LANGUAGE CHANGE IN PROGRESS: UNSTRESSED VOWEL DELETION IN STANDARD MODERN GREEK

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According to the theory of generative phonology, a basic type of sound change is the addition of a phonological rule to the grammar of a language. Typically, this type of change is found in the grammar of speakers who make the application of the rule optional at first. However, data from a modified adult grammar can become the input to a grammar incorporating the added rule as obligatory. Since a rule addition in this framework is also associated with the notion of removal of an absolute prohibition against the rule, it is generally the case that evidence of the new rule can be found in restricted environments at first. The present study discusses a case of such a rule addition to the grammar of standard Modern Greek from a metrical phonology point of view.

1.0 Data from the imperatives

There exist in standard Modern Greek a large group of verbs, the second person plural of which shows a three-way phonetic alternation in the perfective imperative forms; some examples:

imperfective		perfective			
Form 1		Form 1	- Form 2-	Form 3	
γráfete	«write!»	γrápsete	- γrápste -	γráfte	
plékete	«knit!»	pléksete	- plékste -	pléxte	
kóvete	«cut!»	kópsete	- kópste -	kófte	
eléŋxete	«inspect!»	eléŋksete	- eléŋkste-	eléŋxte	
etc.					

As is commonly observed in M. Greek, there are many assimilatory processes evident in the above data which have been reported in the literature and which will be assumed in the present study. However, the data on the three perfective imperative forms has been only described in some grammars as variants. Is the choice of these forms a matter of speaker use? Is tempo relevant? If we consider Form-1, we observe that it is found in, at least, two cases:
(a) when used as imperatives in those cases where the optative may have been:
θélo na γrápsete γrígora! «I want you to write quickly!». Although, speakers can be heard using Form-2 in such cases if the {-ete} to {-te} reduction does not create a triadic cluster:
θélo na siðerós(e)te ti zakéta! «I want you to press this jacket!»

(b) When a certain number of postclitics create a metrical structure which reinforces the weakly stressed {e}:

> kópsete/kópste/kófte ta malyá tu kondá!   «Cut his hair short!»
> kòpseté-ta-tu kondá!   «cut-them-his short!»
> kòpste-tá-tu kondá!   »   »

However, the «syncopated» Form-2 and Form-3 are used readily in all direct commands. This type of «syncopation» is commonly found in all M. Greek dialects and it is not confined to the second plural only; the second person singular exhibits the same process:

> káne ta avyá vrastá! → [kandavyá vrastá!]
> «Make the eggs hard-boiled!»
> δóse mu éna vivlío! → [δózmuna vivlío!]
> «Give me a book!»
> etc.

Notice, though, that whereas the singular imperative-{e} is syncopated when the resulting consonant cluster shows a phonetic analogy to the plural Forms-2 and -3, the second plural Forms-2 cannot be further syncopated because that would create a homophonous (to the singular) lexical item:

> kòpse tá mu   «Cut(sing.) them-mine!»   vs.   kòpste tá mu   «Cut(pl.)!»
> kópsta mu   »   vs. *kópsta mu   »
> kófta mu   »   *kófta mu   »

Furthermore, the imperfective singular and plural imperative forms cannot undergo syncopation because the result would - after assimilation - also be phonetically similar to perfective singular and plural Forms-3, respectively:

singular:
kóve ta kondá! «Keep cutting them short!» vs. kópse ta kondá! «Cut them short!»

  ———   kópsta kondá!   »   »

*kófta kondá!   »   kófta kondá!   »   »

plural:
kòveté ta kondá! «Keep cutting them short!» vs. kòpseté ta kondá!   »   »

  ———   kópste ta kondá!   »   »

*kófte ta kondá!   »   kófte ta kondá!   »   »

1.1 Perfective Imperative Forms-2

In all the above examples, the syncopated {e} is unstressed; a phenomenon not unlike many unstressed vowel deletions reported in the literature as being «particularly» northern, in terms of M. Greek dialects. B. Newton (1972) writes on the subject (p. 121):

> ...*the reduction of -ete to -te in the second plural aorist imperative is common in southern dialects (párte «take!», δóste «give!») and even when the same morpheme is reduced in the second person plural active indicative, a peculiarly northern development, we probably have an extension of this same process of syncopation. The same applies to the loss of the first vowel of the homophonous*

third singular passive morpheme -etai {-ete}, as in [xriazte] for /xriazete/ «he needs.» That all three verbal endings are subject to loss in eastern Thrace, which has a semi-northern dialect, and does not raise /e/ to [i], confirms that what we have is some process of syncope.

