

Bare Number*

Theodora Alexopoulou Raffaella Folli
University of Cambridge University of Ulster

George Tsoulas
University of York

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1 Introduction

The last 15 years have seen a resurgence of studies on the structure and interpretation of bare nominals, partly in the wake of Chierchia’s seminal 1998 paper *Reference to Kinds across Languages*. Within his framework, Chierchia proposes the existence of a semantic parameter, the Nominal Mapping Parameter (NMP) that governs the distribution of bare nouns across languages and explains to a significant degree the correlations between the *bare* form and its denotations. The NMP is formulated in terms of the possible combinations of two binary features $[\pm\text{pred}]$, $[\pm\text{arg}]$. If the parameter is set to $[+\text{pred}, -\text{arg}]$ A positive specification of the former feature means that lexical nouns in the language have predicative (property, type $\langle e, t \rangle$) denotations, and as a result cannot be used bare in argument position. To appear as arguments, nouns in these languages must be accompanied by argumentizing functional structure, typically a D (type: $\langle \langle e, t \rangle, e \rangle$ or $\langle \langle e, t \rangle, \langle \langle e, t \rangle, t \rangle \rangle$ as the case may be). An example of such a language is French where bare arguments are altogether disallowed:

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- (1) *Cuisiniers ont maltraité Ganelon
Cooks have mistreated Ganelon
Cooks have mistreated Ganelon

Conversely, languages of the [-pred, +arg] type, do not require argumentizing functional structure and their bare NPs can serve as arguments referring typically to kinds (type $\langle e \rangle$). Typical examples of such languages are Chinese, Japanese, Korean etc.

A language may also choose a positive specification for both attributes [+pred, +arg]. This is the case of English where bare arguments can occur only if they are plural or mass but otherwise will require a determiner in order to appear in argument position.¹

All the different types of language given above have been extensively studied. In this paper we will be focusing on languages of the [+pred, -arg] type. Under this category, the Romance languages have figured most prominently. A significant observation regarding at least some of the languages in this category is that despite what the general setting [+pred, -arg] entails, we do observe bare arguments in certain structural positions. The positions in question are on the one hand those which, using technical vocabulary corresponding to GB assumptions, are lexically governed (i.e. complement to a verb or preposition), and, on the other, positions associated with specific information structural notions. The literature on e.g. Italian or Spanish has converged on the idea that these languages have in their inventory of determiners or D-like elements, a phonologically null element which is used in these cases. The strict syntactic conditions correspond to the requirement for the null element to be *identified*. Whether or not a language has a null D seems to escape principled explanation at least insofar as the NMP is concerned. Italian and Spanish have it, French doesn't. Despite the focus on the status and availability of a null D, one theoretical possibility that has remained under-explored is that languages with (some) bare arguments which *lack* a null D may use other functional structure to achieve the same effect as a null D. Here is a little thought experiment. Imagine a language, call it *Freek* which uses bare arguments fairly liberally, to wit more than Italian, i.e. not only in the designated lexically governed positions, but, like French, it can be shown not to have a null D. Imagine also that *Freek* allows both bare singular and plural arguments. A question that immediately arises in the context of the classification given by the NMP is *where does Freek belong to?* Clearly, it is not a [-pred,+arg] language. Nouns in *Freek*

¹A language that would choose [-pred, -arg] as its setting would not be able to use nominal arguments at all. This possibility has generally been excluded from study.

are not all mass and it doesn't have a developed classifier system. *Freek* must be either [+pred, +arg] or [+pred, -arg]. Taking a narrow view of the NMP we must reject the possibility of filing *Freek* together with English as a [+pred, +arg] language since it allows bare singular arguments as well as bare plurals. Regarding the second possibility, i.e. that *Freek* is a [+pred, -arg] language, it would appear that taking a *very* narrow view of the NMP, we would also have to rule out this possibility too since, by assumption, *Freek* lacks a null D. What to do? It seems that there are three possibilities:

- A. *Freek* does not, and crucially **can not**, actually exist. It is an impossible language.
- B. The [+pred, +arg] setting must be sub-parametrised so as to allow:
 - (a) the $N \rightarrow \text{Pred}$ mapping to yield non-count nouns.
 - (b) The \cap operator must also be defined for singulars.
- C. Recognise as a possible exponent of the [+pred, -arg] setting, a case where the projected argumentizing structure is different than D.

Granting us, for the purposes of the thought experiment, that (A) should be set aside, it seems to us that option (C) is the most attractive one. There is indeed nothing in the system that disallows lexical variation of this type. It is, for all useful intents and purposes, on a par with saying that a language may or may not have a null D. In the same way, in fact, nothing prevents, in principle, a language from having (alongside D) a category, Ω , which partakes in the functions of D while also performing other syntactic semantic functions (after all Ds have other meanings apart for type shifting a property to an argument). Option (B) can be pursued to get the facts right and we could probably claim descriptive success in the process, but the deeper reasons for the variation will elude us unless a specific and systematic property of *Freek* that accounts for this behaviour is found.

But does *Freek* actually exist? In the rest of this paper we will show that Greek is in fact very close if not identical to *Freek*. We will do this by zooming in on a cluster of properties that find a natural explanation if we assume that Greek, like *Freek*, is a [+pred, -arg] language, has no null D, and the argumentizing function of D can also be fulfilled by Num^0 , the head of NumberP.

The rest of the paper is organised as follows. In section 2 we make the empirical case that Greek does indeed have the properties mentioned above. We present a number of striking empirical contrasts between Greek and

Italian, both [+pred,-arg] languages, that point to variation in their nominal syntax with regard to the argumentizing head.² We also show how a number of different but related properties cluster around the status of the argumentizing head. Having established that Greek is both similar to Italian in that it is in the [+pred, -arg] category, but different in the availability of a null D, we then show that Number in Greek is a semantically active category in all cases. We show this by comparing Greek morphologically number marked nouns to those of other languages and show that the Greek cases never show number neutrality properties. We then flesh out an analysis of number in Greek that captures its unexpected semantic properties and provides semantic content to its role as an argumentizing head. We present our analysis in section 3. In the closing sections we offer some speculative remarks on the nature of the Nominal Mapping Parameter and suggest that it may be reformulated in terms of the specifications of the Number head. Section 5 Concludes the paper.

2 The empirical picture

Our first task is to show that Greek, like our imaginary *Freek*, indeed lacks a null D. We take it as given that Italian does have a null D (Longobardi 1994) *et seq.* . Our strategy consists in comparing Greek and Italian with respect to a range of phenomena that can be reasonably taken to indicate the presence of a null D.

