

THE ACQUISITION OF NOMINAL ELLIPSIS IN GREEK

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This paper investigates the relation between the acquisition of nominal ellipsis and the acquisition of the agreement system in the nominal domain of Greek. Lobeck (1995) and Kester (1996) have assumed that nominal ellipsis involves a *pro* element that is licensed by the rich morphological agreement between the nominal head and its modifiers. This predicts that N-drop should occur at approximately the same stage of L1 acquisition as the acquisition of agreement between the nominal head and its modifiers but not before. Investigating Greek acquisition data (CHILDES database, MacWhinney & Snow 1985), we show that morphological agreement in the nominal domain is not fully achieved at the age of 1;9-1;11. In fact, children have not yet acquired the full nominal paradigm of the language at this stage (Marinis 1994, Christofidou & Stephany 1997). We show that children show agreement in prenominal modifiers in the majority of unmarked cases but incorrect agreement is still present in children's utterances especially in marked cases. On the other hand, nominal ellipsis constructions are used productively at this stage and, more importantly, some appear in cases where prenominal modifiers have the wrong agreement with the elided noun. We take this as an indication that morphological agreement in the nominal domain is not a licenser of nominal ellipsis but a prerequisite for the identification of the elided nominal head. However, we do not make any strong assumptions as to what exactly is the connection between rich morphology and the syntactic process of nominal ellipsis as more data from earlier stages of acquisition is needed.

1. INTRODUCTION

Recent approaches in the acquisition of the first language (L1) of children have focused on the investigation of the role of morphology in the acquisition of syntactic structure. One of the research questions that are in the focus of these approaches is the relevance of the acquisition of complete morphological paradigms to the acquisition of the syntactic architecture of a language, including abstract functional projections. A strong morphological model would assume that the acquisition of the syntactic module of a language is closely related to the acquisition of complete morphological paradigms in the same language. On the other hand, the opposite approach argues that the acquisition of syntax is

triggered by abstract features associated with functional categories and not by overt morphological elements.

An area where the interface between syntax and morphology has been investigated in detail is the acquisition of null subjects. In Italian and Spanish, null subjects have been linked to “richness” of the morphological paradigm of the finite verb. However, when cross-linguistic data is examined, it is not clear how null-subjects in the languages of the world are related to “rich morphology” for two reasons:

- there are languages like Chinese with no overt agreement that allow null subjects, and
- there are interesting cases where a language exhibits a poorer morphological paradigm than another language but still allows for null subjects while the morphologically richer language does not. This is for example the case with Irish and German (see McCloskey & Hale 1984).

In the area of acquisition the relation between morphological agreement and null subjects could be tested easily: if there is a strong correlation between the acquisition of the morphological paradigm of the finite verb and the production of null subjects then one would expect Italian children to produce null-subjects immediately after their mastering the verb morphology. The problem with this type of research is that children seem to acquire the agreement paradigm very early in L1 acquisition (Hyams 1986) making it difficult to pinpoint the exact stage of acquisition. Furthermore, subjects are omitted even from children acquiring languages that do not have null subjects, like English. Thus, the omission of null subjects does not seem to be a fruitful area of research in establishing a connection between the acquisition of morphology and syntax.

Another domain that seems to be more promising in this respect is Nominal Ellipsis, or N-drop (sometimes N'-drop). Nominal Ellipsis refers to syntactic structures in which the nominal head of a noun phrase has been omitted. Consider the following examples from English¹:

- (1) a. John calls on these students because he is irritated
with those ~~students~~.
b. John's wine was good but Bill's ~~wine~~ was even
better.

¹ I will follow the practice of representing elided strings, using strikethrough notation.

In (1.a) the unpronounced noun ‘students’ is assumed in the adjunct clause following the demonstrative ‘those’. In (1.b) the uncountable noun ‘wine’ is assumed but not pronounced after the possessor ‘Bill’s’ in the subject DP of the second tensed phrase (TP) of the conjunct.

As with null subjects, a number of approaches have associated nominal ellipsis to “rich” morphological agreement in the nominal domain (Lobeck 1995, Kester 1996). Thus, for the examples in (1) it has been argued that nominal ellipsis is licensed by the overt number agreement on the demonstrative ‘those’ in (1.a), which is specified for [+plural], or the morpheme ‘s’ of the possessor ‘Bill’s’ in (1.b) which is specified as [+possessive]. In cases where no overt morphological agreement is present then Nominal Ellipsis fails. This is the case for example with adjectives and singular demonstratives in English (Lobeck 1995):

- (2) a. * Maria wore the blue dress and Jane wore the green ~~dress~~.
 b. * Although John doesn’t like that air conditioner that he bought at Sears, he likes this ~~air conditioner~~ that Mary got at K-Mart.

If this approach is on the right track then it provides an area where the connection between the acquisition of a “rich” morphological paradigm and the acquisition of a syntactic process can be tested. If rich morphology licenses nominal ellipsis then one would expect that nominal ellipsis should appear in children’s utterances no earlier than the stage where morphological agreement in the nominal domain is fully developed.

