THE INFLECTIONAL MORPHOLOGY OF THE VERB IN MODERN GREEK KOINE

A VARIATIONIST APPROACH

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ABSTRACT

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This study is concerned with the description, on the basis of recordings of informal conversations between young educated Athenian peers, of the interrelated patterns of variability and invariance obtaining in the verb inflection in Modern Greek Koine. The analysis is conducted within the variationist generative framework, i.e. it is committed to exhaustiveness and explicitness, but unlike the traditional (Chomksyan) generative model, it is based not only on the intuitions of the author but, more importantly, on observations of language in actual use. Variation phenomena are accounted for on the basis of the concept of variable rule. Use is also made of the insights gained by scholars working with implicational scales.

A central concern in the study is to avoid the identification of structuredness with invariance, characteristic of traditional generative theory, but also the all too common practice in much variationist literature of concentrating on a few (mostly phonological) variables that yield rich observed frequencies. Rather, we take the view that speakers make use both of invariance and of variability in their speech and that in the latter case differences in scores are not necessarily meaningful. Furthermore, speakers often engage, for the sake of stylistic effect, in the breaking of rules, a process resulting in episodic, yet highly meaningful, forms.

The study is also concerned with accounting in explicit ways for variation phenomena sometimes related in the literature to the (unsatisfactory) concept of diglossia.

Alternative analyses of the Greek verb inflection are examined and a number of structural places where inflectional formatives alternate are recognized. To account for all the acceptable "categorical" and "optional" combinations of inflectional formatives, a system of rules is set up. Furthermore, features of the linguistic and situational context are correlated with the probability of appearance of a number of variants in the output of a particular variable rule.

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CONVENTIONS

1. The grammatical categories recognized in the structure of the verb in MGK are as follows: Voice: {± Passive}, Aspect: {± Perfective}, Tense: {± Past}, Number: {± Plural}, and Person: {1}, {2}, {3}.

2. Two major morphologically relevant lexical classes or conjugations are recognized in the Greek verb: {STv}, i.e. verbs whose stem ends in a vowel that interacts with following vowels, e.g. ayapá + is → ayapás (= you love); $\{ST_{\emptyset}\}$, i.e. verbs whose stem ends in a consonant, e.g. páv + is (= you stop), or in a vowel not interacting with following vowels, e.g. isxí + is (= you are valid). Apart from the above differences each lexical class employs partly different inflectional formatives, e.g.

$$\{\text{-Pass,-Perf,+Past,-Pl,1,-K}\}\begin{cases}\{ST_{\emptyset}\} : \text{é + pav + a (= I was stopping)}\\ \{STv\} : \begin{cases}\text{ayáp + a + y + a}\\ \text{ayap + ús + a}\end{cases} \text{ (= I was loving)}\end{cases}$$

3. SP_1, ... SP_{12} refer to the twelve abstract places in the structure of the verb in MGK where formatives alternate.

4. F_1, ... F_{12} refer to twelve sets of formatives corresponding to the structural places referred to above.

5. T_1, ... T_6 refer to groups of terminations or suffixes characteristic of the {+ K} CL, each comprising at least six components of, among other values, Number and person.

T_i, ... T_{iv} refer to {- K} terminations.

6. CL refers to the stylistic level of co-occurrence, {+ K} or {- K}, of formatives within a single verb form, e.g.

{+ K} : , pav [o] me [n] , where all formatives co-occurring
{- K} : [{o u}] [ø]

at the top of the square brackets belong to the {+ K} stylistic level of co-occurrence and formatives at the bottom of square brackets to the {- K} CL.

7. Superscripts over formatives of a verb form mark the place in structure (SP) in which a formative appears and consequently the set (F) in which it belongs, e.g.

{-Pass,+Perf,+Past,-Pl,3,$ST_{ø}$,-K} : $\overset{1}{\text{é}} + \overset{2}{\text{pap}} + \overset{4}{\text{s}} + \overset{6}{\text{e}}$ (= he stopped)

8. An asterisk (*) precedes ungrammatical forms, e.g. * <u>ékso</u> instead of the correct <u>éxo</u> (= I have).

9. MGK: Modern Greek Koine

10. AG : Ancient Greek

11. ∅ : zero realization

12. + : indicates formative boundaries, e.g. $\overset{1}{\dot{e}} + \overset{2}{pav} + \overset{6}{a}$ (= I was stopping)

13. A hatch (#) indicates word boundaries, e.g. # pá+o #(= I go)

14. Slants / / contain phonological segments, e.g. /s/, /f/, /pávo/.
However, in our study, symbols such as s, f or a are meant to be not phonemes but informal abbreviations for sets of distinctive features. Therefore they are not included in slants unless specific reference to the phonological, as opposed to the phonetic, level of representation is made.

15. Braces { } contain: (i) values of stylistic, lexical or grammatical categories, e.g. {+ K}, {STv}, {- Passive}, {1},etc.
(ii) a number of alternative elements belonging to the same stylistic level of co-occurrence, e.g. {- K} : ayapj$\left\{\begin{matrix}o\\u\end{matrix}\right\}$nte (= they are loved)

16. Square brackets [ ] are used (i) to include phonetic features, e.g. [+continuant], [-stress]; (ii) instead of braces, if there is more than one point in a verb form where variant elements may appear and if a certain variant at one point tends to co-occur with a particular variant at a different point, e.g.

$\begin{bmatrix} e \\ (e) \end{bmatrix}$ paf $\begin{bmatrix} \theta \\ t \end{bmatrix} \begin{bmatrix} \emptyset \\ ik \end{bmatrix} \begin{bmatrix} i \\ e \end{bmatrix}$, summarizing the alternants epáfθi ({+ K}) and (e)páftike ({- K}), both meaning "he was stopped"; (iii) if two alternative elements at a certain point in structure contrast with respect to stylistic level of co-occurrence ($\{\pm$ K $\}$), even if no other contrasts occur in the same form, e.g. éyraps$\begin{bmatrix} a \\ e \end{bmatrix}$s.

17. A parenthesis ( ) contains a segment within an overt verb form which is generated by a variable rule, e.g. pávun(e) (= they stop).

18. Angled brackets 〈 〉 abbreviate two statements, one in which a number of discontinuous elements appear and another in which such elements do not appear, i.e. A 〈B〉 C 〈D〉 E is a collapsed version of A B C D E and A C E.

19. Three-cornered brackets 〈 〉 contain the output of a variable rule : {+Pass,-Perf} → 〈a〉 / un —— e.g. pavómun(a);

or features of the environment of a rule whose presence causes the rule to apply variably:

$$\begin{bmatrix} \text{-voiced} \\ \text{+continuant} \end{bmatrix} \longrightarrow [\ \text{-continuant}\ ] \ / \ \left\langle \begin{matrix} \text{---} \\ \text{-coronal} \\ \text{+anterior} \end{matrix} \right\rangle \quad \text{s}$$

e.g. fs $\longrightarrow \begin{Bmatrix} f \\ p \end{Bmatrix}$ s , but: xs $\longrightarrow$ ks; finally, three-cornered brackets contain (families of) variable constraints, affecting the probability of application of a rule; thus, the above rule is affected by the variable ⟨LND⟩ as follows: the rule applies more often if the lexeme involved is [-learned] than if it is [+learned].

20. An arrow ($\longrightarrow$) indicates an instruction to change one form into another, often in a specified linguistic context, e.g.

i $\longrightarrow$ j/ C - V

21. A tilde ($\sim$) marks a negative environment, i.e. it blocks the application of a rule in the case of a certain environment. Thus, the following rule

$$\underset{1}{\begin{bmatrix} \text{C} \\ \text{+anterior} \\ \text{+coronal} \\ \sim\langle\text{+strident}\rangle \end{bmatrix}} \qquad \underset{2}{\begin{bmatrix} \text{C} \\ \text{+anterior} \\ \text{+coronal} \\ \text{+continuant} \\ \sim\langle\text{-strident}\rangle \end{bmatrix}} \longrightarrow 2$$

does not apply in the case of a [+strident] consonant followed by a [- strident] consonant.

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INTRODUCTION

1. The purpose of the present study is to describe, on the basis of recordings of informal conversations between young educated Athenian peers, the intertwining patterns of variability and invariance obtaining in the verb inflection in Modern Greek Koine (MGK).

That language varies in time, in social and geographic space, along the stylistic dimension, from individual to individual, that variability can be observed even within the speech of a single speaker is by no means a recent discovery in linguistics. Although, however, the existence of variability has never been in question, its relevance for linguistic theory has: traditionally, most linguists have viewed languages as homogenous, stable and clearly circumscribed objects whose structures are arrived at through introspection on the part of the linguist. Variation has been explained away either as "free" or as resulting from the existence, alongside the "real" languages, of a number of distinct varieties with their own specific grammars; furthermore, profound sounding distinctions such as "langue/parole", or, more recently, "competence/performance", though of theoretical value that has yet

to be amply demonstrated, have been used in practice to provide some sort of theoretical motivation for the exclusion of variability from the study of language, i.e. linguistics is concerned with "langue/competence" but variability is relegated to "parole/performance" along with slips of the tongue, hesitations, memory failures, and the like. The prevailing assumption of traditional linguistics, then, can probably best be described as "the identification of structuredness with homogeneity" (Weinreich et al., 1968, p.101)

It is perhaps fair to say that researchers assume discontinuity between their areas of study and the rest of reality in order to be able to formulate meaningful (though not necessarily correct) explanations. However, this process of delimitation is a hit-or-miss affair, constantly subject to revision, for the simple reason that we cannot clearly delimit a subject about which we necessarily know, to begin with, little more than that it is problematic. From this point of view the exclusion of variability from the study of language is, if not justified, at least understandable: faced with the insurmountable descriptive difficulties presented by even "his own dialect", the traditional linguist felt that it would be far too premature to worry about his neighbour's slightly

different way of speaking. That a position of baffling weakness (no linguist knows enough about language to describe thoroughly even his own linguistic knowledge) was transformed to a theoretical tenet ("Linguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language in actual performance" [Chomsky, 1965, p.3.]) is regrettable but hardly surprising, and definitely not peculiar to linguistics: Aesop had captured all the relevant facts in his fable concerning the fox that, having lost his tail while escaping from a trap, started extolling the joys of a tail-less existence to the other foxes.

Also, it may be worth mentioning, as an explanation for the customary exclusion of variability from the study of language, that, although speakers are able to vary their speech according to the context of situation, it has been observed (Labov, 1972a, p.94) that language is <u>perceived</u> categorically and that a linguist looking for homogeneity is prone to perceive even more categorically

than most laymen.

A number of models proposed to account for variability either have not been general enough (e.g. Martinet's "functional" view of a linguistic change as a result of the interaction of internal, structural forces alone, i.e. social factors, for instance, are considered as irrelevant), or have not developed descriptive instruments that are sufficiently simple and powerful to account for a variety of data (e.g. Firth's "context of situation"; Creolists before DeCamp).

In 1958, however, DeCamp first applied implicational scales to the study of language (see Ch.V, 1.6. below). A few years later Labov proposed the concept of the linguistic variable and further developed it in the notion of variable constraints on the application of variable rules (see Ch.V, 1.1. below). The aim, and, more often than not, the result of the application of the two models, has been to provide explicit statements concerning language in the service of a community (rather than in the mind of the ideal speaker) supported by an unlimited number of reproducible independent measurements. Thus based on data from the speech community, implicational scales and variable rules have put an end to linguistics

"as a game in which each theorist chooses the solution that fits his taste or intuition (Labov, 1972b, p.259).

For reasons that will be made clear in Ch.V,1., where the theoretical premises underlying variable rules are compared to those of implicational scales, this study follows (mainly, but not exclusively) the Labovian paradigm, whose relation to more traditional models will now be considered.

2. As we mentioned above, Labov's paradigmatic "revolution" consists, firstly, in turning away from the linguist's trickle of intuitions as the sole source of data and towards the linguistic cornucopia of the speech community, and, secondly, in providing a, by and large, adequate formal apparatus for the treatment of the new type of data. In other words, the study of variability is taken by its proponents to be of central rather than of peripheral interest to general linguistic theory. It is for this reason that Labov and other variationists resist the term "sociolinguistics", i.e. because "it implies that there can be a successful linguistic theory or practice which is not social." (Labov, 1972b, p.xix) (also because the term is not always clearly distinguished from such terms as "ethnomethodology", "discourse analysis", "ethnography

of speaking", "sociology of language", etc.; see Trudgill, 1978).

A natural corollary of the above position, one would expect, would be that the variationist does not brush aside invariance to look for variability in essentially the same way that the traditional linguist engages in exactly the reverse process of idealization, i.e. looks for invariance in the midst, and at the expense, of variability.

However, variationists do tend to look for variables that, on the basis of even limited data, yield neat little tables with most of the cells conveniently filled with high observed frequencies. Thus, que-deletion in Montreal has been analyzed in at least six studies, (see Anshen, 1975; Fasold, 1975), copula deletion in Black English in six studies (see Labov, 1972a, p.128), consonant cluster simplification in five studies (see Wolfram, 1974, p.50ff; Guy, 1974), and so on.

This emphasis on the particular in one study after the other has had two interesting beneficial effects: it has made possible the development of very powerful variability models in the course of only a few years (see Ch.V, 1), and has provided indisputable

evidence concerning the reproducibility of findings of individual studies.

At the same time, the emphasis on convenient variables threatens to trivialize the analysis of linguistic structure (as opposed to the correlation of a particular variable to the social setting). For instance, the computer-assisted models of variable rule analysis developed by D. Sankoff and his associates (see Rousseau and Sankoff, 1978) can only deal with variables chosen for their high observed frequencies. Infrequent variables are not "seen" by the models, and "knockout" variables, i.e. variables that either block a rule or cause it to apply categorically, are excluded from the analysis. However, it is, indeed, rather difficult to believe that, having applied a number of slightly different models on que-deletion data, one knows all there is to know concerning variation in Canadian French. For there is no reason to suppose that variability in language is "best" or characteristically captured in the alternation between highly frequent variables: the analysis of recordings of unmonitored speech shows that speakers employ both very frequent and rather (or even extremely) rare variables in their speech. As we shall show in this study, speakers often engage in complex, yet far from

obscure or haphazard, rule-breaking operations which result, for the sake of stylistic effect, in unique combinations of forms unlikely to have ever occurred before or ever occur again in anybody's speech (though some of them do attain popularity).

Also, variability does not typically occur in easily isolable points in the string of speech as most recent studies would have us believe. On the contrary, more often than not, it is woven together with invariance in fascinating patterns within larger patterns engaging all inguistic levels. In this study we have found such rich patterns of variability and invariance in the case of a rather limited area of grammar (verb inflection) and on the basis of rather limited recorded data (see 4. below); had we tried to exclude from the analysis all invariance or all variability, it would have been like pulling out of a carpet all threads running one way and still pretending we had a carpet, and a patterned one at that.

That variationism is often bogged down in trivialities that yield dazzling statistics has not always or not fully escaped attention in the literature. Thus, Mitchell, 1978, p.228., observes that the need for explanation and description that Koincized speech calls for has not been met by "the programmatic pronouncements or

small-scale investigations of the more evidently linguistic kind of sociolinguistics": Also, Labov, who has said practically everything of relevance to the study of variation to date (and in spite of the fact that he initiated the quest for statistically convenient variables as early as 1962: Labov, 1972b, p.7), was the first to notice, among other problems of sociolinguistic structure:

> "A ... major challenge is to enter more deeply into the study of higher level syntactic variables, such as extraposition, nominalization, placement of complementizers, negative raising, wh-attachment, or relativization. The two chief stumbling blocks to investigating these features in their social context is the low frequency of occurrence of the critical subcases, and the lack of certainty in our abstract analyses. But some beginning has been made in our recent work in urban ghetto areas, and the challenges to work with more abstract matters cannot be ignored. The study of language in its social context cannot remain at the level of such phonological variables as (ing) ..." (Labov, 1972b, p.247).

Labov has also grasped better, as far as I know, than anybody else, the problems related to quantitative research in linguistics:

> "Quantitative research implies that one knows what to count, and this knowledge is reached only through a long period of trial and approximation, and upon the basis of a solid body of theoretical constructs. By the time the analyst knows what to count, the problem is practically solved." (1972a, p.258)

3. Another point that must be made about the Labovian model concerns its relation to traditional generative-transformational theory. Labov proposed the concept of variable rule as an extension of "optional" rules, i.e. he does not see any theoretical discontinuity between the Chomskyan model and his:

> "I do not believe that we need at this point a new 'theory of language'; rather, we need a new way of doing linguistics that will yield decisive solutions." (Labov, 1972b, p.259)

The above view has been generally accepted, often tacitly, among variationists, as is evident in the many arguments in the literature concerning the place of observed frequencies of variable rule application in performance and of corresponding probabilities in competence (see Cedergren & Sankoff, 1974, and Ch.V, 1. below).

The acceptance of the above view, however, has led to the unwarranted assumption that the study of variability can simply carry on from where orthodox generativists have stopped. An explicit statement of this assumption is found in G. Sankoff, 1974, p.20:

> "In the work I describe here, the goal is not to start afresh and write whole grammars; I think it is essential to build on the work of scholars concerned with narrowly linguistic ... competence".

Sankoff's assumption is not a necessary corollary of Labov's extension of traditional generative grammar to incorporate variability; rather, it derives from the trivial view of linguistic analysis pointed at in section 2 above and results in the propagation of trivialization. One does not stitch analytical models together any more than one puts new wine in old bottles; rather, one crosses two models and, with luck, gets a better model. In Ch.II, and passim, below, we showthat studying variability in the verb inflection on the basis of any of the existing traditional descriptions of the Greek verb would have been an impossible task. In other words, the goal of variationism is "to start afresh and write whole grammars" if it is to enrich our understanding of language.

4. In spite of the fact that there is no shortage of language output in a community, the collection of appropriate data involves much more than simply switching on a tape-recorder. The problem consists in the need for (a) clear recordings of (b) spontaneous linguistic exchange between (c) randomly (i.e. in probabilistically determined ways; Berdan, 1975) selected members of a community; one may achieve the first and third goals fairly easily, but at the expense of the second, and vice versa, and this is what Labov refers to as the observer's paradox:

" ... the aim of linguistic research in the community must be to find out how people talk when they are not being systematically observed; yet we can only obtain these data by systematic observation." (Labov,1972b, p.209)

Indeed, we can select randomly a number of individuals and interview each of them in a quiet room with a directional microphone near his mouth so that we can obtain the best possible recordings. Nevertheless, two problems are associated with this technique.

Firstly, random selection of subjects rarely yields a sufficiently high return of actual interviews for the sample to be representative of the linguistic reality of the community as a whole; for instance, Trudgill, 1974, managed to obtain interviews from only 53% of his randomly selected subjects (p.25). As, however, it has been demonstrated in sociolinguistic research that even very small samples of people are sufficient for a linguistic survey, the problem of a small return of interviews need not be regarded as crucial.

The main problem with interviews is that the presence of the unfamiliar interviewer with his menacing electronic equipment

cannot do much to secure relaxed linguistic behaviour on the part of the interviewee, even if the latter is willing to "help" the former with his research.

Labov has suggested a number of methods for varying the degree of formality in the interview situation but there is no reason to believe that such laboratory techniques bring about effects on people's speech that also obtain in vivo. Bickerton is particularly critical of such methods:

> " ... I am highly sceptical about ALL sociolinguistic data, including my own, on the grounds that hardly any of it relates to any normal human activity. What would one say of a sociology in which every process studied was initiated by the investigator? The sociolinguistics of the future will surely be based on surreptitious recordings by trained participant-observers or by remote control devices at present available only to government and industrial spies and divorce peepers."
> (Bickerton, 1971, p.467, n.9)

Certain more drastic methods proposed by Labov seem more effective. He suggests (1972a,pp.xix-xxiv) that subjects are chosen randomly and then their linguistic behaviour is observed in their natural surroundings over an appreciable period of time. To obtain good recordings, the speech of each subject as well as that of each of the other members of his peer group is picked up from a separate

lavaliere microphone and recorded on a separate track. In addition, the group as a whole is recorded on a central microphone. After an initial period of adjustment to carrying a microphone, subjects do not seem inhibited in any way, especially since they can interact with their peers as usual (i.e. they are not required to sit and talk to each other while the analyst records their speech) in a party, rather than an interview, atmosphere. Repeated recordings in such natural surroundings over a considerable period of time ensure the least possible degree of intrusion on the group interaction on the part of the observer.

Needless to say, such methods as employed by Labov are far too time consuming and, more importantly, prohibitively expensive for the average student of language to even contemplate using them.

It remains, therefore, to make naturalness of speech the first priority, at the expense of the degree of representativeness of the sample. The data on which this study is based was collected from 1974 to 1975 with the above modest objective in mind.

Whenever groups of three or more friends came to my house I made unobtrusive, yet not surreptitious, recordings of their linguistic interaction. To ensure spontaneous speech I never invited friends with the explicit purpose of recording their speech: if they happened to call, I simply switched on the recording equipment which was permanently set out, with the microphone strategically placed but not hidden (for no matter what Bickerton says about the sociolinguistics of the future [see above] and, though "excessively polymathic" [Mitchell, 1978, p.228], linguistics is still a long way from the world of spies and divorce peepers).

The obvious drawback of the sample is that it has not been selected randomly. The advantage is that the participants have known each other and me for many years. Helped by plenty of food and drink, they could be assumed to ignore the microphone in their midst and interact as spontaneously as usual.

Furthermore, the friends on whose speech this study is based (see 5. below) are typical young educated Athenians with the same social characteristics as thousands of others one can see working in offices, studying at the University or various colleges.

They range from twenty-one to thirty years of age, have lived all their lives in Athens and come from lower- to middle-middle class families (i.e. families of small shop-keepers, office employees, solicitors, general practioners, etc.). In greater detail, six of the participants are male (V.L., P.D., M.L., J.L., S.M., and S.K.) and six female (E.C., R., T., S., N.M., and D.K). Two males, V.L. and P.D. and one female, E.C. have studied Greek at the University of Athens; M.L. is a student of medicine, J.L. an engineer, and S.M. and S.K. are solicitors. The remaining five females have all finished High School; three of them, N.M., S., and T. have finished secretarial college, and one, R., is a student at the Athens Conservatoire. All the participants in each conversation are on friendly terms with one another, though at varying degrees of intimacy. Thus, in one conversation, S., a marginal member, is especially friendly with the core member R.; in another conversation T. is the current girl friend of the core member M.L.. It is perhaps for this reason that S. and T. seem to simply be enjoying the company rather than actually contributing significant amounts of linguistic output.

5. Having secured approximately thirty hours of spontaneous informal speech produced by a total of fifty-one people, and

given the scope of the study (the pattern of invariance and variability in the verb inflection), I needed to organize the material in such a way that all relevant information would be readily available. The first step was to transcribe the conversations. However, as I soon realized, the transcription of thirty hours of lively conversation would take many months. I therefore chose three conversations, six hours in all, in which a total of twelve people (see 4. above) participated.

Subsequently, two inventories were made:

(a) The 361 lexemes obtaining in the conversations were organized in alphabetical order; each lexeme was followed by the tokens of verb forms realizing it in the data (a total of 3,311 tokens) along with an indication, for each token, of the conversation (1, 2, or 3), the page of the transcription, the line, and the initials of the speaker.

(b) Also, verb forms were classified in terms of combinations of values of the categories of Voice, Aspect, Tense, Number and Person (see Ch.I). For each token was provided the immediate linguistic context in which it occurred in the conversations, as well as the number of conversation, page and line of transcription,

and initials of speaker involved.

Conclusions reached on the basis of the three conversations were checked against the evidence from the remaining conversations.

7. In conclusion, the present study traces the patterns of variability and invariance in the verb inflection in MGK. The context of situation involved, i.e. informal conversation between friends, is held, by and large, constant. Also, the six male and six female participants bear the same social characteristics, i.e. they are young, middle-class, educated Athenians. As no significant differences between participants were observed in the data, no explicit reference to individual speakers is made in the analysis of variable rules below. Therefore, the grammar presented in this study is basically a group grammar and the variation is either stylistic or inherent, (i.e. obtaining even when a speaker is maintaining the same level of style).

In referring to extracts from our data, first the number of the conversation is mentioned, then the page, then the line and finally the initials of the participant. Thus, 1/60/11 E.C. refers to an extract from conversation 1, page 60 of the transcription, line 11, participant E.C.

Some of the examples provided in the text are not from the conversations recorded on my tapes but from notes I have taken over the years on the linguistic behaviour of the people around me. However, frequency counts are exclusively based on the data of the three conversations.

8. The study contains five chapters:

In Ch.I are presented the phonological, grammatical, lexical and stylistic features involved in the verb inflection.

Ch.II is a review of the studies in the literature on the inflectional morphology of the Greek verb.

Ch.III contains a presentation of the sets of inflectional formatives whose combinations make up verb forms.

In Ch.IV are formulated the inflectional, sandhi and accentual rules accounting for the Greek verb.

Finally, Ch.V contains a re-analysis of those rules in the previous chapter whose application seems to be affected by the presence of various constraints of the linguistic and the situational context.

CHAPTER I

THE PHONOLOGICAL, GRAMMATICAL, LEXICAL AND STYLISTIC FEATURES INVOLVED IN THE INFLECTIONAL SYSTEM OF THE MGK VERB

1. PHONOLOGICAL DISTINCTIVE FEATURES

1.1. Within the framework of generative phonological theory as codified in Chomsky and Halle, 1968, the unit of phonological analysis is the feature. Features refer to phonic scales or axes such as "voice", "coronality", "nasality", etc., and constitute a universal set.

A specified feature is an ordered pair included in square brackets and comprising a symbol representing a specification on a phonic axis ("+" or "-" in the case of binary, and integers in the case of multinary, features) followed by (normally, the adjective corresponding to) the name of the axis, e.g. [+ coronal], [- voiced] , [2 round] , [4 stress], etc.

A segment is an unordered bundle or conjunction of specified features: thus, in the Greek word pávo the alphabetical symbols are to be seen as informal abbreviations of such segments or bundles of features; for instance, p stands for the segment:

$$\begin{bmatrix} \text{- sonorant} \\ \text{- syllabic} \\ \text{+ consonantal} \\ \text{+ anterior} \\ \text{- coronal} \\ \text{- voiced} \\ \text{- continuant} \\ \vdots \end{bmatrix}$$

whereas v stands for the segment:

$$\begin{bmatrix} \text{- sonorant} \\ \text{- syllabic} \\ \text{+ consonantal} \\ \text{+ anterior} \\ \text{- coronal} \\ \text{+ voiced} \\ \text{+ continuant} \\ \text{+ strident} \\ \vdots \end{bmatrix}$$

The two bundles above contain enough features to differentiate p and v from one another and from all other segment types of Greek, though to differentiate them from all other segment types in language in general more features would be necessary. A class of segment types

is represented by a bundle or conjunction of only those features that are common to all individual segment types included in the class; thus, the bundle:

$$\begin{bmatrix} -\text{ sonorant} \\ -\text{ syllabic} \\ +\text{ consonantal} \\ +\text{ anterior} \\ -\text{ coronal} \end{bmatrix}$$

stands for the class comprising p and v. The above class can be considered as natural since it is defined with fewer features than either of its members and also since its members often, but not always, behave similarly from the phonological and/or morphophonemic point of view. To account for certain phenomena we may need to set up a partly conjunctive and partly disjunctive class: thus the class

$$\begin{bmatrix} +\text{ sonorant} \\ +\text{ syllabic} \\ -\text{ consonantal} \\ \left\{\begin{matrix}[+\text{ front}] \\ [-\text{ high }]\end{matrix}\right\} \end{bmatrix}$$

comprises the vowels i and e ([+ front]) on the one hand, and o and a ([- high]) on the other. Disjunctive classes are evaluated by the theory as less "natural" than conjunctive classes since it is the latter but not the former that actually catch a generalization. For ease of exposition we will present below that set of distinctive

features only which suffices for an adequate classification of the segment types of MGK. These features are, by and large, established in the literature, some of them for no other reason than lack of better alternatives (see, for instance, remarks below on anteriority and stridency). Apart from the plethora of suggestions, within the generative school, concerning the inadequate motivation of individual features, the modification of the description of others and the introduction of new ones, doubts have been raised about more general assumptions. One concerns viewing the specification of features in the phonological representation as "naturally" binary (though in the phonetic representation a feature may have more than two specifications, i.e. it is multinary). Another concerns the status of the segment vis-à-vis the feature, i.e. according to one view (Halle, 1962) the segment lacks all systematic import, but some generative phonologists suggest that certain operations such as deletion, insertion and permutation can only affect segments,not features, while other linguists from a different (British) background find that generative phonology, though feature-based, in effect "keeps the phoneme warm" (T.F. Mitchell, personal communication). It follows, therefore, that our adoption of a feature-based analysis of Greek sounds within the framework of generative phonology is less a theoretical stance and more a tentative act of faith whose arbitrariness is mitigated, up to a certain point, by two facts: firstly, the relevant questions, lie, strictly speaking, outside the

focus of the present study; secondly, given the adoption of binary grammatical and stylistic distinctions, great formal economy and elegance is achieved if, whenever possible, we can associate (the alternation between clusters of) grammatical and stylistic values to (the alternation between) classes of segments rather than individual segments.

