verkuyl 1993 and Ramchand 1993) affects the telicity of the predicate. According to Verkuyl (1993), “specific Quantity of a” [+SQA] complements favor a telic interpretation of the predicate, whereas “non-specific Quantity of a”, [-SQA] complements favor an atelic interpretation of the predicate.

⁶¹ Mac Donald (2008: 27): “Object to event (OTE) mapping [*provided to the predicate by the positive value of feature α of quantity of the internal argument or by a negative value accordingly AMM*] is syntactically instantiated via Agree with an aspectual projection between vP and VP: AspP. Therefore, if a [-q] NP Agrees with Asp, the predicate is atelic. If a [+q] NP Agrees with Asp, the predicate can be telic. The Event Structure (ES) of a predicate is represented as interpretable features, <ie>, when there is a beginning to the event and <fe> when there is an end to the event.”

⁶² The connection to our case becomes less clear if we take under consideration her claim that OTE depends on the NP and not on the determiner, the DP or the QP. However, we can argue that at least for MG there are indications that show that actually the DP and not the NP only is involved.

Let us now examine data with definite (roughly, +SQA) and indefinite (roughly, -SQA) complements in order to diagnose whether there is a relation between the (in) Definiteness of the complement and that of the subject (*o*) *kathe* NPs, as proposed so far. So the examination here mainly concerns lexical aspect. In my proposal at the beginning of the Chapter I explained this in terms of the quantificational concordance that ensues by the binding of the contextual variables *c* of both the subject and the object NPs. Bear in mind, though, that the Definiteness of the complement often directly affects the availability of a distributive reading for the AspP/ vP, so it has to do more with Distributivity than with Definiteness.

What we are about to observe in the following examples is that a subject (of verb) *kathe* NP may have neither the FC reading nor the kind one when the Share is very specific and / or a partitive construction; the sentences with (*o*) *kathe* do not accept a generic interpretation at the presence of an *apo* phrase which in my view encompasses either a Def and Dist operator (or both), so the expression may only have a universal reading (as in 11). In (12, 13, 14) below, on the other hand, the measurable precision of the quantity referred to by the complement of the verb seems to function as a straight Def Op or at least as some kind of token (agreement marker) of the presence a covert Def Op at C. The event(s) predicated seem to be as specific as the complement-distributive Share of the verbal predicate appears to be.

- (11) *Kathe ghata* exi apo tesera podhia. *Gen / Universal ok
 every cat has from four legs
 “Every cat has four legs each.”
- (12) ?*O kathe asxetos* pijene sti eurovision ke eperne 533.645 euro. ?FC
 / ?Universal
 the every irrelevant went.IMP.3sg to-the eurovision and took.IMP.3sg 533.645 euro.
 “Just any body (*each) irrelevant person could go to the eurovision context and received 533.645 euro.”
- (13) *O kathe asxetos* pije sti eurovision ke pire 533.645 euro. *FC / Universal ok
 the every irrelevant went.3sg to the eurovision and took. 3sg 533.645 euro.

“(*Just any body) each irrelevant person went to the eurovision context and received 533.645 euro.”

The universal reading of the expression is not available in (12) due to the habitual interpretation of the verb, whereas the FC indiscriminative reading is in conflict with the specificity of the distributive share and the telic predicate overall, so it is available but still sounds awkward. In this reading the specific quantity is not interpreted specifically but as a high value in a relative scale (a meaning like “sort of speak”). In (13), on the other hand, the FC indiscriminative reading is ruled out by the episodicity of the sentence, whereas the universal reading of the *o kathe* NP suits perfectly the Definiteness of the distributive share and the telic predicate that ensues. The only element that is out of tune here is the nominalized adjective *asxetos* that, as we are going to see in the discussion that follows right away, fits better intensional, FC readings of the expression in question. This is why if we replace it with a common noun, the sentence sounds better (always with an *each* reading) as in (14):

- (14) *O kathe traghoudistis* pire 533.645 euro. Universal ok
 the every singer took. 3sg 533.645 euro.
 “Each singer took 533.645 euro.”

Here the boundedness results from the perfectivity of the verb and [+SQA] quality (Verkuyl 1993) of its complement. Bounded as well as telic environments are a better match to a Definite, universal interpretation of (*o*) *kathe* NPs, iff they allow for referential variability and thus, Distributivity.

Anyway, it seems that a very “definite”, “specific” complement and a definite Distributive PP like *apo NP* make the FC and kind readings of *o kathe* and *kathe* NPs respectively, unavailable. Furthermore, an “explicitly specific” detailed Dist Share (a complement loaded with detailed information) such as the one in (14) above, is perfect in the specific environment of an episodic sentence with an *each* / *o kathe* NP, whereas it is not compatible with an FC reading of the expression or a habitual sentence (15). The indiscriminative reading of *o kathe* NPs arises in exactly the opposite case of an indefinite, non-specific share, as in (15):

- (15) *Sti eurovision pighene o kathe asxetos* ke eperne pola xrimata. *FCI*

indiscriminative

to-the eurovision went.IMP.3sg the every irrelevant and took.IMP.3sg
muchmoney

“Just any body went to the eurovision context and got a lot of money.”

In line with relevant observations in Chapter 3.2, I propose that partitive PPs and overt Dist Shares enter in an Agree relation with a Dist operator as well as a Def operator under C. They either encompass the Def Op or they enter in an Agree relation with a Def Op which is not expressed overtly. For the case of pseudodistributivity discussed in Chapter 2, I propose that definite shares and PPs can be viewed as either overt Def Ops or as tokens-agreement markers of a covert Def operator under C. PPs such as *apo NP* are clear definite, specific Distributive Shares in Greek (cf. Gryllia 2007) as we saw previously, making the strong distributive, universal reading of the sentence the only one available.

Let us now turn to another issue. There are other elements in the sentence apart from an overt (in)definite Share that may render an unambiguous universal distributive interpretation of the *kathe* NP in a subject position, and these are locative or temporal adverbial modification. The following sentences are perfectly grammatical, but they make more sense when uttered out of the blue if we add a temporal or a locative Prepositional Phrase, (in a way we will find similar to Chinese in Chapter 5). It seems that these adverbial expressions make a definite, universal interpretation of *kathe* NPs stronger⁶³:

- (16) *Kathe pedhi* efije (better in an out-of-the-blue context if we add: *xtes*,
yesterday).
every child left.3sg
“Every child left.”
- (17) *Kathe pedhi* kimithike (better in an out-of-the-blue context if we add: *sto spiti*
tu, *at his home*).
every child was-slept.3sg.
“Every child slept.”

⁶³ The above assertions are possible answers to questions such as “when did everyone leave?” and “where did everyone sleep?”

I propose that the above examples are straightforwardly explained if we take these Prepositional Phrases (PPs), or adverbials, to function as overt Definiteness operators. They provide contextual anchoring in a particular point in place or time. The context set variable of the *kathe* expression is bound by them thus obtaining a definite and a universal reading (since in my proposal universality is composed of Definiteness and Distributivity). I take PPs/ adverbs like these to be overt Definite operators (in the sense that they provide contextual anchoring). As we have seen, the Def operator is often covert in which case its presence is related to elements that can be paralleled or equal to agreement markers such as specific, definite distributive shares and PPs, among other. In this spirit, the determiner *kathe* could be viewed as constituting a Distributivity agreement marker.

4.5 *o kathe* NPs, nouns and verbal specification

Another important observation as we just saw is that in the FC *kathe* NP reading the noun is usually abstract or an adjective acting as a nominal argument (*asxetos*, *irrelevant*). What these types of Nouns seem to have in common is that they cannot refer to something concrete, tangible, possible referential or extensional. They refer to things that cannot be contextually pinned down, or salient. Thus, they cannot be part of a contextually anchored, specific or referential expression. Abstract nouns are what their name suggests. They seem to be compatible with the non-specific and non-referential FC use of Greek (o) *kathe* NPs I propose in this thesis.

As we saw in the previous Chapter, in my view, FC *o kathe* NPs cannot be referential because they cannot have sets that are understood as specific, concrete, individuated, embodied in larger groups or units, or segmented into separate entities. This is due to the fact that they denote the result of a choice function: the random individual that is picked from a designated set of individuals (the NP). In this way, I understand that FCIs have the denotation of a choice function; the application of the choice function may be multiple in the sense “no matter how many times you pick whichever one from this set, each and everyone will be such and such”. On the contrary, the properties of salience and strong Quantificational Force are related to extensionality, concreteness and Definiteness that seem to be a prerequisite for the emergence of universal, exhaustive, contextually anchored-grounded, definite readings of universal distributive *kathe* and *every* NPs. This brings us again before the relation between quantificational force and presuppositionality, to which the latter

notions seem to pertain. The semantic tradition, as we have seen, seems to support that the more presuppositional, the stronger the Quantificational Force of the nominal phrase. Under the present view, strong quantification boils down to presuppositionality and context dependence encoded on the sentence level.

In the rest of this section we examine (*o*) *kathe* NP as well as some relevant *o* NP data that verify the proposal put forth at the beginning of this Chapter. Before we proceed with this investigation, I present here some basic and general syntactic characteristics of Greek that we will stumble across while investigating the phenomenon in hand.

Most researchers agree that VSO is the basic constituent order in Greek as first argued by Philippaki-Warbuton (1985) and, also, that in Greek, V-to-T movement always takes place. T-to-C movement may also take place, according to Roussou & Tsimpli (2006), for instance, while for others such as Kotzoglou (2005), Agouraki (2010) (for Standard Greek) this is not the case. For present purposes we will assume that V to C movement is possible in Greek, although nothing in the present analysis hinges on that. The subject in Greek may remain in Spec, vP and this is how the VS order is most of the times assumed to derive, since V moves to T. Preverbal subjects (SVO) have been treated as topics (Philippaki-Warbuton 1987, Tsimpli 1990, Alexiadou & Anagnostopoulou 1998, Spyropoulos & Philippaki-Warbuton 2001, Kotzoglou 2005, 2010 among others), on the grounds that the syntactic subject position (Spec,TP) is always realized by *pro*. This claim has been disputed in recent work by Roussou & Tsimpli (2006) and Spyropoulos and Revithiadou (2009) who argue that preverbal subjects are not always topicalized; this is the case for generic subjects, for example. Roussou & Tsimpli (2006) claim that generic subjects in Greek are not left dislocated but that they occupy Spec,TP. According to Spyropoulos & Revithiadou (2009), who follow the above view, the preverbal and the postverbal copies of the subjects are both available for the interfaces; which one is spelled out is determined by PF rules (following an Optimality Theory framework).

An argument for the availability of a Spec,TP position for the Subject in Greek is given in Roussou & Tsimpli (2006): Preverbal subjects are preferred with stative, generic IL (Individual Level), generic SL (Stage level) predicates and middle verbs, while it also looks that they are not left-dislocated there (examples with minor notational adaptations from Roussou & Tsimpli 2006: 340):

- (18) a. *stative verb construction*
 I fititria kseri (#i fititria) tin apantisi.
 the student know.3sg (the student) the answer
 “The student knows the answer.”
- b. *middle construction*
 Ta lina plenonte efkola (#ta lina).
 the linen was-washed.3pl easily (the linen)
 “Linen wash easily.”
- c. *generic statement with a stage-level predicate*
 I falenes ine (#i falenes) thilastika.
 the whales are (the whales) mammals
 “Whales are mammals.”
- d. *habitual statement with an individual-level predicate*
 I fitites pijenun (#i fitites) se dhiadhilosis.
 the students go.3pl (the students) to demonstrations
 “Students go to demonstrations.”