We test this prediction based on data from the acquisition of Greek. Greek has a very rich agreement system in the nominal domain. Prenominal modifiers agree with the nominal head that they modify in number, gender and case features. Furthermore, structures with nominal ellipsis are very common in the adult language, even in cases that seem to be ungrammatical in English:

- (3) a. I Maria forese to ble fustani ke i Eleni forese to
The Maria wore-3SG the blue dress and the Eleni wore-3SG the
 prasino ~~fustani~~.
green ~~dress~~
 ‘Maria wore the blue dress and Eleni wore the green one.’

The paper is organized as follows: In section 2, we survey a number of theories related to the analysis of nominal ellipsis structures and show how these analyses relate the syntactic phenomenon of nominal ellipsis to the morphological paradigm of the languages involved. In

section 3, we present the properties of the nominal domain in Greek and the DP-internal agreement patterns that are attested in the language. In Section 4 we present agreement-related results from the analysis of the Greek acquisition data. We show that agreement in the nominal domain is not fully acquired in these early stages. Section 5, contains a discussion of our findings in the domain of nominal ellipsis production from Greek children. We show that despite the fact that children regularly use unmarked or even wrong agreement paradigms in the noun phrase, nominal ellipsis structures appear as often in the child speech as in that of adult speakers. This seems to suggest that the connection between “rich” morphology and nominal ellipsis is not as strong as the theories mentioned earlier indicate. Finally, in section 6, we repeat some of the main points of our findings, we underlie some of the problems that arise when interpreting the children’s speech, and offer some suggestions for further research.

2. SYNTACTIC APPROACHES TO NOMINAL ELLIPSIS

Bernstein (1993) based on Harris (1991) proposes that Nominal Ellipsis in Spanish, and Romance in general, is related to a special functional projection of the nominal domain, called Word Marker (WM). The idea is that terminal vowels of Romance nouns do not actually belong to the nominal stem but head their own projection in the nominal system. Bernstein (1993) proposes that nominal ellipsis, at least in indefinite DPs in Romance, is licensed through this WM functional projection. In Spanish, the indefinite article occurs in ellipsis constructions only when affixed with *-o*:

- (4) a. Uno rojo está encima de la mesa
 'a red one is on the table.'
 b. * Quiero un grande
 'I want a big one.'

Bernstein (1993) suggests that this *-o* heads its own WMP and, being an affix that needs to attach to another morpheme, it undergoes head-to-head movement, raising from WM to NUM to D. In D, *-o* adjoins to *un-*, which is in the specifier of the DP. WM thus, is a functional head that governs and licenses the empty nominal head in ellipsis constructions, accounting for the contrast between (4.a) and (4.b) above.

However, such an analysis cannot be relevant to the Greek data. While in Spanish a WM can be instantiated via a special morpheme like *-o*, this is not the case with Greek (see Alexiadou 2001). Thus, while number and gender is instantiated via different morphemes in

Spanish it does not in Greek and as a result a WMP is not present in the Greek nominal domain. This would also explain why N⁰ movement is possible in Spanish but not in Greek. However, there are problems with this analysis. First of all, indefinite determiners are involved in nominal ellipsis constructions in Greek:

- (5) a. Ena prasino milo ine sto psigio ki ena kokino ~~milo~~
a green apple is in- the refrigerator and a red ~~apple~~
 ine sto trapezi
is on-the table.

Furthermore, in other Romance languages like French and Italian a word-marker approach seems to be falsified. For more arguments against a WM approach to nominal ellipsis see Alexiadou (2001).

Lobeck (1991, 1992, 1995) investigates the feature specifications of functional heads in the DP that appear to designate these heads with agreement "strong" enough to license and identify deletion of their complements. She originally argues that numerals and quantifiers, including singular 'one' and 'each', have the feature [+number], and are thus, specified for strong agreement. She later (Lobeck 1995) revises this approach, arguing that a further relevant feature specification of quantifiers and numerals is [+partitive]. Furthermore, the head of the DP must be specified as [+poss], [+number] (more specifically, [+plural]), and/or [+partitive] to license and identify nominal ellipsis. Adjectives, singular demonstratives and the quantifier 'every' are excluded as licensers of ellipsis as they are either [-number] or [-partitive] or both.

Kester (1993, 1996) builds on Lobeck's (1991, 1992, 1995) theory of nominal ellipsis and Cinque's (1994) proposal on APs as phrasal specifiers of functional heads in the DP. She claims that in Germanic and Romance languages, a functional head in a spec-head agreement relation with an adjective carrying morphological inflection is specified for "strong" agreement. This "strong" agreement licenses a null pronominal element *pro* in the same way that "rich" morphology in the verb paradigm licenses a *pro* in *pro*-drop languages like Italian (Jaeggli & Safir 1989). Let us consider an example from Dutch (from Kester 1996):

- (6) a. Jan kocht de rode auto en [de groene *pro*].
Jan bought the red car and the green pro

In Dutch, adjectives in ellipsis constructions are inflected with *-e*, as in the above example. Kester (1996) argues that in these cases *pro* is licensed by this adjectival inflection. Thus, the difference between

English and Dutch is reduced to the presence or absence of adjectival inflectional morphology. In ellipsis constructions *pro* is interpreted under identity with an antecedent (the underlined ‘auto’ of (6.a)). Kester extends her analysis to a number of other languages (including German, Swedish, Spanish, and Finnish), concluding that adjectival inflection plays a crucial role in licensing elliptical structures.