In a study on the internal structure of nominals in connection with topic strategies in Greek and Italian, Alexopoulou and Folli (2011) document a number of differences between the two languages which are unexpected if Greek and Italian were simply to be seen as [+pred,-arg] languages. The findings of that paper are particularly relevant to our purposes here and we summarise them below. We begin by considering left dislocation structures where the topic is an indefinite. Crucially, while the two languages standardly use Clitic Left Dislocation CLLD as the main syntactic strategy for encoding topics (Philippaki-Warbuton 1985; Cinque 1990; Rizzi 1997; Anagnostopoulou 1994; Tsimpli 1995; Alexopoulou and Kolliakou 2002),

²There is a vast literature on nominal syntax comprehensively reviewed and discussed by Alexiadou, Haegeman, and Stavrou (2007). The nominalising/argumentizing role of D in Italian has been debated by Longobardi (1994), Chierchia (1998) and Giusti (1993). We here restrict discussion to bare nouns in Greek and do not discuss the analysis of the Greek definite article which has been a matter of debate in the Greek literature, see for instance, among many others, Horrocks and Stavrou (1987), Androutsopoulou (1994), Kolliakou (2003), Panagiotidis (2002).

they differ when the topic is indefinite:

- (2) a. Una segretaria *(la)-trovi facilmente/ prima o poi una
 A secretary her.CL-find easily/ sooner or later a
 segretaria *(la)-trovi
 secretary her.find
 A secretary, you will find her easily/ sooner or later you will find
 her
- b. Gramatea tha (*ti) vrite sicura
 Secretary will her.CL find-2PL certainly
 A secretary you will find her certainly.

The examples in (2) show that in Italian CLLD can be used with indefinite topics and that, just like for definite topics, the dislocated element is a DP and it is resumed by the pronominal clitic *la*. In contrast, in Greek we see a case of Topicalisation where the topic is bare and the comment cannot contain the clitic *ti*. The scopal properties of indefinite topics also differ between the two languages: Greek CLLD-ed indefinites resist the *opaque* or *de dicto* reading (Iatridou 1995; Alexopoulou and Kolliakou 2002):

- (3) a. mia kokini fusta tin psahno edho ke meres
 a red skirt it look-for-1SG here and days
 I've been looking for a red skirt for a few days ...
- b. ≠ke de boro na vro kamia pu na
 and not can-1SG SUBJ find-1SG none that SUBJ
 m'aresi
 me-please-3SG
 ... and I cannot find any that I like.
- c. ke de boro na thimitho pu tin eho
 and not can-1SG SUBJ remember-1SG where her.CL have-1SG
 vali
 put
 ... and cannot remember where I put it. (Alexopoulou and Kolliakou 2002)

In Italian, on the other hand, the corresponding example in (4-a) is ambiguous and can, therefore, have both (4-b) and (4-c) as a possible continuation:

- (4) a. una gonna rossa la cerco da un po'
 a red skirt her.CL look-for-1SG for a while

- A red skirt I've been looking for for a while...
- b. ma non ne ho trovata nessuna che mi
 but not of-them.CL have-1SG found none-FEM that me
 piaccia
 please-3SG.SUBJ
 ... but have not found anyone that I like.
- c. ma non riesco a ricordarmi dove l'ho messa
 but not reach-1SG to remember where her.CL-have-1SG put
 ... but I cannot remember where I've put it.

Thus, we can draw a preliminary conclusion here and say that while CLLD is employed in both Greek and Italian to encode discourse topics, Italian encodes topics exclusively by means of CLLD, irrespective of "referentiality/specificity", whereas Greek employs Topicalisation for non-referential topics as in (5):

- (5) a. Fetos i moda ine apesia; idika i bluzes ine
 this-year the fashion is awful; especially the blouses are
 aparadektes
 outrageous
 I hate this year's fashion; the blouses are especially outrageous.
- b. mia kokini bluzza psahno edo ki ena mina ke de
 a red blouse look-for-1SG here and one month and not
 boro na vro puthena kamia pu na m'aresi
 can SUBJ find-1SG anywhere anyone that SUBJ me-like-3SG
 A red blouse I've been looking for for a month now and I cannot
 find one that I like.

These examples are important as they highlight two crucial differences between the two languages in these structures: Greek, unlike Italian, uses bare nouns where a nominal has a weak indefinite reading; Greek has a gap where Italian has an obligatory clitic pronoun. We interpret this type of data as showing that if Greek does not employ the, otherwise available, clitic which is categorially a D, this is because the moved constituent is not a DP headed by a null D.

Furthermore, these differences can be taken as a starting point to uncover further related contrasts in the two languages. Alexopoulou and Folli (2011) single out the availability of Indefinite Argument Drop (IAD), Bare Subnominal Deletion (BSD) and the distribution of Bare Nouns more generally as the relevant related facts. With respect to IAD, in Greek the possibility to drop an indefinite argument is not restricted to the CLLD cases discussed

above, but it's available also in examples of intransentential anaphora, as observed by Dimitriadis (1994), (see also Giannakidou and Merchant 1997, Tsimpli and Papadopoulou 2005 and Panagiotidis 2002):

- (6) a. A:vrike dada I Maria? B:ne, (*ti) vrike
 Q:found-3SG nanny the-NOM Maria A:yes, (*her) found-3SG
 Has Maria found a nanny? Yes, she found.
- b. o Yanis psahni idravliko alla dhe (*ton) vriski
 the-nom Yanis look-for-3sg plumber but not (him) find-3sg
 puthena
 anywhere
 Yanis is looking for a plumber but cannot find one anywhere.

Furthermore, Indefinite Argument Drop is also available with subjects in Greek³(Giannakidou and Merchant 1997):

- (7) a. A:irthe kanis? B:ne irthe
 A:came-3SG anyone? B:yes, came-3SG
- b. A:tilefonisan fitites? B:ne telefonisan
 A:phoned-3PL students? B:yes, phoned-3PL

Interestingly, IAD is unavailable in Italian: in (8) *lo* has to be present and in (9) *qualcuno* cannot be dropped.

- (8) Gianni sta cercando un idraulico ma non lo trova
 Gianni is looking-for a plumber but not him.CL find-3SG
 Gianni is looking for a plumber but cannot find one.
- (9) A:Ha telefonato qualcuno B:Si, qualcuno ha telefonato
 A:Has phoned someone B:Yes, someone has phoned

Alexopoulou and Folli (2011) further relate the CLLD facts with cases of sub-nominal deletion. These are contexts involving again intrasentential anaphora where the nominal has been elided. Consider the Italian example in (10) where the elided nominal is introduced by the indefinite article (note that the article *un* has mutated into *uno*, a fact which has been analysed as a combination of the indefinite and a classifier *o* by Alexiadou and Gengel (2008)).

³Some context is needed for the exchange in (7-b). For instance, if a new helpline is set up in a university, available to faculty, students and the general public, but what is of interest is if students specifically use it, then (7-b) can be a felicitous exchange.

