Title: A typology of Greek clitics with special reference to their diachronic development

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Abstract:

In this paper, we present a dialectal typology of pronominal object clitics in Greek and claim that clitic positioning can be subject not only to syntactic restrictions but also to prosodic ones. More specifically, on the basis of a cross-linguistic survey, we provide a range of *templates*, that is, prosodic patterns clitics participate in with other constituents of the clause. Furthermore, we show that there is a hierarchy among these templates that ranks them according to their relative wellformedness. The most optimal templates are found in 2P dialects, confirming once again a claim put forward in previous works ((Bošković 1995, 2001, Franks 1998, 2000, Revithiadou 2006) according to which the exact position of a clitic in these systems relies crucially on phonology. This particular claim acquires greater significance when dialects that are in a transition from a 2P to a non-2P system are taken into consideration. These dialects provide valuable evidence for the vital role prosodic factors play in language change. In light of these cross-dialectal findings, we construct a viable hypothesis regarding the diachronic development of non-2P clitics (Standard Greek) from 2P ones (Medieval Greek) and investigate the reasons that prevented this change from taking place in 2P dialects.

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1. Introduction

Greek weak pronominals have been investigated in detail from various perspectives. In contrast to their strong counterparts, such elements are prosodically dependent on a neighboring constituent within the clause. The focus of investigation has primarily been on their morphosyntactic properties, with special reference to the issue of whether they constitute syntactic clitics or affixes (see Joseph 1988, 2003, Philippaki–Warburton and Spyropoulos 1999). Recently, there has been a shift of attention towards the historical development and dialectal variation of such elements (Pappas 2001 et seq., Condoravdi and Kiparsky 2001, 2004, Terzi 1999ab) with special emphasis on their prosodic properties (Revithiadou 2006). In this paper, we attempt to combine and extend the relevant pieces of information from all these angles in order to obtain a more comprehensive picture of their status and diachronic development. More specifically, we focus on weak pronominal clitic objects and present a cross-dialectal typology of pronominal cliticization in Greek based on: (a) their position within the clause, i.e. whether they occur in second position (henceforth 2P) relatively to their verbal host or not (henceforth non-2P); and (b) their prosodic structure, i.e. the direction of prosodic association, the degree of prosodic incorporation to their host, etc., as revealed by sandhi rules and rhythmic stress.

In light of this cross-dialectal survey, we provide a range of prosodic patterns for pronominal clitics, called here *templates*, which describe the dialectal situation of clitics in Greek. At the same time, we argue that these templates provide the basis for constructing a plausible hypothesis regarding the evolution of clitic patterns in Greek. To explain, the cross-dialectal variation reveals a wellformedness hierarchy holding among prosodic templates. Certain patterns appear to have a broader empirical coverage and, more crucially, to be associated with 2P dialects. This observation gains theoretical significance under the assumption that prosodic factors have been shown to determine the position a clitic will surface in 2P systems (Bošković 1995, 2001, Franks 1998, 2000, Revithiadou 2006). In other words, not all attested prosodic patterns of clitics are equally well-formed and, moreover, the optimal ones function as filters and select the optimal position of clitics in 2P dialects.

In this paper, we take the above claim one step further and show that prosodic templates, via the wellformedness hierarchy, played a role in shaping the evolutionary path of

Greek cliticization. More specifically, we propose a hypothesis according to which grammaticalization processes caused certain prosodic templates to lose ground and trigger a prosodic reanalysis that eventually transformed the 2P pattern to the non-2P one. Such a development is empirically supported, first, by the prosodic typology of modern dialects, especially those that exhibit transition from 2P to non-2P, and, second, by historical data from texts. More importantly, it is reinforced by the theoretical constructs argued elsewhere and further developed here, such as, the wellformedness hierarchy of clitic templates (Revithiadou to appear), and the filtering role that prosody may exercise on syntax (Bošković 1995, 2001, Revithiadou 2006).

The remaining of this paper is organized as follows: In section 2, we provide an overview of the basic clitic types attested in the dialects under examination and set the stage for the discussion that follows. In section 3, we present a detailed description of clitic prosodification patterns both in 2P and non-2P systems, as revealed by a wide variety of sandhi rules as well as changes in the metrical structure of input forms. In section 4, we review Revithiadou's (2006, to appear) proposal on the filtering effect phonology exercises on syntax and discuss in detail Cypriot Greek as a case study. We also address the role of wellformedness hierarchy in the evolution of Greek cliticization and support it with empirical evidence from dialects that are in the transition from a 2P to a non-2P system. Based on the findings of the cross-dialectal typology, we propose in section 6 a hypothesis for the diachronic development of Greek pronominal cliticization from the 3rd c. BC onwards. More specifically, we investigate the role of prosodic factors, i.e. templates, in the shaping of clitic outputs with special emphasis on the 2P vs. non-2P split and the parameters that led to the transition from a 2P system (i.e. Medieval Greek) to a non-2P one (i.e. Standard Greek). In section 7, we conclude this paper and suggest directions for future research.

2. The distribution of pronominal clitics in Greek

Greek pronominal clitics fall into three basic types depending on their positioning within the clause. In this section, we outline the basic morphosyntactic properties of each one of them.

First, non-2P clitics are always preverbal with the non-imperative forms of the verb, regardless of whether a function word[1] is present in the clause or not. With imperatives and

[1] As function words qualify both stressed and unstressed complementizers, wh-elements, modal and negation

gerunds weak pronominal clitics are always postverbal. A representative example of this clitic type is Standard Greek, which exhibits the following verb group structure:

(1) *Standard Greek non-2P clitics*

a. pu na *to* ðjavási
COMPL SUBJ it-CL read-3SG
'that s/he could read it'

b. ípe óti *to* ðjávase
say-3SG.PAST COMPL it-CL read-3SG.PAST
's/he said that s/he has read it'

c. *to* ðjávase
it-CL read-3SG.PAST
's/he read it'

d. ðjávase *to*
read-2SG.IMP it-CL
'read it!'

It is well-established that clitic positioning in imperatives (and gerunds) is the by-product of the morphosyntactic licensing of mood in Greek clause structure. More specifically, it has been argued[2] that Greek moods are licensed in a M(ood) functional category, while clitics are attached in a position between the Neg and Infl functional categories. Since imperative is the only affixal mood in Greek, the overt V-to-M movement, which licenses the imperative morphology, leaves behind a copy of the moved clitic.

(2)

		Mood	Neg	Fut	Cl	Infl	V
a.	indicative:	∅	(ðe)	(θa)	to	ðjavázi	copy
b.	subjunctive:	na/as	(mi)		to	ðjavázi	copy
c.	imperative:	ðjávaze			to	$copy_V$	$copy_{cl}$

markers.

[2] See Rivero (1994), Rivero and Terzi (1995), Philippaki–Warburton (1998), Philippaki–Warburton and Spyropoulos (1999), Roussou (2000), a.o.

Second, 2P clitics are located before their verbal host when a function word is present in the clause. Otherwise, they are post-verbal. Cypriot Greek is a representative example of this type:

(3) a. pu na *to* θkjavási
COMPL SUBJ it-CL read-3SG
'that s/he could read it'

b. ípen óti *to* eθkjávasen
say-3SG.PAST COMPL it-CL read-3SG.PAST
's/he said that s/he has read it'

c. eθkjávasén do
read-3SG.PAST it-CL
's/he read it'

d. θkjávase *to*
read-2SG.IMP it-CL
'read it!'

Finally, there are pronominal clitics that always appear after the verb form, and behave as phrasal affixes. Pontic Greek exhibits this pattern. The examples in (4) are taken from Drettas (1997).

(4) a. eskótosen*aten* (/eskótosen aten/) D533
kill-3SG.PAST her
's/he killed her'

b. aγapát*emen* (/aγapáte emen/) D253
love-2PL.PRES me
'love me!'