An example will help clarify the latter point. Suppose that we want to state the relationship between grammatical values and the underlined grammatical formatives following the stem in the verb forms below:

$$\{+\text{Pass}, -\text{Perf}, -\text{Past}, -\text{Pl}\} \begin{cases} \{1\}: & \text{pávo}\underline{\text{m}}\text{e} \\ \{2\}: & \text{pávo}\underline{\text{s}}\text{e} \\ \{3\}: & \text{pávo}\underline{\text{t}}\text{e} \end{cases}$$

In a segment-based analysis the relevant rule could take the following form:

$$\{+\text{Pass}, -\text{Perf}, -\text{Past}, -\text{Pl}\} \rightarrow \begin{bmatrix} \text{o} \\ \\ \text{e} \end{bmatrix} / \text{STEM} \_\_ / \begin{bmatrix} \{1\} \\ \\ \{-1\} \end{bmatrix}$$

i.e. the cluster on the left of the rewrite symbol is associated with the appearance following the stem of either o or e depending on the Person value present, respectively, {1} or {-1} (that is, {2} or {3}).

In a feature-based analysis, however, greater rigour can be achieved if we take account of the fact that both formatives o and e are

single phonological segments constituting a "natural" class defined by the following bundle of features:

$$\begin{bmatrix} + \text{ syllabic} \\ - \text{ consonantal} \\ + \text{ sonorant} \\ - \text{ high} \\ - \text{ low} \end{bmatrix}$$

and contrasting only with respect to the specification for the feature [back] (or [front]). The above rule, therefore, could now take the following form:

$$\{+\text{Pass}, -\text{Perf}, -\text{Past}, -\text{Pl}, \alpha 1\} \rightarrow \begin{bmatrix} + \text{ syllabic} \\ - \text{ consonantal} \\ + \text{ sonorant} \\ - \text{ high} \\ - \text{ low} \\ \alpha \text{ back} \end{bmatrix} / \text{ STEM} —$$

where the Greek letter alpha notation accounts for the fact that the grammatical feature {1} and the phonological feature back have the same specification, either "+" or "-".

1.2. The Features

Although the feature system below is phonetically motivated it can be used for the categorization of segments in the abstract phonological representation. The specification of a segment as

regards a particular feature in the phonological representation is taken to be the same as the corresponding phonetic realization of the segment unless the phonological component changes the specification.

1.2.1. Syllabicity

Sounds are distinguished according to whether they do or do not serve as "syllabic peaks". Vowels, i, e, a, o and u, are [+ syllabic], though, in the context between a consonant and a vowel, front vowels sometimes become [- syllabic], e.g. yeoryía remains unchanged when it means "agriculture" but often changes to yjoryía when it is used as a girl's name, "Georgia".

Consonants and glides are [- syllabic], though, sometimes, given in informal speech the sequence at word final position fricative + unstressed front vowel + fricative, the vowel may be elided and the second fricative may extend to the normal duration of a syllable, or, if the two fricatives are of the same quality, they may coalesce into a single fricative of considerable duration. For instance, in our data the utterance θa pés:: (= you will fall!) was produced, instead of the fuller alternative θa pésis, by a friend of mine when his toddler son approached the top of the stairs. The feature of "syllabicity" is based on the intuitive but insufficiently, as yet, defined concept of "syllabic peak". It is, however, regarded by Chomsky and Halle, 1968, as preferable to the even less satisfactory Jacobsonian feature of "vocalicity" (op.cit. pp.302, 354)

1.2.2. Consonantality

[+ consonantal] sounds are produced with a close obstruction in the upper part of the vocal tract, whereas [- consonantal] sounds are produced without such an obstruction. In Greek, vowels and glides are [- consonantal] and all other segments are [+ consonantal].

1.2.3. Sonorance

Sounds are [+ sonorant] or [- sonorant] according to whether in their production the vocal tract cavity configuration makes spontaneous voicing, respectively, possible or impossible. Hence vowels, glides, nasals and liquids are [+ sonorant] (or "resonants") whereas stops, fricatives and affricates are [- sonorant] (or "obstruents"). The feature has been criticized for the rather unsatisfactory, phonetically speaking, notion of "spontaneous voicing" on which it is based.

1.2.4. Coronality

Sounds produced with the blade of the tongue raised from the neutral position (see 1.2.6. below) are [+ coronal] whereas those articulated with the blade in the neutral position are [- coronal]. Dental and alveolar consonants, as well as liquids articulated with the blade of the tongue are [+ coronal], whereas labial consonants are [- coronal], since in their articulation the tongue does not participate, and so are palatals and velars since they are produced

with the body of the tongue as an articulator. Palato-alveolar fricatives, appearing in some regional varieties of Greek, are also [+ coronal]. Vowels and glides are [- coronal] since in their production no obstruction is involved.

1.2.5. Anteriority

Sounds are distinguished according to whether they are or are not articulated with an obstruction in front of the palato-alveolar region of the mouth (i.e. where English ʃ is articulated). Labial, dental, alveolar and liquid consonants are [+ anterior] whereas palatal and velar consonants are [- anterior] and so are glides and vowels since they are produced without an obstruction. The feature of anteriority has the unsatisfactory result of classifying together labials and dentals, a classification which, according to Sommerstein, 1977, "bridges one of the few genuine discontinuities to be found in phonetics, the distinction between the lower lip and the tongue as active articulators". (p.101).

1.2.6. High

[± high] distinctions are determined, along with the distinctions in 1.2.7. and 1.2.8. below, in relation to the "neutral position" of the tongue, which in Chomsky and Halle, 1968, is assumed to be that found in the production of e in the English word "bed" (p.300). i.e. it is the mid front position. [+ high] sounds are

produced with the body of the tongue raised above the neutral position whereas in the case of [- high] segments no such raising is involved. Of the Greek vowels, i and u are [+ high] whereas the rest, i.e. e, a and o, are [- high]. Glides, palatal and velar consonants are [+ high] and so are palatalized consonants. (In MGK coronal nasals and laterals are palatalized when followed by a glide as a result of regressive assimilation, though in some regional varieties they are also palatalized when followed by high front vowels. Velars become palatal before high front vowels or glides).

1.2.7. Low.

[± low] distinctions separate sounds produced with the body of the tongue lowered below the neutral position (see 1.2.6. above) from those produced without such lowering. The only [+ low] segment in Greek is the vowel a, all other segments being [- low].

1.2.8. Front

[± front] distinctions separate sounds according to whether they are or are not produced with the tongue raised and fronted to neutral or higher position (see 1.2.6. above). Thus, Greek vowels i and e and the glide j, are [+ front] whereas the remaining vowels a, o and u, are [- front]. Palatal and palatalized consonants are [+ front] whereas velars are [- front]. The remaining consonants are [- front]. The recognition of [± front] distinctions in our study, combined

with [± back] distinctions (see next paragraph), accounts for a classification of Greek vowels into front (i, e), back (u, o) and central (a). In Chomsky and Halle, 1968 , however, only [± back] distinctions are recognized, defined on the basis of whether the body of the tongue is or is not retracted from the neutral position, i.e. according to Chomsky and Halle, our [+ front] vowels (i, e) are [-back] whereas our [- front] segments (a, o, u) are [+ back] . The decision to treat frontness and backness as separate features is based on two factors:

firstly, from the phonetic point of view, Greek a lies above and behind cardinal 4 ([a]) and as such a long way from the back vowels o and u;

secondly, from the morphophonemic point of view, a sometimes behaves like other front vowels and sometimes like other back vowels (see rules accounting for the appearance of F_6, F_{10}, and F_{12}, formatives in Ch.IV).

Apart from the evidence from Greek, seeing backness and frontness as separate features is defensible on other grounds too, as Sommerstein, 1977, p.101, n.20 points out. For instance, in some languages central and back vowels contrast minimally.

1.2.9. Back

[± back] contrasts serve to distinguish sounds produced by retracting

the body of the tongue from the position it occupies in quiet breathing when it lies on the floor of the mouth in a relaxed state. Note that we are referring here to the position of the tongue during quiet breathing and not to its neutral (i.e. mid-front), pace Chomsky and Halle, position (see 1.2.6. above). Vowels o and u are [+ back], and i, e and a are [- back]. Velar consonants are [+ back], and palatal and palatalized consonants are [- back]. All other consonants are likewise [- back].

1.2.10. Rounded

[± rounded] distinctions refer to sounds that are or are not produced with lip-rounding. [+ back] vowels and "labialized" consonants are [+ rounded], whereas [-back] vowels and non-labialized consonants are [- rounded].

1.2.11. Nasality

Sounds are distinguished according to whether or not they are produced with a lowered velum so that air escapes through the nose. [+ nasal] segments are only the anterior consonants m and n and the non-anterior ŋ (the latter appearing in MGK only in the context of a following velar plosive).

1.2.12. Laterality

[+ lateral] sounds are those in whose production the mid section of the tongue, at one or both sides, is lowered to allow the air to flow out of the mouth in the region of the molar teeth. The only [+ lateral] segment in Greek is the liquid l, whereas r is [- lateral].

1.2.13. Continuance

This feature classifies sounds according to whether or not in their production the air flow through the mouth is "effectively" blocked. Plosives and affricates are [- continuant] (or stop) whereas fricatives are [+ continuant]. Nasals are, on the basis of the above definition, [- continuant], though some linguists would prefer to classify them as [+ continuant] by omitting from the definition of continuance the words "through the mouth". Morphophonemically speaking, there is evidence favouring the classification of nasals as [- continuant]. Liquids can be regarded, though with considerable uncertainty, as [+ continuant].

1.2.14. Gradual release

This feature serves to distinguish between affricates, in whose production the closure in the vocal tract is released gradually ([+ grad. rel.]), and plosives, characterized by instantaneous release ([- grad. rel.]). The term "gradual release" was proposed by Anderson, 1974, to replace the rather unfortunate "delayed

release" of Chomsky and Halle.

1.2.15. Voice

This feature refers to the production of sounds either with vibration of the vocal cords ([+ voiced]) or without vibration ([- voiced]). In Chomsky and Halle [$\pm$ voiced] distinctions are defined differently, namely, on the basis of the presence or absence of sufficient narrowing of the glottis for the glottal cords to be able to vibrate, though actual vibration may not occur due to other factors; however, this definition lacks supporting phonetic evidence and, as a result, has been abandoned in most analytic literature for the more traditional (but no more satisfactory) one endorsed in this study.

1.2.16. Stridency

[+ strident] sounds are fricatives and affricates "marked accoustically by greater noisiness than their non-strident counterparts". Thus, labiodental f, v and alveolar s, z are [+ strident] whereas dental θ, ð and velar x, ɣ are [- strident]. Plosives and sonorants are also [- strident]. Schane, 1973, p.18, attempts the following articulatory definition of stridency: "For all fricatives the air is forced through a narrow opening, but in the case of the strident ones it is directed against the upper teeth or the uvula". The feature seems to be ill-defined and, given the other features in the

literature, redundant, though it can serve a useful purpose as a cover feature.

1.2.17. Stress

[± stress] contrasts refer to vowels in stressed or unstressed position.

1.2.18. Length

[± long] contrasts refer to a classification of Classical Greek vowels as either long or short.

1.3. Below follows a classificatory matrix of the main segment types in the phonological system of MGK for all features relevant in the language.

	p	t	k	č	b	d	g	ǰ	f	θ	s	x	v	đ	z	y	m	n	l	r	j	i	e	a	o	u
1. syllabic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+
2. consonantal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-
3. sonorant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+
4. coronal	-	+	-	+	-	+	-	+	-	+	+	-	-	+	+	-	-	+	+	+	-	-	-	-	-	-
5. anterior	+	+	-	+	+	+	-	+	+	+	+	-	+	+	+	-	+	+	+	+	-	-	-	-	-	-
6. high	-	-	+	-	-	-	+	-	-	-	-	+	-	-	-	+	-	-	-	-	+	+	-	-	-	+
7. low	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
8. front	+	+	-	+	+	+	-	+	+	+	+	-	+	+	+	-	+	+	+	+	+	+	+	-	-	-
9. back	-	-	+	-	-	-	+	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	+	+
10. rounded	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
11. nasal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-
12. lateral	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
13. continuant	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+
14. gradual release	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15. voiced	-	-	-	-	+	+	+	+	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16. strident	-	-	-	-	-	-	-	-	+	-	+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-

It will be realized that, although the above sixteen features are relevant for an overall classification of the segments of MGK, individual segments are in fact redundantly specified for some features: for instance [+ syllabic] segments need only be specified further for the features high, low, back, and front; only segments negatively specified for the features front or high need be further specified for the features, respectively, back or low; a[+ back] segment is ipso facto [- front] ; whereas a[+ low] segment is adequately distinguished from all other segments in the language without further specification; the glide j is adequately specified as [- syllabic, - consonantal]; obstruents need not be specified for the features high, low, front, back, rounded, nasal, and lateral; only continuant obstruents need be specified for stridency; the[+ lateral] segment need no further specification; nasals need only be specified for coronality if they are not followed by a plosive for, if they are, their specification for the above feature (and also for anteriority) is the same as that of the plosive due to regressive assimilation; [+ continuant] segments need not be specified as [- gradual release]; finally, the trill, r, is unambiguously specified as [+ consonantal, + sonorant, + coronal, - nasal, - lateral].

2. GRAMMATICAL DISTINCTIVE FEATURES

2.1. To account for the inflectional paradigm of the MGK verb we will need to recognize the following grammatical distinctions:

Voice: $\{\pm$ Passive$\}$

Aspect: $\{\pm$ Perfective$\}$

Tense: $\{\pm$ Past$\}$

Number: $\{\pm$ Plural$\}$

Person: $\{\pm 1\}, \{\pm 2\}, \{\pm 3\}$

On the above the following points should be made:

2.2. Although in the present study we are interested in the above grammatical distinctions to the extent that they are expressed in the inflectional structure of the verb, it should be emphasized that their relevance (as well as that of additional distinctions related to the above and other, e.g. Mood, categories) far exceeds the verb and must be considered on a sentential and supra-sentential basis.[1]

2.3. $\{\pm$ Passive$\}$ ($\{\pm$ Pass$\}$) distinctions are expressed in the inflectional structure of all regular transitive verbs in the alternation between (groups of) formatives (or suffixes) as described in Ch.III and Ch.IV, e.g.

		P'AVO (= I stop)	AGAPÁO (= I love)
{- Perf, - Past, - Pl, 1}	{- Pass} :	pávo	ayapáo
	{+ Pass} :	pávome	ayapjéme

depending on which of the two syntactic frames below such verbs appear in[2] .

(1) [N, + Nominative] + [Vb, - Passive] + [N, - Nominative]

(2) [N, + Nominative] + [Vb, + Passive] + prep + [N, - Nominative]

where the symbol 'prep' is replaced either by the preposition apó + Accusative or ipó + Genitive.

On the other hand, a number of "irregular" transitive verbs, e.g. XIRÍZOME (= I handle, operate) appear only in frame (1) above, with the following difference, that they allow for the presence of only {+ Passive} formatives in their inflectional structure. In other words, the following, hybrid, version of frame (1) above should be recognized for such verbs:

(1') [N, + Nominative] + [Vb, + Passive] + [N, - Nominative] .

Again, a number of intransitive verbs, e.g. KÁΘOME (= I sit), FOVÁME (= I am afraid), KIMÁME (= I am asleep), etc., accepting only {+ Pass} formatives in their structures, do not appear in any of the above frames but in a different one, namely,

(3) [N, + Nominative] . + [Vb, + Passive]

whereas another group of intransitive verbs, e.g. KRIÓNO (= I feel cold), ROXALÍZO (= I snore), TRÉXO (= I run), KLÉO (= I weep), etc., accepting only {- Pass} formatives in their structures, participate in the following version of frame (3) above:

$$(3') \quad \begin{bmatrix} N \\ + \text{Nominative} \end{bmatrix} + \begin{bmatrix} Vb \\ - \text{Passive} \end{bmatrix}$$

The idiosyncratic behaviour of the above (and other) irregular verbs can only be accounted for if in the lexicon of the language each of them is specified with respect to the particular group of formatives, {+ Passive} or {- Passive}, that they can accept. Thus, XIRÍZOME, for instance, will be specified as {+ Pass}, i.e. as accepting only {+ Pass} formatives, and KRIÓNO as {- Pass}, i.e. accepting only {- Pass} formatives, whereas regular transitive verbs such as PÁVO or AGAPÀO will be left unspecified since in their structure either group of formatives may appear.

As a last illustration of the fact that, for a considerable number of verbal lexemes, their acceptance of {+ Pass} or {- Pass} formatives is not predictable by general rule, i.e. it is lexically determined, compare the following pairs of synonyms and antonyms: in each pair the lexeme on the left accepts {- Pass} and the one on the right {+ Pass} formatives:

{- Passive}		{+ Passive}	
KATEVÉNO		KATÉRXOME	(= I descend)
ANEVÉNO		ANÉRXOME	(= I ascend)
LJÓNO		TÍKOME	(= I melt)
PARAFRONÓ		TRELÉNOME	(= I go mad)
AKOLUθÓ		ÉPOME	(= I follow)
KRIÓNO	(= I feel cold)	ZESTÉNOME	(= I feel hot)
PLISIÁZO	(= I approach)	APOMAKRÍNOME	(= I move away)
PIGÉNO	(= I go)	ÉRXOME	(= I come)

2.4. {± Perfective} ({± Perf}) distinctions are expressed in the structure of most verbs,, though there are some verbs in which such distinctions are neutralized, always in the direction of {- Perf}, e.g.

		PÁVO	AGAPÁO	KÁNO	ÉXO
{- Pass, - Past, - Pl, 1}	{- Perf}:	pávo	ayapáo	káno	éxo
	{+ Perf}:	pápso	ayapíso		

Verbs such as KÁNO or ÉXO will be specified in the lexicon as {- Perf} (i.e. allowing in their structure only combinations of formatives characteristic of the value {- Perf}), whereas regular verbs will be left unspecified since in their structure either group of formatives may appear.

The above remarks are valid for the monolectic (i.e. comprising one-word verbal elements) verb paradigm on which the focus of this study

is (but see 2.5. below), though not for the periphrastic paradigm (i.e. comprising verb forms made up of more than one verbal element) in whose case {± Perf} distinctions are neutralized, e.g.

			MONOLECTIC	PERIPHRASTIC	
				AUXILIARY	INFINITIVE
{- Pass}	{- Past}	{- Perf}	pávo (= I stop)	éxo	pápsi (= I have stopped)
		{+ Perf}	pápso (= I will stop)		
	{+ Past}	{- Perf}	épava (= I was stopping)	íxa	pápsi (= I had stopped)
		{+ Perf}	épapsa (= I stopped)		
{+ Pass}	{- Past}	{- Perf}	pávome (= I am stopped)	éxo	pafti (= I have been stopped)
		{+ Perf}	pafto (= I will be stopped)		
	{+ Past}	{- Perf}	pavómuna (= I was being stopped)	íxa	pafti (= I had been stopped)
		{+ Perf}	páftika (= I was stopped)		

The contrast between monolectic and periphrastic verb forms could be dealt with on the basis of a different type of aspectual distinction, namely, between, respectively, {- Perfect} and {+ Perfect} Aspect (See Comrie, 1976). {± Perfect} aspectual distinctions should not be confused with {± Perfective} (or, in

an abbreviated form, $\{\pm$ Perf$\}$) distinctions: from the inflectional point of view the former refer to the contrast between monolectic and periphrastic verb forms, whereas the latter refer to the contrast between (groups of) inflectional formatives (or affixes) following the verbal stem of monolectic verb forms only. However, apart from this section, $\{\pm$ Perfect$\}$ distinctions will be excluded from our description, i.e. only the monolectic paradigm will be considered, for the following, practical, reasons: firstly, in order not to overburden the exposition; and secondly, because all inflectional contrasts and sandhi phenomena obtaining in the periphrastic paradigm also occur in the monolectic, though not vice versa.

The latter statement needs some elaboration. $\{+$ Perfect$\}$, i.e. periphrastic, verb forms are made up, as shown in the examples above, of two verbal elements, an <u>auxiliary</u> and what we will here refer to as an <u>infinitive</u>. The auxiliary behaves inflectionally exactly like the irregular main verb ÉXO (= I have, I possess) in that the only grammatical contrasts it expresses are those of Tense, Number and Person, whereas $\{\pm$ Pass$\}$ and $\{\pm$ Perf$\}$ distinctions are neutralized in the direction of the cluster {- Pass, - Perf}:

{- Pass, - Perf }

		{- Past}	{+ Past}
{- Pl}	{1}	'exo	ixa
	{2}	'exis	ixes
	{3}	'exi	ixe
{+ Pl}	{1}	'exume	ixame
	{2}	'exete	ixate
	{3}	'exune	ixane

The infinitive, on the other hand, expresses voice contrasts only:

{- Pass}	{+ Pass}
'papsi	pafti

It will be noticed that the two forms of the infinitive have the same phonological shape as the corresponding {+ Perf, - Past, - Pl, 3} monolectic forms of the verb:

		{- Pass}	{+ Pass}
{+ Perf, - Past, - Pl}	{1}	'papso	pafto
	{2}	'papsis	paftis
	{3}	'papsi	pafti

and are subject to the same sandhi processes: 'pav$\begin{Bmatrix} s \\ \theta \end{Bmatrix}$i → 'paf$\begin{Bmatrix} s \\ \theta \end{Bmatrix}$i → 'pa$\begin{Bmatrix} ps \\ ft \end{Bmatrix}$i , though, as we said above, the infinitive is unrelated to all other grammatical contrasts apart from that between the Voice

values {- Pass} and {+ Pass} .

What we are suggesting here, therefore, is that {± Perfective} aspectual distinctions are expressed in the structure of monolectic ({- Perfect}) but not of periphrastic ({+ Perfect}) verb forms[3], a point which is often missed in the literature. See, for instance, Babiniotis, 1972 and Efstathiadis, 1974.

2.5. With respect to the category of Tense, two contrastive values are expressed in the inflectional structure of the verb, namely, {+ Past} and {- Past}, corresponding to the traditional labels, respectively, "Past" and "Prèsent"/"Future".

		{- Past}	{+ Past}
{- Pass}	{- Perf}	pávo	épava
	{+ Perf}	pápso	épapsa
{+ Pass}	{- Perf}	pávome	pavómuna
	{+ Perf}	páftò	páftika

A distinction should be made at this point between Tense, a grammatical category, and time reference, in that {+ Past} does not necessarily refer to "past time" neither does {- Past} necessarily refer to "present time". For instance, fíyame! (= we departed), a {+ Past, - Pass, + Perf, + Pl, 1} form, is

often used in the sense of "we are setting off right now", or "let's go". Consider also, the historic or narrative present, "where the present tense is used to refer to a past situation" (Comrie, 1976, p.73). For example, in the following extract from our data, the speaker switches from {- Past} to{+ Past} in the course of referring to the same narrated event:

1/60/11 E.C.: ... ke lέi o ... ke ípes esí ...

(= ... and he says ... and you said...)

Therefore, {+ Past} and {- Past} are used here as labels for two distinct groups of inflectional elements and not as time indicators although more often than not {+ Past} refers to events occurring in the past.

Further Tense ($\{\pm$ Future$\}$) distinctions are expressed not inflectionally but syntactically, i.e. in the presence or absence of the particle θa (= going to, will) preceded, to form the negative, by the particle δen before {- Past} verb forms, whereas modal ($\{\pm$ Hypothetical$\}$) distinctions[4] are expressed in the presence or absence of (δen) θa (= "would (not)") before {+ Past} verb forms, e.g.

{- Future} : (δen) pάvo (= I (do not) stop)

{+ Future} : (δen) θa pάvo (= I will (not) be stopping)

{- Hypothetical} : (δen) épapse (= he stopped/did not stop)

{+ Hypothetical} : (δen) θa épapse (= he must/can't have stopped)

The presence or absence before a verb form of the particles <u>na</u> or <u>as</u> plus, in the negative, the particle <u>mi(n)</u>:

$\left\{\begin{matrix}\text{na}\\ \text{as}\end{matrix}\right\}$ (min) pápsis (= in order that you may (not) stop)

reflects distinctions related to the category of Mood[5], i.e. respectively {+ Subjunctive} and {- Subjunctive}. As is clear from the above, such considerations as $\{\pm$ Future$\}$, $\{\pm$ Hypothetical$\}$ and $\{\pm$ Subjunctive$\}$ are not expressed inflectionally but only syntactically, by the presence or absence of particles <u>(ðen) θa</u> or <u>$\left\{\begin{matrix}\text{na}\\ \text{as}\end{matrix}\right\}$ (min)</u> before a verb form. Therefore they are outside the scope of this study. However, it will be useful to make the following point: {- Past, + Perf} verb forms, unlike all others, must always, as Warburton says, (1972, p.88) "be preceded by a particle whereas all other tenses can occur both with or without one". In different terms, {- Past, + Perf} verb forms a) are always either {+ Future} or {+ Subjunctive}, and

b) they are really periphrastic

	{- Future}/{- Subjunctive}	{+ Future}	{+ Subjunctive}
{- Past, + Perf}	-	θa pápsis (= you will stop)	$\left\{\begin{matrix}\text{na}\\ \text{as}\end{matrix}\right\}$ pápsis (= so that you may stop)
{- Past, - Perf}	pávis (= you stop)	θa pávis (= you will be stopping)	$\left\{\begin{matrix}\text{na}\\ \text{as}\end{matrix}\right\}$ pávis (= so that you may be stopping

It might therefore be more accurate to describe the object of this study as not only the monolectic paradigm but also the verbal elements of the {- Past, + Perf} periphrastic paradigm.

Notice, however, in the following extract from the data

1/78/13 V.L.:đen ér<u>θis</u>? kalítera θa perásume!

(You won't come with us ? We will have a better time)

that the {- Past, + Perf, + Pass, - Pl, 2} verb form <u>érθis</u> is not preceded by "obligatory" <u>θa</u>, though it is preceded by <u>đen</u> . It seems, therefore, that a study on the distribution of particles before {- Past, + Perf} forms in actual conversations might prove much richer and more varied than is acknowledged in the literature.

2.6. In this section we will discuss the category of Number in conjunction with that of Person, as a separate treatment would lead to unnecessary duplication. The category of Number has two contrastive values {±Plural}, while Person, has the contrastive values {± 1}, {± 2}, and {± 3}.

