

Lack of Clitic-Pronoun Distinctions in the Acquisition of Principle B in Child Greek

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1. The Delay of Principle B Effect in child language

Many studies in the acquisition literature have shown that children between 3 and 6 years old often appear to violate Principle B of the Binding Theory (cf. Chomsky 1981, 1986) by allowing ordinary pronouns to corefer with an interclausal *c*-commanding antecedent, as illustrated in (1) (cf. Avrutin & Wexler 1992, Chien & Wexler 1990, Jakubowicz 1984, McDaniel, Cairns & Hsu 1990, Sigurjónsdóttir, Hyams & Chien 1988, Thornton 1990, Wexler & Chien 1985, among others).

- (1) a. Papa Bear_i dries him_i (child language)
b. Papa Bear_i dries him_{≠_j} (adult language)

This phenomenon, known as the Delay of Principle B Effect (DPBE), has been attested in several languages, including English, Russian, Dutch and Icelandic. However, the DPBE has been claimed to be absent in the acquisition of Italian (cf. McKee 1992) and Spanish (cf. Padilla 1990, Baauw, Escobar & Philip 1997). In particular, McKee (1992) shows that Italian children exhibit adult-like performance in contexts like (2), where a clitic instead of a full pronoun appears:

- (2) Gianni_i lo_i asciuga (adult and child Italian)
John him-clitic dries
'John dries him'

Furthermore, the DPBE has been shown to be absent altogether in contexts with a non-referential (quantificational) antecedent, as in (3) (cf. Chien & Wexler 1990, Grimshaw & Rosen 1990, Grodzinsky & Reinhart 1993, Philip & Coopmans 1996, among others):

- (3) Every bear_i dries him_i (adult and child language)

The adult-like performance of children in contexts with an overt operator (example (3)) indicates that Principle B is available from the onset just like the other Principles of the Binding Theory. The presence of the DPBE in contexts with a referential antecedent (example (1a)) has been attributed by Grodzinsky & Reinhart (1993) to the children's processing incapability to execute a pragmatic rule, Rule I. Rule I rules out coreference between a referential NP and

a pronoun in the same clause by instructing the listener to determine whether a reflexive pronoun can appear in the position of the ordinary pronoun (cf. Reinhart 1983, 1986). To apply Rule I, a listener must maintain two structural representations in memory at the same time, one with a reflexive pronoun and another one with an ordinary pronoun. Due to limitations on working memory, some children cannot maintain the two representations in memory long enough to decide which is the intended one, so they adopt a guessing strategy about the coreference relation between the pronoun and the local antecedent, which leads them to non-adult-like performance (see also Chien & Wexler's (1990) Principle P).

The asymmetry between English and Italian/Spanish with respect to the DPBE has been attributed to the difference in pronoun type (strong pronouns vs. clitic pronouns). On the one hand, McKee (1992) claims that the child's hypothesized binding domains for clitic and full pronouns differ because of their structural positions. Clitics are in Infl whereas full pronouns are in the VP. Baauw et al (1997), on the other hand, argue that the absence of the DPBE in Spanish is due to the underspecification of pronominal clitics for the feature [human]. Clitics must be bound either in syntax or in discourse because binding provides a specification for the feature [human] by inheriting the binder's value for this feature to the clitic. Coreference is excluded by binding, hence Rule I does not apply in clitics and cannot break down in child language. In contrast, pronouns are positively specified for the feature [human], hence Rule I does apply to exclude coreference.

The goal of this paper is to examine whether there is any DPBE in child Greek, particularly whether there is an asymmetry with respect to the DPBE in clitic pronoun and strong pronoun contexts.

2. Clitics and Strong Pronouns in adult Modern Greek

Modern Greek is a language with two distinct classes of pronominal elements: weak (clitic) pronouns and strong (emphatic) pronouns. Clitic pronouns are unstressed. Strong pronouns are stressed. Clitic pronouns may act as direct or indirect objects of a verb (4a, 4b), complements of adverbs (4c), but not complements of prepositions (4d).¹ Strong pronouns may act as subjects (5a), objects of a verb (5b), as well as, objects of a preposition (5c). When a strong pronoun functions as the object of a verb (5b), it must be understood as contrastive to be acceptable. A strong pronoun may also function as the object of a verb doubled by a clitic (5d). Both pronoun types (i.e. clitic and strong) refer to first, second and third person and are inflected for number and case. The third-person pronouns, which are of interest here, are also inflected for gender. The third-person strong pronouns are, in fact, forms of the demonstrative pronoun *afos* 'this' (cf. Holton, Mackridge & Philippaki-Warbuton 1997).