In this paper, we leave Pontic enclitics aside and focus on the 2P vs. non-2P distinction.[3] More specifically, we take weak pronominal object clitics to be syntactic elements,[4] and

[3] Contra to Drettas (1997), who argues that clitics are object agreement suffixes, Condoravdi and Kiparsky (2001) have convincingly shown that clitics are not part of the lexical word that hosts them. On the basis of syntactic and phonological evidence, they propose that clitics are head-adjoined to V^0. The interested reader is

furthermore assume that their distribution derives from the interaction between syntax and phonology. In the spirit of work by Bošković (1995, 2001),[5] we suggest that syntax creates two copies of a clitic by means of a movement operation, and phonology, on the basis of a constraint hierarchy that determines the phonological make-up of these strings, selects the most optimal copy to be pronounced. To clarify, we converge with previous analyses according to which a movement rule moves the clitic from its base-generated position to a position in the Infl layer. Thus, two copies of the clitic are created. Revithiadou (2006) has shown that phonology selects the copy of the clitic that best satisfies the prosodification constraints of the relevant system. Prosody is intimately involved in this selection procedure because in 2P systems the constraint hierarchy that derives the prosodic templates outranks the syntactic constraint that requires the highest copy of the chain to be realized. Under the proposed analysis, Standard and Cypriot Greek, for instance, share the same syntactic cliticization rule, but they diverge in the way phonology interprets the derived chain. In Standard Greek, the phonological component, due to high-ranking of the relevant syntactic constraint, chooses to always realize the highest copy of the chain. In contrast, in Cypriot Greek, the prosodification constraints decide not only on how the clitic will be incorporated in the prosodic structure but also on where exactly it will be pronounced, thus giving rise to a 2P system. We will return to the specifics of this approach in section 4.

Since in the analysis adopted here the surface position of clitics critically hinges on the syntax-phonology interface, we move on to investigating the prosodic patterns clitics are organized into in several dialectal varieties of Greek. In turn, we provide a thorough examination of the attested patterns which unveils a system of implicational relations that hold among the prosodic templates. These templates are claimed to be responsible both for the shaping of the synchronic typology as well as of the diachronic evolution of clitics.

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referred to their paper for more information on the proposed analysis. The present study concurs that clitics are assigned by the syntax and not by the morphology. Postlexical phonology provides a wide range of arguments for treating Pontic enclitics as phrasal suffixes (Anderson 1992).

[4] A detailed argumentation in favor of the syntactic status of weak pronominal object clitics is given in Philippaki–Warburton and Spyropoulos (1999). For the opposite view the interested reader is referred to Joseph (1988, 2003) a.o.

[5] His analysis builds on Franks' (1998, 2000) ideas on phonologically motivated deletion of copies (see also Nunes 1995, 1999, 2004).

3. A prosodic typology of pronominal clitics

3.1. Dialect material and classification

Besides Standard Greek, we extend our investigation to several dialects from Asia Minor Greek (Cappadocian, Kouvoukliotika), the southern-eastern zone (Cypriot, Karpathos), the island of Samos as well as the Azov region in Ukraine (Marioupoli).

Cappadocian is nowadays extinct (or almost extinct).[6] The idioms of twenty or so villages together make up what is called here 'Cappadocian'. In this study, we focus on the varieties of Delmeso (Del), Ulaghatsh (Ul), Aravan (Ar), Malakopi (Mal), Phloita (Phl) and Potamia (Pot). Cappadocian was influenced by Turkish at all grammatical levels. Our research is based primarily on texts that reflect the spoken vernacular of Cappadocian at the late 1910s. The basic source for this article is Dawkins's (1916, henceforth D) grammatical description of the dialects of Asia Minor as well as the oral archives of the Center of Asia Minor Studies in Athens. Additional data were retrieved for Ulaghatsh from Kesisoglou (1951, henceforth K). Kouvoukliotika is also an Asia Minor dialect once spoken in the area of Prousa. The source is Deligiannis' (2002, henceforth Del) grammatical description and texts. Luckily, next to the orthographic notation, Deligiannis also provides phonetic transcriptions of the dialectal forms.

The Cypriot Greek data are drawn from the Cypriot Greek Corpus, compiled by the author with the help of native speakers of the varieties of Nicosia and Paphos. The Karpathos data are taken from Minas' (2002) grammatical description. They have also been cross-checked with native speakers of the dialect.

Samos is a Greek dialect of the North-Eastern zone spoken in the island of Samos. The data are drawn from Zafeiriou's (1995, henceforth Z) grammatical description and dictionary of the dialect.

Marioupoli is a Tauro-Roumeic dialect spoken at the Azov region (Ukraine). Our sources for this dialect are the grammatical descriptions of Pappou–Zouravliova (1999, henceforth PZ) and Simeonidis and Tombaidis (1999, henceforth ST). Pappou–Zouravliova provides phonetically transcribed samples of the dialect and insightful comments on the

[6] Recent research by Mark Janse has revealed that varieties of Cappadocian are still spoken in restricted areas of Greece.

pronunciation of the dialectal forms. The Standard Greek data are based on the speech of the authors.

Because the material is drawn from various sources (e.g. grammatical descriptions, dictionaries, texts), we were extra cautious in the interpretation and analysis of the data. Whenever possible, the dialectal forms were cross-checked with additional sources and/or with native speakers.

As mentioned in section 2, on account of the morphophosyntactic criteria that control the distribution of weak pronominal clitic objects, the aforementioned dialects are bifurcated into (a) 2P systems and (b) non-2P ones. Prosodically, the pronominal clitics show different degrees of cohesion with preceding and/or following lexical material (i.e. function words, verbs, etc.). Table 1 summarizes all attested prosodic formations, i.e. templates,[7] a pronominal clitic participates in with other constituents in the dialects at hand. The templates are visualized with the help of abstract examples.[8]

[7] These templates result from the interaction of various prosodic constraints (see Selkirk 1995 for details). Selkirk draws a distinction among three prosodic types of clitics: (a) *internal* [fnc cl V]$_{PrW}$, (b) *affixal* [fnc cl [V]$_{PrW}$]$_{PrW}$, and (c) *free* [fnc cl [V]$_{PrW}$]$_{p\text{-phrase}}$.

[8] In this paper, the following abbreviations are used: V: verb, cl: clitic, fnc: unstressed function word, fnć: inherently stressed function word, F: foot, PrW: prosodic word, p-phrase: phonological phrase.

No	*template*	*abstract example*	*description*
1.	$[[V]_{PrW}$ cl$]_{p\text{-}phrase}$ $[[fnć]_{PrW}$ cl$]_{p\text{-}phrase}$	$[[mázeves]_{PrW}$ mas$]_{p\text{-}phrase}$ $[[pjós]_{PrW}$ mas$]_{p\text{-}phrase}$	clitic adjoins to p-phrase
2a.	$[V$ cl$]_{PrW}$	$[mázevézmas]_{PrW}$	clitic incorporates into PrW of V
2b.	$[fnć$ cl$]_{PrW}$ $[V]_{PrW}$	$[pjóz$ mas$]_{PrW}$ $[mázeve]_{PrW}$	clitic incorporates into PrW of fnć
3.	$[fnć]_{PrW}$ $[$cl $[V]_{PrW}]_{PrW'}$	$[pjós]_{PrW}[maz[mázeve]_{PrW}]_{PrW'}$	fnć is a PrW; clitic adjoins to PrW of V
4.	[fnć] $[$cl $V]_{PrW}$	$[pjós]_{PrW}$ $[tuzmázeve]_{PrW}$	fnć is a PrW; clitic incorporates into PrW of V
5.	$[$fnc cl $[V]_{PrW}]_{p\text{-}phrase}$	$[$as mas $[mázeves]_{PrW}]_{p\text{-}phrase}$	fnc – clitic adjoined to p-phrase
6.	$[[$fnc̀ cl$]_{PrW}$ $[V]_{PrW}]_{PrW'}$	$[(àzmaz)_{PrW}$ $[mázeves]_{PrW}]_{PrW'}$	fnc – clitic incorporate with the V into a compound-like construction[9]
7a.	$[$fnc cl $[V]_{PrW}]_{PrW'}$ $[$cl cl $[V]_{PrW}]_{PrW'}$	$[$az maz $[mázeves]_{PrW}]_{PrW'}$ $[$mastuz $[mázeves]_{PrW}]_{PrW'}$	fnc – clitic adjoin to PrW of V
7b.	$[($fnc cl$)_F$ $[V]_{PrW}]_{PrW'}$	$[(àz$ maz$)_F$ $[mázeves]_{PrW}]_{PrW'}$ $[(màstuz)_F$ $[mázeves]_{PrW}]_{PrW'}$	fnc – clitic form a F and adjoin to PrW of V
8.	$[$fnc cl $V]_{PrW}$ $[$cl cl $V]_{PrW}$	$[azmazmázivis]_{PrW}$ $[mastsmázivis]_{PrW}$	fnc – clitic incorporate into PrW of V

Table 1. Prosodic templates of weak pronominal clitic objects in Greek dialects.