- (10) A:Vorrei un tavolo grande B:Mi spiace. Non **lo**
 A:would-like-1sg a table big B:Me displeases-3SG. Not it
 abbiamo, **uno grande**
 have-1PL, a big
 I would like to buy a big table. I'm sorry. We do not have a big one.
 (From Alexiadou and Gengel 2008, attributed to V.Samek-Lodovici)

Compare now (10) with its Greek counterpart in (11). As in Italian, the noun is elided, but in Greek the adjective alone is enough; there is no element heading the nominal and, in addition, there is no doubling. All we have is a bare adjective holding the place of a nominal object.

- (11) a. thelo afti ti fusta se kitrino
 want-1sg this the skirt in yellow
 I would like this skirt in yellow.
 b. Distihos dhen eho kitrini. (Mono
 unfortunately not have-1sg yellow-fem.sg (Only
 mavres mu ehun mini)
 black-fem.pl me have-3pl left)
 Unfortunately I don't have a yellow one. (Only black ones are
 left).

Again these data point to a categorial difference between the nominals of the two languages.

Finally, and most importantly for the present paper, the distribution of bare nouns turns out to be crucial. It is well known that bare nouns are licit in very restricted positions in Italian, roughly in governed positions (objects) and focalised positions (Benincà 1980; Longobardi 1994; Chierchia 1998).⁴ Equally crucially, when available they never receive a kind interpretation.

- (12) a. Non c'era studente in giro
 there wasn't student around
 b. ACQUA ho preso dalla sorgente
 WATER I took from the spring
 (Longobardi 1994)

On the other hand, in Greek the distribution of bare nouns turns out to be much more liberal as they can be found both in preverbal and postverbal subject positions as well as in object position as shown in (13). As we shall see though in section 2.4, their distribution is crucially different from English

⁴See also the introduction.

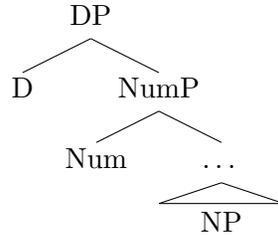
in that Greek bare nouns generally, but not entirely, resist kind readings, for which the definite article is systematically employed, as in Italian.

- (13) a. i Maria vrike dada gia ta pedhia
 the-NOM Maria found nanny for the children
 Maria found a nanny for the children.
- b. mpikan kleftes ke sikosan ta pada
 broke-in-3PL burglars and lifted-3PL the all
 Burglars broke in and took everything.
- c. diadilotes pirpolisan magazia ke aftokinita stus
 demonstrators set-on-fire shops and cars in-the
 dromus yiro apo to Politehnio
 streets around from the Politehnio
 Demonstrators set on fire shops and cars in the streets around
 the School of Engineering.
- (14) hithike kراسi (sto aspro trapezomadilo)
 got-spilled-3SG wine (on-the white tablecloth)
 Wine got spill on the white tablecloth.

The first conclusion that the data lead to is that the difference between Greek and Italian can be tied to the fact that nominal arguments in the two languages must obey different constraints in terms of their categorial status. Indeed Alexopoulou and Folli suggest that while Italian requires nominal arguments to be DPs, Greek makes do with Number Phrases. Empirically, this is strong evidence in favour of option C above, with Number as the relevant functional element.

Before turning our attention to the distribution of bare nouns in Greek it is appropriate for us to clarify our assumptions about the status of NumP in the functional spine of nominals. The crucial assumption that we make is that part of the nominal structure accompanying nominals is NumP. This is a reasonable assumption that has been suggested and argued for in numerous places following its original introduction in (Ritter 1991; Ritter 1993; Carstens 1991), see Harbour (2007) and references therein for more details. Thus the general DP structure that we assume looks roughly like this:

(15)



Where “...” stands for other potential functional structure such as ClassP and so on.⁵ There are of course numerous issues regarding the order of the different projections etc. We will, however, gloss over these issues as they are for the most part orthogonal to the issues addressed in the present work. Our proposal pertains solely to the possibility of endowing Num with features and functions similar to those of D in the relevant contexts and languages. We do not claim that if Num can do the work of D then D is surplus to requirements in any sense. Simply that in certain cases Num alone will suffice.

Let us now turn to the distribution of bare nouns in Greek.

2.1 Bare Nouns in Greek

If Number is indeed an argumentiser in Greek, then the first thing we need to establish is that bare nouns in Greek cannot be anything *less* than a NumP. This entails that there cannot be nouns without number, that NumPs behave like all other (non-bare) arguments and, third, that bare nominals are not number neutral at least on the natural assumption that number is semantically contentful. The first claim is easy to establish since there is indeed no possibility for a true noun in Greek to appear without number inflection.⁶ Regarding the second claim, they do appear indistinguishable from non-bare nominal arguments. From a morphosyntactic point of view, bare nominals are morphologically marked for case, gender and number just like any other argument. Furthermore, they can be left dislocated as in (16-a), undergo (focus-)movement (16-b) or be passivised (16-c).

- (16) a. danio, kserume pia trapeza tha mas dosi
 loan, know-1PL which bank will us give-3SG

⁵Note that under option C that we pursue here, in principle *any* head in “...” may fulfil the argumentizing function. The question is, of course, primarily empirical but there may be good conceptual reasons to restrict it to Num and D. We will return briefly to this question at the end of the paper.

⁶Unsurprisingly perhaps, nominalised adverbs do not inflect for number (*to htes*=the yesterday).

- A loan, we know which bank will give it to us.
- b. GAMO theli, ohi tsilimpurdismata
marriage want-3SG not affairs
S/he's after marriage, not affairs.
 - c. plastes taftotites ekdothikan mono stin Katohi
fake identity-cards were-issued only in-the Occupation
(ohi ston emfilio)
(not in-the civil-war)
Fake identity cards were issued only during the Occupation
period (not during the Civil war).

Turning to the modification patterns displayed by bare nouns, again we find that bare nouns can be modified like their non-bare counterparts.

- (17) a. agorase akrivo aftokinito
bought-3SG expensive car
She bought an expensive car.
- b. theli dada me ptihio
want-3SG baby-sitter with degree
She wants a babysitter with a degree.
- c. KALOS yatros ton exetase (min
good-NOM doctor-NOM CLHIM examined-3SG (not
anisihis)
worry-2SG)
A good doctor examined him, don't worry.

The evidence so far indicates that there is no discernible difference between bare and non bare nominal arguments beyond the fact that bare nominals lack a determiner. Let us now turn to the issue of number neutrality.

2.2 Number neutrality

Number neutrality entails compatibility with both atomic (singular) and plural interpretations (Farkas and de Swarts 2003; Espinal 2010). Greek bare singulars as in (18-a) and (18-c) are compatible only with an atomic reading.