Newton's observations are short of saying that there is a process of vowel deletion apparent in all Modern Greek dialects in the perfective imperatives and that we need to capture the generalization that underlies this type of «syncope.» Since the data on the northern imperatives in his study are not clear, we must turn to Papadopoulos (1927, p. 91, 19) who reports such cases for the northern dialects:

> taráksete - taráksti!,   kráksete - krákste!,   párete - párte! etc.
>   «disturb!»   «shout!»   «take!»

Papadopoulos (p. 15) also reports that in parts of Thessaly and Macedonia a raised-[i] is deleted in the second person plural of the present indicative of verbs like the following (among many):

> éxete-éxiti-éxti,   kánete-kániti-kánti,   stélete-stéliti-stélti,   etc.
>   «you have»   «you do»   «you send»

If these forms are what Newton calls «a peculiarly northern development», they should be expected considering the interaction of stress and mid-vowel raising and high vowel deletion in these dialects. Because, in all Modern Greek dialects, there is an interaction of stressed/unstressed syllables due to the dynamic stress operative in the language since Hellenistic times (Theophanopoulou-Kontou, 1973) that influences vowel quality and this must be a generalization in need of expression in a relevant theoretical framework (Papademetre, 1987). Since, an explanation of these data based on segmental factors alone would only lead to further fragmentation of a process found operative in all dialects; a fact that a study on M. Greek dialects could not afford leaving unexplained.

As reported previously (Papademetre, 1982), segmental conditions cannot account for all the deletion/retention phenomena of unstressed high (and mid) vowels in the northern dialects, especially when it has been made apparent that stress is very important (Margariti 1976, Dauer 1980, Papademetre 1982). Therefore, a metrical condition for all the above data is more relevant at a level where metrical syllable structure has been established and the relative prominence of weak vs. strong metrical syllables has already been assigned. The theory of metrical structure, as presented and developed by Liberman & Prince (1977), Kiparsky (1979, 1982), McCarthy (1979), Selkirk (1980), and Hayes (1981), among others, is basically as follows:

The theory treats stress as a matter of relative prominence. This prominence is expressed in terms of metrical syllables (defined in terms of universal template, see below) by means of binary branching trees labeled *strong* (s) vs. *weak* (w) depending on which syllable is stronger. When more than two syllables are present, the non-terminal constituents are also specified for relative strength, by building feet structures. In relative terms, then, a metrical syllable dominated only by strong nodes is the strongest (Hayes, 1981, pp. 1-7); a branching node in the tree structure is to be «read» as a foot. The assignment of feet is made as follows:

> a. label metrical syllables s w.

b. assign feet:
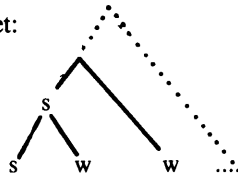
c. connect remaining nodes.

d. label right branches s iff they are branching (at the relevant level)

e. assignment of metrical structure (a-d) is cyclic.

1.2 Metrical analysis of the perfective imperatives

Assuming that the present indicative data have the same relative prominence of strong vs. weak metrical syllables, we can build the following binary branching tree structures by labeling the syllables s or w:

e	xe	te	→ e	xi	ti	→ e	xti
ka	ne	te	→ ka	ni	ti	→ kan	ti
ste	le	te	→ ste	li	ti	→ stel	ti
	↓	↓		↓			
	[i	i]		Ø			
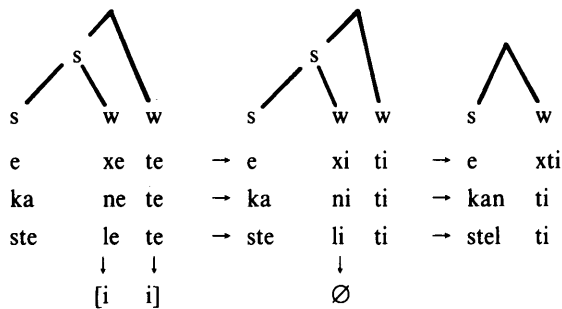
In metrical terms, in many Modern Greek dialects an [e] is raised and/or deleted under the weak node of a branching stressed foot:

(a) rule of raising:

$$\begin{bmatrix} e \\ \text{weak stress} \end{bmatrix} \cdot \Rightarrow /\!/ \ [i]$$

(b) rule of deletion:

$$\begin{bmatrix} V \\ \text{high} \\ \text{weak stress} \end{bmatrix} \Rightarrow \varnothing /\!/$$

Following Newton's observation to its implication in generative terms that in the southern dialects «we have an extension of this same process of syncopation», we could further establish the metrical structure of both the singular and plural perfective imperatives:

ka	ne	ta	γriγora!	→	kan	ta	γriγora!	(sing.)
ka	ne	te	»	→	kan	te	»	(plural)
tre	kse	te	»	→	tre	kste	»	»
ko	pse	te	»	→	ko	pste	»	»

etc.

At this point, it should be considered whether the deleted [e] is first raised in the southern dialects as well. For there is no data to indicate that the intermediate forms [kániti, kópsiti, tréksiti, etc.] found in the northern dialects appear in the southern dialects as well, including the standard. What is found, however, are different stages of the application of the rule of unstressed vowel deletion in those northern dialects that, according to Papadopoulos, show raising of mid-vowels but no further deletion (Siatista is one those dialects, see Margariti, 1976). Furthermore, dialects are found that show unstressed vowel deletion but not raising of mid-vowels and also dialects that show [e]-raising but no [o]-raising; even dialects with no raising at all, and only partial deletion of unstressed [i] (Papadopoulos).

On the basis of such variety, one could look at the imperative data and observe that there is a uniformity in at least one fact: the perfective imperative Forms-1 show a uniform metrical structure that creates a relevant environment for the deletion of an unstressed vowel in a weak node under a branching stressed foot followed by a non-branching weak foot. This type of unstressed vowel deletion is restricted to the perfective imperatives, thus far, in the southern dialects at least, and it is a matter of a rule addition in progress.

Examining one case from the standard (and all other dialects), we could further suggest that both an [i] and an [e] are deleted if the metrical conditions for such a deletion are met:

a) «Sit!» (singular):

|						
ka	θi	se		ka	θse	→ [kátse!]

b) «Sit!» (plural):

ka	θi	se	te		[ka	θí	ste]

This plural perfective form shows further two - possibly three - additional phonetic (optional) forms in many «standard» speakers:

[kátsete] → [kátste] → [ʔkáste] frónima ípa!
«Sit (pl.) quietly, I said!»

If [kátsete!] derives from /kátse + ete/, its metrical structure meets the conditions for the unstressed vowel deletion in the perfective imperatives; but, if it derives from /káθise + ete/ we must take into consideration that, as in many northern dialects with a secondary stress (Hoeg, 1926; Papadopoulos, p. 49: [kàθoumástan, faìnoumástini, aɣàpiθkámi, etc.]; Margariti, 1976, Papademetre, 1982: [èkatsámi, žimusámi, etc.]), so here as well we have a case of an underlying metrical structure which meets the conditions for the deletion of [i], since it appears in the weak node under a branching stressed foot:
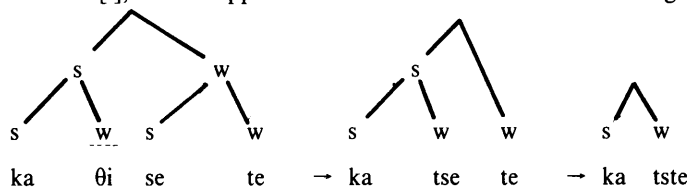
In such cases, unstressed mid-vowels are raised (in northern dialects like Siatista) and unstressed high vowels are deleted under a weak node dominated by a strong foot.

So, in metrical terms, the resulting metrical structure of {kátsete} is, in turn, further input to the rule of metrically conditioned deletion.

In other words, for this verb there could be four surface perfective imperative forms in the language - one deriving from a form with one main stress and the rest three deriving from a form with a main and a secondary stress:

1.   /ka θí se te/ → [ka θí ste]   «Sit!» (plural)
2a.   /ká θi sè te] → [ká tse te]   «Sit!» (plural)
b.   [ká tste]   »
?c.   [ká ste]   »

Therefore, the question of whether there is a raising first and then a deletion of an unstressed high vowel may play no role in those cases where the conditions of metrical structure in terms of relative stress prominence are present and the application of the rule possible.