Since in (18) the temporal and aspectual properties of the clause directly affect the interpretation of the subject, the authors conclude that the subject is in the domain of T (dT in their notation). If preverbal subjects were necessarily dislocated, then it would be difficult to explain the link between the temporal and aspectual properties of the clause and the position of the subject (Roussou & Tsimpli, *ibid*: 341). We observe that all of the above sentences involve generic or habitual sentences, which seem to associate the subject with the T functional projection, as well as Aspect. This is more prominent in constructions where the preverbal subject has a generic reading (18b-d). This reading in Greek subjects is closely associated with a [-past, -perfective] inflection on the verb (in T). Roussou & Tsimpli (2006) argue that this association reveals a checking relation between the preverbal subject and the T head, which cannot be established if the preverbal subject is a left dislocated element. This observation in my opinion could be viewed in relation to Diesing’s (1992) observations, who associates generic readings with indefinites raised in the structure (IP) and Individual Level (IL) predicates, while existentially interpreted indefinites are considered to stay at VP (current Spec, vP) and be related to Stage Level (SL) predicates (in Carlson’s 1977b predicate ontology). In other words, this syntactic

positioning is indicative of a relation between subject and verb, one attributing a special interpretation to the indefinite subject. Diesing provides some data from German, but the above Greek data are even more convincing.

The reason why I adopt the view that kind-interpreted subjects occupy Spec, TP in Greek is that relevant generic data in the previous Chapter, as well as in the present one are best accommodated if kind-interpreted *kathe* NPs can occupy a Spec, TP position. In English, kind readings are most often conveyed by Bare plural NPs (BNPs). BNPs for Carlson (1977a) are always kind denoting, and the generic or episodic interpretation that a sentence receives is always due to the properties of the verb phrase. Generics tend to appear preverbally in many languages, whereas mere existentials prefer the post-verbal base position whenever that is possible (as for some cases of subjects of embedded clauses in German, cf. Diesing 1992). Carlson (1977a,b) argues that the existential reading of English Bare Noun Phrases (BNPs) stems from them being bound by an existential sentential operator, involved in the interpretation of the sentence as a whole. The generic reading, on the other hand, stems from the presence of a Generic operator. The Existential operator may bind its variables in situ (unselective binding). So Carlson claims that the Generic operator is expected to apply selective binding. If generically interpreted DPs are proven to prefer a preverbal position, assuming the discussion above, this could be an indication that the Generic operator is syntactically present⁶⁴ and that it requires an overt Spec, TP. In other words, the Gen Op may be related to an EPP requirement on T.

What is interesting is that *kathe* NPs are used with kind readings and in this sense they look like generics. Carlson (1977a,b) also observes that the generic interpretation of English BNPs, which are ambiguous between a generic and an existential interpretation, is related to the habitual interpretation of the predicate; on the other hand, the existential interpretation of the bare plural co-occurs with the event interpretation of the predicate. This is a correlation that we will also observe for Greek (progressive vs. habitual interpretation of the VP correlating with the definite and / or existential reading vs. the generic interpretation of a simple DP in Greek, accordingly). Due to the spreading of the generic reading over the DPs and the vP of the sentence, however, the Gen Op I assume here must occupy a position in C and

⁶⁴ T in the case of a generic operator could be specified as T*. I propose that we can have an Agree operation taking place between relevant features on the generic operator –that can be situated in C, as we have already seen, and features on D and Asp.

apply unselectively. In the frame of the analysis put forward in the present thesis, this is explained as quantificational concordance between Gen or Def operators situated in C and elements in the DP and vP.

4.6 An analysis of *o* NP and *(o) kathe* NP subjects

In this section I discuss *o*, *i*, *to* NP data in order to analyze the role of the Def Op, which is present both in the definite uses of these phrases as well as with the strong uses of *(o) kathe* NPs. I assume that the different readings *o*, *i*, *to* NPs yield are the result of the different positioning of the D within the DP2 and the according binding by a different sentential Op each time (Def or Gen). The correlation between the definite or kind interpretations of the *o* NPs and certain verb specifications is the same we have proposed and will observe with *(o) kathe* NPs. The data also verify the proposal for a D2<Q<D1 structure for the Greek DP. Recall from Chapter 2 (section 2.3) that I argue that *o*, *i*, *to* NPs in Greek may occupy either D1 or D2. The Def Op is related to a D2 position and a strong, definite interpretation. As we saw in the previous Chapters, plural indefinites may exhibit a kind of Distributivity that always has the subject, the distributor in this case, always scoping over the object or Dist Share (pseudodistributivity in B&S's terms). In others words, no inverse scope is available for a pseudodistributive reading (Szabolcsi 2010). In terms of Agree, the Def Op enters in an Agree relation with either D2 or Q, while the Gen Op enters into an Agree relation with D1 or Q.

Let us now try to put the theory we visited in the previous sections into use and see whether it can help us predict when an ambiguous Greek DP will have a definite or a kind interpretation. The predicate in the following sentence is bounded and of terminative aspect:

- (19) I Jermani skotonun ton Jiani.
 the Germans kill.3pl the John
 "The Germans are killing John."

Here we observe that we have a DP with a proper name as a complement to the verb, which can only have a definite interpretation. We chose a "rigid designator" (Kripke 1980) such as a proper name on purpose; in this way the complement is undoubtedly

definite. We can check the repercussions of different grammatical aspect on the interpretation of the predicate and the sentence without having to worry about the interpretation of the DP complement (which otherwise could also vary, as we will see immediately in the examples that follow.) The DP subject in the above sentence is interpreted as a referential (hence definite) expression (not kind). The verb can only have a progressive interpretation in this reading. Due to the proper name, definite object of the verb, this sentence can have no other reading; for instance, a habitual interpretation of the verb would yield the weird reading of “German people have a habit of killing a certain John over and over again”.

Now let us observe the readings that arise when the complement of the verb is not a straightforward definite (i.e. not a proper name):

- (20) I kiniji skotonun tis kotes.
 the hunters kill.3pl the hen
 a. “The hunters are killing the hen.”
 b. “Hunters kill hen.”

The above sentence in [- past, - perfective] tense may have two readings: In reading (a) the verb is understood as a progressive, while the complement and the subject receive a definite interpretation. In reading (b) we have a habitual interpretation of the verb and both the subject and the complement of the verb receive a kind interpretation. There seems to be a correlation between the definite interpretation of the DPs and a progressive interpretation of the verbal predicate, as well as between a kind interpretation of the DPs and a habitual interpretation of the verbal predicate. This is reminiscent of Carlson’s (1977b) relevant correlation observed for English *the* DPs.

On the other hand, (21) may only have a definite interpretation: the episodic sentence speaks of a specific event in the past with specific agents and theme (in this case, a victim):

- (21) I Jermani skotosan ton Jiani.
 the germans killed.3PL the John
 “The Germans killed John.”

Let us again observe a sentence with a non-proper name as a complement:

- (22) I kiniji skotosan tis kotes.
 the hunters killed.3pl the hen
 “The hunters killed the hen.”
- (23) I kiniji skotonan tis kotes.
 the hunters killed.IMP.3pl the hen
 a. “The hunters were killing the hen.”
 b. “Hunters used to kill hen.”

In the episodic sentence we may only have a definite reading for both subject and object. In the sentence with the verb in the past imperfective the two readings we just saw for the sentence in the present, imperfective tense above are in place. The conclusion that we may draw from this short presentation is that the (ambiguous) Definite Determiner Phrase in Greek may exhibit two interpretations, a kind and a definite interpretation. The interpretations of the DP subject and object seem to co-ordinate in a way between them as well as with the verb. A progressive interpretation of the [-past, -perfective] verb is matched with a definite interpretation for both subject and object ambiguous DPs. I attribute this quantificational concordance to a Def operator in C that binds the contextual variables of the DPs as well as the event variable of the vP (Davidson 1967 for the event operator) making the event definite, specific. A habitual interpretation of the [-past –perfective] verb, on the other hand, is matched with a kind/generic interpretation of the DPs involved in the sentence, as a result of the binding of the *t* variables on the VP and C on the NPs by the Gen Op.

We examined some episodic and non-episodic data in relation to the presence of RRCs and overt distributive shares, definite or indefinite. We observed that these parameters influenced the interpretation of the phrase in question. Here we will investigate again the subject *kathe* NPs data in different syntactic positions and in relation to the verbal phrase and their interpretation more thoroughly. We do not consider the RRC or rich modification factor at this point, only the overt distributive share parameter.

Let us start with the episodic sentence we examined in the previous section. We first examine an episodic sentence and a predicate that is bounded, telic and of terminative aspect. Again we have a proper name (which we assume here to be a rigid

designator) as a complement. When we change the complement, the grammaticality and acceptability of the sentence change accordingly:

- (24) a. **Kathe Jermanos* skotose ton Jiani.
every German killed.3sg the John
- b. *Ton Jiani ton skotose *kathe Jermanos*.
the John him killed.3sg every German
- c. *Skotose ton Jiani *kathe Jermanos*.
killed.3sg the John every German.
- d. *Skotose *kathe Jermanos* ton Jiani.
Killed.3sg every German the John.
- (25) *Kathe kinighos* skotose mia kota / kotes.
Every hunter killed.3sg a hen / hen.
“Every hunter killed a hen / hen.”
- (26) **Kathe kinighos* skotose tin alepu / tin kota / to thirama.
every hunter killed.3sg the fox/ the hen / the prey.

We see that in Greek the sentence “every German killed John” is as ungrammatical / infelicitous in Greek as it is in English. In Greek it is ungrammatical in all its different possible word order instantiations. In these sentences the complement “John” cannot function as a distributive share for the many killing events that the distributive reading of *kathe* NP would like to have.

An indefinite complement, on the other hand, be that of singular or plural number, changes completely the grammaticality conditions of the sentence. In both cases, an indefinite complement to the verb-Distributive Share induces referential variability, making a distributive reading for the sentence attainable. So we attest once again, as we did in Chapter 2, that the complement of the verb plays a role in the grammaticality of *kathe* NPs in episodic contexts. In particular, in this specification a singular definite complement cannot create referential variability, a prerequisite for a distributive reading to arise, while a (singular or plural) indefinite complement can. In other words, what may seem as a pragmatic restriction, i.e. that a person cannot die many times, is not the (only) reason why the above sentences are ungrammatical. This “pragmatic” restriction is depicted in the verb’s lexical aspect, which does not seem to

match the distributive feature of the *kathe* QP. I however do not further discuss this parameter in the present thesis.

Let us try one more episodic sentence like the ones we saw in Chapter 2:

- (27) ?*Kathe pedhi* pire to vradio.
 every child took.3sg the prize
 “Every child took the prize.”

In the above example we have a definite Share but whether the sentence is felicitous or not depends on the context. If we are talking about the very same actual object-prize, then the sentence is not grammatical. The reason why this happens is because the episodicity of the sentence in combination with the Definiteness of the object DP does not allow a reading of many events in which rewards were handed over to every child that is, exhaustively, to a multitude of children in a one-to-one way. We rather have the reading of a single event and a unique set of rewards. The distribution between reward and children in some way may not be total or near total and the sentence fails to be totally felicitous. Of course, we could have the same prize rotating from child to child but then again we would need as many different events as the number of the children. This could be the case of a reading in which every child held the price in her hands for a while.

Let us check what happens with a different verb complement:

- (28) *Kathe pedhi* pire dhio mila.
 every child took.3sg two apples
 “Every child took two apples.”

Here we observe that the Dist Share (object) is an indefinite plural making distribution between sets of children and sets of apples possible; thus Distributivity becomes an option. The same happens with (29) and (30). In (30) and (31) we also have a singular indefinite that can however have a referential variability reading, thus again making distribution possible.