Finally, Sleeman (1996) proposes a unified approach to the licensing of nominal ellipsis, or *pro*, defining "strong" agreement for licensing in terms of the single, semantic feature, [+partitive]. Central to her analysis is the distribution of adjectives that can introduce an empty nominal head in French and other languages. On a par with Cinque (1994) and Kester (1993, 1996) she argues that adjectives are functional projections in DP. However, contrary to Kester, she proposes that the relevant feature specification of the licensing head of such projections is [+partitive], rather than overt inflectional morphology. Only adjectives with this feature will be able to introduce ellipsis, as it is only in these contexts that the functional head with which the adjective agrees will be [+partitive], and able to license an empty pronominal head.

We will not review in detail all the relevant approaches to nominal ellipsis here. Suffice is to say that all the above proposals (with the exception perhaps of Sleeman (1996)) seem to assume some sort of direct relationship between the licensing of nominal ellipsis and strong morphological agreement in the DP domain. In the following section we will exhibit the rich morphological paradigm of Greek prenominal modifiers and the productivity of nominal ellipsis structures in Greek adult speech before moving on to the corresponding properties of Greek children’s speech.

3. PRE-NOMINAL MODIFIERS AND RICH AGREEMENT IN THE GREEK DP

Greek has a “strong” morphological paradigm in the nominal domain. The definite and indefinite determiners as well as most pre-nominal modifiers agree with the nominal head in gender, number, and case. As we saw earlier, in Spanish different morphemes correspond to different grammatical features like number and gender. This is not the case in Greek (Ralli 1994) where a single morpheme carries gender and number features with additional morphemes added sometimes for specific case features. The richest paradigm in the Greek nominal domain is of the masculine nouns in ‘-os’, like ‘anthropos’ (human/person):

Table 1. Declension of a masculine noun in *-os*.

	DEFINITE DET.	ROOT	GENDER NUMBER CASE
SINGULAR			
NOMINATIVE	o	anthrop-	os
GENITIVE	tu	anthrop-	-u
ACCUSATIVE	ton	anthrop-	-o
VOCATIVE	--	anthrop-	-e
PLURAL			
NOMINATIVE	i	anthrop-	-i
GENITIVE	ton	anthrop-	-on
ACCUSATIVE	tus	anthrop-	-us
VOCATIVE	--	anthrop-	-i

All pre-nominal modifiers of the nominal head, including determiners, quantifiers, numerals, demonstratives, and adjectives, agree with the nominal head in gender, number, and case:

- (7) a. ol-i aft-i i kal-i anthrop-i
all-MS-PL-N these-MS-PL-N the-MS-PL-N good-MS-PL-N people-MS-PL-N
 ‘all these good people.’

The only elements that occur in the Greek DP and do not share agreement features with the nominal head are possessors and nominal or adjectival complements, in other words elements that are or contain other DPs:

- (8) a. ol-a afta ta vivli-a tu Kost-a
all-NT-PL-N these-NT-PL-N the-NT-PL-N book-NT-PL-N the-MS-SG-GEN Kosta-MS-SG-GEN
 ‘all these Kosta’s books.’

If the approaches that were considered in the previous section are on the right track then one would expect that nominal ellipsis should be very productive in Greek adult speech. This seems to be the case. Nominal ellipsis can occur in a number of environments in Greek, even in cases where it is not grammatical in English. More specifically it can occur after numerals (9.a), quantifiers (9.b), adjectives (9.c), possessors (9.d), but not determiners (9.e):

- (9) a. I Maria ehi tria vivlia ke i Eleni ehi epta ~~vivlia~~
the Maria has three books and the Eleni has seven books
 ‘Maria has three books and Eleni has seven.’
 b. I Maria ehi polla vivlia ke i Eleni ehi liga ~~vivlia~~

- the Maria has many books and the Eleni has few ~~books~~*
 ‘Maria has many books and Eleni has few.’
- c. I Maria forese to ble fustani ke i Eleni forese to prasino
The Maria wore-3SG the blue dress and the Eleni wore-3SG the green ~~fustani~~
~~dress~~
 ‘Maria wore the blue dress and Eleni wore the green one.’
- d. I Maria pire ta vivlia tu Gianni ke i Eleni ~~ta vivlia~~
the Maria got-3SG the books the Gianni-GEN and the Eleni ~~the books~~
 tu Kosta
the Kosta-GEN
 ‘Maria got Gianni’s books and Eleni got Kostas.’
- e. * To treno gia Athina ke to ~~treno~~ gia Lamia figan noris
the train to Athens and the ~~train~~ to Lamia departed early
 ‘The train to Athens and the one to Lamia departed early.’

We will not discuss here the ungrammaticality of (9.e) but it may have to do with the fact that the definite determiner is a weak element and needs to be bound to a strong lexical element in the DP. Suffice is to say that nominal ellipsis is possible with a number of environments in Greek and this results to a productive use in adult speech.

