

# THE ENCLISIS-PROCLISIS ASYMMETRY IN THE ACQUISITION OF CLITICS IN GREEK

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## Περίληψη

Στο παρόν άρθρο μελετούμε την εμφάνιση των κλιτικών στον παιδικό λόγο εστιάζοντας σε φαινόμενα ασυμμετρίας. Δεδομένα από 6 παιδιά που κατακτούν την Ελληνική ως μητρική γλώσσα (ηλικία 1;10-3;06) δείχνουν ότι τα παιδιά παρουσιάζουν προτίμηση στη δεξιά πλευρά, δηλαδή τα εγκλιτικά, απλά ή σε ζεύγη, παράγονται χρονικά γρηγορότερα και με μεγαλύτερη συχνότητα από τα αντίστοιχα προκλιτικά. Η προτίμηση αυτή συνίσταται κυρίως στο ότι τα εγκλιτικά είναι 'μετα-τονικά' συστατικά, ακολουθούν δηλαδή την τονισμένη συλλαβή. Ως μετα-τονικά συστατικά προσαρτώνται πιο εύκολα στην προσωδιακή λέξη, π.χ. ενσωματώνονται πλήρως στον πραγματοποιούμενο πόδα. Αντίθετα, τα προκλιτικά είτε αποβάλλονται σε αρχικά στάδια της κατάκτησης ή αποτελούν εξωμετρικά στοιχεία. Πέρα από τα στάδια που προτείνουμε στην φωνολογική κατάκτηση των κλιτικών, συζητούμε την αλληλεπίδραση Φωνολογίας και Σύνταξης στη γλωσσική κατάκτηση, όπου γίνεται σαφές ότι η Φωνολογία καθορίζει τη μορφή των πραγματοποιούμενων δομών σε αρχικά στάδια της εμφάνισης των κλιτικών.

## Keywords

enclisis, proclisis, single clitics, clitic pairs/ clusters, prosodic clitics, asymmetry, edges, interface, phonological acquisition, Optimality Theory.

## 1. Introduction

The goal of this talk is to examine asymmetrical effects in the production of clitics, both single and pairs, in child speech. What is generally defined by asymmetry is the different degree of influence that certain phenomena place on grammatical categories. In other words, certain edges are affected more than others (cf. Bye and de Lacy 2000). Especially with respect to the enclisis-proclisis asymmetry, some types of clitics are considered to be less coherent than others regarding their phonological representation (cf. Peperkamp 1997, Revithiadou 2002, on Greek and its dialects).

The aim of the present paper is to investigate whether acquisitional data exhibit asymmetrical behaviors in the production of clitics. For our purposes we will deal with pronominal clitics and draw on longitudinal data from 6 children who acquire Greek as native language and vary in age between 1;10 and 3;06. Our data demonstrate that Greek children show a preference for the right side, and, consequently, enclitics, both single and pairs, are produced earlier and with higher frequency than proclitics. This preference is basically due to the fact that enclitics are post-stress elements. As such, they are easily included or attached to the prosodic word, e.g. they perfectly become part of the minimal prosodic words produced by children. On the contrary, proclitics are either deleted in initial stages of language development or tend to be extrametrical. We suggest certain stages in the acquisition of clitics and furthermore discuss the interface of Phonology with Syntax. The data under investigation

illustrate that Phonology determines the structures produced even at ages during which Syntax would be expected to be dominant and control children's productions.

## 2. Properties of Clitics and Theoretical Accounts on Asymmetry

Clitics are generally assumed to be weak, non-lexical elements, such as pronouns, prepositions and grammatical particles. Clitics emerge in cases where weak forms are preferred over strong ones, as shown by the Dutch examples in (1). As weak elements they are always dependent on the word that hosts them, and, consequently, fail to receive stress, that is, they are inherently unstressed<sup>i</sup> (cf. Kenstowicz 1994). Clitics are normally monosyllabic, but they can form clitic pairs/ clusters.

As for their phonological representation, clitics are considered to be morphosyntactic words, which do not constitute PWds of their own (cf. Selkirk (1995,1996). According to Selkirk (1995, 1996), prosodic clitics fall into three major categories, i.e. free, internal, and affixal clitics, depending on their phonological representation (see 2). What is generally defined as cliticization is the adjunction of floating clitic syllables to higher prosodic structure, e.g. a neighboring phonological word by stray syllable adjunction (cf. Berendsen 1986).