In the analysis below we will normally use the symbols {1},{2}, and {3}as free of redundancy abbreviations for the more complete bundles, respectively, {+ 1, - 2, - 3}, {- 1, + 2, - 3} and {- 1, - 2, + 3}. Sometimes,however,greater rigour can be achieved in the description if the feature specifications "+" or "-" are employed. For instance,

in the following forms:

$$\{+\,\text{Pass},\ -\,\text{Perf},\ +\,\text{Past},\ -\,\text{Pl}\}\begin{cases}\{1\}: \text{pavómun(a)}\\ \{2\}: \text{pavósun(a)}\\ \{3\}: \text{pavótan(e)}\end{cases}$$

the "optional" word-final segments e and a appear in the presence of the values, respectively{+ 3} and {- 3} (i.e. {+ 1} and/or {+ 2}). Using the alpha notation we can state the co-variation between the quality of the word-final vowel and Person as follows:

$$\begin{bmatrix} V \\ -\,\text{back} \\ -\,\text{high} \\ \alpha\ \text{low} \end{bmatrix}$$

co-varies with the Person value {-α 3} , i.e. the features [low] and {3} have opposite specifications "+" or "-".

It should be emphasized that the above Number and Person distinctions are meant to be clearly grammatical and, therefore, by no means isomorphic with such notional distinctions as "one", "many", "speaker", "interlocutor", "someone spoken of", etc.[6] Suffice it to say that {+ Pl, 2} or {+ Pl, 1} may be used when addressing a single hearer, {- Pl, 2} may denote"somebody" or "one" rather than a hearer, {+ Pl, 1} may refer to a single speaker, {- Pl, 3} may be used to address a distinguished person, etc.

3. LEXICAL FEATURES

In MGK verbs belong to different lexical classes or conjugations, i.e. have (partly) different inflectional shapes, according to whether their stems end in a consonant, e.g. PÁVO (= I stop) or a vowel, e.g. AGAPÁO (= I love), and also according to whether a stem-final vowel participates in sandhi interactions with following vowel inflectional formatives, e.g. AGAPÁO, or not, e.g. APOKLÍO (= I exclude). We will employ the symbol $\{ST_{\emptyset}\}$[7] to refer to the lexical class or conjugation comprising verbs with stem-final consonant as well as verbs with stem-final vowel that does not interact with adjacent vowels; the symbol {STv} will refer to the conjugation of verbs with stem-final vowel normally participating in sandhi interactions with following vowels.

Verbs of the latter conjugation are further sub-classified according to whether their stem-final vowel is a ($\{STv_1\}$) e.g. AGAPÁO, or e ($\{STv_2\}$), e.g. DIMIURGÓ : dimiuryéo → dimiuryó (= I create).

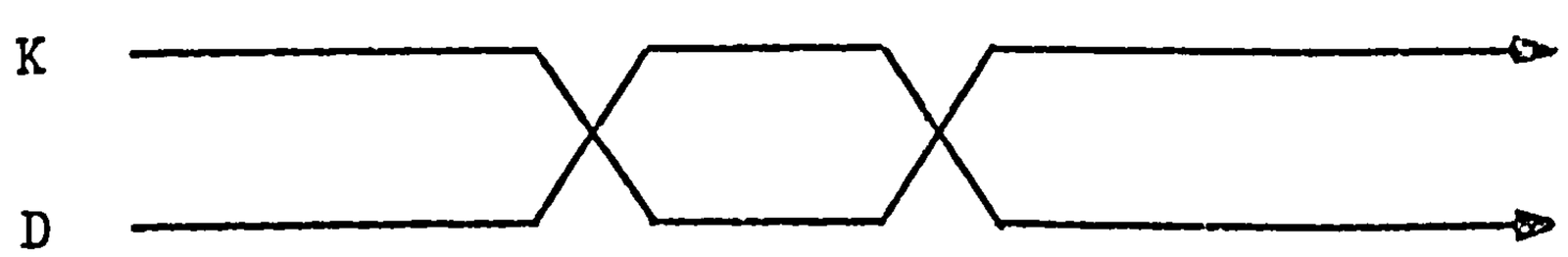
4. STYLISTIC FEATURES

A number of contrasts within the inflectional paradigm of the verb cannot be accounted for on the basis of any grammatical or conjugational considerations such as, respectively, $\{\pm$ Past$\}$ or $\{STv/ST_{\emptyset}\}$; rather, they

are related to the existence within MGK of two stylistically contrastive tendencies of co-occurrence of linguistic elements which can be only very roughly associated with the two well-known descriptive idealizations[8], Katharevusa (K) and Demotiki (D). Let us comment on the above statement in some detail.

Ferguson, 1959, sees the two terms, K and D, in relation to the concept of diglossia, i.e. that in Greece, as in a number of other parts of the world, there exist two distinct (but related) linguistic varieties with clearly defined allocation of functions, K, the "High" (H) variety, employed in the context of Administration, the Church, Education, etc., and D, the "Low" (L) one, employed in such "informal" contexts as the Home, the Playground, etc., the two sets of situations overlapping only very slightly. Schematically, K and D, as seen by Ferguson, could be represented by two parallel lines (i.e. given a clearly defined context of situation or "function" only one of the two varieties occurs) which at various points converge (i.e.they exhibit structural similarity and a slight overlap of functions):

(1)



The concept of diglossia appears, prima facie, intuitively correct. The ordinary Greek, especially if he has had some formal education at secondary level, has no difficulty in deciding that the language of, say, the newspaper "ESTIA" is K whereas that of "TA NEA" is D. Also, when in 1975 the new constitution (as opposed to that of 1952) made no mention of K as the official language of the country, or when in 1976 D became the official medium of instruction at school, some people objected to the "murder" of K, others declared that K "will never die", and still others sarcastically pointed to the fact that quite a bit of K was used by the members of the Government accouncing, both in speech and in writing, the "burial" of K (the 1975 constitution, for one, is written in K!) but nobody I know of had any doubt as to what it was all about, nor did any newspaper feel the need to explain to its readers what K and D were. It appears, therefore, that educated Greeks agree on the whole as to the existence of two distinct varieties in Greece today and quarrel only with respect to the desirability of the situation, or to "what should be done". However oversimplified the above intuitions appear to be, it would be a mistake if they were dismissed as naive. On the contrary, they should be explained.

The concept of diglossia also appears useful in the context of a sociolinguistics that is more socially biased than linguistically:

When it comes to problems related to standardization or to language policy in education, or when the state decides to make itself more accessible linguistically to, say, the farmers, what happens is the re-examination and, possibly, re-allocation of functions to the two supposedly distinct linguistic varieties (to the degree, that is, that such a re-allocation is amenable to governmental policy): for instance, whereas the Administration has been allocated to K ever since the establishment of the Greek state in the 19th century, the Ministry of Agriculture adopted D as of 15th March 1976 (though, of course, the way that the linguistic behaviour of individual officials has been affected by the decision is a different matter); also as we said above, K has stopped being the official language of Greece as of 9th June 1975 (that, incidentally, does not mean that D is the official language) whereas D has been the medium of instruction at all levels of education as of 7th April, 1976. (Before that date D was the medium of instruction in the first few years of primary school and K in the remaining years); again, the fact that the above decision was taken by the state says nothing about its effect on the linguistic behaviour of individuals in the schoolroom.

On a more personal note, all the (formal) letters I received from my sponsors (IKY) from the beginning of the period of my studies in Leeds (Autumn 1976) to mid-March 1977 were written in K; since

then, however, all typewritten material has been written in D, whereas printed matter was changed over to D two months later (when, presumably, stocks of printed matter in K had been used up). Still, it is conceivable that if more than one employee had been asked independently to "translate" the same K text into D the result would have been different in each case.

It might be instructive to compare below photocopies of the earlier (K) and later (D) versions of IKY's standard reply to its scholars to acknowledge receipt of their letters[9]. No detailed discussion of the differences ((phonological as reflected in) spelling, morphological, lexical and syntactic) will be necessary: all we are interested in at this point is to show that K/D distinctions are (a) observable (b) recognizable by the layman as such, i.e. as K/D distinctions, rather than as differences of some unspecified kind, and (c) subject to deliberate choice (or revision of choice) on the part of an organization or an individual, according to which variety is regarded as more appropriate in a certain situation, though the effect of the choice on linguistic production is a moot point. The above three properties, all referring to perception rather than to production, can, I think, recommend K, D, and the concomitant concept of diglossia as legitimate subjects of study for the socially minded sociolinguist (also, perhaps, the psycholinguist, the social psychologist or the educational psychologist).

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΙΔΡΥΜΑ ΚΡΑΤΙΚΩΝ ΥΠΟΤΡΟΦΙΩΝ
ΛΥΣΙΚΡΑΤΟΥΣ 14, ΑΘΗΝΑΙ (Τ.Τ. 119)
ΤΗΛ. 32.35.580 - 32.30.274 - 32.47.457

ΑΠΑΝΤΗΣΙΣ ΕΙΣ ΕΠΙΣΤΟΛΗΝ ΥΠΟΤΡΟΦΟΥ ΕΞΩΤΕΡΙΚΟΥ

Ἐν Ἀθήναις τῇ 5-5-77 197

Ἀριθ. πρωτ. 5072

Κύριον Π. Ντάλταν
Ἀγγλίαν

Ἔχομεν τὴν τιμὴν νὰ γνωρίσωμεν ὑμῖν ὅτι ἐλήφθη ἡ ἀπὸ 27-4-77 ἐπιστολή σας, ἡ ὁποία ἐχαρακτηρίσθη διὰ τοῦ ἀριθμοῦ 5068, τοῦτον δέον ὅπως ἀναφέρητε προκειμένου τυχὸν νὰ ἐπανέλθητε ἐπὶ τοῦ αὐτοῦ θέματος.

Ἡ ἐπὶ τοῦ περιεχομένου τῆς ἐπιστολῆς σας περαιτέρω διαδικασία σημειοῦται κατωτέρω ὑπ' ἀριθ. 1

1. Ἐλήφθη ὑπ' ὄψιν.
2. Θὰ τύχῃ τῆς δεούσης ὑπηρεσιακῆς ἐνεργείας.
3. Θὰ ἀνακοινωθῇ εἰς τὸ Διοικητικὸν Συμβούλιον.

Πρὸ πάσης ἐνεργείας θὰ :

4. Τεθῇ ὑπ' ὄψιν τοῦ ἁρμοδίου εἰδικοῦ.
5. Ὑποβληθῇ εἰς τὸ Διοικητικὸν Συμβούλιον.

Μετὰ τιμῆς
Ο ΓΕΝΙΚΟΣ ΔΙΕΥΘΥΝΤΗΣ
Κ. ΜΠΑΡΜΠΗΣ

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΙΔΡΥΜΑ ΚΡΑΤΙΚΩΝ ΥΠΟΤΡΟΦΙΩΝ
ΛΥΣΙΚΡΑΤΟΥΣ 14, ΑΘΗΝΑ (Τ.Τ. 1193)
ΤΗΛ. 32.35.580 - 32.30.274 - 32.47.457

ΑΠΑΝΤΗΣΙΣ ΣΕ ΕΠΙΣΤΟΛΗ ΥΠΟΤΡΟΦΟΥ ΕΞΩΤΕΡΙΚΟΥ

Ἀθήνα 4-11- 1978

Ἀριθ. πρωτ. 13954
ΑΚ/ισ

Κύριο Περ. Ντάλτα
Ἀγγλία

Ἔχομε τὴν τιμὴ νὰ σᾶς γνωστοποιήσουμε ὅτι ἡ Ὑπηρεσία παρέλαβε τὴν ἐπιστολή σας τῆς 30-10-78, ποὺ χαρακτηρίστηκε μὲ τὸν ἀριθμὸ 12449 (τὸν ἀριθμὸ αὐτὸ πρέπει νὰ ἀναφέρετε, ἂν τυχὸν ἐπανέλθετε στὸ ἴδιο θέμα).

Ἡ παραπέρα διαδικασία ἀναφορικὰ μὲ τὸ περιεχόμενο τῆς ἐπιστολῆς σας σημειώνεται παρακάτω μὲ τὸν ἀριθμὸ 3.

1. Ἡ Ὑπηρεσία τὴν ἔλαβε ὑπόψη της.
2. Θὰ γίνει ἡ ὑπηρεσιακὴ ἐνέργεια ποὺ προβλέπεται.
3. Θὰ γνωστοποιηθεῖ στὸν ἁρμόδιο Εἰδικό.
4. Θὰ εἰσαχθεῖ στὸ Διοικητικὸ Συμβούλιο.

Μὲ τιμή
Ο ΓΕΝΙΚΟΣ ΔΙΕΥΘΥΝΤΗΣ
Κ. ΜΠΑΡΜΠΗΣ

If, however, diglossia is approached within the context of a linguisticially biased sociolinguistics, or "Sociolinguistics Proper" in terms of Trudgill, or "Secular Linguistics" in terms of Labov, or Variation Theory, i.e. if we are not so interested in the fact that, say, D is now officially the medium of instruction in education, but instead we get down to analyzing recordings of actual linguistic exchanges between real pupils and teachers in real classrooms, then the discreteness of K and D becomes, on the whole, a rather untenable assumption. Ferguson, for one, is cautious enough to state at the end of his well-known paper of 1959:

> "Perhaps the collection of data and more profound study will drastically modify the impressionistic remarks of this paper, but if this is so the paper will have had the virtue of stimulating investigation and thought."

More relevantly, his paper is full of references to "interference" or to "uncodified", "unstable", "mixed" or "intermediate" forms of the language. In the paragraph on stability (of the diglossic situation) he writes:

> "The communicative tensions which arise in the diglossia situation may be resolved by the use of relatively uncodified, unstable, intermediate forms of the language".

In other words, it is not always the case (if ever) that H and L are discrete. But if this is so, under what circumstances are K and D discrete and when do they begin to merge? And are the

"relatively uncodified, unstable, intermediate forms of the language" not amenable to rigorous description?. Do they constitute "inferior" or "unruly" linguistic varieties where "anything goes", compared to the "par excellence" varieties, K and D?

A number of linguists have attempted to "chart" the terra incognita lying between K and D in one way or another. Pappageotes and Macris, 1964, for instance, recognize four types of spoken and seven of written Greek, as follows:

Varieties of spoken Greek (op.cit. p.57)

1. Local dialects spoken in villages and towns
2. Nonstandard city colloquials
3. Standard colloquial (similar to written 2 below)
4. Formal spoken Greek (similar to written 5 below)

Varieties of written Greek

1. Demotic of Psycharis and the first demoticists
2. Demotic of most contemporary novelists
3. Demotic of the official Grammar of Modern Greek and of many non-fiction and fiction books published after 1941
4. Demotic of journalistic reports and of popular magazines
5. Puristic of the editorials of popular newspapers and magazines and of domestic news reports
6. Puristic of foreign news reports and of official documents
7. Archaic Puristic

In spite of the impressive (yet vague) sub-classification of K and D, however, the co-authors feel obliged to state, among other puzzling things, that, with respect to the spoken varieties, for instance, "the lines of demarcation between 3 and 4 are not clear-cut and a speaker may move from one to the other, depending on the subject matter of the conversation"; also, with respect to the written varieties, that, among other things,

> "The distinction between the Demotic and the Puristic is not absolute, except at the two ends of the scale ... Both 1 and 7 are very seldom, if ever, used today. The difference between 4 and 5 is very limited, and both could be considered as representing a mixture of Demotic and Puristic ... The future koine ... will be based on the morphology of 3 and on the lexicon and syntax of 3,4 and 5". (op.cit. pp.58-59)

As is obvious from the above, the distinction of two, five, seven or more varieties is equally unhelpful as a framework for objective description of the linguistic reality in Greece today, for it cannot be anything but impressionistic. Even the scepticism of the suggestion above that "the distinction between the Demotic and the Puristic is not absolute, except at the two ends of the scale" is too reserved: how can the two ends of the scale be absolutely distinct if any two successive varieties in fact merge into one another as the authors admit?

Mirambel, 1937, denies K and D discreteness because for him Modern

Greek is "un ensemble d'usages linguistiques qui tantot s'opposent, tantot se combinent" but goes on to identify the following five "etats de langue" in use in Greece as if five varieties are "better", descriptively speaking, than two:

1. Katharevusa, the purist language of the state.
2. Mikti, the "mixed" variety, is similar to K but accepts elements from the spoken language and is used both in writing and speech, for instance, in the context of scientific writing, much journalism and political speeches.
3. Kathomilumeni, the "spoken" variety, is basically demotic but accepts elements from K. It is the language of the urban middle classes.
4. Demotic derives from Ancient Greek through a process of natural development of the language over the centuries. It is used by the majority of the people, also in literature and, recently, in some abstract and technical writing.
5. Malliari, the "Hairy" variety, is the result of a normative process of reverse purification of Greek of all K elements undertaken by certain grammarians in the late 19th century and practiced, mainly, by the long-haired contributors to the literary periodical "Texni".
(The derogatory term Malliari was used by K supporters to connect the new variety with its "socially objectionable" practitioners).

With respect to Mirambel's five varieties of Greek, Browning, 1969, remarks, no less confusingly, that

> "his fifth category is not really a state of the language parallel to the others. And of the others, (1) and (2) are varieties of Katharevusa, (3) and (4) varieties of demotic. One may hesitate whether to class a sample text in (1) or (2), or in (3) or (4). But one cannot read two lines without seeing whether it is a variety of demotic or of Katharevusa". (p.114)

Householder, 1962, for his part, suggests that

> "Any Modern Greek document can be unambiguously assigned to K or D on the basis of a half-dozen lines or less (in fact, a half-dozen words is normally enough), with very few exceptions". (op.cit. p.232)

He then goes on to distinguish, in two readers (one of K and the other of D texts) of Modern Greek prepared by Pappageotes, several types of texts, for instance, pure K, pure D, predominantly K, predominantly D, mildly K, etc.(p.232ff.). The distinction between texts is based on a count per page of the following types of "the linguistic marks of Katharevusa and Dhimotiki, namely , obligatory, criterial, regular, occasional and forbidden". (p.220). However, in spite of the above elaborate apparatus (whose impressionistic character should not escape our attention) the facts of language still escape rigorous description. Compare, for instance, the following percentages[10] for inflectional affixes obtaining in the "pure K" and "predominantly K" texts on the one hand and in the "pure D" and "predominantly D" texts on the other (pp.233-236).

	K	D
Pure	98.3	94.5
Predominantly	90.5	82.2

Apart from the fact that the linguistic "purity" of even the "purest" texts is questionable (less than 100%!) we notice that the D texts have on the whole a greater admixture of K elements compared to the admixture of D elements in the K texts, i.e. "pure D" texts are less pure than "pure K" texts, and the D of "predominantly D" texts is less predominant compared to the K of "predominantly K" texts; also the difference between "pure K" and "predominantly K" texts is 7.8% D forms whereas the difference between "pure D" and "predominantly D" texts is 12.3% K forms. The neatness of Householder's classification of texts is further undermined by his distinction, as we said above, between obligatory, criterial, regular, occasional and forbidden linguistic "marks". For how often must a form appear in a number of, say, K texts in order that it is classified as obligatory rather than criterial or regular, etc.? And if a form is classified as forbidden in K texts, can it be, say, regular D or must it be obligatory D? And, anyway, is it not hopelessly circular if texts are classified as (a shade of) K or D on the basis of the "linguistic marks" of K or D in them whereas at the same time linguistic forms are classified as (a shade of) K or D according to the K or D texts in which they occur?

Clearly, Householder's detailed classificatory framework and meticulous counting proves what was only a (valid) suspicion before: that introducing more and more elaboration into an inadequate descriptive model such as that based on the concept of diglossia does not necessarily improve the model. For, essentially, Householder's diglossic model is the same as that of Ferguson or Mirambel: in each case the assignment of a text or linguistic form to (some shade of) K or D is based on criteria which are both circular, i.e. the linguistic forms define the text (or the utterance) in which they appear and vice versa, and impressionistic, i.e. what is, say, (some shade of) K for the goose may be, but is not necessarily, (the same shade of) K for the gander.

The inadequacy of the diglossic model[11], irrespective of the degree of elaboration introduced in it, lies in its static character vis-à-vis the dynamism and fuzziness of the linguistic reality to be described. For we need to account not only for the fact that, depending on what linguistic forms, how many and in what combinations occur in it, a text or an utterance may be recognized as K or D by a number of native speakers but also for the fact that judgements concerning another text or utterance may not be characterized by the same degree of certainty.

What is suggested here, therefore, is a dynamic or variationist

model which

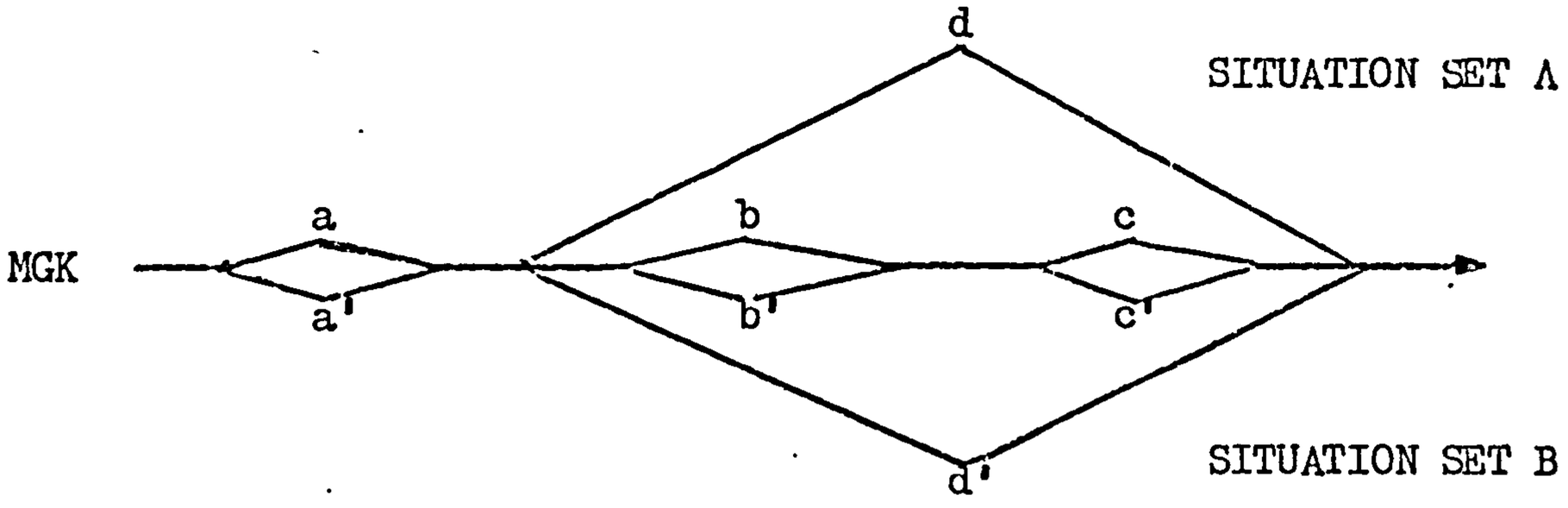
(a) takes account of the observable and, as such, independently available, co-occurrence patterns obtaining between linguistic elements (rather than the putative and circularly "defined" degree of K-ness or D-ness of a particular element or a whole text or utterance), and,

(b) recognizes the effect of the linguistic environment and the situational context on co-occurrence patterns, i.e. that element p may be more likely to co-occur with element q rather than with element r depending on whether the linguistic environment contains the elements, in order of importance or "weight", s, t, or u, and also depending on such extralinguistic features as formality of the situation, hierarchical relations between interlocutors, age, sex, education, occupation of the speaker, topic of conversation, etc.

In the above dynamic model intuitions concerning K/D distinctions are neither taken at face value (as they are in some studies based on the diglossic model) nor are they rejected as linguistically irrelevant (as suggested in some paedagogically motivated, and as such essentially prescriptive, studies: Babiniotis and Kontos, 1967. Babiniotis, 1972b); rather,they can be accounted for in the same natural and non-circular way as intuitions concerning, say, geographical, social or a variety of stylistic distinctions obtaining within MGK: given,at certain points in structure and at various linguistic levels (lexis, phonology, syntax, etc.), the seemingly "free" alternation between grammatically and

semantically equivalent elements, e.g. $\frac{a}{a'}, \frac{b}{b'}, \frac{c}{c'}, \frac{d}{d'}$, etc., we may, in fact, observe that the alternations, far from being "free", seem to be interrelated in that they tend to be subject to certain co-occurrence restrictions, i.e. the appearance of element a tends to coincide with the appearance of b, c and d (though, possibly, at varying frequency levels) whereas a' tends to co-occur with b', c', and d'; also, the appearance of a, b, c or d, variously or collectively, is more likely in certain situational contexts than in others where the appearance of a', b', c' or d' is favoured; finally, members of one group of elements may tend to be evaluated by native speakers as K, in contrast to the elements of the other group which tend to be regarded as D: the recognition of one group of linguistic elements as K and of the other as D by the community, may coincide with, respectively, "positive", or "negative" attitudes on the part of some speakers whereas the reverse relation may hold in the case of other speakers; such attitudes tend to affect, to a greater or lesser extent, the linguistic behaviour of those who hold them (see Kroch and Small, 1978, on the effects on speech of linguistic ideology).

Schematically, K/D distinctions in MGK could be represented as follows:



where the alternation between grammatically and semantically equivalent forms on a particular linguistic level and at a particular point in the string of speech (also in writing) may not be necessarily related to some alternations at other structural points on the same or different linguistic level, neither can a necessary relation be established between one or two alternants and a particular situational context. Still, the arrangement in the schema of certain forms and situations above the line and other forms and situations below the line indicates that, in fact, a, b, c and d tend to co-occur in linguistic exchanges taking place in situations of set A whereas forms a', b', c' and d' are normally related to situation set B. Still, the above co-occurrence tendencies may not apply with equal force on all cases of alternation; for instance, form a may be more typical of situation set A than b is, b more typical than c, and c more typical than d; also, the probability of co-occurrence of b and d may be considerably greater than that of d and a; finally, the breaking of co-occurrence tendencies may have interesting stylistic functions so that, say, the stricter the co-occurrence restriction broken the greater the stylistic effect.

Obviously then, what is of interest here is not to state that a, b, c and d tend to co-occur in situation set A, and that is what native speakers normally call Katharevusa, whereas a', b', c' and d' co-occur in situation set B, which is typically regarded as Demotiki; rather, the interest lies in capturing the relative effect of a number of features of the linguistic and the situational context on the probability of appearance of a certain form, e.g. that the probability of appearance of a is greater in the presence of b than of c and least in the presence of d.

To put it in different terms, given a number of utterances in which the forms in the schema above combine in different ways, for instance, as follows:

1. a, b, c, d
2. a, b, c, d'
3. a, b, c', d'
4. a, b', c', d'
5. a', b', c', d'

Ferguson's diglossic model can only account for versions 1 and 5 in that they can be recognized as, respectively, K and D, whereas

all other versions are simply ignored as "unstable","uncodified" and the like. In our dynamic model, however, all versions are manifestations of the same variable patterns of co-occurrence or variable rules. In the case of versions 1 and 5 all the relevant rules have applied (in spite of the fact that their probability levels may differ considerably) a fact which in itself is not of particular interest (since it is the rules that matter) especially if the data suggests that 1 and 5 are rather rare and, as such, marginal phenomena.

On the contrary, the model may suggest that, due to the dynamic interdependence of the rules involved, version 4 provides the dominant pattern, version 3 never occurs in speech and version 2 is sometimes used for stylistic purposes.