4. NOMINAL AGREEMENT IN GREEK CHILDREN’S SPEECH

The data used in this study consists of part of the Stephany Corpus, a longitudinal corpora of four monolingual Greek children, which is available in the CHILDES database (MacWhinney & Snow 1985, Stephany 1997). The age of the children and the number of the recordings that were used in this paper are shown in Table 2:

Table 2. Age of Children/MLU and Number of Recordings

Name	Spiros	Jianna 1	Jianna 2	Mairy
Age/MLU	1;9 / 1.67	1;11 / 1.4	2;5 / 2.42	1;9 / 2.01
No of files	2	1	1	6

All children in the corpus have acquired most of the morphology of the Greek nominal paradigm. More specifically, Spiros and Mairy from the first recording onwards use some noun suffixes in their stems in cases that require inflectional suffixes. Nouns in the speech of Jianna (Stage 1) on the other hand occur exclusively in their unmarked form, i.e. ending on the stem vowel:

- (10) a. tuto kilo mimi (Tuto-s o skilo-s ehi mimi)
this-here dog wound
 ‘This dog has a woun.’ (Jianna 1;11)

As we saw in the previous section, a number of nouns in Greek have a three-way distinction in case morphology. However, most of the nouns in Greek show a two-way distinction, marking the nominative with a final ‘-s’ and ending in a stem vowel in all other cases. Thus, Marinis (1999), Stephany (1997), and Christofidou (1996) assume that the noun form ending in the stem vowel is the unmarked one. Since Jianna’s MLU is lower than Spiros’ and Mairy’s, we can assume that there is a correlation between MLU-rate and use of unmarked nouns (Marinis 1999).

The situation becomes more complicated when we consider agreement patterns between the nouns the children produce and any pre-nominal modifiers present in the child’s speech, including determiners. Table 3 offers a complete picture of noun phrase production of the three children:

Table 3. Frequencies of Noun Phrase Production by the Children

	Age/MLU	DP	D	N
Spiros	1,9 / 1.67	286 (100)	41 (14)	216 (76)
Jianna 1	1,11 / 1.4	119 (100)	6 (5)	53 (45)
Jianna 2	2,5 / 2.42	191 (100)	59 (31)	110 (58)
Mairy	1,9 / 2.01	1165 (100)	380 (32)	851 (73)

The first column of the table contains the children’s age and MLU rate. Each of the other columns exhibits a token number accompanied by the corresponding percentage of the total number of DPs, in parenthesis. The second column contains the total of noun phrases produced by the children while column three contains the number of these phrases that are headed by a determiner and column four the number of the phrases that contain a nominal head. As we can see from Table 3 children at this early stage (1;9-1;11) produce quite a lot of noun phrases. However, most of these noun phrases contain usually only a single noun or just a demonstrative used in its deictic function:

- (11) a. mesa bukala .
inside bottle-FEM-SG
 ‘(I will put) the bottle inside.’ (Spiros, 1;9)
 b. Mother: nato to portofoli

there-is the wallet
 Spiros: beni ato ?
goes-in this
 ‘Does this go in?’ (Spiros, 1;9)

Determiners are used in less than half of the noun phrases although the percentage increases with MLU rate. Thus Jianna in the first stage (1;11/MLU:1.4) produces determiners in only 5% of her noun phrases, Spiros (1;9/MLU:1.67) in 14%, and Mairy (1;9/MLU:2.01) in 33% of her noun phrases. Let us examine the determiner use in more detail. It seems that in most cases the children use the determiners in their correct form corresponding to the noun that follows. Thus, in the unmarked cases, with the noun ending in the stem vowel, the determiners are used correctly in about 90-95% of the cases depending on the MLU rate of the child:

- (12) a. to teno .
 the-NT-SG-NOM train-NT-SG-NOM (Mairy, 1;9)
 b. o thios mu
 the-MS-SG-NOM uncle-MS-SG-NOM my
 ‘My uncle’

However, it is not clear that children at this stage have mastered the agreement system of the nominal domain in Greek DPs. First, in a number of occasions children seem to still use Monosyllabic Place Holders (MPHs) in the positions where the determiner should occur. MPHs are usually unmarked vowels that head the functional projection of the DP early in language acquisition, before children fully acquire the morphological paradigm of the determiner system of the language (Bottari, et al 1993/1994).

- (13) a. a ΔatiliΔi. (to ΔahtiliΔi)
 the ring-NT-SG-NOM (Mairy, 1;9)
 b. o kapelo mu (to kapelo mu)
 the hat-NT-SG-NOM my (Mairy, 1;9)
 c. o pijio (to psijio)
 the refrigerator-NT-SG-NOM my (Mairy, 1;9)
 d. i Φala (Target: to Φala)
 the milk-NT-SG-NOM my (Mairy, 1;9)

Examples in (13.a-13.d) suggest that MPHs at this stage are most productive in the neuter paradigm where the nominative determiner has the form CV (to). Furthermore, it seems that the vowel that appears in the D-position is most of the times /o/ the same as the final vowel of the noun stem in neuter nouns. This in turn may suggest a ‘linear agreement strategy’ (Bottari, et al 1993/1994), namely the fact that in

some languages (e.g. Spanish) children seem to somehow ‘co-index’ the element that appears in the D-head position to the last vowel of the noun. For example, in Spanish language acquisition, the [a] that appears as a feminine determiner for feminine nouns is assumed not to be an approximation of the feminine definite determiner [la] but an instance of linear-agreement-strategy, the vocalic value resulting from co-indexing the D-head with the final vowel of feminine nouns, which end in [a] in Spanish. If this idea is on the right track then one has to re-evaluate the existence of agreement in all the other cases in Greek. Is for example the /o/ that appears in the Greek acquisition data the actual form of the masculine nominative determiner or an MPH co-indexed with the final vowel of masculine nouns in Greek that (in their unmarked form that is produced by the children) end in [o]? We cannot resolve this issue here but this idea casts some doubt on what degree the children at this stage have mastered the agreement between determiners and nominal heads.