- (1) a. Je vergist je / \*jou [jə vər'ɣɪst jə] 'you're making a mistake'  
 b. Schaam je / \*jou, ['sxɑ:m jə] 'shame on you'  
 (examples from Booij 1996)

- (2) (i) free clitics (*fnc (lex) pWd) pPh*  
 (ii) internal clitics (*(fnc lex) pWd) pPh*  
 (iii) affixal clitics (*fnc (lex) pWd) pWd) pPh*

Phonological and morphological phenomena, such as positional preservation, iambic footing asymmetry, prefix-suffix asymmetry, affect only one edge of a constituent as Bye and de Lacy (2000) have argued. Within OT, such asymmetrical behaviors have been accounted for in terms of constraint rankings where constraints of the ALIGNMENT family favoring the left edge, like the ALIGN (Root, L, PrWd, L) constraint, outrank the right-edge counterpart (Cohn and McCarthy 1994). Cohn and McCarthy (1994) further stipulated a fixed ranking regarding asymmetries.

Nevertheless, Pater (1998) has adopted the ANCHOR-RIGHT I-O constraint to account for child language phenomena. The use of such a constraint underlines the fact that the right edge is powerful in child speech. This is important to keep in mind, because it will become relevant to our analysis later on. Extending on Cohn and McCarthy (1994), Nelson (1998) recognizes the existence of a general constraint that refers to both edges at once and a specific one that refers to the left edges alone.

Bye and de Lacy (2000) propose the *Edge-Asymmetry Hypothesis* (EAS) according to which no constraint may refer to the right edge of a constituent. With this claim they underline the predominance of the left edge in asymmetrical behaviors, in the sense that left edges are

preferred to host morpho-phonological phenomena. The EAS is further inspired by the fact that right-edge phenomena do not necessarily refer to the right edge, which, in theory, is translated in the fact that there is no need for constraints referring specifically to the right edge.

Kramer (2003), on the other hand, suggests that the EAH is too strong as a claim. Drawing on data on regressive vowel harmony and the phonotactics of consonants at right word edges, he argues that left-edge tendencies should be captured as emerging from a general lexical/functional asymmetry.

Before we move to the data and the analysis and in order to avoid any kind of confusion with the terminology used in syntactic analyses, it is worth mentioning that we refer to enclitics and proclitics, both single and pairs, in purely phonological terms, that is, we define them as post-stress and pre-stress elements respectively.

### 3. Enclisis and Proclisis in Greek Child Speech

The observation that is dominant in our data is that single enclitics appear first and seem to be favored by children. (3a-e). Single proclitics, on the other hand, appear later than enclitics. This is confirmed by the fact that proclitics are deleted in the stages during which enclitics are produced. (3f-g). One of the reasons this is happening, as claimed in section 1, is that single enclitics are post-stress elements and they perfectly fit the minimal prosodic word, in other words, they are prosodic word internal (3c,d). Marinis (2000) claims that enclitics and proclitics appear at the same time with enclitics appearing a couple of weeks before proclitics. Nevertheless, a period of two weeks makes a huge difference for language acquisition, in the sense that it may even constitute a separate stage in language development.

- (3) a. /ðos(e)mu/ → [ðo.sem], [ðo.bu], [ðo.mu] ‘give-2<sup>ND</sup>.SG.IMP.ME<sup>ii</sup>’  
 b. /vɣal(e)to/ → [vɣa.to] PrWd ‘take out-2<sup>ND</sup>.SG.IMP. IT’  
 c. /par(e)ti(n)/ → [(pa.ti)], [(pa.ti).ne] ‘take-2<sup>ND</sup>.SG.IMP. HER’  
 d. /ðos(e)to/ → [e.(jo.to)] ‘give-2<sup>ND</sup>.SG.IMP. IT’  
 e. /par(e)to/ → [(pa.to).no] ‘take-2<sup>ND</sup>.SG.IMP. IT’  
 f. /ti ‘vazo/ → [va.zo] ‘IT put-1<sup>ST</sup>.SG.PRES.IND.’  
 g. /θa to ‘paro/ → [pa.ro] ‘IT take-1<sup>ST</sup>.SG.FUT.IND.’

In enclitic pairs, one member of the pair can be word internal and not adjoined to the phonological word. This is a characteristic of both adult and child language in Greek. In child language it is part of the base that is deleted or fused as shown in (4a), (4b) respectively.