At this point we can give a principled explanation for the suggestion at the beginning of this section that K and D are "descriptive idealizations" rather than discrete varieties as Ferguson would have them. The idealization process, as reflected in certain traditional normative grammars and in the (mainly, written) linguistic output of certain individuals with opposing linguistic affiliations, consists in artificially attributing the relevant <u>variable</u> rules the status of <u>categorical</u> rules.[12] For instance, given that in our

data the variable rule that accounts for the following sandhi interactions: fs→ps, sθ→st, xθ→xt, fθ→ft, etc., applies at a frequency level of 0.73 (see Ch.V, 10 below), a D type of normative grammar might assign it a frequency level of 1. (e.g. fs always changes to ps), whereas a K type of grammar might not recognize the existence of the rule at all (e.g. fs never changes).

Now, to go back to the inflectional morhpology of the MGK verb, let us see how K/D distinctions could be accounted for in the following forms:

(i)

$$\{+\text{Pass}, +\text{Perf}, +\text{Past}, +\text{Pl}, 1\} : \begin{bmatrix} e \\ (e) \end{bmatrix} + paf + \theta + \begin{bmatrix} \emptyset \\ ik \end{bmatrix} + \begin{bmatrix} i \\ a \end{bmatrix} + m + e + \begin{bmatrix} n \\ \emptyset \end{bmatrix}$$ [13]

summarizing the verb forms epáfθimen and (e)pafθíkame (fθ normally changing to ft in the latter form only). To begin with, relevant rules will account for the fact that in the presence of the cluster {+ Pass, + Perf, + Past, + Pl, 1, $ST_{\emptyset}$, PÁVO} the following phonological segments appear categorically, i.e. always :

... + paf + θ + ... + ... + m + e + ...

However, at four points in structure, only two of which are adjacent, the following alternations occur:

$$\begin{bmatrix} e \\ (e) \end{bmatrix} + \ldots + \ldots + \begin{bmatrix} \emptyset \\ ik \end{bmatrix} + \begin{bmatrix} i \\ a \end{bmatrix} + \ldots + \ldots + \begin{bmatrix} n \\ \emptyset \end{bmatrix}$$

The rule system will also account for the fact that as the arrangement of the alternants in the square brackets (rather than brace brackets) indicates, the formatives appearing at the top of the square brackets co-occur:

e + paf + θ + i + m + e + n

and so do those at the bottom of the square brackets

(e) + paf + θ + ik + a + m + e

It should be noted that, whereas the formative i alternates with a, and ik or n alternate with zero formative (∅), at word-initial position a different kind of alternation obtains, which is only very crudely expressed as

$$\begin{bmatrix} e \\ (e) \end{bmatrix};$$

for what we have here is a formative, e, which appears categorically in a certain context (i.e. in the presence of i and n) and "optionally" otherwise (i.e. in the presence of ik and a). Furthermore, as we

shall show later on in the study, the appearance of e in the latter case is not all that "optional" really since its likelihood is greater in the presence of certain features of the linguistic environment (or constraints) than in the presence of others: for instance it appears quite frequently in the case of compound stems but rarely in the case of simple stems.

Similar observations can be made about the following forms

(ii)

$\{$- Pass, - Perf, - Past, + Pl, 1, $ST_{\emptyset}$, PÁVO $\}$:

$$\text{pàv} + \begin{bmatrix} o \\ \{o \\ u\} \end{bmatrix} + m + e + \begin{bmatrix} n \\ \emptyset \end{bmatrix}$$

where in the presence of final n the formative o appears categorically, whereas in the absence of n the alternation of o and u is far from "free" since o appears only very rarely.

It remains now to see if the alternations in (ii) above are in any way related to those of (i) above. It is obvious that we are not likely to find in actual linguistic exchanges enough forms such as those in (i) above in sufficient proximity to forms such as those of (ii) above (if proximity could be taken as a basis for the study of co-occurrence, and it is very doubtful that it should) for a pattern

of co-occurrence to suggest itself, i.e. we might wait indefinitely for utterances where the forms epáfθimen, epaftíkame or paftíkame appear next to the forms pávomen, pávome or pávume. Here, however, the context of situation is of relevance. Indeed, our data, which consists of recordings of linguistic exchanges in a single situational context, namely, that of "informal conversation", suggests that there is a relation between the alternations in (i) and in (ii) above. This relation could be accounted for by the extention of the use of square brackets to indicate that verb forms containing inflectional formatives which appear at the top of square brackets "belong together" in that such verb forms rarely appear in our data (i.e. in the situational context "informal conversation") and almost always for the sake of stylistic effect; on the other hand, verb forms containing formatives accommodated at the bottom of the square brackets also "belong together", since such forms appear very frequently in our data. The former type of verb forms are readily recognized by native speakers as belonging to K and the latter type as characteristic of D.

To account for the above observable and stylistically functional co-occurrence restrictions in an economical way we shall assume that verb forms contrast not only with respect to Tense, Voice, Aspect and the like but also with respect to "Co-occurrence Level" (CL)

whose contrastive terms are {+ K} and {- K}. It is by now clear that the recognition by native speakers of {+ K} and {- K} verb forms as belonging to, respectively, Katharevousa and Demotiki, however interesting, is not crucial for our model, for $\{\pm K\}$ distinctions are based on the independently available criterion of the co-occurrence of inflectional formatives in verb forms and of verb forms in situational contexts. In other words, our variationist model is completely free from the circularity of the diglossic model.

CL distinctions should be seen as represented in the complex symbol of the verb in the same way as Tense, Number or Voice distinctions are. However, on a number of occasions two complex verb symbols that differ solely with respect to CL distinctions are assigned the same phonological shape by the rule system, i.e. in them CL distinctions are neutralized. For instance, in the following paradigm of the verb PÁVO :

{-Pass, -Perf, -Past, $ST_{\emptyset}$}	{- Pl}	{1}	{+ K} / {- K}	pávo
		{2}	{+ K} / {- K}	pávis
		{3}	{+ K} / {- K}	pávi
	{+ Pl}	{1}	{+ K} / {- K}	pav [o / {o, u}] me [n / ∅]
		{2}	{+ K} / {- K}	pávete
		{3}	{+ K} / {- K}	pávun [∅ / (e)]

CL distinctions are expressed only in the case {+ Pl, 1} and {+ Pl, 3} forms, but neutralized in the rest.

Although there is a considerable number of verb forms where CL distinctions are neutralized (see Table One inside the back cover) neutralization affects other types of distinctions too. For instance the {+ Pass, - Perf, - Past, - Pl, 1 } and {- Pass, - Perf, - Past, + Pl, 1, -K } clusters are both represented on the phonological level by pávome (the latter cluster having a more frequent {- K} alternative: pávume); also the {+ Pass, - Perf, - Past, - Pl, 3} and {- Pass, - Perf, - Past, + Pl, 2} clusters are both represented by pávete; again, Tense distinctions are neutralized in {+ Past, - Perf, + Pl, 1, - K} pavómaste, and {+ Pass, - Perf, + Pl, 2, - K } pavósaste; the clusters {- Pass, - Perf, + Past, + K, - Pl, 1} and {- Pass, - Perf, + Past, + K, + Pl, 3} have the same phonological shape, épavon; Aspect distinctions are neutralized in the {- Pass, + Past, - Pl, 1} form ékana (= I did/ was doing), etc.

5. SUMMARY

In this chapter we have presented the phonological, grammatical, lexical and stylistic features that are needed for an adequate analysis of the inflectional morphology of all regular verbs in MGK.

The relative order in which specified features appear in the complex symbol of the verb in the syntactic surface structure is immaterial. However, for the sake of ease of presentation, in the ensuing discussion the phonological features will appear on the basis of the redundancy conventions and in the order indicated at the end of 1 above, whereas the grammatical, lexical and stylistic features discussed here will be ordered as follows:

Voice, Aspect, Tense, Number, Person, Conjugation, Co-occurrence Level.

For instance, the specified features underlying the verb form

epáfθimen (= we were stopped) are ordered as follows:

{+ Pass, + Perf, + Past, + Pl, 1, $ST_{\emptyset}$, - K }

The above order is violated to facilitate the comparison between two or more forms that have some, but not all, values in common, e.g.

$$\{+ \text{Pass}, + \text{Perf}, + \text{Past}, - \text{Pl}, ST_{\emptyset}, + \text{K}\}\begin{cases}\{1\}: \text{epáfθin} & (= \text{I was stopped}) \\ \{2\}: \text{epáfθis} & (= \text{you were stopped}) \\ \{3\}: \text{epáfθi} & (= \text{he was stopped})\end{cases}$$

Sets of verb forms that have some features in common in their syntactic surface representation, can be referred to in a non-redundant way if only the common features are mentioned. Thus the three verb forms above can be said to constitute the {+ Pass, + Perf, + Past, - Pl, + K} paradigm of the (lexically defined as $\{ST_{\emptyset}\}$) verb PÁVO, whereas the cluster {- Pass, - Perf, - Past} refers to the

paradigm of the verb forms of PÁVO at the end of 4 above.

As already mentioned in the conventions in the Introduction, phonological features are included in square brackets and grammatical, lexical and stylistic features in brace brackets.

NOTES TO CHAPTER I

1. I am following here Mitchell, 1978, who suggests with respect to Tense and Aspect in Arabic:

"It is misleading to limit such aspectual distinctions to verb form, but greatly more mistaken to agree with Kuryłowicz, who is 'far from attributing aspect to Semitic, especially to Arabic' ... One can only assume that such statements reflect a belief (of Slav and Slavists?) that recognition of Aspect demands highly specific morphologizing of aspectual contrasts within verbal conjugations. In fact, however, the distribution of sentential and supra-sentential distinctions of time-reference between Tense and Aspect can involve any sentential function or element." (op.cit. p.233-234)

2. In Warburton, 1970, it appears at the beginning of the discussion on Voice (p.68) that only syntactic and morphological considerations will be employed in the definition of Voice. Nevertheless, in the course of the discussion, certain groups of verbs are defined in a rather inconsistent fashion in fact as "active in meaning", in contrast with others which are not. Nowhere, however, is it explained in what way a verb can be "active" or "passive" in meaning as distinct from being "active" or "passive" in morphological or syntactic terms.

3. Actually, the appearance of {+ Perf} formatives s or θ following the stem of ἐxo is not structurally inconceivable, since they do appear in the structure of some verbs compounded with a preposition + ἜXO

e.g.

PROSÉXO (= I notice)

	{- Pass}	{+ Pass}
{+ Perf, - Past, - Pl, 1}	prosέxso → prosέkso	prosexθό

Thus, forms such as *έkso pάpsi or *έxo pάvi are among the structural possibilities which the language has not realized. Unlike English, Greek has no "progressive" {+ Perfect} forms. The following, alternative, {+ Perfect} forms are also unmarked with respect to {± Perfective} distinctions for the same reasons as those explained above:

{- Pass}	{- Past}	έxo xaméno (= I have lost)
	{+ Past}	ίxa xaméno (= I had lost)
{+ Pass}	{- Past}	ίme xaménos (= I am lost)
	{+ Past}	ίmun xaménos (= I was lost)

where the first element is the auxiliary ÉXO or ÍME (= to be) in the present of the values, respectively, {- Pass} and {+ Pass}; and the second element is a participle, agreeing for Case and Number with the object or the subject of the verb in the presence of the values, respectively, {- Pass} and {+ Pass}.

4. The particle <u>θa</u> is not to be regarded as "similar" to the augment, (see Ch.III,2) in that, though they both appear before a verb form, the former is a distinct word as the criterion of "uninterruptability" (Lyons, 1968) shows:

θa yrápso (= I will write)

θa su yrápso (= I will write to you)

while the latter is part of the verb form:

éyrapsa (= I wrote)

su éyrapsa (= I wrote to you)

5. See Warburton, 1970, p.84ff for a discussion on Mood in MGK.

6. As, for instance, in Householder et al, 1964, p.104.

7. For the use of the symbol STc rather than $\{ST_{\emptyset}\}$ in the literature see Ch.III,4,n.2.

8. I am grateful to W. O'Donnell for suggesting to me that K and D should best be seen as descriptive idealizations rather than varieties or linguistic levels. However, I am fully responsible for a possibly unsatisfactory interpretation of the suggestion in incorporating it in this study.

9. The following (rough) translation might help to ease the comparison:

HELLENIC REPUBLIC
STATE SCHOLARSHIPS FOUNDATION
LYSICRATOUS 14, ATHENS (119)
TEL, 32.35.580-32.30.274-32.47.457
CLASSIFICATION No. ...

REPLY TO A LETTER BY A SCHOLAR STUDYING ABROAD
Athens, ... 1977
Mr. P. Daltas,
England.

We have the honour to let you know that your letter of .... 1977 has been received (by our Office) and assigned (classification) number .... (The above number) you are kindly requested to quote in the event of future correspondence on the same subject.
The procedure to be followed in relation to the content of your letter is marked as No.... below:

1. to be considered by this office

2. necessary official action will be taken

3. to be referred to the Board of Directors
   Before any action, the letter is :

[K version only; the numbering of the two points below is in the form K/D version]

4/3 to be brought to the attention of the relevant specialist

5/4 to be submitted to the Board of Directors

10. Derived from the averages in the original.

11. See El-Hassan, 1978, for a critical review of a number of unsatisfactory attempts in the literature to analyse Arabic on the basis of the diglossia model.

12. The above explanation is in keeping with Labov's observation (1972a, p.94) that "speech is perceived categorically, and linguists who are searching for an invariant, homogenous dialect will perceive even more categorically than most".

13. For the rationale underlying the segmentation of verb forms, i.e. <u>m</u> + <u>e</u> and not <u>me</u>, $\begin{bmatrix}\emptyset\\ik\end{bmatrix}+\begin{bmatrix}i\\a\end{bmatrix}$ and not $\begin{Bmatrix}i\\ika\end{Bmatrix}$ or $i+\begin{Bmatrix}\emptyset\\ka\end{Bmatrix}$, see Ch.III.

CHAPTER II

A REVIEW OF THE LITERATURE CONCERNING THE STUDY OF THE INFLECTIONAL MORPHOLOGY OF THE VERB IN MGK

1. The present analysis falls within the general framework of a generative grammar in the Labovian, rather than the Chomskyan sense, i.e. it is committed to precision and exhaustive presentation, and focused on language exchange in actual situations rather than on the language of the ideal speaker-hearer. The relevance to this study of the work of such variationist scholars as Labov, Bailey, Bickerton, D. Sankoff, G. Sankoff, Cedergren, Fasold, Wolfram, etc., will be discussed in Ch.V.

As for the Chomskyan generative model it should be mentioned here that it is severely underdeveloped with respect to inflectional morphology as "there have been so few attempts to give precise and principled descriptions of inflexional systems" (Chomsky, 1965, p.174). All there is in Chomsky (1965) of relevance here is a brief but illuminating comparison of the "Item-and-Arrangement" (IA) and "Word-and-Paradigm" (WP) approaches. The comparison is based on a single example, the German noun Brüder, assigned to the categories Masculine, Plural, Genitive, and to a certain declensional class (DC_1) along with Vater, Mutter, etc. Chomsky maintains that in a

representation of Brüder consistent with an IA grammar the morphemes realized by Brüder would be arranged in a strict order:

Bruder + DC_1 + Masculine + Plural + Genitive,

and associated in a one-to-one or one-to-many fashion with specific phonological segments. Such an analysis, Chomsky argues, is clumsy, for, among other reasons, "many of these 'morphemes' ... must be regarded in particular contexts as zero elements" and also because "the order of morphemes is often quite arbitrary" (p.173 ff.) On the contrary, the traditional paradigmatic analysis does not suffer from either of the above disadvantages since the features (Masculine, Plural, etc.) realized by Brüder constitute an unordered set. "Interpretive phonological rules ... then operate on the phonological matrix of the lexical entry giving, finally, a phonetic matrix" (p.172). In different terms, the whole of the word Brüder is seen by Chomsky as a realization of the unordered set of morphemes Masculine, Plural, etc. Chomsky realizes that the above approach best fits suppletive formations (i.e. formations which cannot be segmented on grammatical grounds, e.g. go, went) and suggests that some compromise between IA and WP seems necessary in some cases where, within a word, an immutable stem is followed by an ending which can be assigned to the paradigmatic dimensions, e.g.

	STEM	ENDING	
{ - Pass, - Perf, - Past, - Pl, 1}	pav	o	(= I stop)
{ + Pass, + Perf, + Past, - Pl, 1}		tika	(= I was stopped)

(where pavtika → paftika: regressive voice assimilation)

Naturally, in spite of the sound principles set out by Chomsky, his framework is too simplistic to account for such a highly complex inflectional system as the verb in MGK: while Chomsky apparently regards as normal suppletive forms reflecting, each as a whole, an unordered set of grammatical values, and as exceptional word forms made up of a stem and an ending, in our analysis, regular verb forms are shown to be made of formatives drawn from as many as twelve successive sets whose combinations realize clusters of the grammatical, conjugational and stylistic values presented in Ch.I, e.g.

	1	2	3	4	5	6	7	8	9	10	11	12	
{+Pass,-Perf,+Past,+Pl,3}	e	pav				ó	n	t	us	a	n		(=they were stopped)
{+Pass,+Perf,+Past,+Pl,3}		ayap	i	θ	ík	a					n	(e)	(=they were loved)
{-Pass,+Perf,-Past,+Pl,1}		páp		s		u		m		e			(=we will stop)

Furthermore, the development of formal means for adequately accounting for stylistic variation is not one of Chomsky's preoccupations but is the focus of interest in our description.

Since Chomsky, 1965, a considerable number of descriptions of inflectional systems within the generative paradigm have been carried out (for instance, Ashworth, 1973; Detrich, 1972; Gertner, 1973; Newton, 1972a; Warburton, 1970, 1973; Wright, 1972; Bierwisch, 1969; Postal, 1970; Jacobs and Rosenbaum, 1968, etc) and have contributed towards the setting up of an elaborate, though not always effective, descriptive apparatus. The reason why we have seen fit to start this chapter with a presentation of the brief remarks on inflectional morphology in Chomsky, 1965, is that the importance of his arguments against the IA and for the WP model has not always been grasped in later work, i.e. under the hide of a generativist formal apparatus many a study reveals on closer scrutiny an IA wolf.

2. A number of descriptions (Hamp, 1961, Koutsoudas, 1962, Warburton, 1970,1973, and Babiniotis, 1972a) of the verb in MGK on the basis of the IA model[1] prove, in fact, Chomsky's point, that such a model is clumsy when applied to inflectional systems. In all five descriptions, but in varying degrees, elements which can conclusively be shown to "belong together" as exponents of grammatical categories, are classified separately, and, conversely, elements with little affinity are classified together[2]. Consider the following examples where, for the sake of easy exposition,we will employ, as far as possible, our conventions instead of the ones in the original studies:

Hamp, 1961	BASE	THEMATIC VOWEL	PERSONAL ENDING	
{-Pass,-Perf,-Past,+Pl,1}:	ayap	ú	me	(= we love)
{-Pass,-Perf,-Past,+Pl,3}:	ayap	∅	ún(e)	(= they love)

where the vowel u is a "thematic vowel" in the first form but part of the personal ending in the second, though, grammatically speaking, u does not function differently in the two forms, the only contrasts between them being related to Person: {1} is expressed by m + e while {3} by n + (e).

Koutsoudas, 1962

	BASE	VOICE & ASPECT MARKER	TENSE OR MOOD MARKER
{-Pass,-Perf,-Past,-Pl,1}	kun	á	o (= I move)
{-Pass,+Perf,+Past,-Pl,1}	kúni	s	a (= I moved)
{+Pass,-Perf,-Past,-Pl,2}	kun	jé	se (= you are moved)

where i in kúnisa and j in kunjése are classified separately (with the completely unnecessary side-effect of having two stems, kun- and kuni- instead of one, kun-), though in our analysis they are shown to be the "same" phonetically conditioned element: i → j/C — V; a in kunáo and s in kúnisa are classified together, though our analysis shows that s contrasts only with θ in the context $X\ (i)]_{stem}$ —— , e.g.

{+Perf,-Past,-Pl,1}
- {-Pass}: kun + í + s + o (= I will move)
- {+Pass}: kun + i + θ + ð (= I will be moved)
- {-Pass}: páp + s + o (= I will stop)
- {+Pass}: paf + θ + ð (= I will be stopped)

while a contrasts with i in the context of verbs such as AGAPÁO and KUNÁO but not PÁVO:

{-Pass,-Past,-Pl,1}
- {-Perf}: kun + á o (= I move) páv + o (= I stop)
- {+Perf}: kun + í + s + o (= I will move) pap + s + o (= I will stop)

Babiniotis, 1972a

	STEM		ASPECT MARKER		THEMATIC VOWEL		ENDING
{-Pass,-Perf,+Past,+Pl,1}:	ayapá	+	y	+	a	+	me (=we loved)
{-Pass,-Perf,+Past,+Pl,1}:	ayap	+	ús	+	a	+	me (=we loved)
{-Pass,+Perf,+Past,+Pl,1}:	ayapí	+	s	+	a	+	me (=we loved)
{+Pass,+Perf,+Past,+Pl,1}:	ayapi	+	θík	+	a	+	me (=we were loved)
{+Pass,+Perf,-Past,+Pl,1}:	ayapi	+	θ	+	ú	+	me (=we will be loved)

where a and i are suffixed to the stem ayap- without explicit recognition of their role as exponents of grammatical values (see Ch.III.4.) and with the result of having three stems (ayap-, ayapa-, ayapi-) instead of one (ayap-); y, us, s, θ, and θik are classified together for reasons of economy, though it is obvious that θ is thus duplicated unduly, while y and us do not contrast minimally with s and θ. Compare our classification into two successive sets, F_4 (s, θ) and F_5 (y, us, ik) in Ch.III, 5 and 6.

Warburton, 1970

	ROOT	VERB-ALIZER	ASPECT	THEMATIC VOWEL	PERSON	Q
{+Pass,+Perf,-Past,+Pl,1}:	apefθ	in	θ	ú	m -	e (= we will address ourselves
{+Pass,+Perf,+Past,+Pl,1}:	apefθ	in	θi+k	a	m	e (= we addressed ourselves)

where (p.152) the contrast between θ and θi is, to say the least, unnecessary, since either θ (apefθinθó) or θik (apefθínθika) appear in structure, but never θi on its own. Compare our analysis where θ is recognized as a {+ Pass, + Perf} formative and ik as a {+ Pass, + Perf, + Past} formative (Ch.III, 5 and 6).

A satisfactory argument for the postulation of θi irrespective of Tense appears three years later, in Warburton 1973, p.211 (see discussion in 3 below), and, though the point is not made explicitly, apparently supersedes the earlier postulation (1970) of θ in the {+ Pass, + Perf, - Past} paradigm:

Warburton, 1973		STEM	TV	PERSON	
{+Pass,-Perf,+Past,-Pl,-K}	{1}	pav	ó	m	una
	{2}	pav	ó	s	una
	{3}	pav	ó	t	an(e)

where n appearing throughout the paradigm is not isolated as a separate formative; also, final e is seen as euphonic and "optional" but final a as "obligatory", though our data suggests that both formatives appear as a result of a conspiracy to achieve the "optimum" syllable pattern CV # , the frequency of their appearance

being influenced by the following phonological environment (pause, C or V), and their precise vocalic quality being determined by the grammatical values present: a is a {-3} and e a {+ 3} formative.

In Warburton, 1973, it is realized that the descriptions given in the 1970 study and also in Koutsoudas, 1962, and Matthews, 1967 (the latter will be discussed in 3 below), are not "altogether satisfactory" and a different point of view "from all three of them" is presented. The reason why we discuss Warburton, 1970, at all is that only part of the material analyzed in it is re-examined in the later study; also, although some of the points made in the 1970 study have been superseded in the later study, certain fundamental aspects remain unchanged; more importantly, the similarities and differences between the two works are not discussed explicitly (apart from the segmentation of θik and the person formatives m, s and t) not even to the extent that the other two rival works are discussed.

It should be mentioned that in spite of the fact that Warburton, 1970, purports to be "a segment of the phonological component of a Transformational Generative Grammar of Modern Greek" (p.2) in effect the analysis is carried out in terms of a "morphemic" model, essentially the same as that adopted by Hamp, 1961 (see below),

the only difference being that in Warburton, 1970, morphemes are never realized as zero; rather they sometimes have no phonological representations (a position which remains unchanged in Warburton, 1973, as we shall see below). Thus, on p.174, the main constituents of verb forms are given in a specific order as in the example above. On the above arrangement we are told that

> "although we can divide the finite verb form into these constituents and we can directly associate a phonological representation for the first four, it is not easy to do the same thing for the categories represented by Q. Specifically it is very difficult to give a uniform phonological representation for Number, Voice, and Tense. These categories form certain combinations which may or may not have phonetic realizations and which modify the shape of the preceding morphemes." (p.146.)

Furthermore,

> "the aspect marker, the thematic vowel and anything that may follow the person are modified by the feature Aspect, Tense, Number, Voice. The categories Tense, Number and Voice are unordered in respect to one another and they do not always have a phonetic representation. According to the proposed treatment, the categories Tense, Number, Voice are used only as features. The categories Aspect and Person are considered morphemes with specific order and specific phonetic content." (p.148)

It is obvious that the "constituents" of the verb form suggested in Warburton, 1970, are not homogeneous constructs: Aspect, Person and Q (which stands for Tense, Number and Voice) are grammatical categories or morphemes, while thematic vowels are phonological segments. On

the other hand, it is highly arbitrary to assign Aspect and Person a specific position each in structure while the remaining, unmarked for order, three categories "are used only as features". As our analysis shows any single grammatical category is expressed in more than one position in structure, and most exponents of any single category (apart, for instance, from augments : see Ch.III,2) are also exponents of other categories cumulatively. For example, there is no way, nor need there be, out of the fact that, say, Θ is an exponent of both Aspect and Voice ({+ Pass, + Perf}) simultaneously.

What we regard as incorrect segmentation and classification in the five studies under consideration is the consequence of the "taxonomic" or "morphemic" framework on which they are based in varying degrees of "purity", and according to which each morpheme is assigned to a single segment within a particular verb form so that there is a one-one or one-many relation between successive morphemes and successive segments of a verb form. But since each morpheme or grammatical category is in fact reflected in more than one place in structure the taxonomic framework is of necessity Procrustean (at least as far as the highly complex inflectional system of the verb in MGK is concerned): it assigns a certain morpheme a number of "allomorphs" which may share values of that category but may also be greatly different as to which other

categories each of them may be an exponent of, and then accounts for the appearance of each of the "allomorphs" in terms of the environment. Thus, in the following verb forms:

{-Pass, +Perf, -Past, -Pl, 1}: ayapi + s + o (= I will love)

{+Pass, +Perf, -Past, -Pl, 1}: ayapi + θ + ó (= I will be loved)

s and θ, appearing in the presence of, respectively, the clusters {- Pass, + Perf} and {+ Pass, + Perf} are usually assigned to "Aspect". Note, not {+ Perfective} or "Perfective" but "Aspect", as if there were no distinction to be made between {+ Perf} and {- Perf} within Aspect; indeed, in Koutsoudas, 1964, pp.38-41 (rules 5 and 16) Aspect is always given the value "Perfective" and said to appear "before", respectively, "Active" and "Passive". In that way, any sort of segmentation and classification is possible, however unilluminating, provided that correct verb forms are produced eventually. But that is hardly the point of description anyway.