- (18) a. dhiavase efimeridha
read-3SG newspaper
S/he read a newspaper. (*Reading of one newspaper*)

- b. dhiavase efimeridhes
read-3SG newspapers
She read newspapers. (*Reading of more than one newspapers*)
- c. mazevi *gramatosim-o/gramatosim-a
gather-3SG stamp-SG/stamps-PL
She collects stamps.

Furthermore, Greek bare singulars cannot license plural interpretations in (19) and (20) (adapted from Espinal 2010, ex.4a for Greek).

- (19) psahno aftokinito; ≠ ena mikro gia tin poli ki ena
look-for-1SG car; ≠ one small for the city and one
fortighaki ya ekdromes
van for trips
I'm looking for a car. ≠ a small one for the city and a van for trips.

Finally, unlike Catalan (20), Greek bare nouns are compatible both with qualitative and descriptive adjectives as well as classifying ones (21). Examples like (21-b) and (21-c) show that such nominals denote individuals, a possibility unavailable in Catalan.

- (20) a. Per a aquest espectacle necessitareu faldilla llarga/escocesa/
for to this event need-FUT skirt long/kilt/plaid
de quadres

For this event you will need a long skirt/a kilt/ a plaid skirt.
b. *Necessiten faldilla feta a Singapur/neta
need skirt made in Singapore/clean
c. *Té parella alta/malalta
has parner tall/ill

(From Espinal 2010, ex.8,9)

- (21) a. tha hriastite makria/skotzesiki/plise fusta
will need-2PL long/scotish/plaid skirt
You will need a long skirt/a kilt/a plaid skirt.
b. tha hriastite fusta rameni stin India/kathari fusta
will need-2PL skirt sewn in-the India/clean skirt
You will need a skirt sewn in India/ a clean skirt.
c. ehi arosto pedhi/ehi psilo gkomeno
has ill child/has tall boyfriend
S/he has an ill child/a tall boyfriend.

Clearly, then, Greek bare nouns do not display the strong version of number neutrality that Catalan shows. We note however that Greek plurals have readings that weaker than explicitly indicating that $|X| \geq 2$. Sauerland, Anderssen, and Yatsushiro (2005) observe that the (a) sentence in (22) does not mean the same thing as the (b) sentence:

- (22) a. You are welcome to bring your children
 b. You are welcome to bring your *more than two* children

Greek shows the same pattern:

- (23) a. Borite na ferete ta pedia sas
 can-2pl subj bring-2pl the children yours
 You may bring your children
 b. Borite na ferete ta perissotera apo dio pedia sas
 can-2pl subj bring-2pl the more from two children yours
 You may bring your more than two children

What these examples really show is that the meaning of plurality that is captured by the notion of referential cardinality can be pragmatically defeated. In part this is also what Sauerland, Anderssen, and Yatsushiro (2005) conclude. We return to the analysis of such patterns in section 3.

2.3 Scopal properties of bare nouns in Greek

We now turn to the scopal properties of Greek bare nominals. Unsurprisingly, Greek bare nouns demonstrate the scopal inertia standardly exhibited by their crosslinguistic counterparts (Carlson 1977; Carlson 1980; Chierchia 1998; Farkas and de Swarts 2003). Their scopally inert status is manifested more clearly first in opaque contexts:

- (24) a. i Maria theli na padrefti Italo
 the-NOM Maria want-3SG SUBJ marry-3SG Italian
 Maria wants to marry an Italian. (*only opaque reading*)
 b. i Maria theli na padrefti **enan** Italo
 the-NOM Maria want-3SG SUBJ marry-3SG one-ACC Italian
 Maria wants to marry an Italian. (*ambiguous*)
- (25) a. i Maria theli n'agorasi fusta tu Armani
 the-NOM Maria wants SUBJ-buy-3SG skirt the-GEN Armani
 Maria wants to buy an Armani skirt. (*only opaque*)
 b. i Maria theli n'agorasi **mia** fusta tu
 the-NOM Maria wants SUBJ-buy-3SG **one** skirt the-GEN

Armani
 Armani
 Maria wants to buy an Armani skirt. (*3-way ambiguous*)

Second, in their lack of scopal interaction with universal quantifiers, bare nominals do not take scope over the universal (26-a), in contrast to their counterparts which are accompanied by an indefinite determiner (26-b); (see Farkas and de Swarts 2001 for similar facts in Hungarian).

- (26) a. kathe episkeptis diavase efimeridha/efimeridhes
 each visitor read-3SG newspaper-SG/newspapers-PL
 Each visitor read a newspaper/newspapers. *Only* $\forall > \exists$
- b. kathe episkeptis diavase mia efimeridha/kapies
 each visitor read one newspaper-SG/some
 efimeridhes
 newspapers-PL
 Each visitor read a newspaper/some newspaper. $\forall > \exists$ or $\exists > \forall$

Similar facts can be observed with negation like in English (Chierchia 1998).

- (27) a. dhen idhe rogmestavani
 not saw-3SG cracks in-the ceiling
 S/he didn't see cracks in the ceiling. *Only* $\neg > \exists$
- b. den idhe miakuvastrodromo
 not saw-3SG a hole in-the street
 S/he didn't see a hole in the street. $\exists > \neg$ or $? \neg > \exists$
- c. den idhe lakuvastrodromo
 not saw-3SG hole in-the street
 S/he didn't see a hole in the street. *Only* $\neg > \exists$

In sum then, Greek bare nouns exhibit the scopal inertia typical of bare nominals crosslinguistically (Farkas and de Swarts 2003). The question is whether this scopal inertia is due to the syntax of these nominals, their *bareness*, or their semantics, the denotation of such bare nouns. The syntactic explanation amounts to saying that NumP just lacks quantificational force that can interact scopally with operators/quantifiers. The semantic explanation can be cast either in Carlson's view of kinds: bare nouns are directly mapped to arguments and denote kinds. Kinds are names. Names, be kinds or ordinary proper names, do not interact with semantic operators/quantifiers scopally. Chierchia (1998) has a different way of deriving

scopelessness which turns basically on two elements. First, he assumes with Fox (1995) that scope shifting operations are constrained by economy considerations and they do not apply unless they produce a different interpretation. Second, scope shifting operations being movement operations leave behind traces/copies and the natural assumption regarding the type of the trace/copy that a DP leaves behind is that it is the same as the one of the moved constituent itself. Given that kind-denoting nominals leave behind kind-level traces, the interpretation that is assigned to a sentence turns out to be the same either in the movement or the in situ case, as a result there is no scope shifting taking place.⁷

One immediate challenge for the semantic analysis is the fact that Greek systematically employs the definite article for direct reference to kinds. We turn to reference to kinds next.