- (4) a. /ðose‘mu-tin/ → [[ðo.mu.]<sub>prwd</sub>ti]<sub>prwd</sub> ‘give-2<sup>ND</sup>.SG.IMP. ME-HER’  
 b. /ðose‘mu-to/ → [[ðo.mu.]<sub>prwd</sub>to]<sub>prwd</sub> [to.to.]<sub>prwd</sub> mu]<sub>prwd</sub> ‘give-2<sup>ND</sup>.SG.IMP. ME-IT’

Proclitics, on the other hand, start being realized when tenses (i.e. finiteness) and the subjunctive (i.e. mood) are acquired, but phonological factors still hold, that is, proclitics are fused and become part of the minimal word or foot (examples in (5) and (6)), in order to facilitate their production. This further underlines why it is not children's inability to produce clitics that makes proclitics drop, but, rather, grammatical principles. This is further exemplified by the examples in (7), where it is shown that children produce proclitics, but they prefer to realize them as enclitics. The examples in (7) give further evidence for the enclisis-proclisis asymmetry.

Except for the prosodic structure enclitics belong to, which explains why enclitics are realized, while proclitics are not, purely segmental and perceptual reasons can be responsible for the realization of enclitics. More specifically, enclitics consist of an unmarked CV syllable, which in turn consists of a highly unmarked voiceless stop and a relatively unmarked vowel. Voiceless stops are the least marked consonants, given the sonority hierarchy (cf. Gnanadesikan to appear, for child speech). This facilitates the production of enclitics.

The question that directly arises from the above observation is then why proclitics, which exhibit more or less the same segmental composition as enclitics, are produced later or are deleted. The answer is that this happens due to perceptual factors that take over. According to experimental and production studies (cf. Echols and Newport 1992, Gerken et al. 1990, Gerken 1994, Gerken and McIntosh 1993, Carter and Gerken 1998, Pater 1998 and Carter 1999), it is the stressed and rightmost syllables that are faithfully kept during the extensive stage of child language truncations, given that stressed and rightmost syllables signal word boundaries. The model predicts- hopefully- that, in longer words, the closer unstressed syllables are to the edgemoat ones the easier to be produced compared to medial ones. The above constitutes major evidence for the enclisis - proclisis asymmetry in child speech. Naturally, faithfulness to proclitics increases in the course of development, up to the point they are always faithfully realized.

The case in (6e) is further evidence of the difficulty of proclitics to be produced and the major role of phonology and perception in child production. It is apparent that the child perceives the clitic as a syllabic slot, which she has to fill in her production. Since she has not acquired the syntactic category "clitic", as we claimed above, she turns to reduplication to do the job. Consequently, a syllable relatively as unmarked as that of the proclitic, is produced. Enclitic pairs are also the first to emerge. The asymmetry observed with single clitics holds for clitic pairs too.

- (5) a. /to '(e)xo/ → [to.ço] 'IT-have-1<sup>ST</sup>.SG.PRES.IND'  
 b. /tin '(e)vales/ → [ti.va.leθ] 'HER- put-2<sup>ND</sup>.SG.PAST.IND'  
 c. /to '(e)kane/ → [to.ka], [to 'e.ka] 'IT-do-3<sup>RD</sup>.PAST.IND'
- (6) a. /na to 'parume/ → [to 'pa.lu.me] 'IT-take-1<sup>ST</sup>.SG.PRES.SUBJ'  
 b. /θa to ayo'raso/ → [to.ɣo.'la.ço] 'IT-buy-1<sup>ST</sup>.SG.FUT.IND'  
 c. /to 'vrice/ → [to.bi.ce], [to.vi.çe] 'IT-find-3<sup>RD</sup>.SG.PAST.IND'  
 d. /me 'ðagose/ → [me.go] 'ME-bite-3<sup>RD</sup>.SG.PAST.IND'  
 e. /θa to 'parume/ → [pa.'pa.ru.me] 'IT-take-1<sup>ST</sup>.PL.PRES.IND'

- (7) a. /θa to 'vvalo/ → [ʔa.lo.to] 'take out-1<sup>ST</sup>.SG.FUT.IND. IT'  
 b. /θa to 'valo/ → [ʔa.lo.to] 'put-1<sup>ST</sup>.SG.FUT.IND. IT'

The examples in (8) demonstrate that enclitics pairs are again acquired before proclitic pairs. Their production is facilitated by stress readjustment (8a), (8b), or partial deletion of the base (8b). Proclitic pairs, on the other hand, drop one of their members, mainly that, which is not closer to the left edge of the word, before they are fully produced.