- (29) *Kathe pedhi* pire vracia.
 every child took.3sg rewards

- “Every child took rewards.”
- (30) *Kathe pedhi* pire vravio.
 every child took.3sg reward
 “Every child took reward.”
- (31) *Kathe pedhi* pire ena vravio.
 every child took.3sg one reward
 “Every child took one reward.”

What makes the complement in (31) create a referential variability effect despite the fact that it is a singular indefinite with the numeral “one” is that the latter is understood as a non-specific, different award, participating in different events of “award-taking”. So it is the non-Definiteness that is crucially helpful for Distributivity in the above sentence.

Subject *kathe* NPs seem to co-align with definites and indefinites with regards to their interpretation being affected by the type of the verbal predicate and by the type of the complement of the predicate.

- (32) a. *Kathe kinighos* skotoni ghates.
 every hunter kill.3sg cats
 “Every hunter kills cats.”
 “Every hunter is killing (some) cats.”
- b. *Kathe kinighos* skotoni tis ghates.
 every hunter kill.3sg the cats
 “Every hunter is killing the cats.”
 “Every hunter kills cats.”

The readings that we get for (32a) is a habitual reading for the predicate and a kind reading for the QP: “hunters are cat killers.” The *kathe* NP may also have a universal distributive reading, especially if it is emphatically stressed or focused. The difference between a kind meaning and a universal distributive one has traditionally been assumed to be that the former does allow some exceptions (if there are a few hunters who are not cat-killers, the sentence will still be true) while the latter does not (if we find one hunter who is not a cat killer, we can say that the sentence has an F truth value and accuse the person who uttered it of defamation). In other words, the

universal reading differs from the kind reading in that it is Exhaustive and Definite. This intuition is the basis of the analysis of Quantification in this thesis. Remember, though, that [-past, -perfective] specification in Greek may also give rise to an intensional and a modal reading. In this case, a Modal and an Existential Op contribute this special reading to these expressions. We cannot easily attest a fact using a verb in these particular specifications, without other information, since the latter are easily interpreted as modal, thus unable to convey a meaning of definite “factual verification”. In other words, this particular verbal specification is not presuppositional, veridical or of Definite clause-typing on its own, unless bound by a Def Op. For the kind reading, we expect the QP to occupy Spec,TP. (32a) answers questions such as: “What do hunters usually do?” and “what does every hunter do?”

A progressive reading is not as readily available for the verbal predicate in (32a) as it is for the generic reading, at least for some speakers. In (32b), however, we may equally have both readings, a habitual and a progressive one. The definite DP complement seems to provide a contextual anchor for “the cats” that consequently makes us think of the event predicated as accordingly being anchored in a particular time and place (*now, here*); that makes the progressive reading possible. When the verb is interpreted as a habitual, then we have the same readings and questions we saw in (32a). The progressive reading of the verb, on the other hand, seems to also allow a kind reading and an existential FCI indiscriminative use reading we saw in Chapter 2 for *o kathe, o kathenas*. This observation is in line with Carlson (1977b) who observes that the generic interpretation of ambiguous English BNPs is related to the habitual interpretation of the predicate, whereas the existential interpretation of the bare plural co-occurs with the event interpretation of the predicate. This similarity to BNPs invigorates our proposal that *kathe* NPs are of inherent indefinite nature, dependable on external Ops for quantificational force.

“Kill” is a terminative predicate and its complement cannot do much to change this. This means that the quantity [-/+SQA] of the complement cannot affect the boundedness-telicity of the predicate. Let us examine another predicate, a verb that denotes knowledge, which in Carlson’s (states, events, processes) (1977b) ontology is a state. Again here the Aspect of the predicate cannot be affected by the verb’s complement.

(33) *Kathe mathitis* kseri tin propedia.

every student know.3sg the multiplication
 “Every student knows multiplication tables.”

Note here that the verb and the complement in *kseri propedhia* (*knows multiplication tables*) semantically forms a compound, it is as if it conveys the meaning of an intransitive verb in this case. We have an atelic predicate but a progressive aspect interpretation is totally out of the question for this predicate due to its being a state predicate. The readings we have for the DP in question are a kind reading and a universal reading, especially if the DP is stressed.

O kathe NPs give rise to a more salient *each* reading and a less common FC Indiscriminative reading (34):

- (34) *O kathe mathitis* kseri propedhia.
 the every student know.3sg multiplication
 “Each student knows multiplication tables.”
 “Any student knows multiplication tables.”

In the above sentence, the DP in question is more readily interpreted with its universal *each* use; however, due to the fact that we don’t have an overt distributive phrase, the FC reading is also attainable but as a less preferred option.

Now observe the following data with *kathe* NPs, exhibiting primarily a kind interpretation:

- (35) a. *Kathe fititis* pai se dhiadhilosis.
 every student go.3sg to rallies
 “Students go to rallies.”
 “Every student is (now) going to a rally.”
 b. ?*Pai* se dhiadilosis *kathe fititis*.
 go.3sg to rallies every student
 c. *Kathe fititis* pai sti dhiadhilosi.
 every student go.3sg to-the rally
 “Every student is going to the rally.”

In the above triplet of sentences we observe the following interesting asymmetry: the sentence (35a) is more readily interpreted as a generic, so we expect, as we previously argued, following Roussou & Tsimpli (2006), that the subject appears in Spec TP. In fact, we assumed that the subject for a generic sentence can only be found in this position in Greek. This seems to hold, as (35a) is good while “postverbal” (35b) is not. What is important is that the QP in (35a) has a kind interpretation. So the interpretation of the QP and its positioning in the sentence verify our previous assumptions, about generic sentences having their subjects in Spec, TP and about *kathe* NPs behaving as indefinites having a kind reading when they are found in that position. The only chance for our QP to receive a universal interpretation is if the verb is interpreted as a progressive: “Right now, I can see from my window every student (that I can discern) setting off for (the) manifestations, as in (35c).” In this case the Prepositional Phrase has a definite DP as a complement, and not an indefinite one. Then we expect the QP to leave Spec, TP and occupy a position in the left periphery⁶⁵. Therefore, (35a) provides support for both our assumption that the subjects of generic predicates occupy Spec, TP and our proposal that *kathe* NPs behave like indefinites that receive a kind reading when they occupy this position.

Let us now examine more data with the same specification for the verb in an intensional context with a volitional verb and a [-past, -perf] complement *na* clause:

- (36) a. Dhen thelo na me enoxli o *kathe asxetos*.
 not want.1sg prt me annoy.3sg the every irrelevant
 “I don’t want just any random person to annoy me.”
- b. *O *kathe asxetos* dhen thelo na me enoxli.
 the every random not want.1sg to me annoy.3sg
- c. ?Dhen thelo o *kathe asxetos* na me enoxli.
 not want.1sg the every random to me annoy.3sg
 “I don’t want just any random person to annoy me.”

In the above sentence the only reading available for our QP is the indiscriminative FC reading. Of course I should note here that I chose the particular verbal specification

⁶⁵ To give an idea of this position, this if the B&S LF hierarchy of projections had a syntactic manifestation, should in their framework be Spec, DistP. In my proposed analysis, this could be a Spec, DefP position.

because it allows a modal reading and thus the FC reading of the QP is available. We also observe that this sentence is grammatical only when the FCI subject occupies a postverbal position; it is totally banned in a position higher than Negation, as in (34b). It cannot be a topic in the main clause. The above sentence cannot have an “I want no one to annoy me” reading, which means that this QP cannot scope over the Negation, not even at LF. I propose that its syntactic inability to raise above the NegP reflects its semantic inability to scope over Negation. In terms of the current analysis preverbal subjects in Greek may be found in this position for two reasons: When they are related either to a Gen Op (in C), in which case they occupy a Spec, TP position (in line with Roussou & Tsimpli’s 2006 proposal), or when they are related to the Def Op (in C), in which case they move to a raised position in dC. Under the current analysis, kind-interpreted subject *kathe* NPs are always expected to be situated in Spec, TP. FC interpreted subject *kathe* NPs, on the other hand, can occupy a place in dv or dC (when topicalized).

Let us examine more data in which we expect the subject to come up in Spec,TP, apart from the kind reading in Greek: this is the case of middles. Apart from the fact that we expect to find their subject at Spec,TP (as we saw in section 1), (Greek) middles have another interesting characteristic: they take arbitrary implicit agents. In this subsection we will check the availability of the FCI and universal readings with middles, which have been claimed in the literature to allow only for FCI or arbitrary implicit agents. We will observe that our proposal is confirmed in these contexts: there is an FCI reading of *kathe* and it is the only one that appears in these contexts. According to Papastathi (2001), Lekakou (2005), middles differ from passives in that the former encode dynamic root modality formally expressed through the presence of a Generic / Modal operator that scopes over the whole sentence. The modal reading is due to imperfective aspect and non-past tense and an arbitrary (implicit) agent.

According to Papastathi (2001), C is sensitive either to Mood or the T head and there are two possibilities for T: it is either specified, thus the event position of the predicate is temporally evaluated, or it may be underspecified, in which case the event position of the predicate is identified with the utterance time by default (modalised contexts). The latter shifts to the future under the scope of an overt modal operator (verb). The implicit agent of MG Middles is an “apo”-phrase with a generic / arbitrary interpretation (also cf. Lekakou 2005, examples from Papastathi, 2001: 196):

- (37) Aftes i tenies vleponte efxarista apo opjondhipote / apo **(ton) kathena*.
 these the movies are.watched.3pl pleasantly by whoever/ by the every
 “These movies are fun to watch.”

On the contrary, passives don’t take arbitrary but specific or indefinite *apo-phrases*:

- (38) Ta vivlia afta dhiavastikan apo kapjon / apo tin Maria / **apo*
opjondhipote / **apo ton kathenan* / *apo ton kathe mathiti*.
 the books these were.read.3pl by somebody / by Mary / **by* whoever / **by*
 each one
 “These books were read by someone / by Mary.”

The above incompatibility probably has to do with the episodicity of the passive form, available only in the [+past, +perfective]. As we have seen, episodicity bans FCIs. In any case, (38) also constitutes evidence that FC *o kathenas* and FC *o kathe* NPs are non-specific, and thus non-referential expressions. *Apo ton kathe* NP is grammatical only in the *each* reading of the phrase. I have argued that the FC use is not referential. DDR, as originally conceived, renders a notion of familiarity to the expression; so semantic Definiteness has to do with context salience and another operator, the Def Op occupying a position in the C domain, applying on the expression.

In the case of middles, the acceptability of the free-choice pronoun *opjiosdhipote* strongly points to a Modal interpretation, while FCIs are ungrammatical in eventive contexts. On the other hand, FCIs are grammatical in overt modals (*must* etc), with future, or present imperfective finite forms.

With regards to the implicit agent of Greek Middles, we observe that in line with our proposal for the existence of an FCI *o kathenas* DP, the latter may appear in this position where, as argued by Papastathi (2001), only generically or arbitrarily interpreted DPs may appear:

- (39) Aftes i tenies vleponte efxarista apo *ton kathena* / *ton kathe*
sinefil.
 these the movies are.watched pleasantly by the eachone / the every cinema fan.
 “These movies are fun to watch.”

“These movies are a good watch for any fan of the cinema.”

In the above sentence, the *o kathenas* DP receives a straightforward FCI interpretation. Papastathi (2001: 197) uses the idea proposed in Tsimpli and Roussou (1996: 76) that modal operators share with certain sentential operators “the property that the clause on which they operate cannot be assigned a truth value, since its content cannot be presupposed”. This is very close to the proposed analysis in this thesis: A sentential clause typing [+/- Def] operator determines whether a sentence is presuppositional or not; in other words, whether a sentence can be assigned a truth value or not. The ambiguous quantificational expressions involved in the sentence, both nominal and verbal, are interpreted accordingly.