- (4) a. O Yanis, ton_i, ide
John him-Acc saw-3Sg
'John saw him'
b. O Yanis, tu_i, to edose
John him-Gen it-Acc gave-3Sg
'John gave it to him'
c. O Yanis, kathise dipla tu_i
John stood-3Sg next him-Gen
'John stood next to him'
d. *To edosa se ton/tu
it gave-1Sg to him-Acc/Gen
'I gave it to him'
- (5) a. Aftos ine omorfos
he-Nom is handsome
'He is handsome'
b. O Yanis, ide afton_i
John saw-3Sg him-Acc
'John saw him'
c. O Yanis, edose to vivlio se afton_i
John gave-3sg the book to him-Acc
'John gave the book to him'
d. O Yanis, ton_i, ide afton_i
John him-clitic-Acc saw-3Sg him-Acc
'John saw him'

(clitic pronouns)

(strong pronouns)

As evident in (4) and (5), coreference with a local antecedent is excluded in clitic contexts ((4a), (4b) and (4c)), as well as in strong pronoun contexts ((5b), (5c) and (5d)). However, there are some prepositions that allow coreference between their complements and a local antecedent:

- (6) O Yanis, agorase ena vivlio gia afton_i
John bought-3sg a book for him-Acc
'John bought a book for him'

3. The Experiments

3.1. Methodology

The work reported here includes three experiments on the acquisition of pronominal reference in Modern Greek.

The Truth Value Judgment task was used in all experiments (cf. Crain & McKee 1985, Crain & Thornton 1998). This task is used to investigate the possibility that children's grammar permits them to assign to a sentence a meaning that is ruled out by a grammatical constraint (in this case, Principle B of the Binding Theory). Children are presented with meaning-utterance pairs and asked to decide if each pair is true or false. One experimenter uses toys to act out stories. Another experimenter manipulates a blind-folded puppet that listens to the stories and then describes what happened. Next, the child judges whether the

puppet's answer is a correct or an incorrect description of the event and rewards the puppet accordingly. If the child informs the puppet that it said the wrong thing, the experimenter agrees and asks the child to explain what really happened in the story. This is the elicitation component of the task, which enables the experimenter to decide whether the child understands the puppet's description of the story and is rejecting it for the right reason or for some other reason.

The Truth Value Judgment task makes two alternative meanings available for each sentence on each trial. On one meaning, the sentence is an accurate description of something that happened in the story, while on the other meaning it is an inaccurate description. If the child rejects a sentence in contexts that correspond to the meaning that is ruled out by the constraint, but accepts it in contexts that correspond to meanings that are not ruled out by the constraint, these responses are taken as evidence that the constraint is part of the child's grammatical knowledge. On the other hand, if the child accepts the test sentence in inappropriate contexts, this response is taken as evidence that the child's grammar lacks the constraint.

3.2 Experiment I

3.2.1 Procedure and Materials

The goal of the first experiment was to test whether there is any DPBE in the following two syntactic contexts in child Greek: (a) sentences with clitic pronouns (example (4a)) and (b) sentences with strong pronouns as complements of verbs (example (5b)).

The experiment consisted of 2 test conditions (examples (7) and (8)) and 4 control conditions (examples (9) to (12)). There were 4 different trials for experimental conditions (7) to (10) and 2 trials for (11) and (12) (total 20 experimental items). These items together with 12 fillers (total 32 items) were distributed over 2 sessions. A typical story used was as follows (cf. Crain & Thornton 1998):

Experimenter: In this story, Micky, Goofy and Donald decided to sleep outside one night, so they could see the stars. It was a very cold night, and after a while, Micky and Goofy began to shiver. Micky said: "Goofy, could you cover me with that blanket?". But Goofy said: "Sorry, Micky, but this blanket is not big enough for you too. I am so cold, I will need the whole thing to keep warm. You will have to get another blanket". "Here, Micky," said Donald "you can have my blanket. I don't need it, because my feathers keep me warm. Lie down, and I will cover you" <Donald covers Micky> Goofy said "Are you all set Micky? Good. I will lie down under my blanket, then". <Goofy covers himself with his own blanket>.