- (8) a. /pare'mu-to/ → [pa.le.'mu.to], [pa.le.'to.mu] 'take from-2<sup>ND</sup>.SG.IMP. ME-IT'  
 b. /ðose'mu-to/ → [ðo.mu.to], [ðo.çe.'mu.to], [lo.θe.'mu.to], [ðo.θe.'mu.to],  
 [to.to.mu] 'give-2<sup>ND</sup>.SG.IMP. ME-IT'  
 c. /na tis ta 'ðoso/ → [na ti 'ðo.co] 'HER-THEM give-1<sup>ST</sup>.SG.PAST.SUBJ'  
 d. /mu to 'pire/ → [mu to 'pi.re] 'ME-IT take from-3<sup>RD</sup>.SG.PAST.IND'

As already mentioned stress readjustment takes place only with enclitics. This is further shown in (9).

- (9) a. /maze'pseta/ → [ma.ze.'tse.ta] 'pick up-2<sup>ND</sup>.SG.IMP. THEM'  
 b. /ftc'akse to/ → [ca.çe.to], [te.pe.'çe.to] 'FIX-2<sup>ND</sup>.SG.IMP. IT'  
 c. /val(e)tin/ → [va.le.'ti.ne] 'put in-2<sup>ND</sup>.SG.IMP. HER'

To wrap it up, we argue that the emergence of enclitics is related to phonological and perceptual reasons. These findings appear to be problematic for accounts, such as that of Golston (1995), that consider syntactic constraints to dominate phonological ones and phonological constraints to take over only when having to choose between structures, which are syntactically equally well-formed. Nevertheless, they are in line with Harford and Demuth's (1999) account, in which the authors that argue for the dominance of phonological constraints to syntactic ones, especially in language development. Moreover, the observed asymmetry of the left and right edge is due to the misalignment of proclitics, both single and pairs. The right edge seems to be far more unmarked in child language compared to the left edge.

#### 4. Statistical bias and Developmental Stages

In this section we provide further statistical support for the above observations regarding clitics' productions. What is evident for the percentages of the 3 tables below is that there is a bias for the right side, that is, enclisis. In table 1 the percentages of the emergence of fused single clitics are given. The percentages for both enclitics and proclitics are very high, except for *Bebis' 1* fused enclitics productions. This is only because *Bebis 1* produces enclitics but not in their fused form. The percentages in this table are evidence for the fact that enclitics, but especially proclitics, which occupy the 'marked' edge, start being produced properly as long as they fall within the templatic limits imposed by the phonological principles of child language (i.e. minimal prosodic words). This also indicates that it does not take acquiring tenses for proclitics to be produced. Phonology clearly outranks syntax.

In Tables 2 and 3 we provide the totals for the full production and deletion of all clitics. What is observed is that the percentage of single enclitics' preservation is very high for all children. *Bebis 2*, who is one of the youngest children, exhibits full production of single enclitics. It is worth mentioning that, while the number of tokens for proclitics present in the data is higher than that of single enclitics, their percentage of preservation is lower and the percentage of deletion is higher compared to the numbers for single enclitics. This lets us argue that single enclitics are the first to emerge and consequently the more unmarked structures. We assume that the number of tokens for single enclitics is lower only because we started our recordings during the stage that proclitics started being produced more often. Consequently, we believe that there is a stage earlier than those existing in our recordings, where all children produced only single enclitics.

**Table 1** Fused single clitics

	FUSED ENCL.	FUSED PROCL.
Melitini	(68.75%)	(78.46%)
Bebis 1	(36.58%)	(79.72%)
Bebis 2	(100%)	-
Felina	(86.20%)	(33.33%)
Dionisis	(60.86%)	(49.05%)
Marilia	(71.42%)	(86.04%)

**Table 2** Total (production)

	SIN.ENCL.	SIN.PROCL.	ENCL. CL.	PROCL. CL.	TOTAL
Melitini	90 (22,27%)	304 (75,24%)	8 (1,98%)	2 (0,49%)	404 (100%)
Bebis 1	107 (23,88%)	332 (74,10%)	6 (1,33%)	3 (0,66%)	448 (100%)
Bebis 2	16 (64%)	9 (36%)	-	-	25 (100%)
Felina	67 (13,92%)	369 (76,71%)	13 (2,70%)	7 (1,45%)	481 (100%)
Dionisis	23 (9,87%)	205 (87,98%)	1 (0,42%)	4 (1,71%)	233 (100%)
Marilia	38 (47,50%)	38 (47,50%)	-	4 (5%)	80 (100%)

**Table 3** Total (deletion)

DELETED	SIN.ENCL	SIN.PROCL	ENCL. CL.	PROCL. CL.	TOTAL
Melitini	4 (13,79%)	24 (82,75%)	-	1 (0,03%)	29 (100%)
Bebis 1	3 (6,25%)	44 (91,66%)	-	1 (2,66)	48 (100%)
Bebis 2	-	17 (100%)	-	-	17 (100%)
Felina	4 (18,18%)	18 (81,81%)	-	-	22 (100%)
Dionisis	-	15 (100%)	-	-	15 (100%)
Marilia	-	-	-	-	-

The data discussed so far lead to the establishment of 3 developmental stages in the acquisition of clitics in Greek. The age in parenthesis roughly indicates the mean age of the children under investigation. These stages additionally exemplify asymmetry effects.