A second argument against the assumption that the children at this stage have acquired agreement between determiners and nouns comes from more complex cases, when the noun phrase appears in a grammatical case other than nominative. Marinis (1999) using data from the Christofidou Corpus (Christofidou 1996) notes that case-marking on definite articles appears later than case marking on nouns. This is true for these early stages of acquisition in the Stephany corpus as well:

- (14) a. i Meris ine (tis Meris ine)
 the-FM-SG-NOM Meri-FM-SG-GEN is (Mairy, 1;9)

Thus, when more marked structures are considered it becomes obvious that children have not yet acquired agreement as a realization of similar morphological marking between two distinct elements in the phrase and often use acquired, marked forms of an element combined with unmarked forms of a dependent element.

Finally, even in the unmarked nominative case children seem to make a few mistakes although correct gender and number agreement appears significantly more often than wrong agreement as Table 4 illustrates:

Table 4. Frequencies of Correct Vs. Wrong Gender/Number Agreement on Determiners.

	Total No of Determiners	Correct Gend/Num Agr.	Incorrect Gend/Num Agr.
Spiros	41	37 (90)	4 (10)
Jianna 1	7	7 (100)	0 (0)
Jianna 2	59	54 (91.6)	5 (8.4)
Mairy	380	341 (89.8)	39 (10.2)

As we can see the percentage of incorrect agreement between determiner and nominal head is about 10% of the cases with overt determiners. Concluding the section on agreement patterns between determiners and nominal heads we believe that the data shows that children at this stage (1;9-1;11) produce a limited number of unmarked determiners that in general agree in number and gender with the head of the noun phrase but show no case agreement in complex cases. If our analysis is on the right track it seems that nominal agreement, at least on the determiner level is far from mastered at this level.

Let us now turn to pre-nominal modifiers. Children at this stage produce quite complex noun phrases with a number of pre-nominal modifiers: quantifiers (15.a), numerals (15.b), reflexive adjectives (15.c), possessive adjectives (15.d), and demonstratives (15.e):

- (15) a. olis ti rozis (oles tis roDes)
all-FM-PL-ACC the-FM-PL-ACC wheels-FM-PL-ACC (Mairy, 1;9)
- b. ena piΦo
one-NT-SG-NOM tower-NT-SG-NOM (Mairy, 1;9)
- c. seli mono tu (Telo monos mu)
want only-MS-SG-ACC his-MS-SG-ACC-3rd
 ‘I want (to do it) by myself.’ (Spiros, 1;9)
- d. a pai Δiko:mu (na paro Δiko:mu)
SUBJNC take-3SG mine-NT-SG-NOM
 ‘(I want) to take (it) for me’ (Mairy, 1;9)
- e. nat-o to pit-aki
there/is-NT-SG the-NT-SG house-DIM
 ‘There is the little house.’ (Mairy, 1;9)

As with determiners most of these modifiers when they appear with a nominal head either in direct modification structures or in predicative structures seem to agree with the noun, at least in the unmarked nominative cases (15.b, 15.d, 15.e). Table 5, shows the total number of tokens of different modifiers in both predicative and direct

modification structures. The number on the left corresponds to the total number of items produced while the number on the right shows the percentage in relation to total number of noun phrases produced by the child:

Table 5. Production of Nominal Modifiers in the Child Data.

	APs	Quantifiers	Refl. Adj.	Adj. Poss.	Numerals	Demonstratives	Wh-words
Spyros	21 (7)	1 (0.3)	7 (2)	0 (0)	2 (1)	56 (20)	5 (2)
Jianna 1	13 (11)	6 (5)	0 (0)	5 (4)	2 (2)	27 (23)	9 (8)
Jianna 2	26 (14)	3 (2)	1 (1)	3 (2)	1 (1)	64 (34)	35 (18)
Mairy	151 (13)	26 (2)	2 (0)	11 (1)	20 (2)	167 (14)	16 (1)

From Table 5, we can see that the most productive type of modifiers is demonstratives which in most of the cases are used in their deictic function. We see that as MLU rate increases, the use of demonstratives decreases. Thus, for Jianna (Stage 1-MLU:1.4) 23% of her DPs are deictics, for Spiros (MLU:1,67) 20%, and for Mairy (MLU: 2.01) only 14% are deictics. The children produce a few adjectives (the main one being *alos/* 'other'), plus a few tokens of the reflexive and possessive adjective, and only a limited number of numerals, *wh*-words, and the universal quantifier.