In the following sub-sections, we proceed to a thorough examination of clitic constructions and review the phonological evidence that shows how clitics are prosodified in each dialect examined here. We start by examining prosodic formations of 2P clitics (§3.2) and then proceed to discussing non-2P clitics (§3.3.).

[9] I.e. a recursive PrW which consists of two PrWs and it is the typical prosodic structure for word-word compounds, e.g. *peði-θávma* 'child-prodigy'.

3.2. Second position clitics

Table 2 presents the prosodic templates attested in 2P dialects. We observe that in these dialects clitics prosodify with the function word only if the latter is stressed (i.e. modal particle, negation, wh-element). Otherwise, the *fnc cl* cluster adjoins recursively to the PrW of the verb either as a flat structure (e.g. Karpathos, Cypriot) or as a foot (e.g. Cappadocian). In short, the clitic procliticizes to the verb only when the neighboring functional element lacks an inherent accentual prominence.

In the absence of a function word in the clause, the clitic is systematically realized in a post-verbal position where it either prosodically incorporates as an internal clitic to the verb or, alternatively in some dialects (e.g. Cappadocian), it incorporates at some higher level such as the p-phrase (see fn 10).

A few more comments are also in order here. First, enclitics appear to be more coherent than proclitics. We take this to be a reflection of the well-known left-right asymmetry (McCarthy and Prince 1993a, Bye and de Lacy 2000, a.o.). Second, Karpathos Greek shows variation between template 2b and template 6 when the function word is stressed. As we will see shortly, the pronominal clitic incorporates into the PrW of the function word but, with certain function words, the cluster [fnć cl] is parsed together with the verb into a compound-like construction: [[fnè cl]$_{PrW}$ [V]$_{PrW}$]$_{PrW'}$ (template 6).

2P	*prosodic templates*	*No*
Cappadocian	[fnć cl]$_{PrW}$ [V]$_{PrW}$	2b
	[(fnc cl)$_{F}$ [V]$_{PrW}$]$_{PrW'}$	7b
	[V cl]$_{PrW}$	2a
Cypriot	[fnć cl]$_{PrW}$ [V]$_{PrW}$	2b
	[fnc cl [V]$_{PrW}$]$_{PrW'}$	7a
	[V cl]$_{PrW}$	2a
Karpathos	[fnć cl]$_{PrW}$ [V]$_{PrW}$ ~ [[fnè cl]$_{PrW}$ [V]$_{PrW}$]$_{PrW'}$	2b ~ 6
	[fnc cl [V]$_{PrW}$]$_{PrW'}$	7a
	[V cl]$_{PrW}$	2a

Table 2. Prosodic templates in 2P dialects.

Revithiadou (to appear) provides extensive argumentation in favor of the proposed templates. Here, we briefly review the most important evidence for each dialect.

3.2.1. Cappadocian[10]

The examples in (5) and (6) illustrate the enclitic status of pronominal clitics. Starting from the ones in (5), there are several arguments in support of the incorporation of the clitic to the PrW of the function word. First, in (5a), vowel deletion, a rule that deletes the least sonorous of two adjacent vowels that belong to the same PrW (e.g. /to éna/ *tóna* 'the one' Ar, D330) fails to apply between the pronominal clitic *ta* and the initial vowel of the verb, e.g. **ódiŋgi ta íðen*. Second, intervocalic /γ/ deletion, a rule that strictly applies within the PrW domain, is also blocked, as shown in (5b). (Cf. /na γennó/ *na ennó* 'to become' Ul, D358.) Finally, nasal-stop assimilation (henceforth NSA) applies between the fnć and the pronominal clitic, /án ta/ *án da*, in (5c) suggesting that the two elements form one prosodic constituent. Since the scope of NSA is the PrW (e.g. *pondikós* 'mouse' Pot, D97, /son tópo/ *son dópo* 'at the place' Del, D308), we infer that the clitic is hosted by the PrW of the function word.

(5) *fnć clitic V*

a.	ódiŋgi ta íðen	'when them see-3SG.PAST' Phl, D416
b.	óti se γiarátse	'whoever you beget-3SG.PAST' Ul, D351
c.	án da skotóit (/án ta/)	'if them kill-3SG.PRES' Ul, D380

In contrast, unstressed function words are parsed together with the clitic into a foot which recursively adjoins to the PrW of the verb, forming an affixal clitic construction: $[(\text{fnc cl})_{F}\ [\text{V}]_{PrW}]_{PrW}$.[11] The evidence for this template comes from sandhi rules and stress. First, rhythmic stress develops within the foot formed by the function word and the clitic. Compare, for instance, the examples in (6) with examples such as *na pandreftí* 'to marry' Del, D304. Second, lack of assimilation in (6c) between the /s/ of the pronominal clitic and the initial voiced fricative of the verb is an indication to that the two elements belong to separate

[10] For information on the history of Cappadocian clitics, the interested reader is referred to Janse (1994, et seq.)

[11] Revithiadou (2006) shows that the incorporation of the *fnc cl* complex to the PrW of the verb in the form of a foot is also enforced by an independent requirement of the system to left-align a p-phrase with a PrW. Similar constructions in a non-initial position of a p-phrase are unfooted and hence unstressed, e.g. *na ta mirastún* 'SUBJ them divide-3PL.SUBJ' Ar, D332.

prosodic words. (Cf. /xortas-meno/ *xortazméno* 'stuffed' Ul, K45.) In the same example, *s*-dissimilation applies between the function word *ás* and the clitic *sas*.

(6) *fnc clitic V*

a.	ná tu kimís	'SUBJ him put to sleep-2SG.PRES' Mal, D404
b.	ná me to píkis	'SUBJ me it make-2SG.PRES' Pot, D456
c.	á sas ðóko	'SUBJ you give-1SG.PRES' Pot, D458
	á sas máso	'SUBJ you put into-1SG.PRES' Ul, D380

In (7), the development of secondary stress and NSA suggest that the clitic incorporates into the verb, $[V\ cl]_{PrW}$.[12]

(7)	a.	émarán do (/to/)	'learn-3PL.PAST it' Ar, D332
	b.	pétasén do (/to/)	'throw-3PL.PAST it' Ul, D352

To sum up, Cappadocian pronominal clitics have the prosodic organization in (8):

(8) *Cappadocian*

$[fnć\ cl]_{PrW}\ [V]_{PrW}$	(template 2b)
$[(fnc\ cl)_{F}\ [V]_{PrW}]_{PrW'}$	(template 7b)
$[V\ cl]_{PrW}$	(template 2a)

3.2.2. Cypriot and Karpathos Greek

Cypriot Greek is also a 2P system. For the discussion here, we are based on Revithiadou (2006) where an elaborate account of cliticization in Cypriot is proposed. As mentioned earlier, pronominal clitics need the support of another constituent at their left in order to appear pre-verbally. In the examples in (9), the function word is stressed. We observe that in

[12] Cappadocian *V cl* constructions exhibit variation. The clitic often adjoins at the level of the p-phrase, $[[V]_{PrW}\ cl]_{p\text{-}phrase}$ (template 1) (see Revithiadou 2006 for details). Evidence for this pattern comes from the blocking of *s*-voicing assimilation in examples such as *dés me* 'give-2SG.IMP me' Ul, D350, D373 and the lack of vowel harmony in examples such as *lúse to* 'bathe-2SG.IMP it' Ul, K158 (Cf. /ánem-os/ *ánomos* 'unlawful' Axo, MK9, /ékso/ *ókso* 'out' Ul, D366). It should be noted that free clitics seem to be more unstable than internal or affixal clitics. This is inferred from the fact that all dialects that have free clitics (e.g. Cappadocian, Silly, Pontic) show variation.