- (40) Afta ta pukamisa (dhen) siderononte efkola.
 These the shirts not are.ironed.3pl easily
 “It’s (not) easy to iron these shirts.”

Continuing with our data in hand now, we observe that if we have negation with these sentences, it is the modality that is negated, not the content of the proposition.

In a nutshell, Greek Middles’ implicit agents are always expected to be generic or kind denoting. We are not surprised to find “existential” FCI *kathe* NPs among the licit implicit agents of these structures. This can be taken as one more indication of the indefinite nature of *kathe* NPs. The explanation that can be offered to this according to my proposal is that modal or potentially modal, non-presuppositional contexts (in Papastathi’s 2001 terms, who assumes Tsimpli and Roussou 1996) such as Greek Middles provide the modal operator and the Existential operator that binds the set variable of our “weak”, non-specific FC *o kathe* and *o kathenas* QPs (through existential closure). The use of the *apo ton kathena* with middles constitutes evidence for the indefinite-like behavior of the phrase⁶⁶.

Let us now examine past imperfective sentences and their interaction with the interpretation of *kathe* NP subjects:

⁶⁶ The reason why only *apo ton kathena* but not *apo kathena* can be used with Greek Middles still escapes me. Both expressions can have a perfect FC reading, the only difference between the definite article, conferring an extra notion of familiarity, under the explanation we adopt here. Note, however, that *kathenas* (without the definite article) may not be a legitimate option at all.

- (41) *Kathe mathitis* iksere propedhia.
 every student knew.3sg multiplication
 “Every student knew multiplication tables.”

In the above sentence the most prevalent reading we observe is the kind reading. In this case, we have the subject QP in a Spec, TP position and the interpretation of the sentence is generic. A universal distributive reading is also available, if the QP is focused.

Let us now examine two sentences in which altering the imperfective for the perfective aspect produces different readings for the *o kathe* NP. Recall from Chapter 2 (section 2.3) that I propose that *o kathe* has a Free Choice Item reading (FCI), which is incompatible with episodicity (as we saw in Chapter 3, section 3.3).

- (42) a. Xtes vradhi, me eperne telefono ke me ksipnuse *o kathe mathitis*.
 last night me took.IMP.3sg phone and me woke.3sg the every student
 “Last night, just any student would call me and wake me up.”
 b. *Xtes vradhi, me pire telefono ke me ksipnise *o kathe mathitis*.
 last night me took.3sg phone and me woke.3sg the every student

Sentence (42a) is grammatical; with the [+past, - perfective] verb specification the indiscriminative FCI use (cf. Horn 2005) of *o kathe* NPs is preferred, as the *each* interpretation renders a unfelicitous reading. An *each student* interpretation seems out of context, needing further contextual information. However, the sentence is ungrammatical if the specification is shifted to [+past, +perfective], as in (42b). The reason why this happens is that in (42b) none of the possible readings of *o kathe* NPs are available. In (42b) the VP cannot accommodate a definite and distributive reading, that is, a universal reading, because the verbal predicate does not allow for referential variation; it refers to one single event, without subevents. In this way, it does not allow Distributivity. As we have seen, in episodic environments only the universal (definite and distributive) reading of *o kathe* is available; the kind and FC readings are banned in this environment. However, for the universal reading, we have to have Distributivity available; this is usually attainable through a complement providing referential variability, the necessary precondition for Distributivity, an element that is

missing in this structure. Hence the only available reading, the universal *each* reading of *o kathe* NPs is ruled out here and the sentence is ungrammatical.

Rephrasing the discussion above, in the first sentence the reading for the QP in question is rather undoubtedly an indiscriminative FC one. On top of the lack of Distributivity, we do not have enough information on the QP to consider it contextually salient enough in order to interpret it as *each*, meaning that there is no Definiteness here either: there is no RRC, no Dist Share or other information to induce a Def Op in C. This reading is not however totally excluded if, for instance, we understand that the speaker refers to a set of students just mentioned; but even in this case, it seems to be a very unlikely reading. The second sentence is simply ungrammatical under any reading: the distribution between phone calls and students is not permitted by the episodic predicate. Apart from this fact concerning Distributivity, the “domain widening” that the FC reading necessitates is not available in an episodic context. This is one more reason why the FC reading is not available in such contexts (cf. Giannakidou 2001 for the anti-episodicity restriction on FCIs).

As indicated by the examination of examples so far, *kathe* NPs and even definite DPs in Greek interact with the sentence. This link between Definiteness and the episodic / non-episodic differentiation is also attested for *all* / *all the* NPs. Brisson (1998) claims that *all* and *both* are modifiers, not quantifiers, and the maximizing effect is rendered by an optional distributive operator that is a property of the verb phrase. This is a very interesting parallel to what we have observed in our data so far, and to the claim we have put forth that the distributive readings of all kinds are the result of the interaction between the nominal and the verbal predicates. The discussion of the data so far shows that there is a correlation between the Definiteness of the object, that of the event and context anchoring or Definiteness of the subject indefinite phrase. The only interpretation *o kathe* NP is allowed in episodic contexts is the strong universal – distributive definite one and not the other weak uses.

As we saw in the previous Chapter, Brisson (1998:7) claims that in episodic sentences, *all* is not admitted, whereas *all the* NP is. She claims that *all* NPs is always generic and is naturally expected to occur in a generic context, not in an episodic one:

- (43) a. All the girls came in.
b. *All girls came in.

So we see that in a way the Definiteness of the tense, [+past, +perfective] concords with the Definiteness of the subject DP. In the data we examined before we have observed that, for Greek subject *kathe* QPs the Definiteness of the Subject matches the Definiteness of the Object or the Aspect of the verb, in a kind of a Definiteness concord. The above observation can be viewed as support to the claim put forward that (*o*) *kathe* NPs behave as inherent indefinites and that Definiteness is independently conferred upon them by sentential operators.

Let us now examine a classic example that we expect to render an inverse wide scope for the *kathe* NP object (adapted from Hirschbuhler 1982):

- (44) a. Enas fruros stekotan brosta apo *kathe presvia*.
 one guard stood.IMP.3sg in front of every embassy
 “A guard was standing in front of every embassy.”
 b. Enas fruros stekotan brosta apo tin *kathe presvia*.
 one guard stood.IMP.3sg in front of the every embassy
 “A guard was standing in front of each embassy.”

We observe that *o kathe* NP (here in its feminine form) does create a scopal difference, as we should expect from an equivalent to *each* in this classical example. In (44a) the QP in question may have both a wide and a narrow scope: it may be five guards standing in front of five embassies, one guard for each embassy (wide scope). Or it may be just one guard patrolling and occasionally stopping in front of each embassy for a while (narrow scope). Greek examples like the one above have been already discussed in the literature (e.g. Alexiadou & Anagnostopoulou 1998, Roussou & Tsimpli 2006, Spyropoulos & Revithiadou 2007). What interests us here is that (44b) allows a wide scope reading for the universally interpreted QP in the PP that is more definite than the reading in (44a). This is one more proof of what has been presented and supported in Chapter 2 that *o kathe* may indeed be equivalent to a wide scope, total distributive (in Tunstall 1998 terms) or obligatorily strong distributive universal reading (in B&S terms); and one of the differences between universally interpreted *kathe* and *o kathe* is that the latter always takes wide scope. The position that we adopted in this thesis is that *o kathe* NPs in its definite reading is universal, not referential (not a DP2) but it however, due to DDR, bears an extra familiarity notion. Definiteness is viewed as equal to strong quantificational force in this thesis. *Each*

and *o kathe*, the latter in its strong use, are already definite, i.e. strong quantificational, like strong *every* and strong (universal, definite) *kathe* NPs. On top of that, they convey an extra familiarity implicature through the means of DDR that I adopted as an explanation for the difference between *kathe* and *o kathe* NPs.

4.7 Summary

In this chapter we observed how Distributivity in the vP, necessary for the emergence of a distributive reading of subject (*o*)*kathe* NPs, is conveyed. We discussed Aspect and the significance of a Share providing referential variability, i.e. a prerequisite for a distributive reading, but also contextual anchoring or Definiteness. Distributivity involves a relation between NP and VP predicates, whereas Definiteness implicates a connection to the context of the discourse, in other words a relation between the entities (arguments) and relations predicated in the sentence and previous knowledge or information shared between interlocutors (common ground) and the discourse or the pragmatic state of affairs in hand. The data examined indicate that there is a concordance between the Definiteness and contextual grounding of the subject and that of the object and the verbal predicate in consequence.

In the previous chapter I proposed that the subject (*o*) *kathe* NP Agrees with a Dist Op in the C domain. Here we observed that the subject QPs (as well as plain DPs such as *i kiniji*) are subdued to some kind of concordance with the Definiteness of the object DP and the aspect of the verb. The Dist Op on C Agrees with Q on the QP for both the subject and the object, and Aspect on vP.

The Dist Op in the C domain is the operator in a tripartite structure that also involves a restriction (QP) and a nuclear scope (vP). In other words, Def or Gen in C as well as Modal Ops need to take two arguments in order to render a meaning (a truth value to the sentence, under the present assumptions): a QP / DP and a vP. Sentences with a Gen Op in the clause typing C projection⁶⁷ (instead of a Def Op) cannot be assigned a truth value under the current assumptions because they denote a partial function. They can be nonetheless totally grammatical (syntactically good).

I place the Dist Op in lower C. Following a proposal in Szabolcsi (1997, 2010) and B&S, as well as relevant ideas in Tunstall (1998), the analysis here assumed that the Dist Op binds element variables within both the sets of individuals (for the QP)

⁶⁷ These sentences constitute what we trivially refer to as “opinions”.

and the sets of (sub)events (for AspP/ vP). The context set variables of the restriction of the Dist Op are bound by other, sentential, operators. The Def Op (and the other sentential ops) that I proposed as the binder of the context set variable of the Dist operator's restriction in the universal reading must be situated above Dist in the C domain. In this sense, the present analysis endorses the intuition behind B&S's proposal about Ref P (which I take to carry some similarity to the CP that hosts Def) preceding Dist P in their hierarchy of operators.

Chapter 5: Comparative data beyond *everything*

In this Chapter I further discuss the relation between *(o) kathe* NP subjects and Modality. I also touch upon phenomena that seem to resemble a quantificational concord, like the one presented for *o kathe* and *o* NPs. I propose that Chinese and Japanese *indeterminate pronouns*, as analyzed by various researchers, may be viewed as attesting a phenomenon of sentential Quantification similar to the one we observe with *(o) kathe* NPs. I then briefly present other cases possibly susceptible to a similar quantificational concord in Modern Greek, NPIs and *wh*-questions, and draw a sketch of a possible parallelism between these and the expressions under investigation.

5.1 Modality

In our discussion of the data, apart from Aspect, we run several times into the notion of Modality. We have observed from the discussion in the previous Chapter that the [-perfect] verb specification in Greek may give rise to an intensional, modal or a generic / habitual sentence. We also have pointed out that modality and intensionality are triggering parameters for the FC readings we have observed with *(o) kathe* NPs. In this section we examine some *(o) kathe* NP data with modality and sketch some basic conclusions. The discussion is neither exhaustive nor conclusive, due to the complex nature of modality that cannot be fully dealt with within the margins of the present analysis. I however present my basic findings for matters of congruency with the rest of the empirical discussion.