It is interesting to see how well developed are the agreement patterns between the modifiers and the nominal head in child language and check if they correspond to the patterns that are observed in the adult language. Table 6 shows percentages of correct-incorrect agreement found within nominal modifiers in the Greek data:

Table 6. Percentages of Modifiers with Correct-Incorrect Agreement on Nominal Modifiers in Greek Child Data

	Demonstratives		Poss. Adjectives		Adjectives		Wh-	
Spiros	58 (81.7)	13 (18.3)	0	0	6 (75)	2 (25)	5 (100)	0
Jianna 1	19 (70.3)	8 (29.7)	0	2 (100)	10 (76.9)	3 (23.1)	0	0
Jianna 2	7 (64)	4 (36)	1 (100)	0	21(80.7)	5(19.3)	0	
Mairi	150 (92.2)	13 (7.8)	69 (95.8)	3 (4.2)	126 (88.2)	17 (11.8)	13 (77)	3 (23)

we conclude that children at this stage are still in the first stages of the acquisition process of the agreement patterns in the Greek nominal domain. In the next section we will investigate the production of nominal ellipsis structures in child Greek and show that Greek children seem to use nominal ellipsis as productively as the adults even though they still do not yet have a complete agreement system.

5. NOMINAL ELLIPSIS IN CHILD GREEK

Except from the two files from Spiros, it seems that the Greek children at this stage of language acquisition use nominal ellipsis structures quite productively. Table 6 shows the number of nominal ellipsis structures found in the data and the percentage of elliptical structures compared to the overall number of DPs produced by the children:

Table 6. Percentage of Elliptical Structures vs. the Overall Number of DPs.

	DPs	Ellipsis
Spiros	286	4 (1.3)
Jianna 1	119	10 (8.4)
Jianna 2	191	9 (7.5)
Mairy	1165	90 (7.7)

It seems that the children produce elliptical constructions in about 8% of their noun phrases. For comparison we counted the nominal ellipsis structures that occur in the child-oriented speech of an adult: Mairy's mother in the 5th file of Mairy's data. The result is shown in table 7:

Table 7. Percentage of Elliptical Structures in the Child-Oriented Speech of an Adult.

	DPs	Ellipsis
Adult	210	17 (8)

We conclude that the children at this stage produce the same number or close to the same number of nominal ellipsis as that of Greek adults. The only exception is Spiros' speech, but we will return to this inconsistency in the last section.

The environments that nominal ellipsis appears in the children's speech are as diverse as the environments in the adult speech. Nominal ellipsis appears with adjectives (18.a), quantifiers (18.b), and possessives (18.c):

- (18) a. Adult: kapelo exi.
 hat-NT-SG-NOM has-3SG
 'He has a hat.'
 Mairy: Ta pao kenuro ~~kapelo~~.
 will get-1SG new-NT-SG-NOM hat
 'I will buy a new one'" (Mairy, 1;9)
- b. exo eΦo pola (~~zoo~~)
 have I many NT-PL-NOM (animals-NT-PL-NOM)
 'I have many.' (Mairy, 1;9)
- c. Adult: ΔaktiliΔi.
 ring-NT-SG-NOM
 Mairy: a pai Δiko:mu ~~ΔaktiliΔi~~.
 will get mine-NT-SG-NOM ring-NT-SG-NOM
 'I will buy my own one.' (Mairy, 1;9)

Thus, nominal ellipsis is present in a productive way very early in the speech of Greek children. In fact, certain adjectives like *alos* 'other', appear almost exclusively in elliptical structures in both adult and child speech.

It seems then that the present research falsifies the assumptions mentioned in Section 2, that 'rich' morphological agreement in the nominal domain is a prerequisite for the licensing of nominal ellipsis. As we saw in the previous section, the speech of Greek children at this stage (1;9-1;11) is composed by noun phrases that contain nominal heads and modifiers that agree only in unmarked cases. We concluded from this that children have not yet learned the full paradigm of nominal agreement in the nominal domain, or that they are at the first stages of learning such a paradigm. Therefore, the assumption that nominal ellipsis is licensed by rich morphological agreement in the nominal domain cannot be maintained.

A further argument supporting this conclusion comes from the fact that children produce elliptical constructions eliding a noun that has ϕ -features incompatible to the ϕ -features of the 'licensing' modifier. In other words, children seem to produce nominal ellipsis with incorrect agreement between the elided noun and the remaining modifier. Consider the following examples:

- (19) a. Mother: pu Tes na to foresis ? (ΔaktiliΔi)

- where want-2SG to it wear (ring)*
- Mairy: exo Δika mu ~~ΔaktiliΔi~~.
have-1SG mine-NT-PL-NOM ring-NT-SG-NOM
 ‘I have one (plural) of mine.’ (Mairy, 1;9)
- b. Adult: ke i merula exi kapelo?
and Mery-DIM has hat-NT-SG-NOM
 ‘Does Mairy have a hat?’
- Adult: na min tin kei o iljos?
to not her burn the sun
 ‘So that the sun doesn’t burn her?’
- Mairy: meΦala ~~kapelo~~ ehi
big-NT-PL-NOM ~~hat~~-NT-SG-NOM has
 ‘(I) have (a) big (plural) one.’ (Mairy, 1;9)

In (19.a) Mairy elides the nominal head *ΔaktiliΔi* ‘ring’, but the possessive adjective that precedes the noun has plural morphology although obviously the context does not allow for a plural interpretation of the elided noun. Similarly, in (19.b) Mairy elides the noun *kapelo* ‘hat’ mentioned in the preceding utterances, but the adjective that precedes the elided noun has plural morphology although, again, the elided noun must be interpreted as singular. Therefore, the elliptical constructions in (19) reinforce our assumption that ‘rich’ (and correct) agreement morphology is not the mechanism that licenses nominal ellipsis.