2.4 Reference to Kinds in Greek

As seen in the previous section, Greek makes fairly liberal use of bare nominal arguments. However, as pointed out originally by Roussou and Tsimpli (1994), bare plurals cannot in general be used for reference to established kinds as indicated by the unavailability of the kind reading in (28-c).⁸

- (28) a. $i/*\emptyset$ *dinosavri* *ehun* *eksafanisti*
the-NOM/ $*\emptyset$ dinosaurs-NOM have-3PL disappeared
Dinosaurs are extinct. (bare nominal ungrammatical under the *kind* reading)
- b. $ta/*\emptyset$ *skilia* *ine* *katikidhia* *zoa*
the/ $*\emptyset$ dogs are domestic animals
Dogs are domestic animals.
- c. $?dinosavri$ *ehun* *eksafanisti*
dinosaurs-NOM have-3PL disappeared
Dinosaurs have disappeared (bare nominal possible only under the existential reading).

The question raised by (28) is what prevents bare nouns in Greek to refer to kinds in a general way. If, under our hypothesis, Number is the

⁷For the technical explanation, we refer the reader to Chierchia (1998), pp. 368-369.

⁸The empirical content of the notion of *established kind* is in fact unclear. Dobrovie-Sorin and de Oliveira (2007) suggest that in fact it is altogether dispensable as it follows from the need for a taxonomy in order to establish kinds anyway. Note also that Greek has no predicate that means "extinct"; the closest is "disappear" which can accept kinds and existential indefinites as subjects.

argumentizing head in Greek, why is it that Number Phrases cannot support direct kind reference? This is a striking difference between Greek and English bare nominals, which *can* be used for direct kind reference (when plural).

Note, however that, under certain circumstances bare plurals can be used to denote kinds despite the general preference to employ the definite article. Consider the following examples involving coordinated nouns:

- (29) a. Dinosavri ke tiranosavri ehoun eksafanisti
 dinosaurs-NOM and tyrannosaurs-NOM have-3PL disappeared
 edo kai ekatomiria xronia
 here and millions years
 Dinosaurs and Tyrannosaurs have disappeared millions of years
 ago.
- b. (Karharies kai) falenes spanizoun sto Saroniko
 (sharks-NOM and) whales-NOM are-rare in-the Saronic
 Sharks and whales are rare in the Saronic gulf.

It is known that coordination can render grammatical bare nouns that are otherwise unavailable. For instance, Heycock and Zamparelli (2003) show that bare singulars are allowed in English when coordinated and so are coordinated bare nouns in French (which generally bans bare nouns). A crucial property of such nouns is that, though bare, they have a definite interpretation. To account for this, Heycock and Zamparelli (2003) propose that the coordinated nouns move as a unit (CoorP), to the specifier of a DP with a null head. An analysis of (29-a) in this spirit would involve a null D hosting the co-ordinate bare nouns; in Spec, D the co-ordinated nouns would acquire a definite meaning and, as a result, refer to kinds, *by proxy*. Postulating a null D in Greek to account for (29) would need some motivation beyond examples like (29-a). More importantly, co-ordination is not always obligatory for the licensing of bare nouns with kind readings. The bare noun in (29-b) is possible even without co-ordination. In addition, bare plurals in object position can also have kind readings as in (30):

- (30) O Kostas meleta karkinous
 the Kostas study-3SG cancers
 Kostas studies cancers.

Alongside the kind reading, (30) also has a reading of a plurality of types/kinds of cancers, alongside the kind reading. We do not offer a full fledged analysis of these examples, but, in section 3.2 we discuss how these cases of bare kind-denoting nouns can be understood within our analysis of

Greek number.

2.5 Intermediate summary

Taking stock, we have shown in the previous sections that Greek is crucially different from Italian in that, overall, Italian has a strong requirement for Ds whereas Greek appears to have a requirement for an argumentizing head but not necessarily a D. The second question was *what is there when D isn't there?* By assumption the first head below D is Num. We found that the idea that NumPs are arguments is empirically supported in the sense that the lack of number-neutral readings of Greek bare nouns force us to conclude that, minimally, whatever is responsible for information pertaining to referential cardinality must be there. At the same time we showed that Greek bare nouns show the same scopal characteristics as their English counterparts which we attribute to the lack of a D-layer providing quantificational force. In order to provide an overarching principled explanation we now need to turn to the nature of the number head in Greek.

3 Number

In the preceding sections we have formulated the hypothesis that in Greek a bare noun is in fact a NumP and that the Number head is what is responsible for turning a bare N into an argument. We have also argued, concomitantly, that this is a theoretical possibility that is not generally excluded by any principle of the grammar. The question now is how does Number actually perform this function. Let us begin with the simple cases. In simple cases Number has a relatively simple semantic contribution. To keep the definitions general we can proceed adopting Chierchia's (1998) general view and assume a single denotational domain which looks very much like the denotation of a mass term in that it contains both singularities and pluralities. The lattice structure looks as follows:

$$(31) \quad \left[\begin{array}{ccc} & \{a, b, c\} & \\ \{a, b\} & \{a, c\} & \{c, b\} \\ a & b & c \end{array} \right]$$

The structure in (31) is a *complete atomic join semilattice*. Given this, we can represent the denotation of a singular as (32):

$$(32)$$

$$\{ a \quad b \quad c \}$$

Denotations of plurals are as (33):

$$(33) \quad \left[\begin{array}{ccc} & \{a, b, c\} & \\ \{a, b\} & & \{a, b\} \\ & \{a, c\} & \end{array} \right]$$

What is missing from the denotation of the singular is the pluralities and what is missing from the plural is the singularities or atoms, as one would expect.

According to a generally assumed, traditional, view the singular is the unmarked case. A formal expression of this view can be found in Link’s (1983) seminal work on the logic of plurals and mass terms. As Link puts it: “[...] let us take seriously the morphological change in pluralization, which is present in many natural languages, and introduce an operator “*”, working on 1-place predicates P , which generates all the individual sums of members of the extensions of P ”⁹

Chierchia (1998) gives the following definition of the Pluralisation operation:

$$(34) \quad \text{PL}(F) = \lambda x[\neg F(x) \wedge \forall y[y \leq x \wedge \text{At}(y) \rightarrow F(y)]]$$

Following Chierchia’s approach and assuming that the singular itself is derived from a number neutral root whose denotation looks like (31), we can define an operation that gives the denotation of the singular from the root. In this case we would like to keep only the atomic individuals (whatever they may be):