(9a) the known by now rule of *s*-voicing is blocked. Similarly, fusion of an underlying /u, o/ + /e/ sequence into [o] fails to apply in (9b). This implies that the constituents in question do not belong to the same PrW. Given the aforementioned sandhi rules, we can safely conclude that the *fnć cl* complex belongs to a different PrW than the verb.

(9) *fnć clitic V*

a.	énna sas ðóki	'MOD FUT you-PL give3SG.SUBJ'
b.	pjós tu eθkjávasen	'who him-GEN read-3SG.PAST'
	ém mu eθkjávasen (/én mu/)	'NEG me-GEN read-3SG.PAST'
	óti to eθkjávasen	'that it read-3SG.PAST'

Similarly, in Karpathos Greek the *fnć clitic V* order adopts template 2b as well. The examples in (10) are telling in this respect. Vowel epenthesis applies between the clitic and the verb in order to recuperate illicit consonant clusters that arise at across the word boundaries. It should be noted that *e*-epenthesis is enforced outside the domain of the PrW. Within the PrW, illicit clusters that emerge through compounding or affixation are subject to either total assimilation, e.g. /sín-kero/ *síkkero* 'honey' M104, or deletion, if the result is a triconsonantal sequence, e.g. /sin-tréxo/ *sitréxo* 'run together, it happens along' M120. The examples in (10), clearly show that the *fnć cl* complex is not prosodically incorporated into the verb. First, the illicit consonant sequence in (10a) is recuperated by *e*-epenthesis, and not by the NSA rule. In contrast, NSA is enforced within the *neg clitic* complex, as evidenced by (10b).

(10) *fnć clitic V*

a.	ét ton -e- γronídzi (/én ton/)	'NEG him know-3SG.PRES' M76
	ét ton -e- kaní (/én ton/)	'NEG him make-3SG.PRES' M76
b.	ém mas íkames (/én mas/)	'NEG us do-2SG.PAST' M186
	ém mu milís (/én mu/)	'NEG me-GEN talk-2SG.PRES' M186
	ét tus iksévro (/én tus/)	'NEG them know-1SG.PRES' M189

Unlike Cypriot, Karpathos shows variation when the preceding functional element has an unstable prosodic status. This happens when it is not a negation or a *wh*-element:

(11) *fnć ~ fnc clitic V*

a.	sát ton íe (/sán ton/)	'as him see-3SG.PAST' M191
b.	sàt se ía (/san se íða/)	'as you see-1SG.PAST' M125

As obvious from (11), temporal complementizers, which unlike negation and *wh*-elements lack emphatic stress, carry either primary or secondary stress. This variation intimates a vacillation between template 2b and template 6. In the latter case, the *fnć cl* cluster forms a compound-like construction with the verb: [[fnc̀ cl] $[V]_{PrW}]_{PrW'}$.[13]

The prosodization pattern is different when the preceding functional element lacks a PrW status. In Cypriot, the same set of rules applies with the difference that now their domain is the PrW of the verb to which the pronominal clitic recursively attaches. The examples in (12) illustrate the point. Furthermore, blocking of resyllabification supports the scenario of recursive adjunction, e.g. [poz maz $[\gamma irévi]_{PrW}]_{PrW}$ (12a).

(12) *fnc clitic V*

a.	poz maz γirévi (/pos mas/)	'that us look for-3SG.PRES'
b.	pos to θkjávasen (/tu eθkjávasen/)	'that it look for-3SG.PRES'

Sandhi rules offer ample support for template 7b in Karpathos as well. Intervocalic voiced fricative deletion applies within the PrW, as evidenced by examples such as /ĺðoken/ *ĺoken* 'give-3PL.PAST' M186. The same rule is also enforced between the clitic and the verb in (13a). On the other hand, examples such as (13b) indicate that the pronominal clitic does not form an internal clitic with the verb because *e*-epenthesis, and not gemination, applies in this environment.

(13) *fnc clitic V*

a.	na to ís (/ðís/)	'SUBJ it see-2SG.PRES' M75
b.	na ton-e-sfáksun	'SUBJ him slaughter-3PL.PRES' M191

[13] Kabak and Revithiadou (in prep.) argue, based on a wide range of prosodic evidence, that the broader constituent that hosts the two PrWs is the *Clitic Group* (Nespor and Vogel 1986, Hayes 1989, Vogel 1988, 1990).

The development of secondary stress and the application of various assimilation rules, i.e. *s*-voicing and NSA, provide solid evidence for template 2a in *V cl* orders in both dialects.

(14) *V clitic*

a. Cypriot

fér to	'bring-2SG.IMP it'
ípez mu (/ípes mu/)	'tell-2SG.PAST me-GEN'
eθkjávasén do (/eθkjávasen to/)	'read-3SG.PAST it'
ípem mú to (/ípen mu to/)	'tell-3SG.PAST me it'

b. Karpathos

íkusá tu	'hear-1SG.PAST him-GEN' M186
pérnum mas	'take-3PL.PRES us' M185-6
íokém mas	'give-3PL.PAST us' M186

The prosodic templates attested in Cypriot and Karpathos Greek are summarized in (15):

(15) *Cypriot, Karpathos*

$[\text{fnć cl}]_{\text{PrW}}\ [\text{V}]_{\text{PrW}}$	(template 2b) *Cypriot*
$[\text{fnć cl}]_{\text{PrW}}\ [\text{V}]_{\text{PrW}} \sim [[\text{fnc̀ cl}]\ [\text{V}]_{\text{PrW}}]_{\text{PrW}'}$	(template 2b) ~ (template 6) *Karpathos*
$[\text{fnc cl}\ [\text{V}]_{\text{PrW}}]_{\text{PrW}'}$	(template 7a)
$[\text{V cl}]_{\text{PrW}}$	(template 2a)

3.3. Non-second position clitics

In non-2P systems, the pronominal clitic procliticizes to the verb either by itself or together with a function word, if the latter is unstressed. The degree of coherence to the host depends on the specific dialect. For instance, Samos exhibits dramatic reduction effects and, consequently, looser restrictions on syllable structure. In this dialect, the clitic is always internal, regardless of its position with respect to the verb.

Interestingly, non-2P systems lack template 2b. This is an anticipated gap only under the assumption that phonology in these systems does not exercise a filtering effect on syntax. This issue is addressed in detail in section 4. Table 3 summarizes the prosodic templates attested in non-2P dialects.

non-2P	*prosodic templates*	*No*
Standard Greek	[fnć]$_{PrW}$ [cl [V]$_{PrW}$]$_{PrW'}$	3
	[fnc cl [V]$_{PrW}$]$_{PrW}$	7a
	[V cl]$_{PrW}$	2a
Samos	[fnć]$_{PrW}$ [cl V]$_{PrW}$	4
	[fnc cl V]$_{PrW}$	8
	[V cl]$_{PrW}$	2a

Table 3. Prosodic templates in non-2P dialects.

3.3.1. Standard Greek

In Standard Greek, the pronominal clitic procliticizes to the verb regardless of the presence or not of a function word within the same clause. Only with imperative forms of the verb and with gerunds the clitic is post-posed. In the former case, enclitics form affixal clitics, whereas in the latter case, they form internal clitics. We proceed to the empirical evidence that supports the proposed prosodic structures.

The application of *s*-voicing between the clitic and the verb in (16a-b) and the blocking of the same rule between the function word *pós* and the clitic in (16c) demonstrate that the clitic prosodically depends on the verb, and not on the functional element. However, the fact that the last consonant of the clitic does not resyllabify with the initial consonant of the verb, e.g. *pós maz.maɣirévi* (16c), suggests that there exists a PrW-boundary at the left edge of the verb. Thus, the clitic recursively adjoins to the PrW of the verb: [fnć]$_{PrW}$ [cl [V]$_{PrW}$]$_{PrW'}$ (template 3).

(16) *fnć clitic V*

a.	mí maz maɣirépsis (/mas/)	'NEG us cook-2SG.PRES'
b.	ðén θa maz maɣirépsi	'NEG MOD us cook-3SG.FUT'
c.	pós maz. maɣirévi	'how us cook-3SG.PRES'

Similarly, a series of proclitics, e.g. *ma.s tuz. maɣirévi* (/tus/) 'us them cook-3SG.PRES'or a sequence of unstressed function words and clitics, e.g. *na ma.s tuz. ðjavázi* (/tus/)'MOD us them read-3SG.PRES' are also adjoined recursively to the PrW of their verbal host: [fnc (cl) cl [V]$_{PrW}$]$_{PrW'}$ (template 7a).