Experimenter: OK Kermit, can you guess what happened?
Kermit: Oh! I know what happened in that story:

Test conditions:

- (7) O Goofy_i ton_j skεpase (clitic)
Goofy him covered (adult answer 'NO')
'Goofy covered him'
- (8) O Goofy_i skεpase afton_j (pronoun)
Goofy covered him (adult answer 'NO')
'Goofy covered him'

Control conditions:

- (9) O Donald_i ton_j skεpase (clitic)
Donald him covered (adult answer 'YES')
'Donald covered him'
- (10) O Donald_i skεpase afton_j (pronoun)
Donald covered him (adult answer 'YES')
'Donald covered him'
- (11) O Donald_i skεpase ton εafto tu_j (reflexive)
Donald covered himself (adult answer 'NO')
'Donald covered himself'
- (12) O Goofy_i skεpase ton εafto tu_j (reflexive)
Goofy covered himself (adult answer 'YES')
'Goofy covered himself'

3.2.2 Results

20 Greek-speaking children, aged from 3;7 to 5;6 (mean age 4;5) from Athens and Sparta were examined in the first experiment.

The results of the experiment are summarized on Tables 1 and 2. Table 1 illustrates the proportion of correct vs. incorrect responses on test conditions, i.e. on clitic and strong pronoun contexts with an adult-like 'no' response. Table 2 indicates the percentage of correct vs. incorrect responses on control conditions, i.e. on clitic and strong pronoun contexts with an adult-like 'yes' response and on reflexive pronoun contexts.

Type	Correct ('No')	Incorrect ('Yes')
Clitic Pronoun	76/80 (95%)	4/80 (5%)
Strong Pronoun	70/80 (87%)	10/80 (13%)

Table 1. Proportion of correct vs. incorrect responses on test conditions for Experiment I.

Type	Correct	Incorrect
Clitic Pronoun	76/80 (95%)	4/80 (5%)
Strong Pronoun	74/80 (93%)	6/80 (7%)
Reflexive	69/80 (86%)	11/80 (14%)

Table 2. Proportion of correct vs. incorrect responses on control conditions for Experiment I.

Children gave correct responses to fillers 93% of the time, accepting true fillers 94% of the time and rejecting false fillers 92% of the time.

As Table 1 indicates, children's performance on test sentences was adult-like for clitics (with correct responses in 95% of the cases) as well as for strong pronouns (with correct responses in 87% of the cases).

Furthermore, the accuracy of children's responses to control items was 95% for clitic pronouns, 93% for strong pronouns, and 86% for reflexive pronouns, as shown in Table 2.

3.3 Experiment II

3.3.1 Procedure and Materials

The goal of the second experiment was to test whether there is any DPBE in two additional contexts: (a) sentences with strong pronouns doubled by clitics (example (5d)) and (b) contexts with strong pronouns as complements of prepositions (examples (5c) and (6)). Recall from section 2 that coreference between a pronoun that is complement of a preposition and a local subject is possible in some contexts but not in others. Thus, Modern Greek offers an excellent opportunity to test children's knowledge of pronominal reference in both environments.

The same procedure and materials were used, as in experiment I. The experiment consisted of 2 test conditions (examples (13) and (14)). There were 2 different trials for each test condition. Moreover, one additional condition (example (15)) was included in the experiment in order to test children's performance on prepositional contexts that allow coreference. There was one trial for the latter condition. All items were distributed over two sessions.

- (13) O Goofy_i ton_j skεpase afton_j (adult response 'NO')
Goofy covered him
'Goofy covered him'
- (14) O Goofy_i agorase se afton_j ena vivlio (adult response 'NO')
Goofy bought to him a book
'Goofy bought him a book'
- (15) O Goofy_i agorase gia afton_j ena vivlio (adult response 'YES' or 'NO')
Goofy bought for him a book
'Goofy bought a book for him'

3.3.2 Results

20 Greek-speaking children, aged from 3;10 to 5;9 (mean age 4;6) from Athens were examined in this experiment.

The results of the experiment are summarized on Tables 3 and 4.

Type	Correct ('No')	Incorrect ('Yes')
Doubled Pronoun	38/40 (95%)	2/40 (5%)
P non-coreference	38/40 (95%)	2/40 (5%)

Table 3. Proportion of correct vs. incorrect responses on test conditions (13) and (14) for Experiment II.

Type	Coreference	Non-coreference
P coreference	14/20 (70%)	6/20 (30%)

Table 4. Proportion of coreference vs. non-coreference responses on test condition (15) for Experiment II.