Consider how the inherent arbitrariness of the taxonomic framework (of which Babiniotis and, to a lesser extent, Koutsoudas, make judicious use) produces puzzling results in the analysis in Hamp, 1961, of the following three paradigms pp.108-109) which have in common the values {- Pass, - Perf, - Past}:

		BASE	THEMATIC VOWEL (o/i)	PERSONAL ENDINGS
XÁNO				
{-Pl}	{1}	xán	∅	o
	{2}	xán	i	s
	{3}	xán	∅	i
{+Pl}	{1}	xán	o	me
	{2}	xán	e	te
	{3}	xán	∅	un(e)
AGAPÁO			(o/a)	
{-Pl}	{1}	ayap	∅	ó
	{2}	ayap	á	s
	{3}	ayap	á	∅
{+Pl}	{1}	ayap	ú	me
	{2}	ayap	á	te
	{3}	ayap	∅	ún(e)
BORÓ			(o/i)	
{-Pl}	{1}	bor	∅	ó
	{2}	bor	í	s
	{3}	bor	∅	i
{+Pl}	{1}	bor	ú	me
	{2}	bor	i	te
	{3}	bor	∅	ún(e)

The segmentation of the verb forms in the above paradigms has been carried out by Hamp on the basis of three principles:

(a) There are three segments to be distinguished:
a base (xan - (= I lose), ayap - (= I love) and bor - (= I can)),
a thematic vowel (o/i for xan -, ȯ/ȧ for ayap - and ȯ/i for bor -)
and a set of personal endings: -o, -s, -i (but ∅ for ayap), -me,
-te and -un(e).

(b) Thematic vowels appear only when no vowel follows in the personal ending.

(c) Of the thematic vowels, a back rounded vowel, either a stressed u or unstressed o, appears in {1} and $\{+\text{Pl}, 3\}^{\text{forms}}_{\Lambda}$ and a front unrounded vowel, either a stressed ɪ or an unstressed e, appears elsewhere, except for $\{-\text{Pl},2\}^{\text{forms}}_{\Lambda}$, where i, either with or without stress, always appears.

On the above the following points can be made:

(i) In the formulation of (b) and (c) above a number of alternative forms, e.g. xánume, ayapáo, ayapái and ayapáme, have been ignored, though they are much more common than their respective alternants

included in the paradigms: xánome, ayapó, ayapá and ayapúme. Consequently, (b) and (c) above are not general enough to qualify as rules throughout the language.

(ii) The setting up of a pair of thematic vowels for each paradigm does not seem sufficiently justified. For instance, xáno is attributed the vowels o/i in the label, though in the paradigm there are three thematic vowels, i, o, and e, each appearing once, in accordance with (c) above. A similar point can be made for the remaining two verbs, where ó is established as one of the two thematic vowels of each verb though it does not occur in the paradigm of either, while u, which appears in both paradigms, is ignored. Furthermore, this is not a case of misprint for the examples are supported by the explicit rules or principles (a), (b) and (c) above.

(iii) It is not clear at all why i should be considered as a thematic vowel in xán + i +s and an ending in xán + Ø + i. Surely it could be part of the ending in the former verb form too: xán + Ø + is. In fact, if it were taken as part of the ending the exception to (c) above would be rendered unnecessary, while (b) above would still be valid.

(iv) No explanation is offered why -a may appear before -te in ayapáte but not before -me in ayapúme. Actually, ayapáme exists and is much commoner than ayapúme as we have already said. In short, one is left to guess that there are two sets of thematic vowels: the first set is fed into the paradigm by (b) above, and if there are any gaps left they are filled by the vowels generated by (c).

(v) Hamp explictly asserts that (c) above determines, among other things, the quality of the thematic vowels appearing in {+ Pl, 3} forms. However, in the actual paradigms no thematic vowels appear in {+ Pl, 3}$_{\Lambda}^{\text{forms}}$, because, as Hamp states, again explicitly, if unstressed u in yráfun(e) were attributed to the thematic vowels, (c) above could not have been formulated! Clearly, it cannot all be attributed to misprint or to the translator (the article appears in Greek) or to the taxonomic model.

3. The basic thesis in Warburton, 1973, (apart from the nature of the rules accounting for the inflectional paradigm which we will discuss in Ch. IV. below) is that, since grammatical categories can be assumed, on the basis of syntactic and semantic evidence, to have a "marked" (+) and an "unmarked" (-) value "in the sense of the Prague School theory of linguistics" (p.206), the idea of "markedness"

can be related "to the process of segmentalization" (p.205), i.e. it is reflected in the morphological make-up of words and hence is involved in the inflectional morphology of the Greek verb.

On the basis of the above tenet Warburton attempts to find where each of the "marked" grammatical features is located. We are told that "when the form is passive the feature {+ Passive} is marked by the same suffix as that of {+ Perfective}"(p.218), whereas "In the imperfective, the {+ Passive}is located in the thematic vowel"(p.219). Also that the feature {+ Perf} is located next to the stem (p.218), that "{+ Past} alone is located in the thematic vowel of the active and perfective passive in both singular and plural" (p.219), that the feature {+ Plural} is located "after the person marker if there is one but in the same constituent" (p.219) and so on. We notice that "unmarked" features are located only in the stem and unlike "marked" ones nowhere else, apart from the feature {- Past}, about which alone among "unmarked" values it is stated that it is "located within the thematic vowel when the rest of the context is singular of active or singular of perfective passive." (p.218) However, "unmarked" values are not, presumably, regarded as completely irrelevant since they do appear in the environments of rules, indirectly conditioning the appearance of

formatives (see rules on p.218ff). The inferior status of "unmarked" features is never discussed explicitly, but is implicit in Warburton's own interpretation of the morphological relevance of the Praguean theory of "markedness": since some features are unmarked and some are marked we only need to state the location of the marked, i.e. the ones that matter, so to speak, and nothing need be said about the unmarked ones. The only explicit statement that has relevance to the question of the morphological status of "unmarked" features (not that the question ever arises in Warburton, 1973) appears on p.194, somewhat in passing, in connection with the schema below:

VERB MORPHEME	ASPECT VOICE	PERSON	NUMBER	TENSE
	(Perfective Active)	(1st Person	Singular	Present)
yráf	s		o	(→ yrápso)
	(Imperfective Active)			
yráf	∅		o	

exemplifying the mode of analysis in Koutsoudas,1962 (see 2 above), and is as follows:

> "The phonological realization of Imperfective Active is, therefore, zero. But what does the zero in /yráf-∅-o/ mean except that the categories voice and aspect are not marked in this form? By 'marking' I do not mean perceptual cue. I mean that the grammar does not provide a phonological formative, a structural device for this category. The perception cue might be said to be the lack

> of such marking in this case. Thus voice and aspect are implied by the position of this form in the paradigm."

And a little later (p.197) in connection with Matthews' treatment of yrafto in a number of derivational stages, Warburton remarks:

> "the form /yráfo/ has the root /yraf/ and the suffix /o/ which is a structural marker for person and tense. Aspect and voice do not affect it and therefore the grammar should not need to provide any rules for them."

The reader will remember that the above position is transferred unaltered from Warburton,1970: there are (clusters of) grammatical features that receive no phonological representation. The thesis is further refined in Warburton,1973, where such features are (implicitly) regarded as "unmarked".

In other words, yráfo (a {- Pass, - Perf} form,i.e. associated, it will be noticed, with "unmarked" features only) is, according to Warburton, only implicitly defined by the grammar as {- Pass, - Perf} on account of the fact that it is different from such "par excellence" verb forms as yráfome, yrápso, and yraftó, whose association with "marked" grammatical features is reflected in their "longer" sequences of affixes. If Warburton's argument is accepted as correct, however, it should be brought to its logical conclusion: since the

{+ Pass, - Perf} form yrá́fome is "longer" than either {- Pass, + Perf} yrá́pso or {+ Pass, + Perf} yraftó́ it follows that the feature {+ Pass} in the cluster {+ Pass, - Perf} is somehow more "marked" than either the feature {+ Perf} in the cluster {- Pass, + Perf} or the two "marked" features in the cluster {+ Pass, + Perf}, which, of course, is absurd; also, since yrá́pso and yraftó́ have the same length, how is it that the former is the bearer of the "unmarked" feature {- Pass} and the latter of the "marked" feature {+ Pass} ? Warburton says, not in connection with the problem discussed here, that yraftó́ is in fact underlying yrafθí́o (p.211) which would appear to answer our last question above satisfactorily, i.e. {+ Pass} yrafθí́o is longer than {- Pass} yrá́pso, apart from the fact that it would be rather peculiar if the segment i associated with the "marked" value {+ Pass} were to be elided and never to appear overtly. However, Warburton assures us (p.211) that

> "although an /i/ is perhaps required between the /θ/ and the thematic vowel, the same vowel is also required for verbs with a root consisting of one or two consonants and no vowel."

e.g.

{- Passive}		
{- Perf}	{+ Perf}	
	{- Past}	{+ Past}
vrísko (= I find)	vrío → vró	vríka
béno (= I enter)	bío → bó	bíka

In other words i is only indirectly related to the "marked" feature {+ Passive} (and also to {+ Perf}) which would suggest that the "markedness" of {+ Pass} yrafθío → yrafθó → yraftó as opposed to the "unmarkedness" of {- Pass} yrápso is in fact insufficiently indicated in the morphological make-up of the word. Therefore, and unless we are prepared to avoid reaching trivial or absurd conclusions such as the above by simply avoiding discussing the relevant issues, it seems appropriate to conclude, instead, that the theory of markedness has no relevance with respect to questions of inflectional morphology at least as far as the verb in MGK is concerned.

The objection might be raised, however, that we are refuting Warburton's assumptions concerning the morphological relevance of "markedness" on the basis of questions never discussed in the original anyway. Although I do not see how the relevance of such questions could have been missed, I will next concentrate on a point which has been lengthily discussed in the original, namely, the evidence provided by the schema below for Warburton's contention that the "marked" features {+ Pass} and {+ Past} are located in the thematic vowel:

{- Perf}			
{- Pass}		{+ Pass}	
{- Past}	{+Past}	{- Past}	{+ Past}
léyo or léo	éleya	léyome	(e)leyómun(a)

Warburton suggests (p.207ff) that the "marked" features {+ Pass} and {+ Past} are located in the thematic vowel because their presence prevents the deletion of y + V in the paradigm of LÉGO (= I speak), whereas, in their absence and in similar or identical phonological environments, y + V or, sometimes, only y are deleted. First of all, since both y and (less often) the thematic vowel may be, but are not necessarily, deleted in the absence of the "marked" features {+ Pass} and {+ Past}, I do not see how it follows that the thematic vowel, but not y, is regarded as the segment where the two "marked" features are located.

More importantly, LÉGO and the two or three more verbs behaving like it (see Ch.IV, 3.5.2 below) are irregular, and as such, fringe cases. Apart from the fact that it is unconvincing to base on a marginal case such as IÉGO the argument for the "markedness" of the features {+ Pass} and {+ Past} and their location in the inflectional structure of all the verbs in the language, it should be emphasized that there is a more gratifying explanation for the deletion of y + V, i.e. that it is the result in two stages of the

paradigmatic pull on LÉGO of the regular {STv$_1$} verb AGAPÁO, e.g.

{- Pass, - Perf, - Pl, 1.}	
{- Past}	{+ Past}
ayap + á + o	ayáp + a + y + a
léy + o	é + ley + a
or	
lé + o	é + le + y + a

i.e. due to the superficial similarity of {- Pass, - Perf, + Past, - K} ayáp + a + y + a and é + ley + a, the stem-final y of éleya is reinterpreted as being "the same" separate segment as y of ayápaya. Since y does not appear in {- Past} ayapáo, the form léyo sometimes, but not always, especially not when it is compounded with a prefix, e.g. proléyo (= I foretell), drops y: léo. After y-deletion in {- Past} forms, ad hoc sandhi rules apply to produce, more often than not, the same surface result, with respect to the number of syllables and stress pattern, as in ayapáo:

ayapáo or ayapó	léo
ayapáis → ayapás	lés
ayapái or ayapá	léi
ayapáume → ayapáme	léme
ayapáete → ayapáte	léte
ayapáun(e) → ayapán(e)	lén(e)

In other words, the whole process has nothing to do with whether the features {+ Pass} and {+ Perf} are "marked" and "located" in the thematic vowel or not.

Another point to be considered concerns the relation between Tense and Person on the one hand and the thematic vowel on the other in the $\{-\text{Pl}, \begin{Bmatrix}\{-\text{Pass}\} \\ \{+\text{Pass}, +\text{Perf}\}\end{Bmatrix}\}$ paradigm:

THEMATIC VOWEL:		$\begin{Bmatrix}\{-\text{Pass}\} \\ \{+\text{Pass}, +\text{Perf}\}\end{Bmatrix}$	
		{- Past}	{+ Past}
{- Pl}	{1}	o (e.g. pávo)	a (e.g. épava)
	{2}	i (e.g. pávis)	e (e.g. épaves)
	{3}	i (e.g. pávi)	e (e.g. épave)

This is the only case as we said above that both "marked" and "unmarked" features are discussed by Warburton. Everywhere else in the article under consideration "unmarked" features are ignored, i.e. nothing is said about their "location", presumably because they are not regarded as located anywhere. The argument is based on a principle of elision according to which, of two adjacent vowels, that is elided that is ranked after the other in the following scale of descending dominance a, o, u, e, i (see Ch.IV, 5.3.2. below).

This being the case and since:

> "The vowels featured in the singular active and perfective passive system are /a/, /o/, /e/, and /i/; /a/ and /o/ being definitely strong and /e/ and /i/ definitely weak, i.e. over and under the middle point of the power scale" (p.213),

Warburton concludes that

> "we have sufficient phonological evidence to divide the four vowels which are present in the inflectional ending of the singular active system in two sets namely [+ strong] /a/, /o/ and [- strong] /e/, /i/ and within each set the distinction of the two vowels can be made in terms of their relative power or relative height. Thus

	o	a	e	i
strong	+	+	-	-
lower stronger	-	+	+	-

"

In other words, {+ Past} as opposed to {- Past}, and {1} as opposed to {2} and {3} are "marked" in the {- Pl, $\begin{Bmatrix}\text{- Pass}\\ \text{+ Pass, + Perf}\end{Bmatrix}$} paradigm by the relative strength of the thematic vowel. The above conclusion, of course, can only be reached if we decide to call a and o [+ strong], e and i [- strong], a and e [+ stronger] o and i [- stronger], and avoid discussing u in order to avoid the embarrassment of calling it [+ strong, - stronger].

What the above formulation in fact means (but does not spell out fully) is that, say, e is [+ stronger than i], so to speak, and not just [+ stronger] in the abstract, also that o is [- stronger than a] and presumably u is [- stronger than o or a]! Clearly little of

value can be achieved on the basis of such "features".

Consider, finally, the claim that "in the singular 1st person seems to be different and distinct from both 2nd and 3rd while 2nd and 3rd are morphologically similar to one another" (p.217):

{- Past}	{+ Past}
o	a
is	es
i	e

Again, that would be correct either if s was not affixed to the vowel in the {2} person, or, since it is, if we could show convincingly that the presence of s is of no importance compared to the quality of the thematic vowel, i.e. that the contrast of V to VC is of no importance within a theory of "markedness" compared to the contrast between o and i or between a and e. Otherwise, how can the {2} and {3} persons be "morphologically similar to one another" and distinct from the {1} person?

In spite of the notion of "markedness" underlying the analysis in Warburton,1973, the segmentation and classification of elements is not appreciably different from that in Warburton,1970. Although no explicit labelling of sets of segments is provided in the more recent work, we can, working through the "segment transformations"

on p.218ff, isolate again a stem (analyzable presumably into Root and Verbalizer, as in Warburton, 1970), a {+ Pass, + Perf} morpheme corresponding to the Aspect Morpheme of the earlier version, a Thematic Vowel (in which a number of clusters of features are "located"), a Person morpheme and a {+ Past} morpheme (roughly corresponding to Q of the earlier study). There is also a {+ Plural} morpheme which is affixed to the Person "marker" but "in the same constituent" (p.219). Note that here too, as in the earlier version, the Thematic Vowel, a phonological segment, is introduced by the transformational component on a par with complex symbols containing grammatical features.

It should be emphasized, however, that the above formulation is the product of only the segment transformations. There follow a number of rewrite rules some of which assign phonological shape to (clusters of) grammatical values, e.g. rule (12) appearing below as (i):

(i) $\{+ \text{Pass}\} \rightarrow \theta \,/\, \overline{[\overline{\{+ \text{Perf}\}}]}$

while others introduce phonological segments, literally out of nowhere, i.e. presumably not <u>directly</u> related to any grammatical features and certainly not the result of phonologically motivated processes: see (ii) below corresponding to (22) in the original

(ii) $\emptyset \rightarrow e \,/\, \{+ \text{Pass}\}\ C\ \_\_$

often the thus "materializing" segment being incorporated in the same constituent with an already existing segment, i.e. see (iii), (iv) and (v) below, corresponding to the first parts of (13), (14) and to (21) in the original:

(iii) $\emptyset \rightarrow i \,/\, + \left[\theta \underline{\quad\quad} \{+ \text{Perfective}\}\right]$

(iv) $\emptyset \rightarrow k \,/\, + \left[\theta i \underline{\quad\quad} \{+ \text{Perf}\}\right] + \{+ \text{Past}\}$

(v) $\emptyset \rightarrow a \,/\, \left[\begin{matrix} m \underline{\quad\quad} st \\ 1st \ + \text{Plural} \end{matrix}\right] \left[\begin{matrix} s \underline{\quad\quad} st \\ 2nd \ + \text{Plural} \end{matrix}\right] + \text{Past}$

The peculiar formulation of Warburton, 1973, is the result of the following three factors:

(a) It is the result of the incorporation in a study on inflectional morphology of the theory of "markedness": "marked" features are reflected in the phonological structure, "unmarked" features are not (though, as we showed above, sometimes the latter do sneak their way into a phonological representation).

(b) It is also the result of restricting the location of each ("marked") feature to as few individual segments as (technically) possible, preferably, only one, a legacy from the strongly

taxonomically orientated earlier study (Warburton, 1970). In fairness, the alternative formulation, i.e. allowing the location of a feature in more than one segment, is discussed briefly in Warburton, 1973 (p.210), but its theoretical implications are not grasped in that it is discussed as just that, i.e. an alternative formulation, a matter of choice, so to speak, rather than a different and possibly better formulation concerning the nature of the inflectional paradigm of the Greek verb, whose merit, if any, should be brought out after exhaustive investigation.

(c) Warburton's formulation is, finally, the result of viewing certain segments as "marking" the presence of one grammatical feature more directly than that of another while other segments are not directly related to any grammatical values at all. Thus, on p.197 we read that

> "one might argue that the suffixes /s/ and /θ/ are much more directly related to the perfective aspect and less directly to voice. Therefore, one may choose to say that /s/ and /θ/ are markers of the perfective aspect primarily and that the choice of one over the other depends on the voice specification of the verb form".

The final formulation endorsed by Warburton concerning s and θ is different, as can be seen from rules 11 and 12, reproduced below as (vi) and (vii):

(vi) $\begin{bmatrix} + \text{ affix} \\ \{+ \text{ Perfective}\} \end{bmatrix} \rightarrow$ s / $\{-$ Passive$\}$ ———

(vii) $\{+$ Passive$\}$ $\rightarrow$ θ / $\left[\overline{\{+ \text{ Perfective}\}}\right]$

though the same underlying principle as in the quotation above prevails here too. Again on p.199 we read in connection with a discussion of the rule system in Bierwisch, 1969:

> "Consider a more extreme case of a rule which might introduce the second person singular suffix /s/ which seems to me to obscure the fact that /s/ is the second person marker [emphasis added].
>
> (viii) $\emptyset \rightarrow$ s / + V ———
> $\left\{\begin{bmatrix} + \text{ 2nd person} \\ \left\{\begin{bmatrix} - \text{ Plural} \end{bmatrix} \begin{bmatrix} - \text{ Passive} \\ + \text{ Perfective} \end{bmatrix} \right\} \\ + \text{ Passive} \end{bmatrix} \begin{bmatrix} + \text{ Passive} \\ - \text{ Perfective} \end{bmatrix}\right\}$ "

Instead of the above rule (appearing in the original as (5), Warburton suggests her version, rule 18, appearing below as (ix):

(ix) $\begin{bmatrix} + \text{ affix} \\ \{+ \text{ 2nd person}\} \end{bmatrix} \rightarrow \begin{matrix} (a) & \text{s} \\ (b) & \text{t} \end{matrix} / \left\{\begin{matrix} - \text{ Passive} \\ \begin{bmatrix} + \text{ Perfective} \\ + \text{ Passive} \end{bmatrix} \end{matrix}\right\} \left[\text{——} + \text{ Plural}\right]$

which indeed is not much different from (viii) apart from the fact that the way its parts are arranged, i.e. first, s in all environments, second, t in a limited environment, produces (unless section (b) is extrinsically ordered before section (a)) the wrong result that, before t's turn comes (section (b)), s has

already appeared in the presence of the cluster:

$$\left[\begin{array}{l} 2 \\ +\ \text{Plural} \\ \left\{\begin{array}{l}[-\ \text{Passive}\ ] \\ [+\ \text{Perfective}] \\ [+\ \text{Passive}\ ]\end{array}\right\}\end{array}\right]$$

The correct arrangement would be, first t in its limited environment, and elsewhere s. I do not see how else (ix) above could be read so that it made sense.

In the above discussion on Warburton, 1973, I have concentrated on theoretical issues rather than on the listing of inaccuracies. To mention below but a few of the latter, rule (19) rewrites the constituent $\left[\begin{array}{l}+\ \text{affix} \\ \{+\ \text{3rd person}\}\end{array}\right]$ as t, though t never appears in this (Fs) {+ Pl, 3} forms of the {- Pass} and the {+ Pass, + Perf} paradigms, e.g. pávun, pápsun, pávan, pápsan, paftún, paftíkan; also on p.212 we read that one of the significant differences "between present and past in imperfective passive is ... the generalization of /aste/ in the first two persons of the plural ....", whereas a few pages later rule 21, reproduced above as (v), informs us that aste appears in {+ Pl, 1} forms irrespective of Tense, e.g. pavómaste, and in {+ Pl, 2} forms it appears only if followed by the feature past (sic), e.g. {+ Past} pavósaste, as opposed to

{- Past} páveste. As a matter of fact, pavósaste too appears irrespective of Tense in our corpus, in alternation in the {- Past} paradigm with páveste.

Again, the not altogether satisfactory process of segmenting verb forms in Warburton, 1973, results in three kinds of segments:

Firstly, affixes correctly isolated (see Ch.III, 7.4.4.), e.g.

páv + o + m + e

páv + e + s + e

páv + e + t + e

Secondly, constituents that were correctly isolated but subsequently assigned, for insufficient reasons, to the same formative, e.g. θ + i + k going to "/θi/ for non past and /θik/ for past" (p.220).

Thirdly, those that should have been further segmented but were not, e.g. una and an(e) in the {- Pl} section of the following {+ Pass, - Perf, + Past, - K} paradigm

pavómun(a)
pavósun(a)
pavótan(e)
pavómastan or pavómaste
pavásastan or pavósaste
pavóntan(e) or pavóntusan or pávontan

i.e. since n appears throughout the paradigm and final a is as "optional" as e, una and an(e) should be further segmented as follows: u + n + (a) and a + n + (e) (see Ch.III, 7.4.4.).

A final inconsistency to be noticed concerns rule 12 (p.209) reproduced below as (x):

(x)

$$\{+\ \text{Perfective}\} \rightarrow \begin{bmatrix} +\ \text{consonantal} \\ -\ \text{vocalic} \\ +\ \text{anterior} \\ +\ \text{coronal} \\ +\ \text{continuant} \\ -\ \text{voice} \\ \alpha\ \text{strident} \end{bmatrix} / \{-\ \alpha\ \text{passive}\} \text{ ——}$$

accounting for the appearance of s and θ in the presence of the clusters, respectively, {- Pass, + Perf} and {+ Pass, + Perf}, e.g.

$$\{+\ \text{Perf}, -\ \text{Past}, -\ \text{Pl}, 1\} \begin{cases} \{-\ \text{Pass}\}: \text{pάp} + \text{s} + \text{o} \\ \{+\ \text{Pass}\}: \text{paf} + \theta + \text{ó} \rightarrow \text{paftó} \end{cases}$$

Warburton argues that

> "Although this is the simplest rule for introducing the suffixes /s/ and /θ/ it is not altogether satisfactory, because it seems to be attributing morphological status to the feature of stridency which is not supported by any other part of MG morphophonemics."

However, a few pages later rule (15) quoted below as (xi):

$$\text{(xi)} \qquad V \rightarrow \begin{bmatrix} \alpha \text{ strong} \\ \beta \text{ lower} \end{bmatrix} \quad / \quad \begin{bmatrix} \alpha \overline{\text{1st person}} \\ \beta \text{ Past} \end{bmatrix}$$

does something similar, i.e. "it seems to be attributing morphological status" to the features $\begin{bmatrix} a \text{ strong} \\ b \text{ lower} \end{bmatrix}$ (if indeed such features are accepted, which is very doubtful, as we argued above). In fact all rewrite rules in Warburton, 1973, do not seem to me to be doing anything different from what (x) above does. This is, after all, what inflectional rules are all about: they assign phonological shape to grammatical features. In this respect, there is nothing objectionable about (x) above.

It would be appropriate to clarify here that most of the points in Warburton,1970 and 1973,criticised above would be perfectly acceptable to many a scholar working on inflectional morphology within or outside a transformational generative framework. See, for instance, Detrich, 1972, p.69, where, with respect to Nissart verb morphology, we read

> "In this study we will assume that the various forms of the verb can be explained in terms of a string of morphemes in the following order: a verb base which is marked for conjugation; a theme vowel which is characteristic of the verb's conjugation;

a tense marker which is {± Past},{± Perfective},
{± Future}; a mood marker which is {± Subjunctive};
and a person-number marker which is{± Plural} ,
{± 1}pers.,{± 2}pers.,{± 3}pers. ".

while on p.89 we read that

> "fourth conjugation verbs have a g inserted between the stem and the bound morpheme... The g is inserted in the past participle form, in the past perfective tenses, in the present subjunctive and in the present participles of some verbs."

In other words, apart from the segments that genuinely "mark" tense, mood, person, number and the like, we also have segments which are simply inserted at certain points in structure in the presence of specific (clusters of) grammatical values, i.e. they are not phonologically motivated. It is clear, however, that no distinction can be drawn between the former and the latter types of segments in a non-arbitrary way, for all segments in fact behave in exactly the same manner: they appear in specific places in structure in the presence of specific (clusters of) grammatical values. For more examples see review of some of the works in the literature in Wright, 1972. See also Kuryłowicz, 1968, whose view of "markedness" in relation to inflectional morphology does not seem different from that held by Warburton. Note, however, that "markedness" as employed by Warburton and Kuryłowicz entailing the use of the plus and minus signs for, respectively, "marked" and "unmarked" values, has been superseded by Chomsky and Halle's more

elaborate formulation (1968, Chapter Nine) according to which either positive or negative values can be marked or unmarked (or even overmarked: Bailey , 1973) depending on various conditions.

4. Matthews, 1967, is the only study in the literature, to the best of my knowledge, to propose an analysis of the verb in MGK clearly and truly outside the taxonomic framework.[3] Though lacking an interest in stylistic variation, and not beyond reproach as applied to an analysis of the Greek verb, the particular generative model developed in Matthews,1967 and 1975,has been found of considerable value, as far as the present study goes, with respect to questions of inflectional morphology. Matthews follows essentially the guidelines proposed in Chomsky, 1965, with respect to the view that questions of inflectional morphology can best be dealt with within a "Word-and-Paradigm" rather than a morphemic (or taxonomic) model, whether IA or IP, or, more accurately, within a compromise between the two models, according to which, segmentation of a word form is acceptable, if necessary, but no effort should be made to match a sequence of morphemes to a sequence of segments in a one-one or one-many fasion. Unlike Chomsky, however, Matthews proposes a highly elaborate model: in Matthews, 1967, seven successive sets of elements

are recognized (implicitly, i.e. in the course of setting up a system of extrinsically ordered morpholexical rules discussed in Ch.IV. 2.3. below) in the structure of the verb in MGK, e.g.