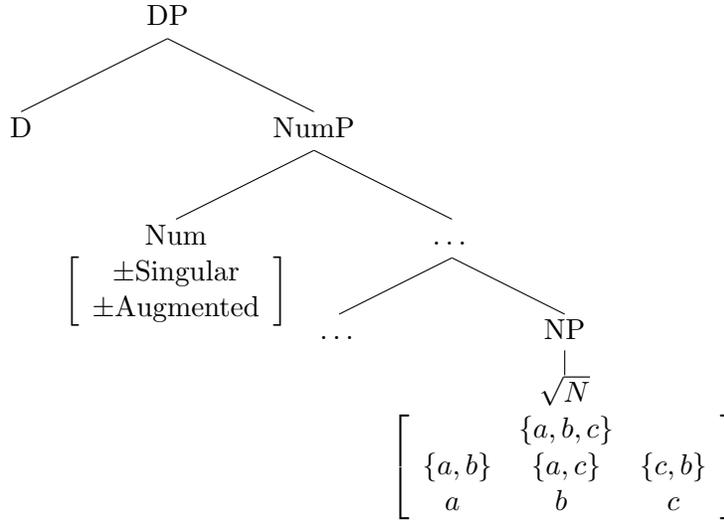
$$(35) \quad \text{Sing}(F) = \lambda x[F(x) \wedge \text{At}(x)]$$

These are fairly standard assumptions about Number.¹⁰ To summarize, the assumptions that we have made about the structure of the domain of quantification as well as the syntax of the DP lead us, anticipating somewhat, to the following representation:

$$(36)$$

⁹A similar view is taken also by Farkas and de Swart (2010).

¹⁰Each assumption, taken individually, is not uncontroversial though.



We return in the next section to the definition of the *augmented* feature. Now, this representation encapsulates the fact that there is no unmarked number value in any sense useful for our purposes. In other words, the plural is not derived from the singular and the singular is not derived from the plural. Rather, both number-marked denotations are derived from the application of Num to the nominal number-neutral root. Informally, [+sing] will yield atomic individuals whereas [-sing] will yield the set of plural objects ($\alpha \oplus \beta$) in the extension of the nominal predicate. Continuing in the same vein as the previous sections, we can now point out that the same interesting theoretical possibility that we mentioned earlier remains still open at this stage. A standard determiner/quantifier has a dual, so to speak, function: on the one hand, type theoretically, to yield a constituent of type $\langle e \rangle$ or $\langle \langle e, t \rangle, t \rangle$ and on the other to contribute a particular meaning. Take *every* for example, the function *every* is defined over a collection of properties:

$$(37) \quad \forall A, B \text{ EVERY}(A)(B) = \mathbf{T} \text{ iff } A \subseteq B$$

Correspondingly, it is conceivable that Num may possess, alongside its basic semantic contribution relating to referential cardinality, a type shifting function that allows its projection to be used argumentally. If our approach so far is on the right track, it would be rather surprising if no language realised this or a similar possibility. To make the above more precise, let us now take a closer look at the relation between number and argumenthood.

3.1 Number and argumenthood

The hypothesis at this point stands as follows: The standard assumption for languages that fall in the [+pred, -arg] category proposed by Chierchia (1998) is that a determiner, overt or null, must be present.¹¹ Semantically, this is in order to turn the property denotation of the NP to an individual-like denotation (say of type $\langle e \rangle$).¹²

But there is nothing that prevents other elements from fulfilling this function and we hypothesize that number is a good candidate. The data that we offered in support of the hypothesis are, briefly again, as follows: Greek allows bare nominals, singulars and plurals, more freely than would be expected; they are generally interpreted existentially but can also be used as kind referring expressions under certain circumstances (shown in (29)–(30)).

Now, if these bare nominals are NumPs, then their properties should follow from some special property of their Number head in Greek, which allows it to play this argumentising function and distinguishes it from similar heads in e.g. Italian.

Interestingly, there is independent evidence that Greek Number displays some characteristics that do not fall out of standard analyses of number, at least not immediately. A striking fact is that plural number marking can freely attach to mass nouns, which crosslinguistically resist pluralisation as a fundamental characteristic.

- (38) a. Trehoun nera apo to tavani
drip-3rd-pl water-pl-neut-nom from the ceiling-neut-sg
Water is dripping from the ceiling.
- b. Me tosa nera ke homata pos na mi gemisi to
with so-may-pl water-pl and dirt-l how SM not fill-3rd the
patoma laspes
house mud-pl
With so much water and dirt how do you expect not to fill the
house with mud?

¹¹Or, in the absence of a determiner the language must allow free or almost free application of typeshifting devices like \cap or ι .

¹²Correspondingly, in the syntax, a D-type element (or at least an element that carries a D feature) is, in some implementations, required, among other things, in order to serve as a target for EPP satisfaction. Alternatively, the EPP can be cross-categorial targeting *any* maximal projection Holmberg (2000). This means that the syntactic functions of D can be played by other functional heads, such as Number in the case of Greek. Note that, if we assume that EPP is cross-categorial, it may but need not be satisfied by Number. Thus, merging of a Determiner above Number is not precluded.

(Tsoulas 2008, ex.10,13)

For most theories of pluralisation, the plural operator is not defined for mass terms, either because they denote in a different domain, or because they are *already* plural, i.e. they contain the pluralities. Therefore the plural on mass terms would be either impossible or just vacuous and redundant. One way to capture this is Heycock and Zamparelli's (2005) restriction against vacuous plurality:

- (39) *No vacuous plurality*: Morphological plurality is a marked choice and as such cannot be used vacuously.

Note that Heycock and Zamparelli's principle makes reference to morphological plurality. If we are correct here this cannot apply to semantic plurality as there is in principle no marked number specification, so although *prima facie*, the plural on mass nouns in the examples in (38) contradicts precisely this sort of principle, it is not entirely obvious that there is a true contradiction here given that the principle speaks of morphological plurality alone. Be that as it may, we can still wonder how can we make (38) consistent with no vacuous plurality. The conclusion that we draw if we assume that the principle is in some way valid is that Greek number must encapsulate further information that makes it only on the surface *vacuous*.

To be more specific, we will adopt here the general theory of Greek number proposed in Tsoulas (2008) to account for plurality on mass nouns. Syntactically, a NumP is postulated whose featural specifications are [\pm augmented, \pm singular], as in the tree in (36) following Harbour (2007). Augmented is defined as follows:

$$(40) \quad [+augmented] = \lambda P \exists x \exists y [P(x) \wedge P(y) \wedge y \sqsubset x]$$

This feature is relevant for mass nouns and states that the denotation of the nominal X has subparts, say Y and Z, the sum of which is also X (i.e. the sum of parts of *water* is *water*). Mass nouns generally can be characterised in terms of the feature [\pm augmented]. Tsoulas (2008) suggests that a [-singular] feature specification is spelled out as plural morphology and triggers a *multiplicity* or *quantity* implicature. The notion of multiplicity as involved in the plural is an intuition that many scholars have adhered to in one form or another. The view that we take here has been defended by many others (see Zweig (2009) for a very careful exposition and references). According to such view, the multiplicity involved in the plural in Greek is an implicature. Following the discussion above, the meaning of a plural is:

$$(41) \quad \llbracket \textit{Falenes} \rrbracket = \text{Falena}(x) \wedge |x| > 1$$

The second conjunct in (41) is the implicature.