The fact remains, however, that this environment is restricted, in the standard dialect at least, to some grammatical categories. Nevertheless, all cases of «-ete imperative syncopation» referred to by Newton are found also in the speech of many «standard» speakers, one way or another. Notice that in some favorable metrical environments, even the «-etai» syncopation is possible, depending on the rhythmical structure of a phrase (Kiparsky, 1982; see also Papadopoulos, p. 15: [pinetai-pinti]):

tétyo krasí ðen pínetai me típota → [...ðembínde...]
«such wine is not drunk with anything»

Since, the metrical conditions in such metrically long phrases create a very weak syllable:
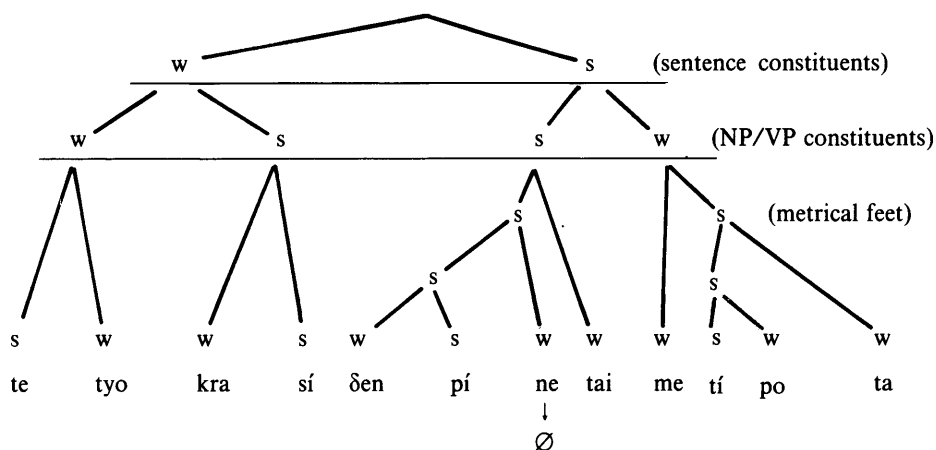
In such an environment, where the weak syllable is dominated by doubly branching strong feet, a metrical condition is created so the vowel in question in the weak syllable will be reduced if not deleted. Cases of vowel reduction abound in Modern Greek and have been observed and reported by Dauer (1980).

Dauer has experimentally established that there exist five stages of unstressed vowel reduction in the speech of many Modern Greek speakers of the standard dialect (p. 17):

> *This process goes on below the consciousness of most native speakers in their own speech; however, they will recognize it in speakers of northern Greek dialects where unstressed /i/ and /u/ are frequently elided... In the phonology of the language, vowel reduction and elision are treated as a collection of optional 'fast speech' rules (e.g. Theophanopoulou-Kontou, 1973). In this study, they are considered as related stages in the same phonetic process... described from both an auditory and acoustic point of view.*

The third stage includes very short «centralized vowels» (e.g. [ákʉsa] «I heard»); in the fourth, «whispering of high vowels occurs» (e.g. [vréθ i ka] «I found myself»); and in the fifth, «there is no evidence for the presence of a vowel segment in the acoustic record» (e.g. [pulíθ-ke] «It was sold», [pót-sa] «I watered»). Dauer, examining both the phonetic environment of these «reductions» and their position relative to the stressed syllable, writes about the latter (p. 21):

> *Vowel reduction is most likely to occur in the post-stressed syllable (the syllable immediately following the stressed syllable) and least likely to occur in the pre-stressed syllable.*

Of course, the position of a word in a phrase is another context where syllable stress determines vowel reduction. Dauer gives the following as an example (p. 25):

> *[áfisan ts taftótites* tu's *sto spíti] («devoiced /u/») vs.*

> *[i taftotites* tu's *vjenoun stin astinomia] («stretched out /u/»).*

All these findings lead Dauer to conclude that (p. 26):

> *In Greek, unstressed vowels are on an average shorter in duration (by two-thirds) than stressed vowels, and they are shortest in the post-stressed syllable position (this is basic to the* rhythm *of the language; Dauer, 1980)... It appears that the very short duration of these vowels is primarily responsible for their devoicing and eventual elision... In fact, devoicing the vowel seems to make it easier to achieve the proper rhythm in Greek... According to Lindblom (1963: 1779)* «timing *is the primary variable in determining the reduction of sounds.»*