Let us start by reviewing some basic facts concerning modality. As is commonly assumed, modal verbs may receive two interpretations: first, an epistemic interpretation, which is a speaker oriented qualification or modification of the truth of a proposition or, secondly, a root interpretation, which may involve will, ability, permission or obligation (Barbiers 2002). Another classification proposed in the literature which essentially boils down to the same notions, is among other, Palmers' (2001) distinction between (i) propositional and (ii) event modality. Propositional modality (i) comprises an epistemic (ia) and an evidential modality (ib). An epistemic modality (ia) may be speculative, deductive or assumptive. Evidential modality (ib) may be reported or sensory (visual, non-visual, auditory). Event modality (ii) may be

deontic (iia) or dynamic (iib). With deontic event modality (iia) the conditioning factors are external to the relevant individual and obligation or permission from an external force is expressed. With dynamic event modality (iib) the conditioning factors are internal to the relevant individual, while the ability or the willingness from the part of the individual is expressed. According to the same author, some other types of modality are the *presupposed* and *irrealis* types. In other words, Barbiers' (2002) *epistemic* and *root modality* more or less correspond to Palmers' (2001) *propositional* and *event modality* accordingly.

Different languages use different ways to express modality, e.g. English uses modal verbs to distinguish a categorical statement from a judgment about a proposition: "Mary is at home" vs. "Mary may / must be at home." Spanish and French use the indicative versus the subjective Mood. Most modal verbs in Greek, as well as in English, are ambiguous between two or more different readings of the kind we presented above. This is an interesting fact for our analysis, since, as we are about to observe, the interpretation of the ambiguous modal verb is related to or even co-varies with the interpretation of the ambiguous QP under investigation. This invigorates our proposal here that there is a quantificational concordance spread out in the whole of the sentence, due to the application of quantifying operators occupying C and affecting the whole structure.

Let us check a few examples with non-ambiguous DP subjects (examples from Barbiers 2002: 2):

- (1) John must be at home at 6 o'clock.

In the above example, the predicate is a Stage Level (Carlson 1977b, Diesing 1992) telic predicate. The sentence may have two interpretations: The epistemic (or propositional epistemic) reading is: "given what I, the speaker, know, I predict that..." The modal verb (plus the Prepositional Phrase PP) makes a monadic predicate, with a semantic structure that looks similar to that of subject raising verbs. The root (or event deontic) reading is: "John is obliged to be at home at 6 o'clock". In this case the modal predicate is dyadic with a structure resembling a control verb structure.

What interests us here is that the different readings of Greek *kathe* NPs seem to fit different readings of the Greek deontic/ epistemic modal *prepi* as in the sentence that follows:

- (2) *Kathe mathitis prepi na ine spiti stis 6.*
 every student must.3sg prt be.3sg. home at 6.
 “Every student must be home at 6.”

This sentence has two readings: The modal verb can be read with a root, deontic interpretation. In this case the *kathe* NP is interpreted in its definite, universal reading; the classic interpretation of the Deontic Op “in all possible worlds” is at play. Any way, according to my proposal, a Def operator in C must be present with this reading, binding the context set variables of the implicated NPs while the event variable “e” of the vP is bound by the Modal Op. Intuitively, an obligation such as the one described in (2) above can be precisely described as a definite requirement, while the same is not true of probabilities, which are vague (not well defined, “indefinite”) by their very nature.

In the other reading, the modal receives an epistemic interpretation; the interpretation the *kathe* NP phrase receives is a kind interpretation, so, according to my proposal, a Gen Op must be in place under C. Intuitively, the definite, according to my proposal, universal reading of the *kathe* NP seems to fit better with the deontic (definite) root modal reading whereas the “indefinite” kind reading is a better option with the probability reading. The above constitutes a descriptive approximation, as I cannot offer a solid explanation for this kind of concordance; so I leave this remark open for future research.

Another example of Modal ambiguity (Perlmutter 1970), with an Individual Level (IL) predicate this time (Barbiers 2002: 56):

- (3) John must be kind.
- (4) *Kathe mathitis prepi na ine evjenikos.*
 every student must.3sg prt be.3sg kind.
 “Every student must be kind.”
- (5) *Kathe xoreftis prepi na jimnazete.*
 every dancer must.3sg prt be.exercised. 3sg
 “Every dancer must exercise.”
 “All these dancers look very fit. I estimate that they work out regularly.”

“It is a professional obligation of every / any (whichever) dancer to work out.”

Sentences (3), (4) contain an Individual Level (IL) (stative) predicate and have two readings. The epistemic reading of (3) maybe paraphrased as “it must be the case that John is kind”. “Must” in this case is a monadic predicate, the rest of the proposition constituting its only argument. “John” does not receive its theta role from the modal. The modal semantically behaves like a raising verb (cf. the discussion on example number 1 containing a Stage Level Predicate earlier on). The second reading is a root reading and may be paraphrased as “John has the obligation to be kind.” In this case, the subject receives its theta role from the modal and the predicate is dyadic (must (John, be kind), cf. Barbiers 2002). The predicate behaves like a control verb: “John_i must be PRO_i kind”.

In (4) we have an IL predicate and both the root reading of the modal but also an epistemic one is available. The QP may have either a universal or a kind interpretation. In (5) the epistemic interpretation of the modal *prepi* allows for both the universal and the FC reading of *kathe xoreftis*. In the deontic interpretation all FC, kind and universal readings are available, despite the fact that the latter is more salient.

The data discussed in this section show a slight correlation between the root reading of the modal verb *prepi* and a universal (or kind) interpretation as well as one between the epistemic reading of the modal verb and an FC interpretation of *kathe* NPs. I will not further analyze this observation, but I will note that in any case these data indicate that there must be an interplay at the sentential level C and a kind of concordance between the verbal and the nominal component. This observation is in line with one of the basic tenets of my proposal, i.e. that there is quantificational concordance through unselective binding and operators at C ranging over DPs and vPs.

Let us now check negative modal sentences with ambiguous Greek *kathe* NPs:

- (6) Dhen bhorì na ferete etsi *kathe ipalilos*!
not can.3sg prt behave.3sg like that every employee

The above sentence may have the following three readings:

- a. An epistemic modal reading, combined with a kind interpretation for the QP, equivalent to the following English translation:
“In my opinion, it is not possible that any employees behave like that.”
- b. An epistemic modal reading, combined with a universal interpretation for the QP. The sentence may be translated as:
“In my opinion, it is not possible that all employees should behave like that.”
- c. A root modal interpretation, which may only be combined with a universal reading for the QP (possibly focalized). In this case the sentence may be translated as :
“Not all employees are actually able to behave like that.”

If we have *o kathe* NP instead of *kathe*, the FCI indiscriminative reading is more readily available than the *each* reading, which is marginal in this case:

- (7) Dhen bhorì na ferete etsi o *kathe ipalilos*!
not can.3sg prt behave.3sg like that every employee
“It’s preposterous that just any employee can behave like that!”

In the above sentence the *just any* is the most salient of all readings. This is in acute opposition to the next sentence. In past imperfective tense the epistemic reading disappears, so does the FCI reading for the QP in question:

- (8) Dhen bhoruse / (*bhorese) na ferete etsi o *kathe ipalilos*!
not could.IMP.3sg (could.3sg) prt behave.3sg like that every employee
“It’s not each employee that could behave like that.”

The above sentence may only have a root (in the terms of Barbiers 2002) or an event dynamic (in the terms of Palmers 2001) reading for the modal, while the QP may only be interpreted as *each*. All the other readings are excluded in this environment. If we wanted to retain the “possibility” reading, then we should use another expression, like *dhen itan pithano / dhinato* (*it wasn’t possible*). *Bori* can act as an impersonal verb of probability only in the present tense.

To conclude, we observe that modality in general makes the FC reading of the expressions under investigation possible, as expected under the general assumptions

regarding FC interpretation we saw in (Chapter 3.2.1). More specifically, epistemic modality allows the FCI and kind readings for the QP in question and affects the scope of Negation in the sentence. In root readings the Negation may apply as constituent negation on the QP. In epistemic readings Negation seems to work together with modality to help FC and kind readings emerge. These scopal differences possibly indicate the positioning of the operators in the structure. The FCI reading is permitted in epistemic readings only, while it is disallowed with root readings. The Universal distributive reading, on the other hand, is available with both root and epistemic readings of an ambiguous modal verb. The epistemic reading of *prepi* is not available in a sentence with *kathe* NP and an IL predicate.

5.2 Comparative evidence

In Chinese and Korean lately there is a general consensus that the phrases equivalent to *every* NPs are bare phrases; quantification is structurally represented by clausal projections as in Tsoulas and Gil (2009), who propose that classifiers, distributive markers, and number are indeed structurally represented – but as clausal projections, not as nominal ones. Nominal phrases in these languages are again considered bare of quantification, a conclusion that suits our point of view on the issue, for Greek *kathe* NPs: that apparently nominal quantification is actually due to sentential operators, Dist (and Def / Gen) are situated in C, in the left periphery of the clause. This existing view in the literature the claim made in this thesis regarding sententially-derived quantification of the nominal and verbal predicates in languages such as English or Greek.

Wh-phrases in Chinese display quantificational variability. Depending on what particle they combine with, aside from a typical interrogative reading (9a), the element *shenme* ‘what’ may also have an indefinite (9b) or a universal reading (9c), (Cheng 2009: 55: 3a, 3b, with small orthographic adaptations by me⁶⁸):

- (9) a. Ta mai-le shenme.
 he buy-perf what (interrogative)
 ‘What did he buy?’
 b. Ta meiyou mai shenme.

⁶⁸ The Chinese element identified as equivalent to *every* across the literature, often written as *mei*, is represented here as *mai*.

he not.have buy what. (existential)

“He didn’t buy anything.”

- c. Ta shenme *dou* meiyou mai.

he what DOU not.have buy (universal)

“He didn’t buy anything at all/whatsoever.”

Chinese has two ways of conveying the *every* NP denotation: *Dou* plus *mai* and by using reduplicates plus *dou* (Cheng 2009: 53: 1a,b:)

- (10) a. Mai (y1)-ge xuesheng *dou* lai-le.
mai one-cl student *dou* come-perf
“Every student came.”
- b. Tamin ge-ge *dou* hen c-onmvng.
they cl *dou* very intelligent.
“Every one of them is intelligent.”

Despite the fact that *dou* seems to be necessary for both cases, Cheng (ibid. 54: 2) argues that *dou* is not a distributive, based on the following examples:

- (11) a. Tamen *dou* yiqi lai
they DOU together come.
‘All of them came together.’
(T.-H. Lin (1998))
- b. Zheng-zuo qiao *dou* dao xialai-le.
whole-CL bridge DOU fall-down-ASP
‘The whole bridge collapsed.’

As Cheng (2009: 54) observes, here the contribution of *dou* is not only distributive. It is found with sentences with reduplicates or quantificational adjectives such as *whole* where it expresses something else. Cheng (2009) and Giannakidou & Cheng (2006) argue that *dou* is a maximality operator. The latter in my view is similar, if not identical, to the Def Op I assume here. Note that Wu (1999) has also characterized *dou* as a Focus operator, attributing to it C operator properties.

So, in Chinese the *dou* particle, together (often in co-occurrence) with *mai* are viewed as the Chinese equivalents to *every*. Cheng (2009:63) assumes Beghelli & Stowell (1997) and argues that the Distributivity that we see in cases without *dou* is probably a case of pseudo-Distributivity. Remember that for B&S pseudo-Distributivity involves a covert distributive operator comparable to floating *each* in English. She goes on to argue that in Chinese, when the distributive share is occupied by a DP, it can induce this covert distributive operator.