Note now that under this account the semantics of the plural on mass nouns becomes rather obvious. Assuming it is conjunctive like in (41), we will have:

$$(42) \quad \text{Muds} = \text{Mud}(x) \wedge \mu(x) > y$$

where μ is the appropriate measure function and y an amount supplied contextually. This conjunctive semantics gives clear expression to the multiplicity implicature. Roughly, (42) means *there is mud and lots of it* rather than *there are many instances of mud*.¹³

Turning to the concerns of the present paper we adopt the suggestion made in the same work for mass nouns, that a [+singular] number specification acts as a type-shifting device ($\langle \langle e, t \rangle, e \rangle$) shifting basic NP denotations (properties) to entities (kind). There are two comments to make here about this proposal. First, although Tsoulas’s (2008) analysis specifically suggests that the type shifting in question is one between properties and kinds, and, as a result, in the context of that work Num was essentially identified with \cap , we can question the necessity of this association. As is well known, there is a variety of functions that express the relations between the $\langle e, t \rangle$ and $\langle e \rangle$ domains (Partee 1986). If we assume that $\langle e \rangle$ is the argumental type, it is conceivable that the output of the type shifting function will not necessarily be a kind. A host of thorny technical, formal and empirical issues arise at this point which we cannot address in any degree of satisfactory detail here. The main issue is whether Num is a unique functor or an ambiguous one which, e.g on one occasion maps a property to its entity correlate (typically a kind) and on another it maps a property to an individual that instantiates it (a choice function), and yet on a third occasion it maps a property to the prototypical individual if the property (concept) in question has a prototype,¹⁴ and so on. If that is the case what determines the type of function that we have? We will not pursue this issue further here in detail. Note though that it is precisely this flexibility in the mapping that allows the type-shifting properties of number not to get in the way of ordinary composition, i.e. not every predicate is, nor has to be, a predicate of entity correlates of properties (kinds or whatever your favourite ontology wants them to be). Sometimes they will have to be just plain individuals.

¹³One might pursue a formalisation of this in terms of the concept of a *reified implicature* proposed, in a different context, in (Krifka 2010). We return to this in section 3.2.

¹⁴See Kamp and Partee (1995) concerning the last case.

Second, there appears to be no *a priori* reason not to generalise this general idea beyond mass nouns and propose that, in addition to its type shifting properties, which is a general property of number, the singular triggers an *atomicity* implicature, just like the plural triggers a multiplicity/quantity one.

This set of assumptions provides semantic content to the hypothesis that number is an argumentising head, which in the first part of the paper was argued for from a syntactic point of view. As we saw above a number of comparative advantages flow from this proposal when Greek is considered alongside Italian. The semantic proposal here completes the account elegantly if we can show its feasibility. Within this system, let us consider first the neutral case in an example like (43).

- (43) mpikan kleftes ke sikosan ta pada
 broke-in-3PL burglars and lifted-3PL the all
 Burglars broke in and took everything.

The bare plural *kleftes* will still denote pluralities of thieves since, regardless of type shifting, the implicature remains and rules out a singular reading. Similarly, in cases of the bare singular like (44), a single plumber (rather than a team thereof) will do as is expected.

- (44) Psahno idravliko
 look-for-1sg plumber
 I am looking for a plumber

Of course, it should be noted that these are defaults that can be overridden in context; we take this to be a particular strength of the account. For example, consider a situation where the speaker explains to the hearer the need to install a new alarm system (in the hearer's house). In this case the speaker may use either a bare singular or plural:

- (45) Me afto to sinagermo dhen beni/benoun
 with this the alarm neg enter-3SG/enter-3PL
 kleftis/kleftes me kanena tropo
 burglar/burglar(s) with no way
 With this alarm there is no way burglars will be able to enter.

The speaker in this case is not committed to the fact that, in the case of the singular, a thief operating alone will not be able to enter, implying that a gang of thieves might actually succeed, and she is not committed, by using the plural, that a gang of thieves will not manage to enter but a

lone burglar might just be able to sneak in. The speaker is indifferent to the internal composition of the thieving party. As we showed in 2.1 bare nouns in Greek are not number neutral. What happens then in the case in (45)? Under our account the reason for the apparent number neutrality is that the context renders the implicature inoperative and as a result number only fulfils its argumentizing/type shifting function.

3.2 Greek Kinds: a sketch

One remaining issue in the picture painted above is that of kind referring bare nouns in Greek and the absence thereof. Abstracting away from the contribution of extraneous factors such as coordination and so on, the theory must provide, at a suitable level of abstraction, for the possibility of the occurrence of such kind denoting bare nouns. Two main but related proposals about kinds can be found in the literature. First, Carlson’s original proposal treats kind denoting expressions as names of kinds. On the other hand, Chierchia’s neo-Carlsonian approach treats them as (intensional) maximal collections of individuals. The extent to which these approaches are mutually exclusive is unclear and it is conceivable that both can be realised. In other words, it is possible that natural languages provide both names for kinds but also, in other circumstances, functions that yield denotations equivalent to that of a kind (*qua* maximal collection of instances of the kind). If the foregoing discussion is on the right track we can think of the case in Greek being as follows: A number neutral root can be used as the complement to a Num head which is specified say as [+singular] which triggers an atomicity implicature or [-singular] which triggers a multiplicity implicature. Let us now assume, following (Krifka 2010) that implicatures may sometimes be reified, or *folded* into the meaning of certain elements. As implicatures, they may be cancelled. Let us assume that cancellation does not only amount to overtly contradicting them but also to a choice of the speaker simply **not** to reify the relevant implicatures. This would be one case of neutralising the implicature. We thus have four possibilities:

- (46)
- a. Number Neutral Root - [+ singular] - [+atomicity]
 - b. Number Neutral Root - [+ singular] - No implicature
 - c. Number Neutral Root - [- singular] - [+multiplicity]
 - d. Number Neutral Root - [- singular] - No implicature

What would each of these cases give us? Restricting attention to bare nouns, (46-a) will yield a bare singular which is able to be used argumentally since Num is the argumentizing head but cannot denote a kind as it is a

predicate of individual level entities. It can, nonetheless be the basis of a kind expression through the application of THE and in that case:

(47) THE($\bar{N}_{[+singular,+atomicity]}$) = The name of a kind

The same is true of (46-c). The bare plural in this case will be possible in argument positions but not as a kind denoting element. In this case

(48) THE($\bar{N}_{[-singular,+multiplicity]}$) = A kind, *qua* maximal collection of individuals.