1.3 Conditions on metrical change

What all the above data have in common is their relevance to metrical structure of Modern Greek. Taking into consideration that the development of dynamic stress in the language was a development across all Greek dialects, it is natural, in the language's evolution of metricality, for the standard dialect to lag behind the metrical processes in the southern/northern dialects, since every standard is slow to incorporate phonological rules existing in the more progressing non-standard dialects. Such a tendency is not unlike similar processes in other languages where dynamic stress results in reduction and/or deletion of vowels in weakly stressed positions, in fast or metrically constrained speech. (German: ich habe gesehen [içap'gzéhen] «I have seen»; English: The police arrived late [ðəplisaráivdléit], etc.).

In terms of a linguistic change now in progress, it is expected that the environment of the unstressed vowel deletion rule will be restricted in all dialects and especially in the standard.

As it has been pointed out, (Zwicky, 1972, p. 282):

> *The associated view of linguistic change is that the primary mechanism of change, aside from reordering, is the removal of restrictions on rules. What corresponds to "addition of a rule" within this framework is the removal of an absolute prohibition against the rule, so that it is to be expected that the earliest evidences of a rule will appear in considerably restricted environments (restricted in the class of segments affected in the contexts in which the rule applies), and in the lexical items to which the rule applies.*

As we can surmise from the above, the imperative deletion rule is an addition to the grammar of the standard dialect, at least, since it removes the absolute prohibition of vowel deletion in metrical terms other than in fast speech conditions; and being an addition, it is manifested in restricted environments, thus far. But, as an addition, the rule allows the natural evolution of stress patterns across all dialects of the language (a type of "levelling"). In terms of obligatory incorporation of the rule by the language learner, current usage indicates that the younger generation of M. Greek speakers uses the perfective imperative Forms-2 and -3 -[kofte, trexte, eleŋxte] etc.- interchangeably, with Forms-3 being more favorable; these forms derive from the syncopated Forms-2 after cluster simplification and consonant dissimilation; a phonological fact which indicates that the rule of unstressed vowel deletion has been incorporated in the grammar of the adult speaker and feeds the rule of cluster simplification and subsequent consonant assimilation; both processes being prevalent in the grammar of Modern Greek dialects (Newton, 1972).

Presently, we shall examine the conditions under which this cluster simplification

gives rise to the perfective imperative Forms-3, so that we can establish the correlation of syllable structure and stress patterns in metrical phonology.

2.0 Cluster reduction in the perfective imperative Forms-3

Assuming that in the above perfective imperative data the underlying structure is:

>   stem   perfective marker   2nd person pl.
>
> e.g.   / plek +   s   +   ete /

we observe that in the imperative Forms-3 the perfective marker is deleted. This type of consonant deletion has been reported by B. Newton (p. 119) as follows:

> */s/ is lost regularly in at least Peloponnesian dialects when [pst] and [kst] arise as a result of the syncopation of aorist plural imperative forms in -ete.*

This observation, however, has not been incorporated in the cluster simplification rule that Newton (p. 117) presents as applying to triadic clusters:

> cluster simplification: *delete the middle term of a sequence of three conson-ants unless it is either (a) a sibilant or (b) a stop followed by a sibilant or liquid or (c) any consonant followed by a palatal fricative.*

Newton's motivation for excluding the /s/ deletion from his rule is based on north-ern dialect data such as: «[mstak'] for /mustáki/ 'moustache,' [piršnós] for /persinós/ 'last year's,' [kšlénus] for /ksilénios/ 'wooden'» (p. 118). Therefore, the /s/ loss in Peloponnesian and the standard dialects is «presumably a different rule».

If, however, a process of cluster simplification is assumed to be a natural process in all Greek dialects, its motivation may be the same, regardless of whether /s/ is in some dialects deleted and in others not; for the generalization, in generative terms, must be that all dialects show a process of cluster simplification; so this is an important generali-zation and must be "captured" in the phonological framework assumed by Newton. Thus, Newton rightly observes that his "formulation is to be regarded as at most tentative" (p. 117), so he writes:

> the rule as phrased suggests that a sufficient condition for deletion is that the second and third terms do not form permissible dyadic clusters; thus stop+stop sequences are excluded as are those with stop and non-sibilant fricative...: [kurá-stika] 'I was tired' goes by high vowel loss to [kurástka] and by cluster simplifica-tion to [kuráska]..., [kléftiδes] 'thieves' reduces via [kleftδis] to [klefδis] and this may undergo voice assimilation to [klevδis].