	1	2	3	4	5	6	7	
{+Pass,+Perf,+Past,+Pl,1}	ayap	i	θ	ík	a		me	(=we were loved)
{+Pass,-Perf,-Past,-Pl,1}	ayap	j			ó	m	un(a)	(=I was loved)
{-Pass,-Perf,-Past,-Pl,1}	ayap				á		o	(=I love)
{-Pass,+Perf,+Past,-Pl,1}	ayap	í	s				o	(=I will love).

Matthews' seven sets of elements provide a considerably clearer picture of the regularities involved in the verb in MGK than the one provided by analyses on the basis of the taxonomic model (Hamp, 1961, Koutsoudas, 1962, etc.) where not more than three to five classes are recognized. Still, Matthews' analysis is far from accurate or consistent; for instance, in the examples above we have two m's : one classified in column 6 (rule 1, p.271) and another classified in column 7 (rule 14, p.271). However, throughout the paradigm, whenever m appears after a "thematic vowel" the category of Person has the value {1}. Therefore, we only need to recognize one m; also a in ayapáo is in column 5, while i in ayapíso and ayapíθika is in column 2, and j in ayapjómuna is in column 3, though in our analysis they are shown to be very much

"alike", i.e. minimally contrastive as cumulate exponents of grammatical values and therefore constituting a separate set of their own as formatives suffixed directly to the stem as follows:

a : {- Pass, - Perf} e.g. ayapáo, ayápaya

i : {+ Pass, - Perf} e.g. ayapjéme, ayapjómun(a)

(note that i ⟶ j / C — V)

{+ Perf} e.g. ayapíso, ayapiθó

Since formatives that belong together are classified separately it follows that at least some columns will contain heterogeneous formatives. Indeed, in column 5, a in ayapáo is an exponent of the cluster {- Pass, - Perf, - Past} (rule 8, p.275) while in ayapiθíkame it is an exponent of the cluster {+ Past, + Pl}, Many more cases of misinterpretation can be found, passim, in Matthews 1967. Two "explanations" can be suggested here for these inadequacies.

Firstly, although seven successive sets of elements are "better" than the three or four found in Hamp, 1961, or Koutsoudas, 1962, etc. they are still inadequate for a consistent account of the verb in MGK.In this study twelve sets have been established, as we shall

see in Ch.III.

It will be appreciated that questions of economy are irrelevant here: recognizing twelve successive sets of formatives in the structure of the Greek verb (instead of three or four or seven) is not uneconomical if the analysis suggests that it is necessary.

Secondly, Matthews, 1967, in arguing against the morphemic model, takes the view (p.280) that a term such as {+ Perf} or {- Pl}

a) is a property of the word as a whole

b) does not "operate" at any <u>fixed</u> position in word structure, and

c) its exponence need not be restricted to a single formative.

Curiously, however, in his rules Matthews contradicts points (a) and (b) above in that he tries to establish at what <u>fixed</u> positions in word structure a term such as {+ Perf} or {- Pl} "operates". The point is not trivial, for premises (b) and (c) are logically incompatible, whereas (a) does not necessarily imply (b) and (c). Indeed, if {+ Perf} or {- Pl} are considered as properties of the word as a whole and as not "operating" (i.e. not expressed)

at any <u>fixed</u> position in word structure, the verb system is viewed as made up of suppletive forms (see discussion on Chomsky's views in 1. above) and it would be inconsistent and pointless to try and segment such forms. If, on the other hand, segmentation proves necessary (which is the view taken by all the scholars, including Matthews, whose work is reviewed above), in that a small number of affixes seem to combine in, perhaps, complex ways to make up phonological words, only point (c) above is still logically possible, i.e. a property such as {+ Perf} may be expressed by the presence of one or more phonological segments (or formatives) in the structure of the verb form.

To illustrate the point, in the following paradigm

{+Pass,-Perf,-Past}	{-Pl}	{1}	pȧv o m e	(pȧvome)
		{2}	pȧv e s e	(pȧvese)
		{3}	pȧv e t e	(pȧvete)
	{+Pl}	{1}	pav ọ́ m ast e	(pavọ́maste)
		{2}	pav ọ́ s ast e	(pavọ́saste)
		{3}	pȧv ont e	(pȧvonte)

we notice that we can readily identify, say, <u>pȧvome</u> or <u>pȧvese</u> as the phonological representations of the clusters, respectively, {+ Pass, - Perf, - Past, - Pl, 1} and {+ Pass, - Perf, - Past, - Pl, 2}. We also notice that to the right of the stem <u>pav-</u>,

common to all the verb forms in the paradigm above, there is a lot of structure to be accounted for as the segmentation of the verb forms and arrangement of segments in columns helps us appreciate : moving from left to right we observe a mid vowel, o or e, next a nasal n, next the consonants m, s and t, next the indivisible segment ast, and finally a mid front vowel, e. We also notice that the above segments combine in specific ways: o is followed by m, s or n, but never by t; e is followed by s or t but never by m or n; n, which as we said above, follows o, is in its turn followed by t; m and s are followed either by e or by ast while t and ast are always followed by e. Furthermore, we observe that the occurrence of each of the above segments in itself and in relation to all other segments in the paradigm can readily be associated with the presence of values of Number and Person: thus, the presence of o indicates the presence of the values either {1} (pávome, pavómaste) or {+ Pl} (pavómaste, pavósaste, pávonte); the presence of e in the context STEM —— indicates the presence of the cluster {- Pl, - 1}(pávese, pávete); in final position e is present throughout the paradigm under consideration, i.e. it appears in the presence of all possible combinations of Number and Person values, but whereas it always follows t ({3}) irrespective of Number, its direct affixation to m or s expresses the presence of the value {- Pl}, for in the presence of the value {+ Pl} e is separated from m or s by ast; n is a {+ Pl, 3}

formative; m, s and t are, respectively, {1}, {2} and {3} formatives; finally, ast is a {+ Pl, - 3} formative.

From a different, more general, point of view we observe that the sequence VCV in the context STEM —— indicates the presence of the value {- Pl}, whereas the presence of a segment (here, either n or ast) in the context STEM + V —— CV or STEM + VC —— V indicates the presence of the clusters, respectively, {+ Pl, 3} and {+ Pl, - 3}.

Similar observations can be made (with a bit of patience) about the rest of the verb system (see next chapter). It follows that since such observations are possible Matthews' suggestion that grammatical values are not reflected at any fixed position in word structure is unterable.

It should also be clarified that Matthews' point (a) above, i.e. that a grammatical value is a property of the word as a whole, does not necessarily imply (b) i.e. that the value does not "operate" at any fixed position in word structure, as he seems to suggest. Indeed, a grammatical value is a property of the word as a whole: within a generative framework (also, within the particular generative framework in which Matthews works) clusters of grammatical values

appearing in the complex symbol of the verb in the surface syntactic structure are assigned phonological shape by the readjustment (or, in terms of Matthews, morpholexical) rules; thus, the cluster, say, {+ Pass, - Perf, - Past, -Pl, 1, PÁVO} and {+ Pass, - Perf, - Past, + Pl, 1, PÁVO} are attributed the phonological shapes, respectively, pávome and pavómaste. However, the phonological shape assigned to each cluster of grammatical values is not unique but is partly similar to the phonological shapes assigned to other clusters: the readjustment rules select phonological segments from twelve small sets (see next chapter), and combine them in various ways so that each verb form in the verb paradigm is adequately distinguished from all other verb forms in spite of the fact that it has some segments in common with a number of other verb forms; for instance, pávome and pavómaste differ only with respect to the presence or absence of the segment ast corresponding to the alternation between the values, respectively, {+ Pl} and {- Pl}. This being the case, a grammatical value does "operate" (usually, simultaneously with other values) at fixed places in the verb structure.

In other words, if we are studying suppletive forms such as the English verb forms go and went no segmentation is possible and it can be said that the relevant clusters of grammatical values present

are expressed by the word as a whole; if, on the other hand, segmentation is possible, then we are dealing with an inflectional paradigm where the precise relation between grammatical values and phonological segments can and should be established, for it is because such relations exist that segmentation is possible in the first place. It follows that in the latter case we have to abandon the view that a grammatical value does not "operate" at any particular place in the word for the same reason that we cannot have our pie and eat it.

Perhaps the key for an understanding of the formulation in Matthews, 1967, is given in Warburton, 1973, where we are told that

> "One may also argue against the WP model in that by avoiding any statement of direct relationship between morphosyntactic properties and formatives it reaches the opposite extreme from the IA approach. WP, as formulated by Matthews (1967) would seem to imply that ... the properties which determine the choice of a suffix are ... all as indirectly related to it as one another." (p.197)

and also that

> "the question as to what syntactic features are represented by a particular formative is a derivative notion" (p.198)

In other words, Warburton's interpretation is that what matters for Matthews is the establishment of relations between "morpho-syntactic" properties and phonological segments not <u>directly</u> but

<u>indirectly</u>, through a process of derivation; cf. Matthews, p.263:

> "the form <u>yrápso</u> ... is the only realisation of $GRAFO_{FIN,Pf,Pr,A,1,sg}$ ...
> Each verbal form, apart from the accent and augment ... is ... derived from the appropriate root in no less than four and no more than six successive stages: each of these stages may or may not involve the addition of a particular suffix. For any particular word, the choice of suffixes is partly or wholly determined first by the defining set of morphosyntactic properties, and secondly by the morphological class to which the defining lexeme is assigned. At any stage, any subset of the relevant properties may be referred to."

I still do not see, however, how the logical gap which we discussed above, (i.e. that of deriving a phonological word by the suffixation of phonological segments to other phonological segments in the presence of <u>specific</u> (clusters of) "morphosyntactic properties" and at the same time arguing that such properties belong to the word as a whole and do not "operate" anywhere in particular in structure) could be bridged by simply regarding "morphosyntactic properties" and their phonological representation as "indirectly" related. As far as I can see, such a point of view can only result, though it does not necessarily, in less than thorough analysis of the verb system. In the formulation endorsed in this study, (see next chapter), a number of sets of phonological formatives are recognized in the verb system. Each formative appears in one or more specific environments (i.e. formatives from other sets) in the presence of <u>specific</u> (clusters of) grammatical values. The relationship between

each formative appearing at a particular point in structure and the (cluster of) grammatical values present is direct, and as such stateable in no uncertain terms.

It will be worth considering, at this point, with the help of Warburton's suggestion above, whether the difference between Matthews' work and this study amounts to much more than simply the degree of emphasis put on the relations between (a) a particular segment, (b) other segments with which it co-occurs in the verb structure and (c) the grammatical feature(s) present: in Matthews' work such relationships are allowed to emerge indirectly thrcugh a process of derivation, where the organizing unit is the stem, i.e. a set of rules builds up a particular verb form of successive stems, each of which is either identical to the one"below" it or differing from it with respect to one additional segment (see discussion on Matthews' rule system in Ch.IV,2.3. below); each step in the derivation is triggered off by a specific subset of the grammatical values present in the complex symbol of the verb. To exemplify, an analysis of the forms ayapiθika (= I was loved) and épava (= I was stopping) on the basis of Matthews' derivation process would look as follows:

VERBAL FORM(V)					
TERTIARY STEM(S^3)					
SECONDARY STEM(S^2)					
PRIMARY STEM(S^1)					
ROOT(R)					
AGAPÁO {+Pass,+Perf,+Past,-Pl,1}	ayap	í {+Perf	θ {+Pass, +Perf}	ik {+Pass, +Perf, +Past}	a {+Past, -Pl, 1 }
PÁVO {-Pass,-Perf,+Past,-Pl,1}	épav		{-Perf}		a {+Past, -Pl, 1 }

According to the above stem-oriented schema, pav- (I ignore the augment here) is grammatically "the same" as ayap-, ayapi-, ayapiθ-, and ayapiθik- on the level of, respectively, the Root, Primary Stem, Secondary Stem and Tertiary Stem. In the case of épava the Root is rewritten as S^1, and S^2 as S^3 when all other relevant rules accounting for S^1 and S^3 suffixes have applied (see rules 4 and 7 on, respectively, pp.279 and 277), whereas S^1 is rewritten as S^2 in the presence of the feature {- Perf} (rule 6, p.278). As for final a, it is suffixed to S^3 by rule 10 (p.270) in both verb forms in the presence of the cluster {+ Past, - Pl, 1}. As is obvious, the admirable

simplicity of Rule 10 is achieved at the cost of, at best, bonding together forms that have little or nothing in common e.g. <u>ayapiθ-</u> or <u>ayapiθik-</u> and <u>epav-</u> , whereas at the same time a single segment is treated as something different at various stages of the derivation, e.g. <u>pav-</u> standing as R, S^1, S^2, and S^3. Furthermore, the representation of the values {- Pass} and {- Perf} in the phonological structure of <u>épava</u> is not clear at all. The latter "conditions" the rewriting of S^1 as S^2 as we said above, while the former is presumably involved in the "elsewhere" environment "triggering off" the rewriting of R as S^1 and of S^2 as S^3. The point is not discussed by Matthews, neither is discussed why the two values are not both involved at each and every stage in the derivation; why, for instance, they are not involved in the suffixation of <u>a</u> to S^3.

What I suggest here, therefore, with respect to Matthews' formulation is that, viewing the relationship between grammatical values and phonological form as <u>indirect</u>, necessitates (or, possibly, derives from?) the setting up of a mechanism that accounts for such relationships as viewed, i.e. as <u>indirect</u>. In the case of Matthews, 1967, this mechanism takes the form of a derivational process based on the organizational unit of the <u>stem</u>: each verb form is made up of a number of stems which contain each other in a Chinese-box fashion:

each stem is either identical to , or different from, the stem preceding it in the derivation with respect to a single additional segment. The result of this process is that the considerably uncomplicated derivation is achieved at the cost of at best obscuring and at worst confusing easily stateable relations between segments and (clusters of) grammatical features in specific environments.

In this study, Matthews' view concerning the cumulate exponence of grammatical values in the phonological structure of verb forms is incorporated but his notion of indirect relations holding between grammatical values and phonological shape is dropped; instead it is clarified that each grammatical value is expressed along with other values, i.e. cumulately, by, often, more than one adjacent or sometimes non-adjacent segment in structure. To study the exponence relations holding in the verb structure we need to concentrate not on how stems are made up of other stems, but on the minimal bits of phonological shape whose alternation with other bits at a particular point in structure functions grammatically and/or stylistically. We need to define a number of abstract structural places in the verb paradigm and to state, for each structural place, the set of segments appearing in it. Furthermore, we need to state

explicitly the relation between each segment and specific (clusters of) grammatical and stylistic features at specific points in structure, i.e. in the context of specific phonological segments.

5. A final point must be made here concerning the absence from all six studies reviewed above of stylistic considerations. For instance, $\{\pm K\}$ distinctions are not accounted for, though, as our data suggests, a (small) number of $\{+ K\}$ forms appear in everyday conversation.

6. SUMMARY:

Up to now, and to the best of my knowledge, all attempts in the literature to study the inflectional morphology of the verb in MGK have been of negative value: they have established what approaches ought to be avoided in the analysis of complex inflectional systems. Indeed, the complexity of the verb in MGK has not been grasped in any of the studies reviewed above: insufficient segmentation of verb forms (three to seven sets of segments, as opposed to twelve proposed in this study) has obscured rather than revealed the regularities involved in the verb system.

In the case of analyses based on the "morphemic" or "taxonomic" model, insufficient segmentation is inevitable: given five "morphemes" involved in the verb, namely, Voice, Aspect, Tense, Number and Person,

and a model that seeks to establish a one-one or one-many relation between <u>successive</u> morphemes and <u>successive</u> segments, it is a matter of subjective judgement what the exact number of sets of segments is going to be, for the model cannot account for any more than five such sets (corresponding to the five grammatical categories). Furthermore, the taxonomic model completely ignores the cumulate, extended and non-adjacent character of exponence relations in the verb in MGK.

Studies conducted within the TG model, on the other hand, are shown to be heavily biased towards the taxonomic legacy and as such hardly an improvement.

On the contrary, the Word-and-Paradigm model is inherently more appropriate to account for a complex inflectional system such as the Greek verb. However, although the WP model allows for the discovery of exponence regularities, it does not, of course, reveal them automatically. Indeed, in Matthews, 1967, the fact that any single grammatical value is expressed simultaneously with other values at several <u>fixed</u> and, often, discontinuous and non-adjacent positions in word structure has not been grasped. As a result, the description is hardly more consistent or revealing than in the studies that comply with the taxonomic model.

Furthermore, variation and especially variation related to $\{\pm K\}$ distinctions has been ignored in the literature.

NOTES TO CHAPTER II

1. More accurately, a morphemic model, which we take here to include both "Item-and-Arrangement" and "Item-and-Process" frameworks. (see Matthews, 1972).

2. In the discussion below (et passim) of individual studies in the literature, I seek to assess the merit of various theoretical models of inflectional morphology rather than to wage literary war at individual scholars, whose contribution to what understanding I have of the inflectional morphology of the Greek verb cannot be overestimated.

3. A great many transformational generative studies on inflectional morphology are in fact conducted within the IA or IP paradigm. See, for instance, the detailed discussion in Wright, 1972, on the literature on Spanish verb morphophonology, and, of course, Matthews, 1972. Wright makes critical use of the IP paradigm vis-à-vis what he regards the more extreme agglutinating view of the Spanish verb taken by Foley. Wright does not appear to be aware of Matthews' work. Had he been, one wonders how the direction of his already sensible argumentation would have been affected. See also Warburton, 1973, for a discussion of two competing inflectional models.

CHAPTER III

THE SETS OF INFLECTIONAL FORMATIVES[1] IN THE MGK VERB

1. In order to account fully for all possible formal alternations in the inflectional structure of the verb in MGK it is necessary to recognize twelve abstract places (i.e. SP_1, ... SP_{12}) in each of which a small set of contrastive formatives (i.e. F_1, ... F_{12}) may occur as summarized in Table Five at the end of this chapter.

Whether or not a given place is filled and which particular formative is chosen to fill it depends upon:

(a) the set of grammatical ($\{\pm$ Pass, $\pm$ Perf, $\pm$ Past, $\pm$ Pl, 1, 2, 3$\}$), lexical ($\{ST_{\emptyset}, STv_1, STv_2\}$) and stylistic ($\{\pm K\}$) values which a particular verb form realizes (see Ch.I);

(b) in some cases, the phonetic context.

In most verb forms each (grammatical, lexical or stylistic) value present may be expressed at more than one place in structure (extended or discontinuous exponence) by, often, non-adjacent

formatives, and, conversely, a particular formative at a certain place in structure may reflect more than one value (cumulate exponence).

No single verb form contains formatives from all twelve sets distinguished below. The place any formative occupies in the verb structure in relation to all other formatives is fixed (but see Ch.IV,3. on augments, and Ch.IV,6. on irregular verbs).

Each structural place accommodates a small set of formatives which

(a) are often (but not always) phonetically similar, e.g. pá̱fso and paf̱θó̱, where the segments s̱ and θ̱ differ only with respect to the specification of the feature [strident] ;

(b) appear in the same or similar morphological contexts, e.g. in the examples above s̱ and θ̱ both appear in the context

STEM —— o ;

(c) with respect to their role as exponents of clusters of grammatical, lexical and stylistic values, the formatives occurring at a particular place often (but not always) differ

from one another "minimally", i.e. by not more than one or two values, e.g. s and θ in the examples above are both {+ Perf} formatives and also, respectively, {- Pass} and {+ Pass}.

For a first taste of the following discussion consider the examples below:

	1	2	3	4	5	6 7	8	9	10	11	12
{-Pass,-Perf,-Past,-Pl,1,-K}		ayap	á			o					
{-Pass,-Perf,+Past,-Pl,1,-K}		ayáp	a		y	a					
		ayap			ús	a					
{-Pass,+Perf,-Past,+Pl,2,-K}		páp		s		e	t		e		
{+Pass,+Perf,-Past,+Pl,2}		ayap	i	θ		í	t		e		
{+Pass,+Perf,-Past,+Pl,1,-K}		paf		t		ú	m		e		
{+Pass,+Perf,-Past,+Pl,1,+K}		paf		θ		ó	m		e	n	
{+Pass,+Perf,+Past,+Pl,3,+K}	e	páf		θ		i	s		a	n	
{+Pass,-Perf,+Past,+Pl,3,-K}		pav				ó n	t		a	n	(e)
{+Pass,-Perf,+Past,+Pl,3,+K}	e	páv				o n	t		o		
{+Pass,-Perf,+Past,+Pl,2,-K}		ayap	j			ó	s	ast	a	n	
{+Pass,-Perf,+Past,-Pl,1,+K}	e	pav				ó	m		i	ń	
{-Pass,+Perf,-Past,-Pl,2}		ayap	í	s		i	s				
{-Pass,-Perf,+Past,-Pl,3}	é	pav				e					
{+Pass,+Perf,+Past,+Pl,3,-K}	e	paf		t	ík	a				n	(e)

When necessary, superscripts over segments of a verb form will refer to the structural places occupied in the construction of the word, e.g. $\overset{2\ 6}{\overline{\text{yraf}}}\ \overset{1\ 2\ 4\ 6\ 8}{\overline{\text{i}}}$ (= he is writing), $\overset{1\ 2\ 4\ 6\ 8}{\overline{\text{e}}}\ \overset{2\ 6}{\overline{\text{pek}}}\ \overset{1\ 2\ 4\ 6\ 8}{\overline{\text{s}}}\ \overset{1\ 2\ 4\ 6\ 8}{\overline{\text{e}}}\ \overset{1\ 2\ 4\ 6\ 8}{\overline{\text{s}}}$ (= you played).

It should be mentioned that the emphasis in this chapter is on

(a) establishing the necessity to recognize twelve places, neither more nor less, and

(b) identifying the actual formatives at each place.

An exhaustive descriptive statement about the function of each member of the formative sets as an exponent of grammatical, lexical and stylistic values in various morphological contexts is contained in chapters IV and V, where the rule system accounting for the inflectional paradigm of the verb will be set up.

The claim made in this study that the inflectional system of the Greek verb is organized on the basis of twelve successive structural places should not be interpreted as the result of a (primarily) agglutinative view of MGK. In the previous chapter we argued that the morphemic (IA or IP) model, which seeks to establish a

one-one or one-many relation between successive grammatical values and successive phonological segments, cannot account for the Greek verb inflection, where (clusters of unordered) grammatical values are cumulately expressed by one or more successive or non-adjacent phonological segments in the structure of a verb form. We also made a distinction between regular verbs whose inflectional structure can be described on the basis of the twelve structural places, and various "irregular" verbs (see Ch.IV,6, below) which exhibit alternations of a, relatively, more suppletive type. It is, I think, fair to suggest that it is the morphemic model that attributes, wrongly, an agglutinative character to the Greek verb; contrarywise, the view proposed by Matthews and also endorsed in this study is of the Greek verb not as an agglutinative but as a highly inflecting system. In the latter view the number of grammatical values expressed in the verb structure does not determine the number of affixes to be isolated in a verb form. For reasons explained below twelve structural places are suggested for all regular verbs in MGK, where affixes may occur in various combinations depending on the cluster of grammatical values present; however, the number of structural places (but not necessarily that of grammatical values) may vary in the case of various "irregular" verbs where different

devices, more economical or more suppletive, are employed for the expression of the same clusters of grammatical values.

The reader is reminded once again that, in spite of the numerous examples, in the discussion below much becomes clearer if assertions are checked on the master table, TableOne, in the pocket in the back cover.

2. $\underline{SP_1}$

The first structural place accommodates F_1 formatives traditionally known as augments: the vowel e, or, for a small number of verbs, i (i.e. the alternation e/i is not grammatically or stylistically significant - only lexically significant in that certain lexemes specify i rather than e: see Ch.IV,3) appear before the stem in the presence of the value {+ Past} as follows:

(a) categorically, with disyllabic {+ Past} forms, i.e. in order to carry the proparoxytonic stress normally (but not always) associated with the feature {+ Past}, e.g. épapsa (= I stopped), épapses (= you stopped), épapse (= he stopped);

(b) categorically, in the presence of the stylistic value {+ K}, i.e. irrespective of the number of syllables in a {+ Past, + K} verb form, e.g. epáfθimen (= we were stopped), epáfθite (= you were stopped), epáfθisan (= they were stopped);

(c) "optionally", in the case of {+ Past, -K} verb forms with three or more syllables, e.g. (e)pápsame (= we stopped), (e)pápsate (= you stopped).

For the environmental constraints bearing upon the probability of appearance of an unstressed augment in the case of {+ Past, - K} verb forms see Ch.V,2.

3. SP_2

The second structural place comprises F_2 formatives i.e. stems (but see 4 below for stems composed of $F_2 + F_3$ formatives). F_2 are the lexical formatives of regular verbs in which no grammatical contrasts are expressed.(However, as we shall see in Ch.IV,6, certain "irregular" verbs allowthe expression of grammatical contrasts in SP_2). All the other segments in the verb structure, which we will here call inflectional formatives, are exponents of various grammatical, lexical and stylistic values. Naturally, though F_2 elements of "regular" verbs are not affected by grammatical contrasts they may still exhibit phonetically motivated changes. Hence, for instance, in the list of examples in 1 above, the alternation between stem-final v,p, and f in the paradigm of the verb PÁVO before, respectively, a vowel, s or t.

A verb stem is composed of a root to which certain derivational (or lexical) affixes may be, but are not necessarily added.

Thus, in the case of the lexeme KATAGRÁFO (= I record) the stem katayraf- is composed of the root yraf preceded by the derivational (or lexical) prefix kata- , while in the case of GRÁFO (= I write) the stem yraf- is the same as the root yraf-; In the case of the lexemes KAPNÍZO (= I smoke), VASÍZO (= I base) and KANONÍZO (= I arrange) the respective roots kapn-, vas- and kanon- are all followed by the lexical infix -iz-.

As we have already stated in the introduction to this study, our analysis is focused on the inflectional rather than derivational constitution of the verb. For some questions related to the latter see Koutsoudas, 1962, and Warburton, 1970.

4. SP_3

The vowels a (or e in the case of such verbs as DIMIURGÓ (= I create) in the presence of the clusters {- Pass, - Perf} and {+ Pass, - Perf, + K}, and i in the presence of the values {+ Perf} and {+ Pass, - Perf, - K} making up the set F_3, which appears in SP_3 (see Table One, column STv), are unique in that they function both as inflectional and as derivational (or lexical) formatives simultaneously. As inflectional formatives, the vowels of F_3 reflect

different clusters of the values of Voice and Aspect, e.g.

{- Pass, - Perf, - Past, - Pl, 1, - K}: $\frac{2}{\text{ayap}}\ \frac{3}{\text{a}}\ \frac{6}{\text{o}}$ (= I love)

{- Pass, + Perf, - Past, - Pl, 1}: $\frac{2}{\text{ayap}}\ \frac{3}{\text{i}}\ \frac{4}{\text{s}}\ \frac{6}{\text{o}}$ (= I will love)

{+ Pass, - Perf, - Past, - Pl, 1, - K}: $\frac{2}{\text{ayap}}\ \frac{3}{\text{i}}\ \frac{6}{\text{e}}\ \frac{8}{\text{m}}\ \frac{10}{\text{e}}$ → ayapjéme

(= I am loved)

{+ Pass, - Perf, - Past, - Pl, 1, + K}: $\frac{2}{\text{ayap}}\ \frac{3}{\text{a}}\ \frac{6}{\text{o}}\ \frac{8}{\text{m}}\ \frac{10}{\text{e}}$ → ayapóme

(= I am loved)

{+ Pass, + Perf, - Past, - Pl, 1}: $\frac{2}{\text{ayap}}\ \frac{3}{\text{i}}\ \frac{4}{\theta}\ \frac{6}{\text{o}}$ (= I will be loved)

As derivational affixes, the vowels under consideration appear, qua vowels, in stem final position in the structure of a sizeable group of verbs, but by no means in the structure of all verbs in MGK, i.e. they serve to neatly divide the regular verbs in the language into two main groups, those in whose stem structure the vowels in question do or do not appear. Notice the following {- Pl, 1} forms of PÁVO and AGAPÁO, where, in all the possible combinations of the values of Voice, Aspect and Tense, the column marked SP_3 is always empty in the case of PÁVO while in AGAPÁO it is always full. Note that i → j/C — V.