It should be noted that in Chinese, according to the above author, when an event is bounded, as in cases with perfective, the cases with *mai* without *dou* become a little degraded. In this case, speakers improve the sentence by adding to the beginning of the sentence locative adverbial elements such as “here”. In the previous Chapter we saw that Greek out-of-the-blue sentences with universally interpreted (*o*) *kathe* NPs become more natural if we add exactly this kind of adverbial operators in the sentence. The question is why elements such as the above can improve problematic sentences with *mai* without *dou* in Chinese. We note that, interestingly, by adding such elements, the domain of *mai* ‘every’ is restricted (i.e. the quantifier ranges over entities present at the given time and place, else put, the context set variable of the NP is bound by that adverbial operator). This might be relevant to events being relative to VP and spatial information (such as “*here*”) (cf. Guéron 2008, Ramchand 2008). So we can say that *here* spatially restricts the event making it more specific.

However, a locative cannot provide a universal operator. If we were to take *dou* as universally quantified (as eg. in Cheng 1995), it is difficult to imagine on what grounds should its absence be remedied by the use of a non-universally quantified element, a locative such as “*here*” that can only provide a contextual grounding of the event. It seems to me that the only possible answer to that is that *dou* is not universally quantified, after all. What do a locative and a quantificational element have in common that could serve as an operator that can bind the variables of Heimian indefinites (or, here in particular, the context set variable of the *mai* NP restriction)? A locative provides some (spatial, maybe spatio-temporal) contextual grounding. Could it be the case that *dou* performs the operation of filling in the contextual variable of the NP, as Stanley & Szabó (2000) argue it happens with indefinites and with *every*-NP expressions? As we said before, Wu (1999) takes *dou* to be a focus operator. Cheng (2009) and Giannakidou & Cheng (2006) also argue

towards a relevant hypothesis. According to them, *dou* is a maximality/ Definiteness operator, an operator that as I argue in this thesis is responsible for Definiteness, contextual anchoring of the sentence, and, together with Distributivity, for the universal quantification with *(o)kathe* and *every* NPs.

Considering the preceding discussion, the above cases of Chinese (and, as we will see in the next section possibly, Japanese) quantification can be regarded as aligning with the way my proposed analysis for ambiguous *kathe* NPs (following Szabolcsi 2010:197) explains universal quantification with *every*-type determiners. The most crucial component of universal quantification is spatio-temporal anchoring or specificity / Definiteness and this is why adverbs such as “*here*” come to the rescue of Chinese expressions of *mai* without *dou*; this also explains why Greek episodic sentences without a definite DP Dist Share are better with a similar adverb or a spatio-temporal PP. In this way, Quantification can be viewed as having its grammatical base on contextual anchoring and (in)Definiteness.

5.3 Japanese

In this section we visit data with nominal universal quantification in Japanese and draw a parallelism to the Greek case. In Japanese, quantifier phrases are compositionally constructed using so-called ‘indeterminate pronouns’ (Kuroda 1965), apparently void of any quantificational meaning, in combination with particles that seem to provide the expression with all different types of quantification. Here’s a sample of those pronouns (examples from Kratzer 2005: 6, her 1):

- (12) *dare* ‘who’ *doko* ‘where’
nani ‘what’ *itu* ‘when’
dore ‘which (one)’ *naze* ‘why’
dono ‘which’ (Det) *doo* ‘how’

Depending on the particle- operator they appear with, the indeterminate phrases in (1) take on existential, universal, negative polarity, free choice or interrogative interpretations. These operators may bind the variables of these expressions even from a distance, as in the examples below (from Shimoyama 2001, 2 and 4):

- (13) a. [[Dono hon-o yonda] kodomo] -*mo* yoku nemutta.

which book-ACC read child -MO well slept

“For every book *x*, the child who read *x* slept well.”

- b. Taro-wa [[dare-ga katta] mochi]-o tabemasita ka?

Taro-TOP who-NOM bought rice cake-ACC ate Q

“Who is the *x* such that Taro ate rice cakes that *x* bought?”

The expression equivalent to English *every NP* is constructed by “combining” particle / suffix *–mo* with *dono* (*which*). Nishigauchi (1986, 1990) argued that particles such as *–mo*, *–ka* and their kind are adverbial quantifiers that can unselectively bind variables made available by indeterminate phrases and bare noun phrases, as proposed in Heim (1982) for indefinite NPs. Note that these indefinite expressions also disobey islands. The restrictor *which student* crosses a complex NP island in (14b). Examples from Shimoyama 2006: 139, his 1 and 2):

- (14) a. Dono gakusei-*mo* odotta.

which student-MO danced

“Every student danced.”

- b. [[Dono gakusei-ga syootaisita] sensei]-*mo* odotta.

which student-Nom invited teacher -MO danced

“For every student *x*, the teacher(s) that *x* had invited danced.”

We have unselective binding of the indefinite expressions, the only difference being that in the case of Japanese the Def operator is overt in the form of a particle / adverbial quantifier.

The above view on Japanese quantification perfectly fits our analysis of (*o*) *kathe* NPs. At this point we may draw a parallelism between Greek (*o*) *kathe* and *o* NPs and indeterminate phrases in Japanese. Of course, the expressions are not indeterminate or indefinite in the same way; *kathe* behaves as an indefinite in that its interpretation is affected by sentential operators, it is nonetheless specified for Distributivity. On top of that, the two languages are very different. Despite all these caveats, there is still a strong resemblance in the way the Japanese indeterminate phrases seem to work and the way I explain the Universal, FC and kind interpretation of (*o*) *kathe* NPs.

5.4 A Hamblin semantics approach: Japanese

Kratzer & Shimoyama (2002), Shimoyama (2006:2) propose a Hamblin semantics explanation for the intervention effects observed with Japanese *-mo* (“distributive-universal”) and *-ka* (“interrogative”) particles that allow the NPs to be bound by those operators with no locality restrictions needed. According to them, in Hamblin semantics for individual variables, a variable seeks the first binder in its proximity and stops there (hence the locality, since the NP will simply be bound by the closest available operator). Under this explanation, distant binding, Shimoyama (2006) claims, is only apparent, since the restrictor of *-mo* is in fact its whole sister constituent.

This idea in its inverse form (top-down probing instead of bottom-up) is useful in terms of the present proposal because it provides an extra argument for the hypothesis put forth here that sentential operators (Dist, Def, Gen) perform unselective binding: The probes, the Def or Gen operators, seek for unvalued relevant features to Agree with, both DPs and vPs (or AspPs). Alternatively, this proposal in an Agree frame could mean that the variable on the NP (Goal) seeks for a Probe (operator on a Functional projection) and gets bound by it. Dist should then sit at a specific position below C that is why the distributive scope is clause bounded: it captures / binds the variable before it escapes out of the clause. Again, on the top-down (standard) Agree account, the Dist Op in lower C could probe and Agree with the relevant variable in the NP, producing the same clause-boundedness result. I take both Agree systems to be equally vigorous analyses for the data in hand. In this thesis I adopt the more traditional top-down Agree framework for the sake of the argumentation.

For Watanabe (2006) *-mo* is probably a morphological suffix that occupies D, a position which, according to Reinhart (2006) choice functions occupy. D is also defended by many to be empty in Japanese, in which case, under Szabolcsi’s (2010) approach that we take up here, D is possibly occupied by a covert choice function. *Mo* would then quantify over the set of individuals picked up by the choice function. If *mo* performs a simple choice function, it cannot quantify the expression somehow else. If, on the other hand, *mo* is a kind of a maximality or focus operator as Chinese *dou* in the arguments presented in the next section, it should quantify over a set which is covertly closed by a choice function. In this case we could have the same way of reaching universal distributive quantification as in Szabolcsi (2010: 197) that our

analysis largely follows, where a context-restricting operator binds the variable of the choice function over a set of individuals, in the process of deriving the universal distributive reading of *every* NPs. This explanation would make a good match to my proposal on quantification, since it allows for a Quantificational binding to happen between an overt in Japanese and Chinese, covert in English and Greek, Definite operator and NP context set variables. The analyses of Chinese data visited seem to provide some ground for this hypothesis. However, due to space constrictions within this thesis I here cite this idea more as a conjecture than as a hypothesis for Japanese or Chinese. Future research should elucidate this possibility.

Let us further discuss the observations of the previous literature on Chinese and Japanese indeterminate phrases. First of all, it should be noted once more that providing a full explanation for the aspects of Japanese and Chinese quantificational phenomena addressed previously is not within the limitations of the present study. Some relevant conclusions, however, pertaining to our discussion can be drawn. For the purposes of the present discussion I side with Cheng (2009) that *dou* acts as the domain restricting operator, a maximality operator and with Kratzer's (2005) explanation of Japanese *-mo* based on Hamblin semantics. I think that both views essentially suit the spirit of Szabolcsi's (2010:197) proposal that we adopted here on how universal distributive readings of (*o*) *kathe* and *every* NPs are constructed.

The determiners in question, in the case of Chinese and Japanese indeterminate pronouns, are not inherently universal. English *every* and Greek *kathe* introduce the feature of Distributivity, and their restriction is also restricted by a choice function that needs to be closed off at the DP / NP level. The Def Op provides the expression with context anchoring in time and place. It is essentially a maximality, i- operator. I should however note that there are also many works against the view on Chinese and Japanese quantifiers presented and adopted here. Chinese *mai*, for instance, is viewed as an equivalent to *every* by many researchers. However, as the analysis in this thesis so far has shown, *every* (and, of course, *kathe*) itself is not always universal and this can also apply to *mai*.

What comes up from this discussion is that on the grounds of the above tentative parallelism between *kathe* NPs and Japanese and Chinese data, the quantificational concord scenario proposed in Szabolcsi (2010) and Kratzer (2005) gains cross-linguistic empirical support: Japanese and Chinese may overtly depict a

type of quantificational concord (with *dou* and *–mo*) that exists with a covert Def Op in other languages, such as English and Greek.

So, according to my proposal, *every* determiners in languages like English and Greek could be comparable to the indeterminate pronoun constructions in Japanese. They are devoid of quantificational content of their own but for their distributive feature specification. Their difference possibly lies in their Distributivity specification: *every* and *kathe* are specified for Distributivity, while the indeterminate pronouns (with the possible exception of *mai*) do not seem to bear an extra specification. What we can observe about the elements implicated in *every*-type quantification in Greek, English but also Chinese and Japanese is that they seem to form a quantificational dependency chain as the one proposed by Chomsky (2000) for wh-phrases and the Question operator in C. For Japanese and Chinese, these different operators may be as diverse as a Question operator (in which case existential closure also applies) or a Definiteness operator, hence the chameleon-like interpretational potential of the indefinite expressions in hand. In any case, the above discussion could lend support to my claim for Greek, that domain restriction is involved in the strong universal quantificational reading of *kathe* NPs. In other words, overt operators or contextual agreement markers hinting at the presence of a covert Def Op may come in the form of PPs, locative specification, RRCs, or any type of contextual anchoring that narrows down the domain of quantification, as well as by any overt adverbial operator that binds and closes off the contextual variable *c* of the NP; in this way, the interpretation of the distributive expression is made definite and thus universal.

5.5 Ways of contextual restriction

The conclusion that emerges from the previous discussion is that the context variable of the NP plays a crucial role in the phenomenon of quantification we examine: the sentential operator that binds it defines the interpretation the DP / QP will have. With *kathe* NPs we observed that any form of further modification-contextual restriction, be that an RRC (FC *any*, subtriggering-style), rich modification or an overt and clear Dist Share, renders the universal interpretation of the *kathe* NP the only one available. Especially with episodic contexts, which are always perfective, we observed that the presence of an overt Dist Share with perfective verbs is more imperative for the universal reading of (*o*) *kathe* NPs than in imperfective contexts; in the latter case the

grammatical aspect of the verb contributes a notion of plurality and Distributivity, making it a better match to the distributive feature of *kathe*. This seems to be in perfect concordance with the Chinese data Cheng (2009) describes: in perfective contexts *dou* or a locative adverb are needed; *mai* cannot stand alone.