The accuracy of children's responses to fillers was 98%. The accuracy of children's responses to test items was adult-like, with correct responses 95% of the time in doubled pronoun contexts and 95% of the time in contexts with strong pronouns as complements of prepositions (Table 3). Finally, although children consistently rejected coreference for test condition (14), they did accept coreference 70% of the time for test condition (15), where coreference is permitted (Table 4).

3.4 Experiment III

3.4.1 Procedure and Materials

Baauw et al (1997) report that the DPBE appears to be present in Complex Predicate Constructions (CPCs) in child Spanish:

- (16) La niña la ve bailar
the girl clitic sees dance
'The girl sees her dance'

Constructions like (16) involve an infinitival form. Modern Greek does not have infinitives (cf. Joseph 1983). In places where other languages use an infinitive, Modern Greek makes use of a verb form introduced by the particle *na* and inflected for subject-verb agreement and aspect, as illustrated in (17). Modern Greek has a CPC, involving a passive participle inflected for gender, number and case but not person agreement, as shown in (18). These two constructions constituted the test conditions for experiment III. There were 2 different trials for these test conditions.

- (17) O Goofy, ton $\mu\epsilon$ ide na chorevi
Goofy him-clitic saw prt dance-3sg-imperfective
'Goofy saw him dance'
(18) O Goofy, ton $\mu\epsilon$ ide demeno
Goofy him-clitic saw tied-passive participle
'Goofy saw him tied up'

3.4.2 Results

10 Greek-speaking children, aged from 3;7 to 5;9 (mean age 4;7) from Athens were examined in this experiment. The results of the experiment are summarized on Table 5.

Type	Correct ('No')	Incorrect ('Yes')
CPC	7/20 (35%)	13/20 (65%)
na-clause	19/20 (95%)	1/20 (5%)

Table 5. Proportion of correct vs. incorrect responses on test conditions (17) and (18) for Experiment III.

The accuracy of children's responses to CPC was not adult-like, with incorrect responses 65% of the time. In contrast, the accuracy of children's responses to *na*-clauses was adult-like with correct responses in 95% of the cases.

4. Discussion

The results of the experiments reported in this study show clearly that there is no DPBE in child Greek. First, the results of experiment I indicate that the DPBE is not effective in child Greek clitic contexts, in accordance with McKee's (1992) results on Italian clitics as well as Padilla's (1990) and Baauw et al's (1997) results on Spanish clitics. Greek children exhibit adult-like performance. They responded correctly to sentences with clitic pronouns 95% of the time, indicating their knowledge of the binding requirements of pronominal clitics. Second, Greek children's performance on strong pronoun contexts was again adult-like, with correct responses 87% of the time. Of the 10 incorrect responses with strong pronouns (Table 1), only half were interpreted reflexively by children. Therefore, although the proportion of incorrect responses is a bit higher in strong pronoun contexts than in clitic contexts, it cannot be interpreted as evidence for the presence of the DPBE in child Greek.²

These results are reinforced by those of experiment II. Children responded correctly to sentences with strong pronouns doubled by clitics 95% of the time. Thus, the overall performance of Greek children in contexts with strong pronouns as complements of a verb is highly adult-like. Furthermore, children's performance on sentences with strong pronouns as complements of prepositions is also adult-like, with correct responses in 95% of the cases. This result is quite interesting because it contrasts significantly with what has been reported for prepositional environments in other languages (cf. Baauw et al 1997). Given the fact that Modern Greek makes a clear distinction between prepositional environments that do not permit coreference and those that do, our results on prepositional contexts provide clear evidence that child Greek exhibits no DPBE altogether. This conclusion is further supported by our results on prepositional contexts that allow coreference (Table 4). In these cases, 70% of the time children did interpret the strong pronoun coreferentially with a local antecedent. In other words, in contexts where coreference is allowed in adult language, children opt for this option more than half of the time. However, one should be

very careful as to how to interpret this result. These contexts are ambiguous contexts, allowing two alternative meanings. In the present experiment, children were presented with ambiguous sentences in circumstances that made both interpretations true, hence the results we obtained may be due to a preference that children have for one interpretation over the other. Therefore, prepositional contexts with two alternative readings should be tested in circumstances that make only one of the interpretations true before we reach any final conclusions (cf. Crain & Thornton 1998, for further details on these experimental issues).