{- Pl, 1}

	SP_1	SP_2	SP_3	SP_4	SP_5	SP_{6-12}	SP_1	SP_2	SP_3	SP_4	SP_5	SP_{6-12}
{-Pass,-Perf,-Past}		pá'v				o		ayap	á'			o
{-Pass,-Perf,+Past}	é'	pav				a		ayáp	a		y	a
{-Pass,+Perf,-Past}		páp		s		o		ayap	í'	s		o
{-Pass,+Perf,+Past}	é'	pap		s		a		ayáp	i	s		a
{+Pass,-Perf,-Past}		páv				ome		ayap	j			éme
{+Pass,-Perf,+Past}	(e)	pav				ómun		ayap	j			ómun
{+Pass,+Perf,-Past}		paf		t		ó'		ayap	i	θ		ó'
{+Pass,+Perf,+Past}	(e)	páf		t	ik	a		ayap	í'	θ	ik	a

We will refer to verbs in whose stem structure F_3 vowels never appear as {$ST_\emptyset$} verbs (e.g. PÁVO) and to verbs in whose stem structure such vowels do appear as {STv} verbs[2] (e.g. AGAPÁO). Stems of {STv} verbs are made up of $F_2 + F_3$ formatives, e.g. $\frac{2}{\text{ayap}}\ \frac{3}{\text{á}}\ \frac{6}{\text{o}}$, $\frac{2}{\text{ayap}}\ \frac{3}{\text{í}}\ \frac{4}{\text{s}}\ \frac{6}{\text{o}}$ where the stem is ayapV-. Stems of {$ST_\emptyset$} verbs are made up of F_2 formatives alone, e.g. $\frac{2}{\text{pav}}\ \frac{6}{\text{o}}$. STEM refers to either {$ST_\emptyset$} or {STv} verbs; thus, if we say that the F_4 formative s is affixed to the stem we mean that it is affixed to F_2 formatives in the case of {$ST_\emptyset$} verbs and to $F_2 + F_3$ formatives in the case of {STv} verbs. Finally, within the group of {STv} verbs we will differentiate between {STv_1} and {STv_2} verbs, i.e. those following the paradigm of, respectively, AGAPÁO and DIMIURGÓ.

5. $\underline{SP_4}$

The fourth structural place accommodates the F_4 formatives <u>s</u> and <u>θ</u> appearing as cumulate partial exponents of the clusters, respectively, {- Pass, + Perf} and {+ Pass, + Perf} in the context STEM —— (see list of examples in 4 above and Table One). For problems related to the recognition of a segment <u>θ</u> rather than <u>θi</u> or <u>θ + i</u> see discussion in Ch.IV 3.5.2.

6. $\underline{SP_5}$

In the fifth structural place appear the F_5 formatives <u>y</u>, <u>us</u> and <u>ik</u> (see list of examples in 1 above and Table One). Of them, either <u>y</u> or <u>us</u> appear, but with varying degrees of frequency (see Ch.V below), in the context STEM —— and in the presence of the cluster {- Pass, - Perf, + Past, - K, STv_1}, e.g. <u>ayap a y a</u> (2 3 5 6) or <u>ayap us a</u> (2 5 6), whereas in the same morphological context but in the presence of the cluster of values {- Pass, - Perf, + Past, - K, STv_2} only <u>us</u> appears, e.g. <u>dimiury us a</u> (2 5 6); yet again, in the case of the verbs <u>KÈO</u> (= I burn), <u>KLÈO</u> (= I weep) and <u>FTÈO</u> (= I am to blame) only <u>y</u> appears, e.g. <u>è ke y a</u> (1 2 5 6), <u>è kle y a</u> (1 2 5 6), <u>è fte y a</u> (1 2 5 6). The formative <u>y</u> seems to be phonetically motivated, a point that will be discussed in Ch.IV,3.5.2. The formative <u>ik</u> appears in the structure of both {$ST_\emptyset$} and {STv} verbs in the context STEM + θ —— and in the presence of the cluster {+ Pass, + Perf, + Past, - K} (see list of examples in

1 above and Table One). For an alternative formulation, namely, the recognition of i + k rather than ik, see Ch.IV,3.5.2. below.

It will be noticed that y and us are different from ik in that they only appear in the structure of {STv} verbs and in that they do not contrast with ik minimally but in terms of two values. Therefore, it might be argued that they should be classified separately. However, in the interests of economy, also, because all three formatives express values of the same categories and have in common the cluster {+ Past, - K} and, especially, since the formulation of the rules in Ch.IV does not seem to suffer from it, y and us will be included in the same set (F_5) as ik. This, it will be realized, is a case of partial indeterminacy with respect to classification. More cases forthcoming.

7. The formatives appearing to the right of SP_5 present special problems of description as the analysis below will amply demonstrate. In the literature they have been seen from two main points of view: either as constituting linguistically irreducible terminal suffixes, or as made up of smaller formatives drawn from a number of successive sets. See, for instance, how the {+ Pass, - Perf, - Past, - K} paradigm of AGAPÁO is analyzed in a number of studies.

a. Hamp. 1961, p.114

Warburton, 1970. p.142-146

	ayapi	é	m	e
	ayapi	é	s	e
	ayapi	é	t	e
	ayapi	ó	mast	e
	ayapi	é	st	e
	ayapi	ó	nt	e
or	ayapi	ø	únt	e [3]

b. Koutsoudas, 1962,p.41

ayap	jé	me	
ayap	jé	se	
ayap	jé	te	
ayap	jó	maste	
ayap	jé	ste	
ayap	jó	nde	

c. Babiniotis, 1972a, p.59

ayapi	é	me
ayapi	é	se
ayapi	é	te
ayapi	ó	maste
ayapi	é	ste
ayapi	ó	nde

d. Householder et al., 1964, p.115

ayap iéme
ayap iése
ayap iéte
ayap iúmaste/iómaste
ayap iéste
ayap iúnte

e. Matthews, 1967, pp.272, 277

ayap	j	é	m	e
ayap	j	e	s	e
ayap	j	é	t	e
ayap	j	ó	m	aste
ayap	j	é	s	te
ayap	j	ó	nd	e

In view of a general paucity in explicit descriptive statements concerning the merit of each mode of segmentation in the literature (i.e segmentations are usually presented as self-evident and vary according to the objectives of the individual analysis) and apart from marvelling at the ingenuity of linguists, one cannot help suspecting that such multiplicity is not unlike inflation: very poor value for money.

Below we will discuss, without further reference to the rival analyses, the two main points of view concerning the treatment of the sequences in question, namely, (a) as unanalyzable wholes, and (b) as made up of smaller segments. The reader is warned that somehow the discussion results in yet another analysis that differs, to a greater or lesser extent, from all those exemplified above!

7.1. Seen as irreducible suffixes, the segments to the right of SP_5 constitute the following, rather numerous set (a total of fifty three members), to which we will informally refer as the Terminal Set and to its members as Terminations (The use of semi-colons in the list below is intended to ease the reading of the terminations at this stage rather than impose a descriptively significant sub-classification):

-o, -is, -i, -omen, -ome, -ume, -ete, -ite, -un, -une;

-a, -es, -as, -e, -amen, -ame, -ate, -an, -ane, -on;

-in, -imen, -isan; -eme, -ese, -omeθa, -omaste,

-umaste, -esθe, -este, -osaste, -usaste, -onte, -unte;

-omin, -omun, -omuna, -eso, -osun, -osuna, -eto, -otan,

-otane, -omastan, -umastan, -osastan, -usastan, -ontan,

-untan, -ontane, -untane, -ontusan, -untusan.

As can be seen in Table One, each permissible combination of

exponents F_1 to F_5 can co-occur with a subset of at least six terminations, each termination being an exponent of a particular combination of values of Number and Person (Number and Person are expressed by terminations only). Certain such subsets of terminations co-occur with more than one combination of exponents F_1 to F_5, i.e. they realize more than one cluster of grammatical values (other than Number and Person), e.g.

	{- Pass, - Perf}	{- Pass, + Perf}	{+ Pass, + Perf}
{-Past}	$\underline{2}$ pa'v - o - is - i etc.	$\underline{2}\ \underline{4}$ pa'p s - o - is - i etc.	$\underline{2}\ \underline{4}$ paf t - o' - i's - i' etc.
{+Past}	$\underline{1}\ \underline{2}$ e' pav - a - es - e etc.	$\underline{1}\ \underline{2}\ \underline{4}$ e' pap s - a - es - e etc.	$\underline{2}\ \underline{4}\ \underline{5}$ pa'f t ik - a - es - e etc.

In some cases, but not all, alternative terminations occur that are exponents of the same cluster of grammatical values but differ from one another, to a greater or lesser extent, in their phonological shape depending, more often than not, on whether they are {+ K} or {- K}exponents, e.g.

{+ Pass, + Perf, + Past, + Pl, 1}

{+ K}: e + páf + θ + imen

{- K}: (e)+ paf + t + ík + ame

though there are also certain alternative terminations which do not differ with respect to{± K} distinctions, e.g.

{+ Pass, - Perf, + Past, + Pl, 3}

{+ K}: e + páv + onto

{- K}: (e) + páv + ontan
(e) + pav + óntan(e)
(e) + pav + óntusan

the difference between -ontan, -ontane and -ontusan, all three {- K}formatives, being one of relative frequency of occurrence.

In Table Two terminations are arranged in subsets (or T's) on the basis of the particular cluster of grammatical values (other than Number and Person) which they realize. Within each subset terminations are arranged from top to bottom with respect to exponence of values of Number and Person in the order, {- Pl, 1} , {- Pl, 2} , {- Pl, 3} , {+ Pl, 1} , {+ Pl, 2} and {+ Pl, 3} . Termination subsets are further subdivided according to {± K} distinctions: {+ K} termination subsets are marked as T_1 ... T_6

TABLE TWO

Terminations of the verb paradigm in MGK

	{+K }	{-K }
{-Past, -Pass} {-Past, +Pass, +Perf}	T_1	T_i
	-o -is -i -omen -ete/-ite† -un	-o -is -i -ome/-ume* -ete/-ite† -un/-une
{-Pass, -Perf, +Past}	T_2	
	-on -es -e -omen -ete -on	
{-Pass, +Perf, +Past}	T_3	T_{ii}
	-a -as -e -amen -ate -an	-a -es -e -ame -ate -an/-ane
{+Pass, +Perf, +Past}	T_4	
	-in -is -i -imen -ite -isan	
{+Pass, -Perf, -Past}	T_5	T_{iii}
	-ome -ese -ete -omeθa -esθe -onte	-ome/-eme -ese -ete -omaste/-umaste -osaste/-usaste/-este -onte/-unte
{+Pass, -Perf, +Past}	T_6	T_{iv}
	-omin -eso -eto -omeθa -esθe -onto	-omun/-omuna -osun/-osuna -otan/-otane -omaste/-umaste/-omastan/-umastan -osaste/-usaste/-osastan/-usastan -ontan/-untan/-ontane/-untane/-ontusan/-untusan

* -ome appears in -Pass ,and -ume in both -Pass and +Pass verb forms.

† -ite appears in +Pass verb forms only.For problems related to the stipulation of the particular shape of T_1 and T_2 with respect to the value{+Pass} and also of T_4) see Ch.III,3.5.2.

and {- K} subsets as T_i ... T_{iv}. (We will ignore, for the time being, the fact that subsets that differ only with respect to {± K} distinctions have, as a matter of fact, a lot in common, but we will come back to it presently.) As is clear from Table Two the following grammatical correspondence holds between termination subsets contrasting as regards {± K} distinctions:

<table>
<tr><td colspan="3"></td><td>{+ K}</td><td>{- K}</td></tr>
<tr><td rowspan="2">{- Past}</td><td colspan="2">{- Pass}</td><td rowspan="2">T_1</td><td rowspan="2">T_i</td></tr>
<tr><td colspan="2">{+ Perf}</td></tr>
<tr><td rowspan="3">{+ Past}</td><td rowspan="2">{-Pass}</td><td>{- Perf}</td><td>T_2</td><td rowspan="3">T_{ii}</td></tr>
<tr><td>{+ Perf}</td><td>T_3</td></tr>
<tr><td colspan="2">{+ Pass, + Perf}</td><td>T_4</td></tr>
<tr><td colspan="2" rowspan="2">{+ Pass, - Perf}</td><td>{- Past}</td><td>T_5</td><td>T_{iii}</td></tr>
<tr><td>{+ Past}</td><td>T_6</td><td>T_{iv}</td></tr>
</table>

Seeing terminations as linguistically irreducible provides a neat and fairly uncomplicated description of the verb paradigm which is possibly adequate as the basis for the writing of paedagogic grammars but is, as we shall show below, far from exhaustive. Indeed, even on inspection, Table Two would provide evidence that the segments under consideration are, in fact, highly structured: to begin with, their shape in terms of syllable

structure (i.e. number and type of syllables) is grammatically and stylistically significant; furthermore, in their structure there appears to be a small number of recurring formatives combining with one another in specific, though, at first glance, hopelessly complex ways. In the discussion below we will first establish groups of terminations that exhibit a high degree of similarity in terms of the former of the two considerations mentioned above, (syllable structure); subsequently we will study the distribution of specific phonological segments in the structure of such groups.

7.2. Looking at terminations from the point of view of their syllable structure eleven types of terminations can be distinguished:

1. V
2. V C
3. V C V
4. V C V C
5. V C V C V
6. V C C V
7. V C C V C
8. V C C V C V
9. V C C V C V C
10. V C V C C V
11. V C V C C V C

Table Three below summarizes the distribution of the eleven types of terminations in two divisions of the verb system, namely, {+ Pass, - Perf} and "elsewhere" i.e. {- Pass} and/or {+ Perf} (See also Tables One and Two) and in the six combinations of values of Person and Number. In each of the twelve boxes of Table Three defined by the parameters mentioned in the previous sentence the precise phonological shape(s) of each termination type is/are matched with additional (clusters of) grammatical values not included in the parameters of the table: for instance, when the third termination type (VCV) appears in the {+ Pass, - Perf, - Pl, 1} box it is further shown to be a {- Past} formative and to have two shapes, -<u>eme</u> in the case of {- K, STv_1} verb forms, e.g. ayapj<u>éme</u>, and -<u>ome</u> elsewhere, e.g.

$$\{+\text{Pass}, -\text{Perf}, -\text{Past}, -\text{Pl}, 1\} \begin{cases} \{ST_{\emptyset}\} : \text{pávo}\underline{\text{me}} \\ \{STv_1, +K\} : \text{ayapáo}\underline{\text{me}} \rightarrow \text{ayapóme} \\ \{STv_2\} : \text{dimiuryéo}\underline{\text{me}} \rightarrow \text{dimiuryúme} \end{cases}$$

On the basis of Table Three and preceding discussion a fairly straightforward rule system could be devised. For instance, the cluster {+ Pass, - Perf, - Past, - Pl, 1} (see paragraph above) would be rewritten as VCV. Further rules would specify VCV as $\begin{bmatrix} V \\ -high \\ -low \end{bmatrix}$me. Subsequently, the termination-initial vowel would be

TABLE THREE

The distribution of the eleven termination types in the verb paradigm

		{+Pass, -Perf}	"elsewhere" (i.e. {-Pass} / {+Pass, +Perf})
{-Pl}	{1}	VCV ame {-Past, STv$_1$, +K} {-Past, -STv$_1$} eme {-Past, STv, -K } VCVC emun {+Past, -K}. emin {+Past, +K} VCVCV emuna {+Past, -K}	V a {+Past, -Perf, -K } {+Past, -Pass, +Perf } {+Past, +Pass, -K } o {-Past } VC on {+Past, -Perf, +K } in {+Past, +Pass, +K }
	{2}	VCV ese {-Past} eso {+Past, +K} VCVC osun {+Past, -K} VCVCV osuna {+Past, -K}	VC is {-Past} {+Past, +Pass,+K } es {+Past, -Perf} {+Past, +Perf, -K } as {+Past, -Pass, +Perf, +K}
	{3}	VCV ete {-Past} eto {+Past, +K} VCVC otan {+Past, -K} VCVCV otane {+Past, -K}	V i {-Past } {+Past, +Pass, +K } e {+Past, -Pass} {+Past, +Pass,-K }
{+Pl }	{1}	VCVCV ame0a {+K} VCVCCV {omaste / umaste} {-K} VCVCCVC {omastan / umastan} {+Past, -K}	VCV ame {-Past,-Pass, -K} ume {-Past, -K} ane {+Past, -K} VCVC amen {-Past , +K} {+Past, -Perf, +K } amen {+Past, -Pass, +Perf, +K} imen {+Pass, +Past, +K}
	{2}	VCCV es0e {-Past} {+Past, +K} VCVCCV {osaste / usaste} {-K} VCVCCVC {osastan / usastan} {+Past, -K}	VCV ete {-Pass, -Past} {-Pass, -Perf, +Past, +K} ate {+Past, -Pass, +Perf} {+Past, -Pass, -Perf, -K} {+Past, +Pass, -K} ite {+Pass, -Past} {+Pass, +Past, +K}
	{3}	VCCV unte {-Past, -K} onte {-Past} onto {+Past, +K} VCCVC {ontan / untan} {+Past, -K} VCCVCV {ontane / untane} {+Past, -K} VCCVCVC {ontusan / untusan} {+Past, -K}	VC an {+Past, -Pass, +Perf} {+Past, -Perf -K} {+Past, +Pass, -K } on {-Past, -Perf, +K } un {-Past} VCV une {-Past, -K} ane {+Past, -K} VCVC isan {+Pass, +Past, +K}

determined as [+front] in the presence of the cluster {- K, STv_1} , e.g. ayapjéme, or as [+back] in the presence of the value {- STv_1} , e.g. pávome, dimiuryéome → dimiurjúme.

7.3. Table Three reveals certain regularities which are latent in Tables One and Two. Still, it fails to mirror the facts in certain important respects. More precisely, it fails to show explicitly that different termination types are in fact quite similar in phonological shape in certain grammatical areas. Thus, types 4 (VCVC) and 5 (VCVCV) are realized in {+ Pass, - Perf, + Past, - Pl, - K} forms by terminations that differ only by an "optional" final vowel, e.g.

		TYPE 4	TYPE 5
{+Pass, -Perf, +Past, -Pl, -K}	{1}	pavómun	pavómuna
	{2}	pavósun	pavósuna
	{3}	pavótan	pavótane

The same may be said about termination types 7 (VCCVC) and 8 (VCCVCV) in {+ Pass, - Perf, + Past, + Pl, 3, - K } forms, e.g. pávontan, pavóntane, and about types 2 (VC) and 3 (VCV) in $\{\{\begin{matrix}\{-\text{ Pass}\}\\\{+\text{ Perf}\}\end{matrix}\}, +\text{ Pl, } 3\}$ forms, e.g.

	TYPE 2	TYPE 3
{-Pass, -Perf, -Past}	pávun	pávune
{-Pass, -Perf, +Past}	pávan	pávane
{-Pass, +Perf, -Past}	pápsun	pápsune
{-Pass, +Perf, +Past}	pápsan	pápsane
{+Pass, +Perf, -Past}	paftún	paftúne
{+Pass, +Perf, +Past}	páftikan	paftíkane

A further generalization missed in the examples above is that this final "optional" vowel appears in the context n — # only. Again, in {+ Pass, - Perf, - Past, - K} forms, the final vowel, irrespective of the termination type involved, is e; as for the termination-initial vowel, it is e in {- Pl, - 1} and in one of the two alternative {+ Pl, 2} terminations, it is o in {- Pl, 1} terminations and it is [+back] (o, u) elsewhere, e.g.

{+Pass,-Perf,-Past,-K}	{-Pl}	{1} pávome
		{2} pávese
		{3} pávete
	{+Pl}	{1} pavómaste/-úmaste
		{2} pavósaste/-úsaste/páveste
		{3} pávonte/-unte

while in {+ Pass, - Perf, + Past, - K} forms the termination-initial vowel is [+back], again irrespective of the termination

types involved, e.g.

{+Pass,-Perf,+Past,-K}	{-Pl}	{1}	pavómun/-ómuna
		{2}	pavósun/-ósuna
		{3}	pavótan/-ótane
	{+Pl}	{1}	pavómaste/-ómastan/-úmaste/-úmastan
		{2}	pavósaste/-ósastan/-úsaste/-úsastan
		{3}	pávontan/-óntane/-óntusan/ pávuntan/-úntane/-úntusan

In the {+ K} equivalents of the above two paradigms we observe a different pattern concerning the termination-initial vowel: it is [-high, -low] in both paradigms, and furthermore, it is [+front] (e) in {2} and {- Pl, 3} terminations and [-front] (o) "elsewhere" ({1}, {+ Pl, 3}), e.g.

			{-Past}	{+ Past}
{+Pass,-Perf,+K}	{-Pl}	{1}	pávome	epavómin
		{2}	pávese	epáveso
		{3}	pávete	epáveto
	{+Pl}	{1}	pavómeθa	epavómeθa
		{2}	pávesθe	epávesθe
		{3}	pávonte	epávonto

Another example of generalizations not captured in Table Three above concerns the consonants found to the right of the termination-

initial vowel (again, irrespective of the precise termination type involved or of Tense distinctions) in {+ Pass, - Perf} forms (see Table One, columns SP_7, SP_8):

			$\underline{SP_7}$	$\underline{SP_8}$
{+Pass,-Perf}	{-Pl}	{1}		m
		{2}		s
		{3}		t
	{+Pl}	{1}		m
		{2}		s
		{3}	n	t

Forms other than {+ Pass, - Perf} comply only partially with the pattern above in that m and s still follow the termination initial vowel in, respectively, {+ Pl, 1 } and {- Pl, 2 } forms:

			{-Pass}		
			{-Perf}	{+Perf}	{+Pass, +Perf}
{-Past}	{-Pl,2}	{+K}	pávis	páfsis	pafθís
		{-K}		pápsis	paftís
	{+Pl,1}	{+K}	pávomen	pápsomen	pafθómen
		{-K}	pávume	pápsume	paftúme
{+Past}	{-Pl,2}	{+K}	épaves	épafsas	epáfθis
		{-K}		épapses	páftikes
	{+Pl,1}	{+K}	epávomen	epáfsamen	epáfθimen
		{-K}	.pávame	pápsame	paftíkame

It seems, therefore, that the pattern captured in Table Three above, though undoubtedly significant, is only part of the story. The remaining and no less significant part must be told in terms of the distribution of specific subsegments, such as eθ or ast, or sets of (single) segments having one or more phonological feature in common, e.g. [+high] vowels or [-strident] consonants, in the structure of various termination types in the presence of various (clusters of) grammatical values. In other words, without diminishing the grammatical and stylistic significance of the eleven termination types, we would like, at the same time, to explore fully the ample evidence that the appearance of various subsegments in the structure of more than one termination is rule-governed. To do so, we will take another look at Tables One to Three above and establish sets of formatives whose syntagmatic arrangements in a number of structural places make up permissible terminations.

The reader should keep in mind that the structural places and corresponding formative sets will help us segment verb forms adequately and form the rules accounting for the co-occurrence relations holding between inflectional formatives, i.e. they will serve as a sort of scaffolding for the rule system and as such they will eventually be superseded by the rule system.[4] For what we have to account for, eventually, is the rule governed

combinations of formatives rather than their participation in one set or another. To do so, however, we first have to isolate each of the formatives in question, see how it combines with other formatives in the presence of various (clusters of) grammatical values and with what other formatives it alternates in a given morphological environment, and be able to focus our attention on each formative successively without losing track of observations made earlier about other formatives. It is for this purpose, i.e. the recognition of formatives and the facilitation of observations concerning their distribution, that we need the setting up of such auxiliary analytic constructs as the twelve structural places and corresponding sets of formatives proposed in this study for the inflectional morphology of the verb in MGK.

In a number of cases (notably as regards the complex co-occurrence patterns of formatives F_6 to F_{12}), statements concerning the distribution of inidividual formatives contain some measure of redundancy. Thus, in 5 above, <u>ik</u> was defined as appearing in the presence of the cluster {+ Pass, + Perf, + Past, - K} in the context STEM + Θ ——— . From the discussion in 4 above, however, we know that <u>Θ</u> is suffixed to the stem in the presence of the values {+ Pass, + Perf}. Consequently, it is redundant to specify for <u>ik</u> both that it always follows <u>Θ</u> in {+ Past, - K} forms and that it

appears in the presence of the cluster {+ Pass, + Perf}, i.e. given a specification of the context STEM + Θ —— we only need to add that, for ik to appear, the cluster {+ Past, - K} should be present. It will be realized, however, that the redundancy in question is inbuilt in the inflectional system of the Greek verb rather than a construct of the description.

Redundancy statements can often be avoided in one of the following two ways (others might also be possible):

Firstly, in the way indicated above concerning Θ and ik, i.e. by stating clearly for each formative in structure the other formatives in whose presence it appears and only those grammatical values that are non-redundant. However, this is not always possible or desirable. For instance, in the following forms

{+Pass,-Perf,+Past,-K,-Pl}	{1}	pav + ó + m + u + n + (a)
	{2}	pav + ó + s + u + n + (a)
	{3}	pav + ó + t + a + n + (e)

the vowels flanking the formative n are either u ... (a) or a ... (e) in the presence of the clusters, respectively, {+ Pass, - Perf, + Past, - Pl, - 3, - K} and {+ Pass, - Perf, + Past, - Pl, 3, - K}, i.e. both u and a on the one hand, and both a and e on the other appear in the presence of exactly the same

cluster of values. If we attempted to adhere to the above way of avoiding redundant statements we would have to state the relevant cluster of values for only one of each pair of non-adjacent vowels, say, the one on the left, whereas for the other we would be content to make a statement in terms of co-occurrence, e.g. u appears in the context STEM + o + $\{^{m}_{s}\}$ + —— in the presence of the cluster {+ Pass, - Perf, + Past, - Pl, - 3, - K}, whereas a appears "optionally" in the context STEM + o + $\{^{m}_{s}\}$ + u + n + —— # . The above solution has the undesirable effect of treating one segment as somehow "conditioning" the appearance of another in one direction only (e.g. u is the "real" exponent of the cluster in question, and a just happens to be there) and though widely used in the literature (see Ch.II) it is completely untenable, i.e. a bad "way out" rather than a descriptively adequate formulation. The point will be taken up again in the next chapter.