I think that what happens with perfective and episodic contexts is this: the grammatical aspect of the verb cannot provide a distributive feature or operator that would render a reading of many events or subevents. In the universal reading the share needs to be understood as a plural, non-specific, as the latter may appear in syntax as a singular non-specific indefinite. Otherwise the requirement for Distributivity and referential variability is not satisfied, thus the universal reading is unattainable. So the presence of a share that could be interpreted as [+plural] and provide plurality or referential variability, a prerequisite for Distributivity, to the event of the verb, thus satisfying the Distributivity of *kathe* NP, makes the sentence better.

The above observation is also related to another aspect of my proposal. Let us revisit it. I propose that “pure” universal *kathe* NP readings are always contextually restricted and extensional in some way. There are a lot of ways for contextually restricting a phrase. Apart from the ones we have already seen there is also Contrastive Focus, which is presuppositional (for Greek cf. Georgiades 2004), meaning that it presupposes the existence of alternatives already existing in the mind of the two interlocutors, i.e. in the common ground, can be seen as a way of contextually restricting the denotation of the nominal expression. So Focus is one way of contextually restricting a nominal expression. Another, more direct way, could be pointing at the object referred to, deixis in the extralinguistic form of a gesture. Alternatively, we could also have a disambiguating melody at a PF level in the spirit of the Roussou et al (2012) explanation of in situ wh-Information Questions and Echo Questions in Greek, in which case we should accept that the two interfaces see each other.

RRCs and rich modification, on the other hand, seem to indirectly perform a similar function; they provide more information on the nominal expression they modify, thus, a kind of salience. This is a linguistic way of pointing out the set we refer to, it is a way of identifying the particular object. In this sense, the above is another way of restricting the set of reference, of contextually anchoring, of making the set of individuals referred to salient in the discourse. I propose that all the above

syntactic elements bear witness to the presence of a covert Definiteness operator (Def Op) in Greek, comparable to the operator Cheng (2009) and Cheng and Giannakidou (2006) propose that *dou* is. By this I understand that the speaker has in mind a concrete state of affairs, fact or situation that comprises given and specific, even if unknown, agents, themes and actions. All the terms of the sentence are circumscribed within the given particular instance. The time and space specifications of the predicates are given and this is instantiated in the form of a sentential operator in the syntax.

Cheng (2009) takes *dou* to be a maximality operator and *mai* to be introducing sets of individuals. *Dou* operates on these sets and closes the domain. In particular, Cheng (2009:58) suggests that *dou* has the tendency to exclude the empty set; in this respect it can be viewed as presuppositional or veridical. *Dou* contributes Definiteness, it is an iota / maximality operator, on a par with the definite determiner (Cheng 2009:59 cf. also Giannakidou and Cheng 2006). This means that *dou* takes the maximal member of the (given) set. When it ranges over a plural pronoun set, such as “they” it gives an “all of them” reading. With an adjective such as *whole* in the “whole bridge” example we saw before, it emphasizes the entirety of the bridge by creating the maximal sum of all the parts of the bridge. Without *dou*, on the other hand, the *mai* phrases seem orphaned and lacking something: The hearers try to get the context variable of the NP-restrictions of *mai* involved valued from another (contextual) source, such as locative expressions.

This is exactly what I propose that happens with *kathe* NPs: they provide the domain of quantification and the context set variable that lays unbound and which has to be bound by a sentential operator in order for the domain to be closed. The only difference is that in Greek there is no overt “maximality” or exhaustive operator such as *dou* but usually (if we do not have a quantificational adverb) a covert one, the Definiteness (Def) operator. Recall from previous discussion in Chapter 1 (1.3), Chapter 3 (3.6) and Chapter 4 (4.1) that in this context the Dist operator overscopes a Choice function, which applies by default on all phrases (assuming Szabolcsi 2010) and which has to be specified / bound by the context, as Stanley & Szabó’s (2000) claim. A different operator may bind the context variable *c* of the NP restriction each time. In the case of a universal distributive reading this operator is the maximality *i*-operator (as *dou* in Cheng 2009 and Giannakidou & Cheng 2006). Different operators may bind this contextual variable, reminiscent of the world variable *w* that

Giannakidou & Cheng (2006) invoke for FCIs. So if we have a Gen operator in place, then a generic/ kind reading is given to the expression. If the expression is bound by a Modal Op and existential closure then we have an FC reading. The Definiteness operator renders the NP restriction salient and thus it quantifies it exhaustively, yielding a definite distributive universal reading. The so-called universal reading is a definite, maximalized reading, exhaustively quantifying over the predicated sets and their plural or referentially variable subparts / elements.

5.6 Greek NPIs, APIs, *wh*- Questions

In the previous section we drew a parallelism between Japanese and Chinese *every* NP expressions and *kathe* NPs. I proposed that a quantificational concord parallel to the one proposed by Szabolcsi (2010), Kratzer (2005) but also (originally) by Ladusaw (1992, for NPIs) may apply to the above phenomena. The next evident step is to investigate any parallelism between (*o*) *kathe* NPs and other Greek indefinites, such as Negative Polarity items (NPIs) and *wh*-phrases. Considering that originally, the idea of quantificational concordance uses as its basis Ladusaw's (1992) treatment of NPIs (cf. Kratzer 2005), the next step is to visit Greek NPIs, expecting to find a similar quantificational concordance there. The discussion of any similarities between Greek NPIs / APIs and *wh*-quantification is only tentative here, in the spirit of discussing the broader implications and possible ramifications of the (*o*) *kathe* quantification theory put forth and it is by no means complete or conclusive.

With regards to Greek NPIs, let us first note that the negative counterpart to *all* and *kathenas* in Greek, strong universal NPI KANENAS, is distinguished by its existential weak counterpart, Affective Polarity Item (API) *kanenas* (Giannakidou 1998, 1999) through the means of focus, together with some differences in the environments that accommodate the two (roughly, Negation and interrogative contexts respectively, cf. Veloudis 1982, Tsimpli & Roussou 1996 as well as the notions of antiveridicality and non-veridicality in Giannakidou 1998 and subsequent works). In the following examples capital letters denote emphatic pronunciation:

- (15) a. KANENAS (*kanenas) den ipe TIPOTA (*tipota).
 Nobody (anybody) not said.3sg nothing (anything)
 "Nobody said anything."
 b. TIPOTA (*tipota) dhen ipe KANENAS (*kanenas).

- “Nobody said anything.”
- (16) a. Irthe kanenas / (*KANENAS)?
came.3sg kanenas (nobody)
“Did anyone come?”
- b. *KANENAS / kanenas irthe?
nobody / anyone came.3sg?
- c. (KANENAS) dhen irthe (KANENAS)?
(nobody) not came.3sg (nobody)?
“Is it true that nobody came?”
- (17) Na erthi kanenas (*KANENAS), na se dhi etsi.
prt come.3sg anyone (no one) prt you see.3sg thus
“Should anyone come and see you like this.”
- (18) a. Zitise tipota (*TIPOTA)?
ask.3sg tipota (nothing)
“Did s/he ask anything?”
- b. * TIPOTA / tipota zitise?
nothing / anything asked.3sg?
- c. TIPOTA / (*tipota) dhen zitise (tipota)?
nothing / anything not asked.3sg?
“He didn’t ask for anything?”
- (19) a. Dhen su ipa oti thelo tipota / kati (*TIPOTA).
not you told.1sg. that want.1sg anything / something (nothing)
“I didn’t tell you that I want anything / something.”
- b. *Kati dhen su ipa oti thelo.
something not you told.1sg that want.1sg
- c. TIPOTA (*tipota) dhen su ipa oti thelo.
nothing (anything) not you told.1sg that want.1sg.
“I told you that I want nothing.”

The examples (16), (17), and all of (18) indicate that Greek NPIs need *dhen*, an antiveridical⁶⁹ negative operator in order to appear in the sentence, in other words, in order to be licensed. The examples in (19) show that NPIs prefer a position before

⁶⁹ Cf. Chatzopoulou (2012) for non-veridical operator *mi(n)*.

dhen. Greek NPIs and APIs demand the presence of particular operators in order to be licensed in a sentence (cf. Giannakidou 1998) in the same way as FCIs do (cf. Giannakidou 2001, Vlachou 2007). Also, from the (16a, b), (17), (18a,b) (19a, b, c) sentences above it is evident that the positioning of the Affective Polarity Item, as well as emphatic stress, play a crucial role in the grammaticality of the sentences. It seems that the non-emphatic forms of the pronouns (the APIs) cannot be topicalized, raised, or occupy a position in the left periphery, in any case. A brief tentative syntactic explanation on the basis of the treatment of (*o*) *kathe* NPs presented here could provide an alternative explanation of the behavior of these elements. The explanation may go as follows: NPIs like the ones in (18) should be endowed with a negative (feature) specification and enter into an Agree relation with the Neg operator *dhen*, situated on a Neg head. As we observe in (18a) and (18c), as well as in (19a) and (19c), the NPIs prefer to appear (even when they occupy an object position) before *dhen*, unlike APIs which are banned in these positions, as (18b) and (19c) show. We can explain this syntactic behavior by postulating an EPP feature (in Chomsky's 2004 sense) on the Neg head occupied by the Negative Operator *dhen*. The EPP feature (or “*”, a diacritic according to Roberts & Roussou 2003) on a head demands that the Specifier of the Phrase be merged and spelled out (lexicalized) in that position (giving rise to the traditional Spec). The NPI then should move to Spec, NegP in order to satisfy the EPP feature and that is how its position higher than *dhen* should obtain. This also could explain the unavailability of APIs (e.g. *kanenas*) in this position⁷⁰, Spec, NegP. APIs are not specified as negative, so they cannot enter into an Agree relation with *dhen*. This must be related to the fact that, unlike *KANENAS* and NPIs, they cannot occupy Spec, NegP⁷¹ (18c, 19c).

Accordingly, APIs (Affective Polarity Items) such as in those in (16)-(19) should Agree with an interrogative, intensional, modal or non-veridical operator (as in Giannakidou 1998) and get quantificationally valued accordingly⁷². In both cases of

⁷⁰ The data in the previous Chapter indicated a preference for (*o*) *kathe* NP pre-verbal subject positions when the expression was rendered a universal reading. A possible explanation is that the Def Op is related to either a C* or (less often) to a v* specification.

⁷¹ I should note here that I view antiveridical NPIs such as *KANENAS* as related to Definiteness. The notion of Definiteness as invoked here has a lot in common with veridicality and antiveridicality whereas the kind and the FCI uses of *kathe* NP bears an analogy to nonveridicality (Giannakidou 1998). However, due to space limitations I leave further elaboration on these analogies to future research.

⁷² The analysis the present thesis proposes is in this way a syntactic account of the semantic phenomenon of licensing.

APIs-NPIs and *(o)kathe* NPs, there is definitely a correlation between definites, i.e. strong quantificational expressions merging or raising to the left periphery of the clause and indefinites, weak expressions merging or remaining in the domain of the verbal phrase. One explanation could be that the Neg Op, obligatorily for NPIs, while the Def Op optionally for *(o) kathe* (and possibly other) indefinites, implicate the presence of an EPP feature. In this case the indefinite could Agree with the Def Op and merge / raise at Spec,CP. Focus seems to be implicated with the different readings, with *KANENAS* / *kanenas*; this could probably also be true for *kathe* in its indefinite and definite interpretation; regardless of the fact that we do not provide a presentation or an account on that in this thesis, this is one point definitely worthing further investigation in the future.