On the other hand, enclitics incorporate into the verb and develop rhythmic stress in order to avoid violation of the three-syllable-window requirement, as shown in (17). Second, the final consonant of the verb resyllabifies with the first consonant of the clitic, as illustrated by examples such as the one in (17b). Third, *e*-deletion optionally applies to imperatives provided that impermissible consonant clusters are not created. The domain of this rule is strictly the PrW, e.g. /ðjavás-ete/ *ðjaváste* 'read-2PL.IMP', /tréx-ete/ *tréxte* 'run-2PL.IMP', but /fĭγ-ete/ *fĭγete/*fĭγte* 'go away-2PL.IMP'. This rule does not apply across PrWs, e.g. *ðjávase tapiná* *[ðjávastapiná] 'read-2SG.IMP in a humble way'. It applies, however, between the verb and the clitic, as shown by the examples in (17). This confirms once more that the *V cl* complex is parsed into the same PrW.

(17) *V clitic (clitic)*

a.	ðjávasé to mu/ ðjávastó mu	'read-2SG.IMP it me-GEN'
b.	ðóse mu/ðó.z mu (/ðóse/)	'give-2SG.IMP me-GEN'
	ðóse to/ðó.s to	'give-2SG.IMP it'
	pé.zmu (/pés/)	'tell-2SG.IMP me-GEN'
c.	ðjávasé to mu/ðjávastó mu	'read-2SG.IMP it me-GEN'
	ðjávasé mu to	'read-2SG.IMP me-GEN it'
d.	ðóse mú to/ðó.zmu to (/ðóse/)	'give-2SG.IMP me-GEN it'
	ðóse tó mu/ðós to mu	'give-2SG.IMP it me-GEN'

The prosodic templates of Standard Greek are listed in (18):

(18) *Standard Greek*

$[\text{fnć}]_{\text{PrW}}\ [\text{cl}\ [\text{V}]_{\text{PrW}}]_{\text{PrW}'}$	(template 3)
$[\text{fnc cl}\ [\text{V}]_{\text{PrW}}]_{\text{PrW}'}$	(template 7a)
$[\text{V cl}]_{\text{PrW}}$	(template 2a)

3.3.2. Samos Greek

In Samos Greek, unstressed high vowels delete and unstressed mid vowels raise causing dramatic reduction processes to word forms. These reduction processes do not leave clitic constructions unaffected either since they force clitics to lose their vocalic part and be left with their consonantal skeleton only. In turn, the remaining clitic consonant syllabifies as the

onset of the syllable headed by the initial vowel of the verb. Several sandhi rules confirm the incorporation of the clitic to the verb. In (19a), for instance, failure of the final /s/ of the function word *ópos* to assimilate to the voicing of the labial consonant /m/ of the clitic suggests that the clitic is not attached to the function word. Moreover, in the same example, vowel fusion between the pronominal clitic *to* and the initial vowel of the verb implies that the elements are grouped into the same prosodic unit. In other words, clitics in Samos incorporate into the PrW of the verb: [fnć]$_{PrW}$ [cl V]$_{PrW}$. Along the same lines, we can account for the prosodic organization of the clitic constructions in (20).

(19) *fnć clitic V*

a.	ópos m tóðusi (/mu to éðose/)	'as me-GEN it give-3SG.PAST' Z142
b.	mí mi skipásis (/mí me/)	'NEG me cover-2SG.PRES' Z141

(20) *(fnc) clitic clitic V*

a.	tu.n ékrivi	'him hide-3SG.PAST' Z143
	p tuni sxórisi (/pu tone/)	'that him forgive-3SG.PAST' Z143
	p t púĺ si (/pu tu/)	'that it-GEN sell-3SG.PAST' Z143
	ts káń (/tus/)	'them do-3SG.PRES' Z142
b.	táγrapsi (/ta éγrapse/)	'them write-3SG.PAST' Z143
	móðusi (/mu éðose/)	'me-GEN give-3SG.PAST' Z142

The development of rhythmic stress between the verb and the clitic evidences once more that the two constituents are parsed into an internal clitic construction, [V cl]$_{PrW}$.

(21) *clitic V*

a.	éparé m tu (/mu to/)	'take-2SG.IMP me-GEN it' Z132
b.	siryjánisé m tu	'walk slowly-2SG.IMP me-GEN it' Z132

The prosodic templates of Samos clitics are summarized in (22):

(22) *Samos*

[fnć]$_{PrW}$ [cl V]$_{PrW}$	(template 4)
[fnc cl V]$_{PrW}$	(template 8)
[V cl]$_{PrW}$	(template 2a)

4. The role of prosodic templates in cliticization

4.1. Prosodic templates as determinants of clitic position

The cross-dialectal survey revealed that certain clitic templates are attested in all dialects whereas others are in complementary distribution. More precisely, template 2b is solely attested in 2P dialects whereas template 3 is restricted to non-2P ones. This split is expected and, actually, can receive a straightforward explanation only under Revithiadou's (2006) proposal regarding the filtering role of phonology. Revithiadou proposes that where exactly a clitic will surface relies on the language-specific prosodic system. The specific proposal is substantiated by empirical evidence from Cypriot, Silly and Cappadocian Greek. It extends previous ideas introduced in the work of Bošković (1995, 2001) according to which clitics are placed by syntax in more than one position and lexically pre-specified phonological matrixes filter out the most optimal among those positions. This analysis builds on Franks' (1998, 2000) phonologically motivated deletion of copies approach (see also Nunes 1995, 1999, 2004).[14] More specifically, Franks claims that the head of a chain, i.e. the highest copy created by movement, is by default pronounced at the PF. Often, however, pronunciation in this position leads to a violation of some wellformedness restrictions or another constraint at the PF level. This violation can be avoided by simply pronouncing a lower member of the chain that best satisfies the prosodic condition at play. Thus, phonology is syntax-free and is assigned a filtering function only (see Golston 1995 for similar views regarding the phonology-morphology interface).

Revithiadou (2006) refines the prosodic aspect of these ideas. More specifically, she proposes that the output of syntax, namely the series of copies that constitute a chain, is

[14] Chomsky (1993, 1995) claims that, in conformity to the *Inclusiveness Condition* (henceforth IC), movement does not leave a trace of the moved element but rather a *copy*. IC does not permit syntax to create elements that are not inserted from the lexicon.

visible to the mapping rules that perform the prosodic organization of such strings. This means that the language-specific hierarchy of prosodic constraints not only applies to assign prosodic structure to the strings in (23) but, at the same time, in languages like Cypriot, it also selects the copy of the clitic that best satisfies the specific constraint hierarchy to be pronounced. This is because in such languages the constraint that requires the highest copy of the chain to be realized (i.e. HEADCHAIN: Pronounce the head of a chain)[15] is ranked lower than the prosodic constraints that generate the prosodic templates.

(23) *pronunciation of non-trivial chains in Cypriot*

a. fnć clitic V ~~clitic~~

b. fnc clitic V ~~clitic~~

c. ~~clitic clitic~~ V clitic clitic

Recall that in Cypriot, the constraint hierarchy requires a pronominal clitic to (a) encliticize to a preceding stressed function word (template 2b) or (b) to procliticize to the verb, if the function word is unstressed (template 7a). In the former case, by attaching to the function word, the clitic protects the crispness of the left and right edge of the verb. That is, the left and right edge of the morphological word coincide with the left and right edge of the prosodic word yielding the prosodic pattern: [fnć cl]$_{PrW}$ [verb]$_{PrW}$. Function words are not lexical categories, therefore, they do not fall under this restriction and, naturally, constitute adjunction sites for clitics. Template 2b is, therefore, the most optimal template for input strings such as (23a). It emerges only in 2P systems because only here it is prosody that decides on the best available parsing option of a given input string.