In the following section we will list again the results that have been mentioned so far in connection to agreement and ellipsis in the child Greek DP and discuss some of the inconsistencies that were observed and some issues that need further research.

6. FINAL COMMENTS

The only other work that is available on the acquisition of ellipsis in the nominal domain has been done in Spanish (Snyder 1996, Snyder& Senghas 1997, and Licerias et al 2000). In Snyder (1996), Snyder& Senghas (1997), it was found that while nominal agreement in the nominal domain is acquired quite early by Spanish children (2;2) nominal ellipsis appears productively a few months later (2;6). Therefore, Snyder& Senghas (1997) conclude:

“...the knowledge that N-drop is grammatically possible in Spanish is not psychologically represented directly by knowledge of any morphological agreement paradigm...”
 (Snyder& Senghas 1997, p. 589).

Our results show a diametrically opposite direction. Namely, Greek children seem to use ellipsis productively before acquiring an adequate morphological agreement paradigm. However, our conclusion is similar to that of Snyder & Senghas (1997): the connection of nominal ellipsis to morphology is limited, if it exists at all.

The hypothesis was that if there was a strong correlation between the acquisition of the morphological paradigm of pre-nominal modifiers and the production of null subjects then one would expect children to produce null nominal heads immediately after their mastering modifier-head agreement. We have shown that this hypothesis is falsified in Greek. Children use nominal ellipsis structures productively before mastering completely the agreement patterns in the nominal domain.

The question remains then as to the mechanism that is responsible for the licensing of nominal ellipsis. It is a commonly accepted fact that elliptical processes work in cases of redundancy of information in certain contexts permitting an economy of expression. The elliptical process omits linguistic structures that would be required to express this redundant information. In the case of nominal ellipsis this redundancy is manifested in expressing a nominal head twice in a structure. The semantic content of the noun is expressed by a pronounced antecedent in the discourse while its ϕ -features are expressed by either the features of the antecedent or the agreement morphology of its modifiers. Thus, one can assume that nominal ellipsis is a mechanism employed by speakers to avoid this redundancy and achieve some sort of economy in the production of an utterance. However, it has also been noticed that many languages consistently mark the same grammatical information in various parts of the sentence (see Merchant 2001 for examples). Thus, the expression of redundant information may be a condition to license omission of linguistic structure but is not a sufficient one. More needs to be said about the contexts in which nominal ellipsis appears.

A possible analysis is provided in Rooth (1992) and Merchant (2001). They propose that ellipsis in general is a mechanism connected to the expression of contrastive focus between the elided element and its antecedent. Thus in example (19.a) (repeated here as (20.a)), the possessive adjective (*Δika mu*) has a focused interpretation; Mairy contrasts her ring with the one her mother offers to her. The wrong agreement (plural instead of singular) has as a result a wrong interpretation of the elided nominal as a plural entity but does not stop the process of ellipsis from completing.

- (20) a. Mother: pu Tes na to foresis ? (ΔaktiliΔi)
 where want-2SG to it wear (ring)
 Mairy: exo Δika mu ~~ΔaktiliΔi~~.
 have-1SG mine-NT-PL-NOM ring-NT-SG-NOM
 ‘I have one (plural) of mine.’ (Mairy, 1;9)

Since wrong agreement is productive in the child utterances it is expected that it will also appear in elliptical contexts. If nominal ellipsis is licensed by syntactic focus movement (Ntelitheos 2003, 2004) then wrong agreement in elliptical contexts is the result of a wrong mapping of the nominal ϕ -features through the structural configuration of spec-head agreement much like in normal contexts of typical DP-concord.

If the above analysis is on the right track it can also explain the low number of nominal ellipsis structures in Spiros’s utterances. Most of the exchanged dialogue in the two files of Spiros’ has to do with information inquiring processes (i.e. “what is this?”, “It’s a ___”) and thus lacks the environments that would require contrastive focus. If contrastive focus is the mechanism that licenses nominal ellipsis, it is not surprising that nominal ellipsis is not present in Spiros’ utterances.

We will not provide here a detailed discussion on how morphology, syntax and discourse/semantic factors like focus conspire to allow for nominal ellipsis structures in speech. For a possible syntactic analysis of the phenomena see Ntelitheos (2003, 2004). It is also essential to examine data from earlier stages of language acquisition in Greek in order to explore at what stage nominal ellipsis emerges in child speech and whether this emergence precedes the acquisition of nominal agreement even in unmarked cases. For this, we need to access data that is not available on the CHILDES database.

However, we believe that the results presented here show that the assumptions adopted in a number of recent approaches towards nominal ellipsis need to be modified. This can be a first step towards a better understanding of how nominal ellipsis and elliptical processes in general are implemented in human languages.

REFERENCES

- ALEXIADOU, ARTEMIS. 2001. Adjective Syntax and Noun Raising: Word Order Assymetries in the DP as the Result of Adjective Distribution, *Studia Linguistica*, 55/3, 217-248.