The two remaining cases are those where, theoretically, the bare noun should be able to refer to kinds. As we saw in the previous sections such cases do exist, but are limited. Understanding fully these limitations is beyond our scope in this paper. However, such readings must be instances of (46-b) and (46-d) above, that is, cases where the implicatures are neutralised (or cancelled). Such examples then should be possible only when contextually relevant factors force either the *neutralisation* of the implicature or, equivalently, allow the speaker to choose *not* to reify the relevant implicatures.

The case of coordinated nouns (29), repeated in (49), is case in point:

- (49) a. Dinosavri ke tiranosavri ehoun eksafanisti
 dinosaurs-NOM and tyrannosaurs-NOM have-3PL disappeared
 edo kai ekatomiria xronia
 here and millions years
 Dinosaurs and Tyrannosaurs have disappeared millions of years ago.
- b. (Karharies kai) falenes spanizoun sto Saroniko
 (sharks-NOM and) whales-NOM are-rare in-the Saronic
 Sharks and whales are rare in the Saronic gulf.

It has been suggested to us (N. Katsos, p.c.) that these are better as answers to questions of the type *Do you have/are there whales and sharks in the Saronic gulf*. The introduction of *whales and sharks* in the question is probably a relevant factor that opens the possibility of not reifying the implicatures (the speaker is indifferent to the quantities) which results to kind reference.

Much further work is undoubtedly needed in order to disentangle the various factors that influence the reification of such implicatures.

The reasoning above leads us to the following picture. Noting the crosslinguistic connection between kind reference and nominal bareness we have

reached the following conclusions for Greek: first, determinerless number phrases may be type shifted but carry multiplicity/atomicity implicatures that must be neutralised for the bare NumP to denote a kind. When these implicatures are neutralised bare nouns can refer to kinds as the examples like (49) show. When this is not the case, the definite article with its maximal/universal quantificational force must be used. Interestingly, in the case of a definite singular, we are led to the conclusion that it *names* a kind, whereas in the case of a definite plural it *denotes* a maximal collection of individuals, which is another way to get to the kind.

4 Some speculative remarks on the NMP

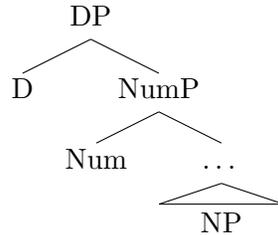
The Nominal Mapping Parameter has been discussed extensively in the literature since it was first put forward. It is fair to say that it has been a brilliant heuristic tool that has helped uncover much about the way form and meaning in the nominal domain are related. At the same time though, recognising the NMP as a *bona fide* parameter has been, for many scholars, a bridge too far, the reason for this is not related to learnability or similar considerations as one might expect. The child does indeed get plenty of overt evidence for each of the parameter's settings and the NMP neatly systematizes the evidence required. The issue lies in what Baker (2008) calls the *Borer-Chomsky* conjecture which he formulates as follows:

The Borer-Chomsky Conjecture:

All parameters of variation are attributable to differences in the features of particular items (e.g., the functional heads) in the lexicon

The NMP governs form-meaning mappings but, to put it simply, almost too simply, leaving us with the question of where exactly these settings are recorded in the system. The NMP is not associated with any specific functional head. What view of parameters countenances this type of settings and how? These are issues that prevent linguists, at least of a certain persuasion (which we largely share) from allowing the NMP full status as a parameter. We would like to close this paper with some very speculative remarks about how the theory developed in this paper may help reformulating the NMP in a way that would make it a parameter along the lines of the Borer-Chomsky conjecture. Our suggestion is rather simple, assuming the universal DP structure in (15) repeated in (50)

(50)



One may suggest that what is actually parametrized is the content of Num. For concreteness, and leaving other features aside, we have:

$$(51) \quad \text{NUM} = \begin{bmatrix} \pm\text{RefCard} \\ \pm\text{TypeShift} \end{bmatrix}$$

Where RefCard denotes the basic semantic value of number which we take to be $[\pm \text{ singular}]$ and TypeShift is the ability of Num to be the argumentizing head (it's D-like property). This gives use the following possibilities:

$$(52) \quad \text{NUM} = \begin{bmatrix} +\text{RefCard}, +\text{TypeShift} \\ +\text{RefCard}, -\text{TypeShift} \\ -\text{RefCard}, +\text{TypeShift} \\ -\text{RefCard}, -\text{TypeShift} \end{bmatrix}$$

Roughly speaking, this produces the following typology:

[+RefCard, +TypeShift] As we showed in the the rest of this paper, this case is exemplified by Greek where Num both argumentises the lexical noun and also provides information regarding referential cardinality as evidenced by the lack in general of nouns to give number neutral readings.

[+RefCard, -TypeShift] This is the case of Italian, and Romance languages in general where D is required for NPs to function as arguments.

[-RefCard, +TypeShift] This is the case of Chinese and similar languages where Num shifts always to $\langle e \rangle$ but the noun remains number neutral. The familiar patterns (classifier systems etc ...) follow.

[-RefCard, -TypeShift] Unlike the original Nominal Mapping Parameter, in this formulation two negative values are not excluded. A language

where Nouns are always number neutral and Num does not have the type shifting function would be very similar but not quite identical to English.

If the approach outlined above can be maintained, and a lot of further work is required to demonstrate that, we will have a reformulation of the NMP in terms of the properties of number which looks much more like other parameters. We will now leave these speculative remarks as exactly that, *speculative* hoping to return to them in future work.

5 Conclusion

In this paper we tried to probe a little further into the typology entailed by Chierchia's (1998) Nominal Mapping Parameter focussing on subtle differences within rather than across the language types defined by the parameter. We discovered that the general classification can be maintained to a large extent in the face of data from the distribution of bare nouns in Greek when contrasted with Italian. We argued that Greek lacks a null D but the function of D is played by Number. We further argued that the locus of variation between Greek and Italian is the choice of the argumentising head, Number in the case of Greek, D in Italian. The proposal accounts for a number of empirical contrasts between the two languages that are directly linked to the availability of bare nouns: the availability of CLLD for indefinite topics, indefinite argument drop and bare subnominal deletion.

The variation we postulate between Greek and Italian provides a promising way to understand a range of unexpected crosslinguistic contrasts. But at the same time it raises a number of questions about the nature of the syntax-semantics interface. If languages can vary in the choice of their argumentizer, what is the range of possible argumentizing heads? How is this choice constrained? In other words, what makes a "good" argumentizer and what blocks a less good one? These questions are particularly pressing for our case, Greek, which has a definite article, but, evidently, freely allows number phrases to act as arguments. Conversely, if Greek can build arguments out of number phrases, why does Italian need additional functional structure, namely D? In other words, why is Greek different from Italian if they are parametrically set alike? We have here identified the locus of their variation. We still need to understand why this variation arises.

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