On the other hand, the clitic is forced to procliticize to the verb when the neighboring function word lacks an autonomous prosodic status. Since the unstressed element in (23b) needs to be prosodically parsed, and is placed by the syntax (as a specifier) at the left edge of the verb, the only available option for it is to procliticize to the verb, even if this implies revoking the restriction on matched lexical and prosodic edges. The pronominal clitic will also be realized at the same site because the alternative option, namely, [fnc [V]$_{PrW}$ cl]$_{PrW'}$, triggers double (left and right) violation of crispness. It should also be added that the failure of the function-clitic cluster to totally incorporate into the PrW of the verb is caused by a ban raised by the left edge of the verb. The result is a recursive prosodic structure. This is another

[15] This constraint is based on Franks' (2000) PRONOUNCE HIGHEST (Lower identical copies are silent).

instance of the cross-linguistically observed left-right asymmetry, mentioned earlier, according to which the right edge is more flexible than the left edge in incorporation of material (e.g. affixes, clitics) (McCarthy and Prince 1993a, Bye and de Lacy 2000, a.o.). The encliticization of a pronominal clitic in clauses that lack a functional element is another facet of the same asymmetry. The left edge of the verb is protected, hence the ungrammaticality of a possible template such as *[cl cl V]$_{PrW}$.

The prosodic template pool for all input strings in Cypriot is summarized in (24). At the right-hand column we list the templates that score worse than the attested ones ('»' reads as 'better than').

(24) a. [fnć cl]$_{PrW}$ [V]$_{PrW}$ » [fnć]$_{PrW}$ [cl [V]$_{PrW}$]$_{PrW'}$

b. [fnc cl [V]$_{PrW}$]$_{PrW'}$ » [fnc [V]$_{PrW}$ cl]$_{PrW'}$

c. [V cl cl]$_{PrW}$ » [cl cl [V]$_{PrW}$]$_{PrW'}$

The upshot of our discussion thus far is that 2P dialects exhibit the most optimal set of prosodic templates and, by extension, reveal a wellformedness hierarchy holding among them. Interestingly, the hierarchy in (24) could form the basis for formulating a viable hypothesis regarding the diachronic development of such constructions. This idea is exploited in section 6. For instance, it is a well-established fact that Medieval Greek was a 2P system that was gradually transformed into the non-2P one of Standard Greek. Although, the syntactic conditions that led to such a change are more or less known to us, it is still unclear what role, if any, phonology had in this change. Revithiadou (to appear) convincingly shows that prosodic templates are involved in the transition from 2P to non-2P. Robust evidence for this comes from Greek dialects that currently undergo such a change. In the next section, we review two such case studies and show that they help us put together missing pieces of information regarding the diachronic evolution of pronominal cliticization in Greek.

4.2. Prosodic templates as triggers of re-analysis

Revithiadou (to appear) shows that Kouvoukliotika and Marioupoli Greek reflect the exact stages of the shift from a 2P to a non-2P system. Kouvoukliotika will help us illustrate the point here. More specifically, in this dialect, the future marker *θala*, which originates from a

contracted form of the verb *θélo* and the complementizer *(í)na*,[16] is at the verge of losing its inherent stress. Unstressed instances of the disyllabic future marker are given in (25).

(25) a. θala s aravonjásna (/se/) 'MOD you get engaged-3SG.PAST' Del155

b. θala m(e) évri 'FUT me get-3SG.PRES' Del157

The same marker, however, appears marginally as stressed. This is shown by examples such as (26).

(26) θála dona skotósna (/θálan ton/) 'FUT him kill-3SG.PAST' Del157

Let us contrast (25) with (26). In the former example, *θala* is unstressed and the vowel of the pronominal clitic fuses with the vowel of the verb, suggesting that the elements are hosted by the same PrW. In the latter example, however, NSA is in force. In addition, instead of the expected final *n*-deletion that is commonly found before consonant clusters within the PrW, e.g. /ton ðrómo/ 'the street-ACC.SG', the *a*-ending allomorph *tona* of the weak pronominal is chosen. The rule of allomorphy applies in larger that the PrW environments. We conclude, therefore, that the pronominal clitic prosodifies together with the stressed functional element and not with the verb.

Examples such as (25) and (26) bring to light the variant behavior of *θala*-constructions which, according to what we argued so far, is closely related to the stressed vs. non-stressed status of the respective element. Revithiadou (to appear) takes this variation to be evidence for the change depicted in (27). It is possible that the shift from one prosodic pattern to the other was mediated by an intermediate template in which the stressed function word and the pronominal clitic formed together with the verb a compound-like construction. Unfortunately, Deligiannis (2002) is frugal in providing information on secondary stress. Implicit evidence comes only from the rule of allomorphy mentioned above. Undoubtedly,more research needs to be done in this area in order to prove the existence of the transitional template 6.

[16] For the development of particle *θa* and its variants in the history of Greek see Pappas and Joseph (2001, 2002) and Markopoulos (2004).

(27) [fnć cl]$_{PrW}$ [V]$_{PrW}$ → [[fnc̀ cl]$_{PrW}$ [V]$_{PrW}$]$_{PrW'}$ → [fnc cl [V]$_{PrW}$]$_{PrW'}$
(template 2b) (template 6) (template 7a)

In any case, the development shown in (27) triggers proliferation of template 7a, [fnc cl [V]$_{PrW}$]$_{PrW'}$. We claim that this very change triggers a reanalysis that gradually leads to the procliticization of the pronominal clitic to the verb, (28). Apparently, the transparency restriction on the verb is relaxed and, as a consequence, the templates progressively lose their filtering effect on syntax. Phonology cannot impose anymore prosodic wellformedness restrictions on input strings and, as a result, we return to the default optioin which is having the head copy of the chain pronounced.

(28) … =cl]$_{PrW}$ [V]$_{PrW}$ → … cl=V]$_{PrW}$

The dialects of Kouvoukliotika and Marioupoli depict exactly this stage of transition from 2P to non-2P. Ample evidence for the present proposal comes from sandhi rules. In (29) and (30), the pronominal clitic appears both pre-verbally and post-verbally. Compare (29a) and (29b), for example. In the former case, the clitic *se* is enclitic to the verb *éxo*, and not proclitic to the participle *aravonjasmén'*, as suggested by the lack of vowel deletion. In the latter case, however, the same clitic procliticizes to the verb *éxo* and hence loses its vowel. It is worth noting that scattered examples such as *to íliɣan du* 'it was named-3SG.PAST it' Mar, PZ58 where both copies of the clitic may surface are found in these transitional dialects.

(29) *Kouvoukliotika*

a. [V cl]$_{PrW}$ (template 2a)

éxo se aravonjasmén'	'have-1SG.PRES you engaged' Del155
íðam dona	'see-1PL.PAST him' Del155
skótosen do	'kill-3SG.PAST it' Del155

b. [cl [V]$_{PrW}$]$_{PrW'}$ (template 7a)

s éxo aravonjasmén' (/se éxo/)	'you-SG have-1SG.PRES engaged' Del155
tona íðama	'him see-1PL.PAST' Del155
to skotósena	'it kill-3SG.PAST' Del155

(30) *Marioupoli*

a. [V cl]$_{PrW}$ (template 2a)

éfsaksan du	'kill-3PL.PAST it' PZ60
ksérs tu	'know-2SG.PRES it' ST91

b. [cl [V]$_{PrW}$]$_{PrW'}$ (template 7a)

mas ífirin	'us bring-3SG.PAST' ST58
ts léj (/tus/)	'them tell-3SG.PAST' PZ61

The prosodic templates observed in Kouvoukliotika and Marioupoli are listed in (31):

(31) *Kouvoukliotika, Marioupoli*

[fnć cl]$_{PrW}$ [V]$_{PrW}$ ~ [fnć]$_{PrW}$ [cl [V]$_{PrW}$]$_{PrW'}$	(template 2b) ~ (template 3)
[fnc cl [V]$_{PrW}$]$_{PrW'}$	(template 7a)
[V cl]$_{PrW}$	(template 2a)

Revithiadou (to appear) proposes that the implicational scale in (32) constitutes a possible developmental path in the evolution from non-2P clitics to 2P ones. This scale reflects nothing more than the wellformedness hierarchy that holds among prosodic templates. In purely prosodic terms, the best host for a pronominal clitic is a stressed function word (template 2b). This is the pattern adopted by all 2P dialects (e.g. Cappadocian, Cypriot, Karpathos). Embeddedness of the [fnć cl]$_{PrW}$ in a compound-like construction with the verb (template 6) could be a plausible intermediate stage that slowly leads to the prosodic weakening of the function word plus clitic complex (template 7a). Traces of this transition are found in Kouvoukliotika and Marioupoli. From this point on, the proliferation of template 7a in the language progressively compels phonology to lose ground in the copy-selection process. This role is now assigned to syntax, whereas phonology limits its power to prosodically organizing the *cl V* string. Standard Greek serves as a representative example of this pattern (template 3). Depending on the language-specific phonotactics, the next step is further integration of the clitic to the verbal construct (template 4), as in the case of Samos Greek.