Reviewing the discussion in this section, we observe that a Neg Op may be implicated in the Negative, definite, strong, quantificational reading of Greek NPIs. A parallel mechanism involving intensional and Modal Ops could be incriminated for the homonymous Greek weak APIs. Under the present view, APIs and NPIs are bound accordingly by different operators, or, in syntactic terms, Agree-ing with different sentential probes under C. So these elements are basically indefinites. The association of an inherently indefinite phrase with the (antiveridical and probably definite, under the present view) Neg Op is in the case of NPIs (Negative Polarity Items) marked by obligatory merging / raising to dC, due to, I propose, an obligatory Neg* (whereas for definite *(o) kathe* we may have C* as well as v*). Emphatic stress could be associated with the Def Op in this case⁷³. Giannakidou (1998, 1999) considers NPIs to be antiveridical, which (as in the parallelism drawn in Chapter 3) may be viewed as presuppositional and definite.

The parallelism doesn't end here for Greek. As underlined from the beginning, the Agree analysis proposed here is the one hinted at by Chomsky (2000) for in situ wh-questions and possibly for other long distance binding relations. A similar type of quantificational concord may be observed for *kathe* NPs and possibly for Greek NPIs and APIs as the above brief discussion tried to demonstrate. This quantificational concord looks similar to the quantificational concord attested in Greek wh-constructions: In Greek the wh-phrase may appear in situ or ex situ, depending on

⁷³ This must bear some relation to the fact that Focus, an operator that employs emphatic intonation, is presuppositional and definite; so in Greek there may be a relation between emphatic intonation and the presence of a Def op under C.

which head in the quantificational chain C, which hosts the operator, or v/V which hosts the variable (argument) position bears the diacritic of EPP (as in Roussou et al 2011, Vlachos 2012). Let us first observe the distinction between Echo Questions and Information Questions. Observe the following example from English:

- (20) a. I saw John.
 b. You saw WHO?
 c. WHO did you see?

Echo Questions (EQs, in situ and ex situ) such as the ones above are quantificational, presuppositional, anchored to a microdiscourse. In rough terms, this means that the entities the question involves are open, previously mentioned in the discourse. Wh-in situ Information Questions (IQs, see 21) exhibit the same properties, plus the extra feature that they do not require new information. Wh- ex situ IQs (22), on the other hand, require new information. They are non-quantificational, non-exhaustive and do not require a microdiscourse:

- (21) You saw who?
 (22) Who did you see?

EQs are distinguished by IQs from a distinct melody and this is depicted by the small caps notation. According to Roussou et al (2011) and Vlachos (2012), Greek EQs and IQs are related to different intonational patterns. This could possibly be related to the correlation we saw between strong, emphatic NPIs and weak, non-emphatic APIs but also to an aspect of the intonations related to (*o*) *kathe* NPs we only have the space to mention here. So another common point could be that quantificational and non-quantificational uses of the same phrase are differentiated by a distinct intonational pattern both for *kathe* NPs and wh-phrases alike.

As mentioned earlier, this could be viewed in parallel with APIS / NPIS emphasis vs. lack of emphasis phonetic cue: Different LF information seems to play a role in the disambiguation of readings with indefinite phrases. A particular intonational melody seems to be linked to presuppositional, strong uses of indefinites, which generally depend on higher operators for their quantificational denotation. This

is in fact very much in line with what Vlachos (2012) proposes for Greek wh-phrases⁷⁴.

Vlachos (ibid.) also argues for a parallel between wh-questions in Greek and wh-questions in Chinese and Japanese. In Chinese, Vlachos claims, the Question operator and argument position are visible in syntax. *Ne* is the overt question operator Q that appears in C, the counterpart of the covert Q operator that appears under C in Greek and English (from Cheung 2008: 20: 25a):

- (23) Ni xihuan shei (ne)?
 you like who Q
 “Who do you like?”

Roussou et al (2012) and Vlachos (ibid.) show that wh-phrases in Greek appear either in the operator or in the variable position of an Agree chain. In the previous sections we observed a parallel between Chinese and Japanese *every* expressions and their Greek counterparts: In Chinese and Japanese we have an overt particle in the C domain in the operator position, interacting with indefinite expressions and providing them with quantificational content. Despite the fact that Greek has distinct lexical items for different uses and that *kathe* is specified as a distributive, there is a slight similarity with the quantificational concordance argued here for Greek *kathe* (and possibly, English *every*); another important difference is that the Def (or Gen) Op in C is covert. I am not sure whether we can say that (*o*) *kathe* NPs and wh-phrases in Greek show some parallelism to the corresponding phrases in Chinese and Japanese, but there is definitely some resemblance that should be noted here.

My findings on (*o*)*kathe* NP quantification co-align with Vlachos’ (2012) conclusions on Greek wh-questions: (*O*) *kathe* NPs are part of a quantificational chain whose operator is invisible in Greek (since there is no “abstract” overt Def operator as such) but visible, overt in Chinese, pretty much as it happens with wh-phrases. The *kathe* NP may appear in either the operator position in C or in the variable position in V, depending on the presence of the EPP diacritic-direction for lexicalization. From this respect, Greek *kathe* NPs and wh-phrases are subdued to the same mechanism,

⁷⁴ One interpretation of Vlachos’ (2012) findings I suggest here relevant to my case is that the in-situ IQs are presuppositional as well as melodically “stressed”, in the sense that they carry the intonational melody, which in wh-ex-situ IQs spreads all over the sentence, condensed on their wh-word.

and a similar situation, in my opinion, could be proven to apply to the Greek NPIs and APIs we saw above.

Moreover, in the above analysis, the quantificational uses of *wh*-phrases, namely *ex-* and *in-situ* Echo Questions as well as *in-situ* Information Questions require a microdiscourse, they are thus in a way presuppositional, already present as alternatives in the context. In this sense, Quantification seems to be related to some kind of microdiscourse presuppositionality. My analysis of *(o) kathe* NPs wholeheartedly converges with this proposal.

5.7 Summary

In this Chapter we viewed previous analyses of Japanese and Chinese “indeterminate pronouns” under the lense of quantificational dependency, the major theoretical position advocated hereby. It comes out that these expressions, especially in Kratzer & Shimoyama’s (2002) and Shimoyama’s (2006) Hamblin semantics account, as well as in Giannakidou & Cheng’s (2006) and Cheng’s (2009) accounts, exhibit an interesting similarity with the *(o) kathe* NP expressions, as they appear to receive their quantificational content from interacting with a sentential operator. In other words, they exhibit quantificational concord. The dependencies formed between Greek *wh*-words and the Q operator, as well as the ones between Greek NPIs and Negation, APIs and Polarity were also briefly investigated under the same light. The discussion pointed out that in the above cases we have a class of indefinites that are likely to contribute a context set variable available for binding to the first neighboring operator in the same way *(o) kathe* NPs do. Each different indefinite⁷⁵ seems to be endowed with an additional particular feature, relative to their lexical semantics and to the operator they form a dependency with: for *(o) kathe* NPs, the latter feature is Distributivity, for *wh*- phrases it is a *wh*- feature, for NPI and APIs it could probably be an antiveridical and a nonveridical feature, respectively, which concords with the appropriate sentential operator in domain C (cf. Chatzopoulou 2012 for a Non-Veridical projection in syntax). In this sense, all the indefinite expressions in Greek could be viewed as succumbing to a mechanism that provides them with their specific quantificational denotation each time. This mechanism seems to be very similar to the Agree / Quantification mechanism for the case of *(o) kathe* NPs (cf. Vlachos 2012 for

⁷⁵ Under this view, “indefinites” are in fact “defined” for a particular feature, remaining, nevertheless, inherently “not-definite”.

an Agree account of Greek wh-phrases.) It seems probable that the same mechanism could regulate Greek NPIs and APIs as well. This of course remains to be investigated⁷⁶.

⁷⁶ If this is proven to be a valid stipulation, then we can talk about a consistent strategy applied throughout the whole spectrum of Quantification in Modern Greek and possibly in other languages.

Chapter 6: That was *everything*

The discussion focused on the syntax and semantics of Greek *(o) kathe* NP subjects. The “traditional” school of thought in generative grammar regards items such as *every* and *kathe* as encompassing a Universal operator. Under this view, the expressions involving these items should be expected to exhibit quantificational and interpretative uniformity. However, this is not the case, as a thorough examination of *(o)kathe* NP as well as *every* NP data has demonstrated. The quantificational variability these expressions manifest is hereby cast in terms of their inherent / default indefinite nature and as a result of their quantificational dependency on different sentential operators.

In the present thesis I proposed that the notion of universality breaks down in two notions: Distributivity and Definiteness. One of the major claims this thesis puts forth is that Greek *(o) kathe* NPs do not lexicalize the universal quantifier as such. This means that the determiner *kathe* does not introduce a universal operator in the semantics of the clause or LF. What *kathe* does lexicalize and does introduce in the semantics is a distributive feature, which Agrees with an independent Distributive operator in the C domain. *Kathe* is, in other words, an indefinite determiner specified for Distributivity; it encodes referential variability which in simple terms is a notion comparable to plurality. Apart from that, its context set variable may be bound by whichever operator may be in its direct proximity: Mainly referring to *(o)kathe* NPs in subject positions, I proposed that the context set variable the NP introduces, as well as the event argument *e* (as in Davidson 1967 and subsequent literature) and time variable *t* the VP and TP introduce may be bound by the Def and Gen operators⁷⁷.

Under the above assumptions, when the context set variable of a subject *kathe* NP is bound by the Generic operator, we have a kind interpretation for the QP in question. In this case the QP occupies Spec, TP (possibly due to a T*). When there is a modal operator present, the context set variable of the *(o)kathe* NP falls prey to it, assuming that existential closure also applies. In this case the expression usually

⁷⁷ Note here that we may assume a direct Merge of the indefinite in the position it appears at PF, following Roussou & Tsimpli (2006), Manzini & Roussou (2000) among others. A consequence of this assumption is that the need for postulating movement or Internal Merge is made redundant.

occupies Spec, vP. The Dist Op introduced by *(o)kathe* only binds the variables of the elements of the set (element variables) as Beghelli & Stowell (1997) propose. Thus, one can say that the Dist Op functions in the same way as plural number does, specifying the NP restriction for number but without providing a value for its context set variable. This in other words means that *kathe* NPs do not behave as Generalized Quantifiers on their own right. The context set variable has to be bound by an operator that will give the expression this kind of function, an operator higher up in the structure.

Anyway, when the context set variable of *kathe*'s restriction is bound by a Definiteness quantifier, a Universal reading for the expression arises. It also seems that this operator, apart from making the set of entities specific, it makes the situation or situations described by the TP/ vP Share or the event operator specific as well (the time and place of situations, properties referred to are specific / definite). So we also see a concordance between TP/vP and DPs. Furthermore, the discussion has indicated that Greek *o*, *i*, *to* NPs can also be bound by the same Definiteness operator or alternatively by a Generic operator, with the determiner occupying different positions within a DP2 structure, thus explaining the real definite uses of these expressions from the "expletive" (in Longobardi's 1994 terms), not real definite ones.

So the major claim this thesis defends is that uniform Universal quantification is an idealization under the influence of predicate logic that does not exist in the syntax as such -at least in the case of Greek and probably, as discussed, in English and other languages. Definiteness together with Distributivity are the grammatical notions that seem to be implicated in the composite phenomenon that we characterize as universal quantification in natural language, instead.

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