This reformulation of the rule implies that a vowel deletion creates only triadic clusters and thus cannot account for cases such as:

/ávɣustos/ → ávɣstus → [ákstus/áxstus] 'August' (Newton, p. 203)

/eléŋksete/ → [eléŋkste] → [eléŋxte] 'inspect!' (our present data).

Therefore, in a four-consonant cluster there is no clear indication as to what the "second and third terms" are. Newton seems to label consonant "terms" as follows: ...VC$_1$ C$_2$ C$_3$V.; presumably assuming some implied way for syllabifying medial clusters,

a notorious problem in syllabic phonology; (Papademetre, 1983). Moreover, it is not defined what is meant by "permisssible." If that is a cover term for "according to phonotactic constraints" of the standard dialect, the analysis of the cluster simplification observed in the imperative perfective data cannot be carried out, since there the second and third terms *do* form "permissible" dyadic clusters, regardless of dialect.

Should we then assume that, as Newton suggests, "it is quite possible that the rule operates in different versions in different dialects" (p. 117)? If we do, this still does not tell us why there is such a general process of cluster simplification in all the dialects. For even if /s/ deleted only in the southern dialects (including the standard) we must not miss the generalization that cluster simplification in Modern Greek may be motivated by a structural condition across all dialects.

Thus, in the northern dialects, as a result of the very productive process of unstressed vowel deletion, a cluster like [kst-] is found word-initially ("permissible" phonotactically). (Newton, p. 184: [kstos] 'Christ'). Notice, however, that the whole cluster is considered in this case. It is not simply a matter of whether #st- is "permissible," but whether #kst- is. If, therefore, we are supposed to understand the relevance of the notion "permissibility," we should consider not only the permissibility of #st- (which is undeniable in Modern Greek dialects) but whether a cluster like #kst- or #pst-, etc. is found word-initially. We can look, therefore, at the created clusters and ask whether such sequential clusters, -pst-, -kst-, etc., are "permissible" triadic onsets in a syllable. The answer to such a question is that they are not found word-initially in the standard/southern dialects; and this answer establishes as important the generalization that it is not the particular segments that are relevant here, but rather the position of all segments comprising the cluster which functions as the onset of a possible metrical syllable.

Thus, in a case of an attested process of cluster simplification, its distribution and constraints across dialects may differ only in terms of sonority hierarchies particular to each dialect and subject to syllable onset constraints that are the result of an attested process of metrical vowel deletion (Papademetre/Margariti-Ronga, 1984). The question, then, should be: are these sonority hierarchies arbitrary or are they to be considered as comprising certain units of segment bonding?

Evidence from many languages and numerous phonological processes indicates that the most likely candidate for such a unit is the metrical syllable. Only when reference to metrical syllable structure is assumed can we adequately describe and explain a process such as "cluster simplification" manifested in all Modern Greek dialects. Moreover, it is only the specific application of the rule based on metrical syllable structure that will be realized differently in different dialects and that happens according to each dialect's segment-sonority membership constraints based on the metrical syllable template defining onsets and codas (Papademetre, 1983).

## 2.1 Analysis based on metrical syllable structure

In Papademetre 1979, we established from distributional and frequency data that there is a statistically important tendency for maximizing the onset of a syllable in Modern Greek. Even more significantly, we argued that there is too general a preference for "open syllables" in the language for that to be accidental. In Papademetre 1983, the general principle of zero codas/maximal syllable onset preference was adopted and established as the syllabification principle for the language. Furthermore, in