(32) *implicational scale of prosodic templates: developmental path*

$[\text{fnć cl}]_{\text{PrW}}\ [\text{V}]_{\text{PrW}} \supset [[\text{fnè cl}]_{\text{PrW}}\ [\text{V}]_{\text{PrW}}]_{\text{PrW}'} \supset [\text{fnc cl}\ [\text{V}]_{\text{PrW}}]_{\text{PrW}'}$

template 2b — template 6 — template 7a

Cappadocian — Marioupoli, Kouvoukliotika

Karpathos

Cypriot

↓

$[\text{fnć}]_{\text{PrW}}\ [\text{cl}\ [\text{V}]_{\text{PrW}}]_{\text{PrW}'} \supset [\text{fnć}]_{\text{PrW}}\ [\text{cl V}]_{\text{PrW}}$

template 3 — template 4

Standard Greek — Samos

In the next section, we put together the findings of this cross-dialectal study and advance a viable hypothesis for the diachronic development of Greek pronominal cliticization from the 3rd c. BC onwards.

5. The diachrony of cliticization

In this section, we propose a hypothesis for the evolution of Greek pronominal cliticization, which is based on our assumptions about the way phonology interacts with syntax in interpreting the syntactic output of the cliticization rule. More specifically, we propose that the relaxation of the Wackernagel's Law (WL henceforth) in Post-Classical Greek led to the development of a movement cliticization rule and a system of prosodic wellformedness constraints that regulated the pronunciation of the copies of the resulting clitic chain. The specifics of this system can be traced in the prosodic typology of clitics in Modern Greek dialects described in the previous sections, especially in the dialects that retain the 2P system as well as in the dialects that are at the transition from a 2P system to a non-2P system. In particular, the examination of the latter systems, i.e. the transitional dialects, sheds light on the development of the Standard Greek system out of the Later Medieval one. More specifically, we argue that the Standard Greek non-2P system was evolved out of the Later Medieval system by means of a prosodic reanalysis that rendered the prosodic constraints inactive, so that the highest copy of the clitic chain is always pronounced. It is the actualization process of this prosodic reanalysis that is evidenced in the system of these transitional dialects.

We follow the work by Pappas (2005) and divide the time span from the 3rd c. BC onwards into three main periods: (a) Post-Classical Greek (3rd c. BC – 7th c. AD), (b) Medieval Greek (8th c. AD – 15th c. AD) and (c) Modern Greek (16th c. AD – today). During this time span, we identify the following main developments as far as cliticization is concerned:

(i) The relaxation of WL during the Late Classical and early Post-Classical period

(ii) The emergence of two subsystems during the Post-Classical period:
- Subsystem 1: The pronominal clitics are subject to second position.
- Subsystem 2: The prononominal clitics are attached to the V head as enclitics.

(iii) The resolution of the competition between the two subsystems into two main Grammars by the early Medieval period:
- Grammar 1: This grammar involves a cliticization movement rule, which moves the clitic from its argument position inside the VP to an adjunction site in INFLP, resulting in an underlying construction with two clitic copies, one preverbal and one postverbal. Prosodic constraints (i.e. templates), which constitute the residue of WL, decide on which copy surfaces, giving rise to residual second position effects. This development was the result of the reanalysis triggered by the variation between preverbal and postverbal position of the clitic in the same more or less environments.
- Grammar 2: According to this grammar, clitics behave as enclitic affixes on the verb. Grammar 1 underlies all Pontic dialects, where clitics have been persuasively shown to constitute word level suffixes (Condoravdi and Kiparsky 2001, 2004, Drettas 1997).

(iv) The development of Grammar 1 into the Standard Greek system at the end of the Medieval Period and the beginning of Modern period, by the emergence of the non-2P system. This was the result of a prosodic reanalysis which associated the pronominal clitic with the non-imperative verb form as a proclitic. The actualization of this reanalysis eventually obliterated the filtering role of the prosodic wellformedness constraints on the syntactic output of the cliticization rule and led to the non-2P system, where the linearization of the clitic chain always chooses the highest copy to be pronounced.

5.1. The two subsystems of Post-Classical Greek

By the end of the Classical and the beginning of the Post-Classical period WL is abandoned (see Taylor 1994: 18, 2002: 301, Pappas 2004, in press), leaving residual 2P effects. Thus, the pronominal clitic appears in the second position within the p-phrase (Janse 1993: 94, Taylor, 1996: 491):

(33) tris =me aparnisi]$_{\text{p-phrase}}$
thrice =1.ACC.SG deny-SUBJ.2.SG
'thrice you will deny me' (*Mark,* 14.30 PDLP)

(34) i t^{h}repti]$_{\text{p-phrase}}$ apedra se]$_{\text{p-phrase}}$
DET foster.child-NOM.SG escape:PAST.3.SG =2.ACC.SG
'the foster child has escaped from you' (*Oxy*, 298)

The basic characteristic of clitic placement in the Post-Classical period is variation. For example, preverbal DP-subjects normally form their own p-phrase, preventing thus pronominal clitics from being preverbal (see example (34)). Nevertheless, pronominal clitics may optionally attach to short preverbal DP-subjects (35), as a result of prosodic restructuring that unites the p-phrase of the DP-subject with that of the VP (Taylor 1996, 2002, building on Nespor and Vogel 1986). The two options available lead to the variation exhibited in (36).

(35) epi seuiros =my enetilato (Pappas in press)
since Seoueros-NOM=1.DAT.SG command-PAST.3.SG
'since Seoueros commanded me' (*Oxy*, 291)

(36) a. al ekinos =me apestilen (Taylor 2002: 129)
but that-NOM=1.ACC.SG send-PAST.3.SG
'but that one sent me'
b. ke ymis atimazete =me
and you-NOM.SG dishonour-2.PL =1.ACC.SG
'and you dishonor me' (*John*, 8.49)

Moreover as Pappas (2005, in press) has observed, there exist constructions that do not comply with the prosodic requirements of 2P. Thus, in constructions with a conjunction and a verb, the pronominal clitic may unexpectedly appear after the verb (37), although 2P requirements require that it appear preverbally. Again, the two options lead to the variation exhibited in (38).

(37) ina idomen =se
CONSEC see-1.PL=2.ACC.SG
'so that we may see you' (*Oxy*, 2599) (Pappas, 2005:7)

(38) a. ean =sy doksi
if-PART=you-DAT.SG seem.good-3.PRES.SG
'if it seems good to you' (*let*, 115.8)
b. ean doksi =sy
if-PART seem.good-3.SG=you-DAT.SG
'if it seems good to you' (*let*, 110.8) (Taylor, 1996:498)

We concur with Pappas (in press) that this variation in Post-Classical Greek indicates the existence of two parallel systems of clitic placement in competition: In the first system, pronominal clitics occupy the second position within the clause or the phonological phrase. In the second system, pronominal clitics have acquired an enclitic status and always appear at a post-head (i.e. in our case V) position.