- BERNSTEIN JUDY. 1993. The Syntactic Role of Word Markers in Null Nominal Constructions, *Probus*, 5, 5-38.
- BOTTARI, P. CIPRIANI, P. & CHILOSI, A. M. 1993/1994. Protosyntactic Devices in the Acquisition of Italian Free Morphology, *Language Acquisition*, 3(4), 327-369.
- CHRISTOFIDOU, A. 1996. Number or Case first? Evidence from Greek, *Perspectives on Language Acquisition: Selected Papers from the VIIIth International Congress for the Study of Child Language*.
- CINQUE, GUGLIELMO. 1994. On the evidence for partial N-movement in the Romance DP, in C. Cinque, J. Koster, J. Pollock and R. Zanuttini (eds), *Paths Towards Universal Grammar: Essays in honor of Richard S. Kayne*, Georgetown University Press.
- GIANNAKIDOU, ANASTASIA & MELITA STAVROU. 1999. Nominalization and Ellipsis in the Greek DP, *Linguistic Review* 16, 295-331.
- HARRIS, J. W. 1991. The Exponence of Gender in Spanish, *Linguistic Inquiry* 22, 27-62.
- HYAMS, M. NINA. 1986. *Language Acquisition and the Theory of Parameters*, Dordrecht: D. Reidel Publishing Company.
- JAEGGLI, OSVALDO & KENNETH J. SAFIR. 1989. The Null Subject Parameter and Parametric Theory, in O. Jaeggli and K. Safir (eds.) *The Null Subject Parameter*, Kluwer Academic Publishers, 1-44.
- KESTER, ELLEN-PETRA. 1993. The inflectional properties of Scandinavian adjectives, *Studia Linguistica* 47:2, pp. 139-153.
- KESTER, ELLEN-PETRA. 1996. Adjectival Inflection and the Licensing of Empty Categories in DP, *Journal of Linguistics*, 1996, 32:1, 57-78.
- LICERAS M. JUANA, LOURDES DIAZ & CAROLINE MONGEON. 2000. N-Drop and Determiners in Native and Non-Native Spanish: More on the Role of Morphology in the Acquisition of Syntactic Knowledge, *CLAC* 3, available at <http://www.ucm.es/info/circulo/no3/liceras.htm>.
- LOBECK, ANNE. 1991. The Phrase Structure of Ellipsis. Perspectives on Phrase Structure: Heads and Licensing, in S. Rothstein (ed.) *Syntax and Semantics*, vol. 26, Academic Press, pp. 81-103.
- LOBECK, ANNE. 1992. SPEC-head agreement in DP, *Proceedings of the West Coast Conference on Formal Linguistics 10*, Center for the Study of Language and Information Publications (CSLI), Stanford University. pp. 297-308.
- LOBECK, ANNE. 1995. *Ellipsis: Functional Heads, Licensing and Identification*. New York, Oxford University Press.
- MACWHINNEY, B., & SNOW, C. 1985. The child language data exchange system, *Journal of Child Language*, 12, 271-296.
- MARINIS, THODORIS. 1999. Feature Specification in the Modern Greek DP, *Proceedings of the 4th International Conference on the Greek Language*, Nikosia, September 1999.

- MCCLOSKEY, J. & HALE, K. 1984. The Syntax of Person-Number Inflection in Modern Irish, *Natural Language and Linguistic Theory* 1, 487-533.
- MERCHANT, JASON. 2001. *The syntax of silence: sluicing, islands, and the theory of ellipsis*, Oxford, New York: Oxford University Press.
- NTELITHEOS, DIMITRIOS. 2003. *The Syntax of Emphasis: Split DPs and Nominal Ellipsis*. Paper presented at the 6th International Conference of Greek Linguistics, Department of Philology, University of Crete, Rethymno, Greece, September 18-21 2003.
- NTELITHEOS, DIMITRIOS. 2004. *Syntax of Elliptical and Discontinuous Nominals*. M.A. Thesis, Department of Linguistics, UCLA.
- RALLI, ANGELIKI. 1994. Feature Representations and Feature-Passing Operations: the case of Greek Nominal Inflection, *Proceedings of the 8th International Symposium on English and Greek*, School of English Department of Theoretical and Applied Linguistics.
- ROOTH, MATS. 1992. Ellipsis Redundancy and Reduction Redundancy, in S. Berman and A. Hestvic (eds.) *Proceedings of the Stuttgarter Ellipsis Workshop*, Arbeitspapiere des Sonderforschungsbereichs 340, No. 29.
- SLEEMAN, PETRA. 1996. *Licensing Empty Nouns in French*, Doctoral dissertation, University of Amsterdam.
- SNYDER, WILLIAM. 1995. *Language Acquisition and Language Variation: The Role of Morphology*, Doctoral Dissertation, MIT, distributed by MIT Working Papers in Linguistics, Cambridge, MA.
- SNYDER, WILLIAM & ANN SENGHAS. 1997. Agreement Morphology and the Acquisition of Noun-Drop in Spanish, *BUCLD 21 Proceedings*, 584-591.
- STEPHANY, URSULA. 1997. The Acquisition of Greek, in D. I. Slobin (ed.) *The Cross-linguistic Study of Language Acquisition*, vol. 4, Hillsdale, N.J.: Erlbaum, 183-333.