**stage 1:** single enclitics emerge, no proclitics. Instances of enclitics instead of proclitics but never vice versa (1;07.05-1;10)

**stage 2:** single proclitics and enclitic pairs are produced, stress retraction takes place (1;10-2;07)

**stage 3:** enclitics and proclitics, both single and pairs emerge. Stress readjustment takes place correctly (after 2;06)

## 6. How Would OT Account for the Greek Facts?

The important effect of our claims on clitic asymmetry and the role of phonology in children's productions is that there is no necessity to recruit specific constraints referring to clitics, as was supported in previous work of ours (Tzakosta 2003, in press, to appear). Nevertheless, constraints referring to edges are necessary in order to illustrate asymmetry effects on children's grammar. A constraint referring to the right edge is essential, contra claims made by Bye and de Lacy (2000), who want the right edge to not play a special role in asymmetric phenomena. The constraints relevant to our analysis are drawn from all families, that is, well-formedness, faithfulness and alignment, and are illustrated in (10) below.

- (10) MINWD: maximally (C)V(C).(C)V(C) constructions  
FTBIN: feet should be binary at the syllabic or the moraic level  
ANCHOR-RIGHT I-O: elements at the right edge of the input word and the output word stand in correspondence (Pater 1997)  
FAITH: elements of the input surface in the output  
ALIGN ( $\sigma$ , L, PrWd, LR): align the stressed syllable with the left edge of the PrWd

The rankings corresponding to the stages proposed in section 5 are given in (11), (12) and (13) respectively.

- (11) Stage 1: monosyllabic enclitics emerge, but no proclitics. Rare substitution of enclitics for proclitics.

ALIGN ( $\sigma$ , L, PrWd, L), MINWD, FTBIN, ANCHOR-RIGHT-IO >> FAITH
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- (12) Stage 2: Single proclitics and enclitic pairs are produced, stress retraction takes place.

FTBIN >> ANCHOR-RIGHT-IO >> ALIGN ( $\sigma$ , L, PrWd, LR), FAITH >> MINWd
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- (13) Stage 3: Enclitics and proclitics, both single and clitic pairs emerge. Stress readjustment takes place correctly.

FAITH, FTBIN, ANCHOR-RIGHT-IO >> ALIGN ( $\sigma$ , L, PrWd, LR), MINWD
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The above rankings illustrate the dominance of the right side, and, consequently, the emergence of enclitics in earlier stages of language development, and further underline the fact that learning proceeds by gradual promotion of faithfulness and demotion of constraints that require well-formedness, in our case, word minimality.

## 7. Conclusions

We hope to have demonstrated an enclisis – proclisis asymmetry in Greek child speech. Asymmetry has also been explored and reported for adult Greek (cf. Revithiadou 2002). More specifically, single enclitics and enclitic clusters are favoured by children acquiring Greek, and, consequently, emerge before their equivalent proclitics. Generally, single clitics are produced before clitic pairs. Enclitic pairs also emerge before proclitic pairs. These claims are further supported by a statistic bias for enclitics instead for proclitics, the enclitics' flexibility with respect to their position, as well as their phonological coherence, namely they are part of the produced minimal word, they cause stress readjustment, and partial deletion of the base. Enclitics are never phonologically less coherent than proclitics as additionally evidenced for Italian, Greek and Dutch adult language (cf. Peperkamp 1997).

Moreover, our findings have demonstrated that hardly is there any evidence that children acquire the syntactic category 'clitic'. Phonological, segmental, prosodic, and/or perceptual factors are mainly involved in children's productions of clitics and can account for the asymmetry. Further experiments need to be conducted in order to investigate the point in time when 'syntactic clitics' emerge "consciously" in child speech.

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## Notes

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<sup>i</sup> They may receive stress at a post-lexical level, though.

<sup>ii</sup> Clitics are in bold letters in the examples. / e/ is parenthesized in the input when it is not necessary to appear in the adult form.

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