5.2. The evolution of the two subsystems and the rule of cliticization

As described above, there was a considerable amount of variation with respect to the clitic placement in the Post-Classical period. In parallel to situations where pronominal clitics could be either preverbal or postverbal, depending on the prosodic structure of the construction, there were constructions exhibiting unconditioned variation, such as those involving short DP-subjects (see the examples in (36)). The amount of variation was multiplied by systematic interferences from the Subsystem 2, which involved postverbal pronominal clitics. We propose that such a variation was interpreted by the speakers as the result of the existence of two clitic copies in competition:

(39) cl V ~ V cl → [cl V cl]

Evidence for such an interpretation comes from examples with the pronominal clitic written twice (40), before and after the verb:

(40) ean =my paradys =my tus ant^{h}ropus
COND=1.DAT.SG give-2.SG=1.DAT.SG DET people-ACC.PL
'If you deliver the people to me' (*Oxy*, 2981) (Pappas 2005:7)

The interpretation of the surface strings *cl V* and *V cl* as underlying *cl V ~~cl~~* and *~~cl~~ V cl* respectively was triggered by the existence of alternative constructions such as those in (38). The residual WL's 2P effects were reanalyzed as a set of prosodic templates that regulated the pronunciation vs. deletion of the relevant clitic copy, according to prosodic wellformedness (see section 4). As a result, the two competing subsystems of Post Classical Greek evolved into two grammars by the early Medieval Period: (a) Grammar 1 involved clitic placement in terms of syntactic movement with 2P prosodic effects and (b) Grammar 2 involved X^0 clitics attaching to V as enclitics.

We propose that this development resulted in a dialectal split and underlied the distribution of pronominal clitics in the regional varieties of Greek during the Medieval period. Pappas (2001) systematically summarizes this distribution, which was originally described in the seminal work by Mackridge (1993), as follows:

Medieval Pontic	**Medieval Cypriot**	**Medieval Byzantine**
mainly postverbal	• preverbal with function words • otherwise postverbal	• preverbal with: (a) function words (b) fronted/emphatic elements • otherwise postverbal • variation with respect to subjects and temporal expressions

Table 4. Regional varieties during the Medieval Greek: Byzantine, Cypriot and Pontic (Pappas 2001)

Two comments are in order at this point: First, we concur with Condoravdi and Kiparsky (2004) that the variation in clitic placement (preverbal – postverbal) with respect to subjects and temporal expressions in Medieval Byzantine, as observed by Pappas (2001), is associated with the focus vs. topic reading of these elements and is therefore systematic. Second, unlike Pappas (2001, 2005, in press), there seem to be good reasons to classify Cypriot together with the rest Byzantine Greek as far as clitic placement is concerned; the distributional differences are minor and can be either structurally or quantatively explained. For instance, Cypriot does not exhibit preverbal clitics with fronted emphatic material simply because Cypriot does not exhibit focalization by means of left dislocation. The resulting picture is summarized as follows:

(41) *Medieval Greek*: *First dialect Split*

- Grammar 1: Byzantine Greek and subdialects, e.g. Cypriot
  Distribution: clitics are preverbal with function words and fronted emphatic elements and postverbal otherwise
- Grammar 2: Pontic
  Distribution: clitics are mainly postverbal

5.3. Second dialect split: The development of the non-2P system

During the Medieval Period, certain, but not all, function words lose their stress as their grammaticalization completes (mood, negation and future particles, e.g. *θélo* → *θa/θe/se, ína* → *na*, etc.[17]. As a result, they are incorporated in the PrW of the verb.

(42) [fnć cl]$_{PrW}$ [V]$_{PrW}$ (template 2b) → [fnc cl [V]$_{PrW}$]$_{PrW'}$ (template 7a)

The existence of template 7a certainly exercised influence on template 2b as well, possibly through an intermediate stage, namely (template 6), [[fnc̀ cl]$_{PrW}$[V]$_{PrW}$]$_{PrW'}$. We claim that these developments resulted in a prosodic reanalysis. More specifically, pronominal clitics were reanalyzed as proclitics to the prosodic word headed by the verb form. The trigger of

[17] There is a vast and growing literature on these developments. See Horrocks (1997), Pappas and Joseph (2001, 2002), and Markopoulos (2004) for an overview of the phenomena and the descriptive literature, and the formal accounts in Roberts and Roussou (2003) and Philippaki–Warburton and Spyropoulos (2004).

this reanalysis can be argued to be the constructions with pronominal clitics that are not enclitics. As Pappas (2001: 77) correctly points out, the absence of the accent (marking rhythmic stress) in *XP[Focus] pronominal clitic V* constructions (43) suggests that the preverbal clitic is not enclitic to the preceding element.[18]

(43) síndoma (/*síndomá) ton ɛtíflosɛ
soon 3.ACC.SG blind-3.SG.PAST
'Quickly, he blinded him' (*Belisarios*, 350)

The existence of constructions such as the one in (43), together with the resulting constructions with unstressed function words, led to the reanalysis of pronominal clitics as proclitics to the PrW of the verb, as shown in (44).

(44) … =cl $[V]_{PrW}]_{PrW'}$ → … cl=$V]_{PrW}$

Consequently, the constructions with stressed function words, i.e. those that didn't lose their stress, were reanalyzed as follows:

(45) $[fnć\ cl]_{PrW}$ $[V]_{PrW}$ (template 2b) → $[fnć]_{PrW}$ $[cl\ [V]_{PrW}]_{PrW'}$ (template 3)

Interestingly, this is exactly the situation predicted by the implicational scale in (32). Such a prosodic reanalysis had major consequences for the system of Medieval Byzantine Greek. Notably, it resulted in a relaxation of the prosodic templates that regulate which copy will be pronounced. To be more concrete, from the moment the left edge of the PrW of the verb is willing to host constituents, the transparency restriction of this edge is unavoidably weakened and phonology ceases to impose prosodic wellformedness restrictions. Thus, in a chain consisting of two clitic copies there is no prosodic restriction imposed to the head position and the head copy is pronounced by default. As a consequence, the Standard Greek non-2P system emerged, by means of an actualization process, by which all non-imperative verb forms, even the ones not introduced by a function word, were associated with proclitic pronouns.

[18] In this respect, we in total agreement with Pappas (2001) that in the language of the texts of the 12th century and beyond pronominal clitics can be either proclitics or enclitics, depending on the structure.

Modern Greek 2P dialects have resulted by the blocking of the prosodic reanalysis and the relaxation of the prosodic wellformedness restrictions. Thus in Cypriot Greek, the lack of the triggering construction *XP[Focus] pronominal clitic V* and the fact that most function words preserved their inherent stress can be argued to have blocked the reanalysis of preverbal clitics as proclitics to the verb form (see the discussion around (43) and (44) above).

Reinforcing evidence for the developments argued here comes from the synchronic situation of transitional dialects such as the one spoken in Marioupoli. In this dialect, the existence of the prosodic template 3 ([fnć]$_{PrW}$ [cl [V]$_{PrW}$]$_{PrW'}$) suggests that the prosodic reanalysis has taken place. On the other hand, the proclitic and enclitic variation with non-imperative verb forms that are not introduced by a function word, indicates that the actualization process that transformed the 2P system to the non-2P one has not been completed yet.

6. Conclusions

In this paper, we claim that clitic positioning can hinge on prosodic conditions on the syntactic output. The prosodic conditions at play determine the mode a clitic is prosodically organized with other elements present in the clause structure and take the form of templates. Such templates are shown to be also actively involved in selecting the position where a clitic will be pronounced. Assuming a copy theory of movement and a clitic chain consisting of two copies, the analysis advanced here grants a filtering function on phonology in 2P systems. To clarify this, we argue that templates choose the most optimal copy of the clitic to be pronounced. Such an effect of phonology on syntax is, however, absolutely lacking in non-2P systems. The diversity between the two systems led us to propose a hierarchy of template wellformedness that has serious repercussions for language change, in general, and the development of the non-2P pattern from the 2P one, in particular. Our findings derive from a typological survey on four Greek dialects as well as Standard Greek.

Transitional dialects prove to be particularly enlightening regarding the mechanisms that are involved in the 2P to non-2P shift, since they highlight the influential role prosody has in this change. More specifically, we have shown that the relative wellformedness among templates impose an implicational scale that gradually shapes the developmental path of pronominal clitics in Greek and, eventually, the transition from a 2P pattern to a non-2P one.

Given that the same transition characterized the development of Standard Greek from Medieval Greek, we used the results of dialectal typology to shed light on hidden aspects of diachronic change. In particular, we have shown that prosodic reanalysis was dynamically present in the development of Greek pronominal clitics. This was assisted by the fact that certain grammaticalization processes caused prosodic templates to lose ground and trigger a prosodic reanalysis that eventually inflicted the shift from the 2P pattern to the non-2P one.

Future research should concentrate more on transitional dialects and, particularly, explore the behavior of clitics in constructions that usually have dramatic effects on the prosodic organization of a clause such as focus and topicalization.

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