terms of constraints in syllable margins, it was argued that the coda is the most restrictive margin: it allows only a [+sonorant] segment. The syllable nucleus and coda in a metrical syllable constitute the rhyme (McCarthy 1979, et.al.).
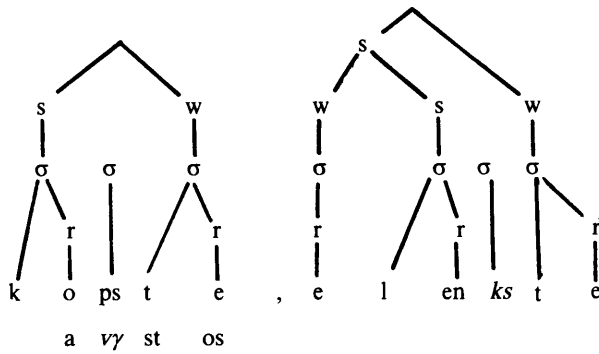
Thus, the following metrical syllable template was established for Modern Greek dialects:
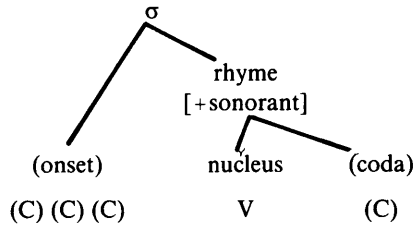
This would allow the segments /m, n, r, l/ to be the only segments under the coda in the underlying metrical syllable structure and only [s] in absolute final surface structure, generatively speaking. Accordingly, our imperative perfective Forms-1, plus Newton's /ávɣustos/, are syllabified as follows:
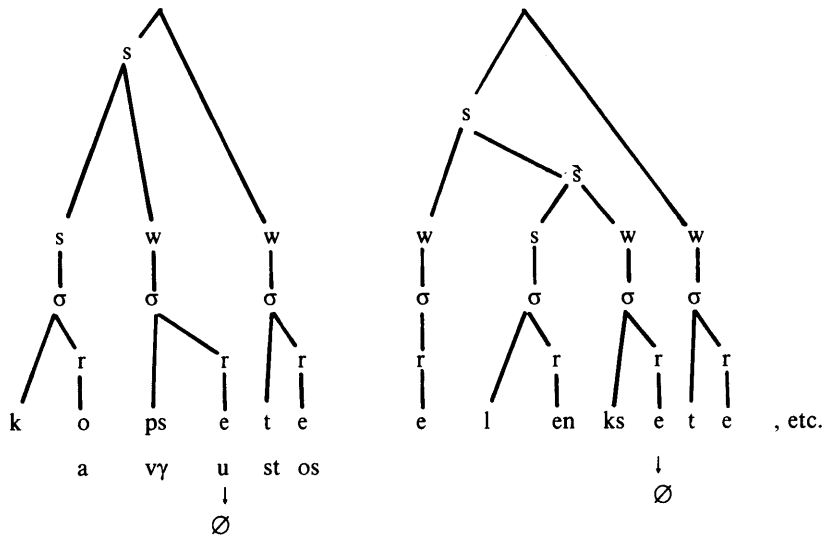
At this point the conditions for the metrical vowel deletion are met, and the perfective Forms-2 are derived:

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          s           w              s
          |           |           w / \ s      w
          σ   σ   σ           σ       σ  σ   σ
         /\  |  /\         |      /\  |   \
        / r| |/  |r        |r    /  |r |    |r
       /  | |    |        |    /   |  |    |
      k   o ps t  e  ,   e   l  en ks t   e
         a  vγ  st   os
```

But, in terms of metrical syllable structure, this deletion has created syllables with no rhymes. Resyllabification must then reinstate the metricality of the stranded onset segments by assigning them as part of the next syllable's onset, according to the zero coda syllabification principle. This resyllabification, although in accordance with the [+sonorant]-rhyme principle, has created segment-membership violations of the M. Greek syllable onset. The onsets -kst-, -pst- have three members, as permitted in the language, but they violate the sequential constraints on three-member onsets (or "sonority hierarchy"). Nevertheless, this resyllabification must be the right one for [eleŋ.kste] and similar cases, since another one, cf. [eléŋk.ste] would violate more than segment sonority hierarchy; it would violate the basic principle of restricted codas, that they contain only one segment. Furthermore, if that was a possible resyllabification, it would motivate a cluster simplification according to the principle of restricted codas with a wrong result: *[eléŋ.ste] *[elék.ste] (cf. Newton, p. 184: /péfti/ → peft → [pef] "s/he falls").

Therefore, a hierarchy of violations emerges where:
(a) exceeding the metrical syllable's template in terms of number of segments allowed under the onset node is a 1st-degree violation; thus, no more than 3-member onsets and 1-member codas; and
(b) violating the segment sonority hierarchy of a 3-member onset or 1-member coda is a 2nd-degree violation and as such it can appear on the surface; cf. [kó.pste, eléŋ.kste] etc.

Violations of this second type are fairly common across languages and they are resolved diachronically (Venneman, 1972; Papademetre 1983). In contrast, 1st-degree violations are usually remedied immediately, as Newton's example [á.kstus] clearly indicates:

metrical syllable structure	á.vγu.stos
metrical vowel deletion	á.vγ.stos
resyllabification	
(1st-degree violation)	á.vγstos
cluster simplification	á.γstos
voice assimilation	á.xstos
consonant dissimilation	á.kstos
metrical vowel raising	[á.kstus]

Another syllabification such as *áv.γstos*, if construed as a 2nd-degree violation of the more restrictive coda, could remain as such with a phonetic form *[áv.γstus] or *[áf.kstus]. As a 1st-degree violation, however, of a less restrictive onset, it is remedied immediately by cluster simplification, indicating that the burden of violation is taken up by the metrical syllable's onset, not codas in Modern Greek dialects.

Metrically speaking, therefore, in a case of a 4-member syllable onset, it is the violating fourth member that is deleted; even though, Newton provides us with the example '/xristos/... and the resultant xrstos is always reduced ...to [kstos]'.

Thus the constraints on a metrical syllable's 4-member onset should be included in the simplification rule:
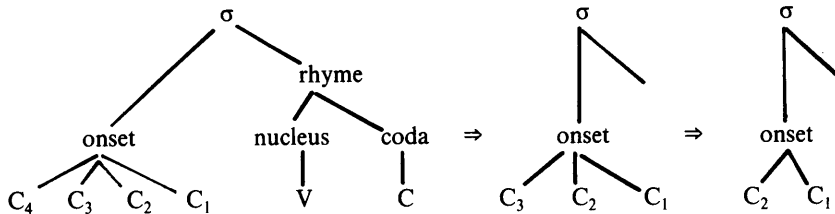
condition 1: the actual choice of the 4th-member to be deleted is based on each dialect's specific sonority hierarchy; the member that violates that hierarchy most is deleted (in *[xrstos], [r] cannot be either the 3rd or the 2nd member in a 3-member onset, thus it is deleted).

condition 2: if at the output of resyllabification a 3-member onset is created violating a dialect's sonority hierarchy, (optionally) delete the member that violates most that hierarchy (in -kst-, -pst-, [s] cannot be the 2nd member in a 3-member onset in the standard/southern dialects, thus it is deleted) (Papademetre, 1983; Papademetre/Margariti-Ronga, 1984).

Therefore, cluster simplification is a phonological process whose domain is the metrical syllable and which sees to it that segment organization in Modern Greek dialects conforms to the language's preferred syllable template.

The syllabification principles proposed and adopted in the analysis of the imperative perfectives were based on the notion of restricted rhyme; more specifically, it was proposed that the burden of a syllabification violation is taken up by the less restrictive margin of the syllable template, namely the onset. Furthermore, universal segment properties, such as relative sonority hierarchy was shown to be a factor in determining segment membership constraints. For it is assumed that the metrical syllable structure of all languages "reflects an interplay of universal and language-particular constraints and tendencies" (Kiparsky, 1982; Drachman, 1977; Papademetre/Margariti-Ronga, 1984).

3.0 Επίμετρο

In the present study we tried to establish that in terms of metrical structure, the grammar of the standard dialect of Modern Greek shows a rule addition. This process is a result of a continuous phenomenon in all the dialects of the language: development of dynamic stress and the phonological consequences that it entails. Thus, many subse-

quent segmental assimilatory —sonority-bound— processes are to be observed as a result, the incorporation of which into the grammar should be examined from the point of view of transitional stage of rule application, namely restricted environment.

Furthermore, we propose that Dauer's/Lindblom's "rhythm/timing" factor in the phonology of Modern Greek dialects can be described and explained in metrical terms if we assume that there is a metrical correlation between the internal structure of the syllable (relative strong = more sonorant nucleus, relative weak = less sonorant onset/ coda) and the relative stress prominence of syllables in words and phrases (relative strong = more stressed syllable, relative weak = less stressed syllable) (Kiparsky, 1982).

It is our understanding, that spoken Greek is a language which has been evolving by maintaining a parallelism between the rhythm of everyday speech and its use in oral/ aural poetry (Papademetre, 1987).

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