The results on strong pronouns obtained in this study are not compatible with what has been reported for strong pronouns in Italian. Baauw et al (1997) report that Italian children allow coreference much more often in constructions with strong pronouns than in constructions with clitic pronouns. Therefore, the question to be asked is why the DPBE is absent altogether in child Greek, even in strong pronoun contexts. Clearly, the evidence from child Greek indicates that a structural explanation along the lines of McKee (1992) cannot be on the right track. Clitics and strong pronouns in Modern Greek occupy different positions, however, they appear to pattern similarly with respect to the DPBE. Baauw et al (1997), on the other hand, tie the presence of the DPBE to the feature specification of pronouns. Clitics in Italian are underspecified for the feature [human], whereas strong pronouns are positively specified. Unlike Italian, Greek strong pronouns are underspecified for the feature [human] in all contexts tested here, i.e. strong pronouns in Modern Greek can have both human and non-human reference. Assuming Baauw et al's (1997) analysis, the lack of the DPBE in child Greek would have to be explained as a result of the underspecification of the feature [human] in strong pronouns, which renders Rule I not applicable not only in clitic contexts but also in strong pronoun contexts. Of course, an analysis along these lines hinges on the issue of the theoretical status of the pronoun *aftos* in Modern Greek. Further research will shed light to this issue.

One final point concerning the asymmetry between CPCs like (17) and embedded *na*-clauses like (18), repeated here as (17') and (18'). Baauw et al (1997) attribute the presence of the DPBE in child Spanish CPCs to the children's misuse of the pronominal system. However, an analysis along these lines cannot provide a solution to the asymmetry between (17') and (18'). Although at this point of investigation one may only speculate about the possible reasons for this asymmetry, I would like to suggest that a likely solution to this puzzle lies on the type of empty subject involved in the two constructions. According to Varlokosta & Hornstein (1992) and Varlokosta (1994), constructions like (17') involve a *pro* as the subject of the embedded *na*-clause. In contrast, I conjecture that constructions like (18') with no person agreement, involve *PRO*. The difference in the type of empty category involved results in a different relation being established between the clitic and the empty category. As a result, different features are being inherited in each case, thus rendering the clitic subject to Rule I in one case but not in the other.

- (17) O Goofy_i ton $\mu\epsilon$ ide [[*pro*] na chorevi]
Goofy him-clitic saw prt dance-3sg-imperfective
- (18) O Goofy_i ton $\mu\epsilon$ ide [[*PRO*] demeno]
Goofy him-clitic saw tied up-passive participle-Acc-Masc-Sg

Endnotes

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¹ Nominative forms of the clitic pronoun exist but cannot occur in subject position. Their use is restricted to some exclamatory and interrogative constructions.

² The results reported in this work are different from those reported in Varlokosta, Karafoti & Karzi (1998), where different subjects were tested. According to Varlokosta et al (1998), children's performance on strong pronouns appeared to be non-accurate in 30% of the cases. However, of all incorrect responses, only 10% were interpreted reflexively by the child, indicating again that the DPBE is not effective in child Greek strong pronoun contexts.

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Passives And Implicit Arguments in Child Language

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1. Introduction

Dutch verbal passives contain a perfect participle and a form of the passive auxiliary *worden*, as illustrated in (1)

- (1) a. Het glas wordt gebroken (door Maaïke).
the glass PASS-AUX broken (by Maaïke)
'The glass is being broken (by Maaïke).'

As indicated in the translation, *worden*-passives like (1) refer to ongoing, dynamic events. Like their English counterparts, Dutch verbal passives have an implicit argument in the sense of Jaeggli (1986) and Roeper (1987a). That is to say, the suppressed external argument of the passivised verb is present in the interpretation of the clause. This paper discusses children's acquisition of the distribution of implicit arguments, in particular in Dutch.

2. Implicit arguments in Dutch

The presence of the implicit argument is most clearly illustrated with alternating causative verbs, like English *break* and *sink*. The classic diagnostics are listed in the examples below: *by*-phrases, purpose adverbials, '*in order to*'-clauses, and instrument-phrases all combine with verbal passives derived from these verbs, but not with anticausatives. The set of alternating causative verbs like *break* is very small in Dutch. I will refer to the transitive variant of such verbs as **causative verbs** and the intransitive as **anticausative verbs**.

- (2) Purpose adverb
a. Het glas werd *expres* gebroken
the glass PASS-AUX on purpose broken
'The glass was broken on purpose.'
- b. * Het glas brak *expres*
the glass broke on purpose