Secondly, we could avoid redundancy by making more prominent use of the structural places established in this chapter. We could state, that is, the structural place in which a formative appears (rather than its neighbouring formatives) and the cluster of values present, e.g. s and θ appear in SP_4 (rather than in the context STEM ——) in the presence of the clusters, respectively, {- Pass, + Perf} and {+ Pass, + Perf}, whereas ik appears in SP_5

(rather than in the context STEM + θ + ———) in the presence of the cluster {+ Pass, + Perf, + Past, - K} . The above solution can yield an attractively simple description. In some ways it is not dissimilar to Matthews' stem-based analysis: see Ch.II, 4) in that the analytical tools (here, the successive structural places, in Matthews, 1967, the layers of stems) take precedence over the object of description, i.e. the exponence relations between grammatical values and combinations of phonological segments. In other words, since it is by virtue of the observable fact of s and θ appearing in the morphological context STEM ——— that we can isolate them from their environment and refer to them for classification purposes as distinct formatives belonging to the same set, F_4, and alternating in a particular structural place, SP_4, it would be, I think, improper to reverse the order of importance between our analytic constructs (i.e. structural places) and the object of description (i.e. exponence relations between grammatical values and combinations of formatives) and, by concentrating our attention on the former, allow the latter to slip into a descriptive limbo.[5]

To put it briefly, therefore, the point made here is that the description in this and the following chapters contains a certain amount of redundant statements, first, because it is not necessarily the case that in a study like this (as opposed to, say, writing a program for a computer) economy is always of the essence; second, because it

is not desirable to avoid redundant statements by attributing structural places too prominent a descriptive status, i.e. more important than that of a classificatory device; and third, since redundancy is inherent in the inflectional system under consideration, it would be misleading, and often untenable, to describe this system on the basis of only non-redundant statements.
The problem of redundancy in description will be further discussed with respect to the rule system in Ch. IV,2.

7.4. Let us begin with the analysis of the {+ Pass, - Perf} termination subsets T_5, T_6, T_{iii} and T_{iv} (see Table Two) from which we have already drawn to illustrate the discussion in 7.3. above. It will be easier if we relate the progressively less complex subsets, namely, T_{iii}, T_6 and T_5 to the structure of the most complex subset, T_{iv}.

7.4.1. If the terminations of T_{iv} are broken down and their constituent segments so arranged that similar segments, in distributional terms, are classified together, the following seven-place grid is obtained.(The numbering of the structural places, 6 to 12, follows, in anticipation of conclusions drawn in 7.6. below, that of the first five structural places already established in this chapter).

T_{iv} : {+ Pass, - Perf, + Past, - K}

		6	7	8	9	10	11	12
{- Pl}	{1}	o		m		u	n	(a)
	{2}	o		s		u	n	(a)
	{3}	o		t		a	n	(e)
{+ Pl}	{1}	o u		m	ast	a e	n ø	
	{2}	o u		s	ast	a e	n ø	
	{3}	o u	n	t	us ø	a	n	ø (e)

On the above arrangement of the constituent segments of the T_{iv} terminations the following observations can be made:

a. The thirteen terminations comprising T_{iv} may be seen, on the basis of the arrangement above, as made up of combinations of fourteen distinct segments appearing in seven successive structural places as follows:

6	7	8	9	10	11	12
o u	n	m s t	ast us	u a e	n	a e

b. In SP_6, i.e. next to the stem, appears a [+back] vowel further specified as [-high] in all terminations, but as "optionally" [±high] in {+ Pl} terminations.

c. In SP_7 the formative n appears in the {+ Pl, 3} terminations, i.e. in the context STEM + $[\overset{V}{}_{+back}]$ —— t.

d. In SP_8 the formatives m, s, and t appear in the presence of the features, respectively, {1}, {2} and {3} in the context STEM + $[\overset{V}{}_{+back}]$ + (n) —— .

e. The complex segments ast and us of SP_9 appear, the former "obligatorily" and the latter "optionally", in the contexts, respectively, $\{^{m}_{s}\}$—— and n + t —— as, respectively, {+ Pass, - Perf, + Pl, - 3, - K} and {+ Pass, - Perf, + Past, + Pl, 3, - K} formatives. Their appearance is related to that of the segments in SP_{12} in ways described in h. below.

f. The formatives u, a and e appearing in SP_{10} are all $[^{\alpha\ high}_{\alpha\ back}]$ vowels; the $[^{+high}_{+back}]$ vowel (u) appears in {- Pl, -3} terminations in the context $\{^{m}_{s}\}$ —— n (a) # and the $[^{-high}_{-back}]$ vowels (a,e) elsewhere; of the latter, the [+low] vowel (a)

appears in the presence of the values {+Pl} and/or {3} in the context $\left\{ \begin{matrix} (n) \\ + \\ (us) \end{matrix} \right\}^{ast}$ —— n (e)# while the [- low] vowel (e) appears in {+ Pl, -3} forms in the context ast —— # (i.e. after ast either e occurs or a + n(e)).

g. In the eleventh structural place the formative n appears in the context $\left[\begin{matrix} V \\ - \text{front} \\ \alpha \text{ high} \\ -\alpha \text{ low} \end{matrix} \right]$ —— (V) # (i.e. after u or a but not after e) and in the presence of the cluster {+ Pass, - Perf, + Past, - K} (i.e. n appears in any verb form of the paradigm under consideration that has the structure stated above).

h. Finally, in the twelfth structural place, the vowels a and e ($\left[\begin{matrix} - \text{back} \\ - \text{high} \\ \alpha \text{ low} \end{matrix} \right]$) appear in the context STEM + V + C + (C) + $\left[\begin{matrix} V \\ - \text{front} \\ \alpha \text{ high} \\ -\alpha \text{ low} \end{matrix} \right]$ + n —— # (and, in conditions influencing their "optional" appearance discussed in Ch.V,8. below).

The precise value ("plus" or "minus") for the feature [low] of the vocalic segment under consideration is the same as that of the feature [high] and opposite to that of the feature [low] of the vowel preceding it in the environment (either un(a) or an(e) occurs). The twelfth place

is occupied only if not more than two vowels follow the stem and thus in the absence of the segments ast or us of the ninth structural place (see Ch.IV, 4.2.5a). Since, as we mentioned in e. above, ast appears "obligatorily" and us "optionally", the twelfth structural place remains empty "obligatorily" in {+ Pl, - 3} forms (where ast appears) while in {+ Pl, 3} forms and in the absence of us SP_{12} is "optionally" occupied by e. The above restrictions holding between the segments of SP_9 and SP_{12}, though valid for educated Athenian Greek, are not so in some other dialects where forms such as pavómastáne, pavósastáne, pavóntusáne, with four vowels in the terminations and two stressed syllables, are normal.

7.4.2. It seems possible to account for T_{iii} terminations in terms of the first five places of the seven-place grid set up above in relation to T_{iv}.

T_{iii}:{+ Pass, - Perf, - Past, - K}

			6	7	8	9	10	11	12
{-Pl}	{1}	{$-STv_1$}	o		m		e		
		{$+STv_1$}	e		m		e		
	{2}		e		s		e		
	{3}		e		t		e		
{+Pl}	{1}		o u		m	ast	e		
	{2}		o u		s	ast	e		
			e		s	θ	e		
	{3}		o u	n	t		e		

More specifically, the following observations can be made:

a. The eleven T_{iii} terminations are made up of combinations of the following ten segments:

6	7	8	9	10
o u e	n	m s t	ast θ	e

b. SP_{11} and SP_{12} remain empty.

c. SP_7 and SP_8 are occupied by the same segments as described in 7.4.1. c. and d. and in the presence of the same values of the categories of Number and Person.

d. SP_6 is occupied by [-low] vowels which are further specified as [α front] in relation to the value of the grammatical feature { - α Plural } (i.e. e with {- Pl} and o or u with {+ Pl} forms) with the following two exceptions: firstly, in {- Pl, 1, - K} terminations e is limited to {STv} verbs, e.g. {+ Pass, - Perf, - Past, - Pl, 1, STv, - K} : ayapjéme, dimiuryjéme, whereas o appears in $\{ST_{\emptyset}\}$ and (in alternation with e) in $\{STv_2\}$ verbs, e.g.

$$\{+\text{ Pass, }-\text{ Perf, }-\text{ Past, }-\text{ Pl, 1, }-\text{ K}\}\begin{cases}\{ST_{\emptyset}\}: \text{ pávome}\\ \{STv_2\}: \text{ dimiuryéome} \rightarrow \text{dimiuryúme;}\end{cases}$$

secondly, e alternates with o or u in {+ Pl, 2} terminations, corresponding to the alternation of, respectively, θ and ast in SP_9 (see e. below).

e. In SP_9 two segments appear, ast, with precisely the same distribution as in T_{iv} (see 7.4.1.e. above) and θ in the context e + s —— e # / {+ Pl, 2, - K}.(In the presence of the value {- K} θ normally, but not always, changes to t after s: regressive manner dissimilation.)

f. Finally, SP_{10} is occupied by e in all the verb forms of the paradigm under consideration ({+ Pass, - Perf, - Past, - K}).

7.4.3. As T_5 and T_6 are very similar to one another we will arrange their terminations together in the same grid and indicate their differences as, respectively, {- Past and + Past}.

T_5 : {+ Pass, - Perf, - Past, + K}

T_6 : {+ Pass, - Perf, + Past, + K}

			6	7	8	9	10	11	12
{-Pl}	{1}	{-Past}	o		m		e		
		{+Past}	o		m		i	n	
	{2}	{-Past}	e		s		e		
		{+Past}	e		s		o		
	{3}	{-Past}	e		t		e		
		{+Past}	e		t		o		
{+Pl}	{1}	{±Past}	o		m	eθ	a		
	{2}		e		s	θ	e		
	{3}	{-Past}	o	n	t		e		
		{+Past}	o	n	t		o		

With respect to the above arrangement we observe the following:

a. The ten terminations comprising T_5 and T_6 are combinations of the following thirteen segments appearing in SP_6 to SP_{11}

6	7	8	9	10	11
e	n	m	eθ	i	n
		s	θ	e	
o		t		a	
		.		o	

b. SP_6 is occupied, irrespective of tense, by $\left[\begin{smallmatrix} -\text{high} \\ -\text{low} \end{smallmatrix} \right]$ vowels (e, o), which can be further differentiated as [+front] (e) in {2} and {- Pl, 3} forms, and as [-front] (o) elsewhere (i.e. {1} and {+ Pl, 3} forms).

c. The formatives appearing in SP_7 and SP_8 are the same as in the case of termination sets T_3 and T_4 discussed above.

d. SP_9 is occupied only in the case of {+ Pl, - 3} forms; more specifically, the formative eθ appears in {+ Pl, 1} verb forms and the segment θ in {+ Pl, 2} (the latter being distributed, it will be recalled, as in T_{iii}; see 7.4.2.e. above).

e. SP_{10} is occupied by [+front] and/or [-high] vowels. More specifically, a appears in the context eθ —— # /{+Pl, 1} irrespective of Tense; e in the context $\left\{ \begin{smallmatrix} \text{m} \\ \text{s } (\theta) \\ (\text{n}) \text{ t} \end{smallmatrix} \right\}$ —— # /{-Past}; i in the context m —— n#/{+ Past, - Pl, 1, + K}, and o in the remaining contexts, namely, $\left\{ \begin{smallmatrix} \text{s} \\ (\text{n}) \text{ t} \end{smallmatrix} \right\}$ —— # / {+ Past, + K, $\left\{ \begin{smallmatrix} \{3\} \\ \{-\text{Pl}, 2\} \end{smallmatrix} \right\}$}

f. Finally, SP_{11} is occupied by the formative n in the context i —— # / {+ Past, - Pl, 1, + K }.

7.4.4. It should be clarified at this point that the allocation of formatives of the four T's discussed above to the three structural positions SP_6 to SP_8 has been defined, quite unequivocally, I think, in terms of morphological context, as follows:

SP_6	SP_7	SP_8
e		m
o	n	s
u		t

However, to the right of SP_8 ($\left\{\begin{matrix} m \\ s \\ t \end{matrix}\right\}$ ——) things are not so simple, Indeed, if each of the four T's was analyzed on internal grounds only, i.e. independently from the other {+ Pass, - Perf} T's, or if, say, the two {- Past} or the two {- K} T's were analyzed separately from the two {+ Past} or {+ K} T's, a different number of structural places, with (partly) different formatives occurring in them, might appear more appropriate. For instance, T_5 and T_6 could be analyzed on internal grounds as follows:

T_5 : {+Pass,-Perf,-Past,+K}				T_6 : {+Pass,-Perf,+Past,+K}			
o		m	e	o		m	in
e		s	e	e		s	o
e		t	e	e		t	o
o		m	eθa	o		m	eθa
e		s	θe	e		s	θe
o	n	t	e	o	n	t	o

i.e. there seems to be no reason why (i) <u>in</u> should be further segmented into <u>i</u> and <u>n</u>; (ii) <u>eθa</u> into <u>eθ</u> and <u>a</u>; and (iii) <u>θe</u> into <u>θ</u> and <u>e</u>.

With respect to (i) it may be argued that the segmentation of <u>in</u> becomes necessary when T_6 <u>omin</u> ({+ K}) is contrasted with T_{iv} <u>omun</u> ({- K}), e.g.

{+ Pass, - Perf, + Past, - Pl, 1} { {+ K} : epav<u>ómin</u>
                                  { {- K} : (e)pav<u>ómun</u>.

Indeed, the two verb forms above are identified as, respectively, {+ K} and {- K} by reference (apart from the augment) to the presence of the feature, respectively, [+front] and [-front] in the context $o + m\left[\frac{\quad}{+\text{high}\ V}\right] n \#$.

With respect to (ii) and (iii) above, we note that, though the segmentation of <u>eθa</u> and <u>θe</u> seems to be unjustifiable on internal grounds in the case of T_6, justification is provided by T_5, where <u>e</u> appears in final position throughout the paradigm apart from the context <u>eθ</u>— # in which <u>a</u> appears. As a matter of fact, instead of <u>eθ + a</u> (endorsed in this study) or <u>eθa</u> (just rejected above) it might be argued that we should recognize <u>e + θ + a</u>, i.e. we should need, for the case of T_5 and T_6, to divide SP_9 into two, say, SP_{9a}, where <u>e</u> appears for {+ Pl, 1} in the context m — , e.g. pav<u>ómeθa</u>, and SP_{9b}, where <u>θ</u> appears for {+ Pl, - 3} in the

context $\left[\begin{smallmatrix} m \\ s \end{smallmatrix} + e \right]$ — $\left[\begin{smallmatrix} a \\ e \end{smallmatrix} \right]$ # e.g. pavόmeθa, pάvesθe. As for the {- K} groups (T_{iii}, T_{iv}), the segments ast and us could be "shown" to comply with the pattern followed by eθ and θ:

2		6		7		8		9a		9b		10		11		12
pav	+	ό	+			m	+	e	+	θ	+	a				
pάv	+	e	+			s	+			θ	+	e				
pav	+	ό	+			m	+	a	+	st	+	e				
pav	+	ό	+	n	+	t	+	u	+	s	+	a	+	n		

or an even more elaborate pattern could be suggested, namely,

SP_{9a}	SP_{9b}	SP_{9c}
e	s	θ
a		
u		

where θ becomes t after s (asθ → ast) in compliance with sandhi rule 56 (see Ch.IV below) characteristic of the presence of the value {- K} . However, because only a few segments with fairly limited distribution are involved in the question discussed at this point and in order to ease the exposition by avoiding the recognition of "too many" successive structural places, we will adopt the classification:

$\underline{SP_9}$

eθ

θ

ast

us

and not the two more detailed ones suggested above.

Nevertheless, the point has been made not as an exercise in hair-splitting, but because the most detailed of the three classifications above (i.e. SP_{9a}, SP_{9b}, SP_{9c}) might be more helpful in a study of Greek with a wider historical, geographical and social focus (i.e. one which, unlike this study, is not limited to present-day educated Athenian). Compare, for instance, {+ K} pavómeθa and {- K} pavómaste to regional (and as such not included in this study) pavómesθa < post-classical pavómesθa. The difference between the three forms could be best accounted for as follows:

{+ Pass, - Perf, + Pl, 1 }

		6	7	8	9a	9b	9c	10	
{+ K }		o		m	e		θ	a	
{- K}	{- regional}	o		m	a	s	θ	e	→ omaste
	{+ regional}	o		m	e	s	θ	a	

(The distinction $\{\pm$ regional$\}$ is used here informally)

Notice that SP_{9c} is always occupied by θ; SP_{9b} by s in the {- K}

terminations, both { + regional } and { - regional }, and remains empty in the {+ K} termination; and that SP_{9a} and SP_{10} are occupied by $\left[\begin{smallmatrix} \text{-back} \\ \text{-high} \end{smallmatrix} \right]$ vowels which are further specified as [+low] or [-low] so that if there is a [+low] vowel in SP_{9a} the one in SP_{10} is [-low] and vice versa.

Finally, while in the {- K, - regional} form (pavómaste) the vowels in question appear in the order

$$\underset{[\ +\text{low}\ ]}{9_a} \qquad \underset{[\ -\text{low}\ ]}{10}$$

in the {+ K} (pavómeθa) and {- K, + regional} (pavómesθa) forms the converse is the case:

$$\underset{[\ -\text{low}\ ]}{9_a} \qquad \underset{[\ +\text{low}\ ]}{10}$$

The point is, therefore, that the division made here into 12 places is not "absolutely" correct but "relatively" correct, with respect to the aim adopted in this thesis.

7.4.5. It will be appropriate at this point to summarize our observations concerning the distribution of formatives in the {+ Pass, - Perf} termination groups (T_5, T_6, T_{iii} and T_{iv})

a. On the basis of the above analysis, seven successive places, to which are ascribed seven sets of formatives, can be recognized in the structure of the terminations. A total of nineteen formatives combine in rule-governed ways to make up terminations:

{+ Pass, - Perf }

6	7	8	9	10	11	12
e	n	m	ast	i	n	e
o		s	θ	e		a
u		t	us	a		
			eθ	o		
				u		

b. SP_6 accommodates the formatives e, o and u (i.e. $\left\{\begin{bmatrix} +back \end{bmatrix}, \begin{bmatrix} -high \\ -low \end{bmatrix}\right\}$ vowels) appearing in the general context

STEM —— C + / { + Pass, - Perf }; more specifically, their distribution in terms of Tense, Number, Person and CL distinctions is as follows (see also Tables One and Two):

	{-Past}								{+Past}							
	{-Pl}			{+Pl}					{-Pl}			{+Pl}				
	{1}		{2}	{3}	{1}	{2}		{3}	{1}	{2}	{3}	{1}	{2}	{3}		
[low]	-		-	-	-	-		-	-	-	-	-	-	-		
[high]	-		-	-	-> +	-> +	-	-> +	-	-	-	-> +	-> +	-> +		{-K}
[back]	+	-	-	-	+	+	-	+	+	+	+	+	+	+		
ORTHO-GRAPHIC SYMBOL	o	e*	e	e	o> u	o> u**	e***	o> u	o	o	o	o> u	o> u	o> u		
[low]	-		-	-	-	-		-	-	-	-	-	-	-		
[high]	-		-	-	-	-		-	-	-	-	-	-	-		{+K}
[back]	+		-	-	+	-		+	+	-	-	+	-	+		
ORTHO-GRAPHIC SYMBOL	o		e	e	o	e		o	o	e	e	o	e	o		

The symbol > indicates that the specification on the left is more frequently the case than the one on the right.

* in $\{STv_1\}$ verb forms only

** in context STEM + —— + C + ast

*** in context STEM + —— + C + θ

According to the above schema the three F_6 formatives are distributed as follows:

The formative o ($[^{+back}_{-high}]$) appears in the presence of the clusters of values

(i) {+Pass,-Perf,+Past,-K} e.g. pavómuna, pavósuna, etc.

(ii) {+Pass,-Perf,1, $\left\{ \begin{matrix} \{+Past\} \\ \{+Pl\} \\ \{+K\} \\ \{-STv_1\} \end{matrix} \right\}$ } i.e. in {+ Pass, - Perf, 1}

verb forms with the exception of {-Past, STv_1, -K} forms, e.g.

{+Pass,-Perf,-Past,1}	{-Pl}	$\{^{+}_{-}K\}$	pávome
	{+Pl}	{-K}	pavómaste
		{+K}	pávomeθa
	{-Pl}	$\{^{+}_{-}K\}$	ðimiuryéome → ðimiuryúme
	{+Pl}	{-K}	ðimiuryéomaste → ðimiuryjómaste / ðimiuryumaste
		{+K}	ðimiuryéomeθa → ðimiuryúmeθa
	{-Pl}	{-K}	ayapí eme → ayapjéme
		{+K}	ayapá ome → ayapóme
	{+Pl}	{-K}	ayapi ómaste → ayapjómaste
		{+K}	ayapa ómeθa → ayapómeθa

(iii) {+ Pass, - Perf, + Pl, 2, -K} in the context STEM + —— + C + ast e.g. pavósaste ({- Past}), pavósastan ({+ Past})

(iv) {+ Pass, - Perf, + Pl, 3 } e.g. pávonte ({- Past}) , epávonto ({+ Past, + K }), pavóntusan ({ + Past, - K }) .

u alternates with o in the structure of {+ Pass, - Perf, + Pl, -K} verb forms (in other words a [+back] vocalic F_6 formative is variously [±high] in the case of such forms) e.g.

		{-Past}	{+Past}
{+Pass,-Perf,+Pl,-K}	{1}	ayapj{o/u}maste	ayapj{o/u}mastan
	{2}	ayapj{o/u}saste	ayapj{o/u}sastan
	{3}	ayapj{o/u}nte	ayapj{o/u}utan

the feature [high] taking, on the whole, the specification "-" more often than "+" : o > u (see Ch.V,5.2.)

e ([+front / -high]) appears "elsewhere" i.e. in the presence of the values:

(i) {+Pass, -Perf, -Pl, -1, {-Past / +K}}

			{2}	{3}
{+Pass, -Perf, -Pl}	{-Past}	{±K}	pávese	pávete
	{+Past}	{-K}	pavósuna	pavótane
		{+K}	epáveso	epáveto

(ii) {+Pass, -Perf, +Pl, 2, {-Past / +K}} in the context STEM ——s + θ, e.g.

		{-Past}	{+Past}
{+Pass, -Perf, +Pl, 2}	{-K}	pavósaste pávesθe → páveste	pavósastan
	{+K}	pávesθe	epávesθe

(iii) { + Pass, - Perf, - Past, - Pl, 1, STv, -K } e.g.

ayapjéme, dimiuryjéme.

c. SP_7 is occupied by the formative n appearing in the context

STEM + $\left[\begin{smallmatrix} V \\ +back \end{smallmatrix} \right]$ — t / { + Pass, - Perf, + Pl, 3 }

d. SP_8 accommodates the set m, s and t appearing in the presence of the Person values, respectively, {1}, {2} and {3} (and, of course, the common cluster {+ Pass, - Perf}).

Less redundantly, SP_8 is occupied in the context

STEM + V + (n) — / { + Pass, - Perf, α1, β2 } by

$$\begin{bmatrix} + \text{ anterior} \\ \alpha \text{ nasal} \\ \alpha \text{ voiced} \\ -\alpha \text{ coronal} \\ \beta \text{ continuant} \\ \beta \text{ strident} \end{bmatrix}$$

segments (m, s, t), where the Greek letter notation indicates that the Person value {1} has the same specification, "+" or "-" as the features [nasal] and [voiced] and the opposite specification to that of the feature [coronal], whereas the value {2} has the same specification as that of the features [continuant] and [strident]. i.e.

	{ + Pass, - Perf }		
	{+1, -2}	{-1, +2}	{-1, -2}
[anterior]	+	+	+
[nasal]	+	-	-
[voiced]	+	-	-
[coronal]	-	+	+
[continuant]	-	+	-
[strident]	-	+	-
ORTHOGRAPHIC SYMBOL	m	s	t

(where {-1, -2} = {+ 3})

e. SP_9 is occupied by the formatives ast, eθ, θ and us appearing in the general context STEM + V + (n) + C —— / {+ Pass, - Perf, + Pl}. More specifically, ast appears in the context

STEM + $\{^{o}_{u}\}$ + $\{^{m}_{s}\}$ —— $[\,^{e}_{a}\,]$ + $[^{\emptyset}_{n}]$#/ {+Pass,-Perf,+Pl,-3,-K} ;

eθ in the context

STEM + o + m —— a# /{+Pass,-Perf,+Pl,1,+K} ;

θ in the context

STEM + e + s —— e # /{ +Pass,-Perf,+Pl,2,$\{^{\{-Past\}}_{\{+K\}}\}$};

and us "optionally" in the context

STEM + $\{^{o}_{u}\}$ + n + t —— a + n# / {+Pass,-Perf,+Past,+Pl,3,-K}.

In tabular form, the exponence relations holding between the above four segments and grammatical features are as follows:

			{-K}	{+K}
{+Pass,-Perf,+Pl}	{-Past}	{1}	ast	eθ
		{2}		θ
		{3}		
	{+Past}	{1}	ast	eθ
		{2}		θ
		{3}	us	

Remember that, often, sθ → st in the presence of the value {-K}, e.g. {+ Pass, - Perf, - Past, + Pl, 2, -K} : pávesθe → páveste.

f. SP_{10} is occupied by one of the five formatives i, e, a, o, or u, as follows:

(i) [+high] vowels (i, u) occur in the environment

STEM + o + $\begin{Bmatrix} m \\ s \end{Bmatrix}$ — n / {+ Pass, - Perf, + Past, - Pl, $\begin{Bmatrix} \{1\} \\ \{2, -K\} \end{Bmatrix}$} and are further defined as [α front] or [-front] in relation to the clusters, respectively, { 1, α K } and { 2, -K }, e.g.

{+Pass,-Perf,+Past,-Pl} {
- {1, + K} : epavómin
- {1, - K} : (e)pavómun(a)
- {2, - K} : (e)pavósun(a)

(ii) The [+low] vowel (a) appears in the context

$$\text{STEM} + \begin{bmatrix} V \\ +\text{back} \end{bmatrix} + \begin{bmatrix} e\theta \\ \begin{bmatrix} \text{ast} \\ (n)+t+(us) \end{bmatrix} \end{bmatrix} - \begin{bmatrix} \emptyset \\ n\begin{bmatrix} \emptyset \\ (e) \end{bmatrix} \end{bmatrix} \#\# / \{+\text{Pass}, -\text{Perf}, \begin{bmatrix} \{+\text{Pl},1,+\text{K}\} \\ \{+\text{Past}, \begin{bmatrix} \{+\text{Pl},-3\} \\ \{3\} \end{bmatrix}, -\text{K}\} \end{bmatrix}$$

e.g.

$$\{+\text{Pass}, -\text{Perf}\} \begin{cases} \{-\text{Past},+\text{Pl},1,+\text{K}\} & : \text{pavómeθa} \\ \{+\text{Past},+\text{Pl},1,+\text{K}\} & : \text{epavómeθa} \\ \{+\text{Past},+\text{Pl},1,-\text{K}\} & : \text{pavómastan} \\ \{+\text{Past},+\text{Pl},2,-\text{K}\} & : \text{pavósastan} \\ \{+\text{Past},\ \text{Pl},3,-\text{K}\} & : \text{pavótan(e)} \\ \{+\text{Past},+\text{Pl},3,-\text{K}\} & : \text{pavóntusan} \end{cases}$$

(iii) The $\begin{bmatrix} -\text{high} \\ -\text{low} \end{bmatrix}$ vowels (e, o) appear in final position and are further differentiated as [+front] (e) in the context

$$\text{STEM} + V + (n) + C + \begin{bmatrix} \theta \\ (\text{ast}) \end{bmatrix} - \# \,/\, \{+\text{Pass}, -\text{Perf}, \begin{bmatrix} \{\pm\text{Past}\} \\ \{-\text{Past}\} \end{bmatrix}\}$$

e.g. {+Pass,-Perf,-Past} : pávome, pávese, pávete, pavómaste
(but pavómeθa) pavósaste/pávesθe, pávonte

{+Pass,-Perf,+Past} : pavómaste, pavósaste/epávesθe

and as [- front] (o) in the context

$$\text{STEM} + \begin{bmatrix} e + \{^{s}_{t}\} \\ o + n + t \end{bmatrix} + \text{—} \#/ \{+\text{Pass}, -\text{Perf}, +\text{Past}, \begin{bmatrix} \{-\text{Pl}, -1\} \\ \{3\} \end{bmatrix}, +\text{K}\}$$

e.g. {+Pass,-Perf,+Past,+K} { {-Pl, 2} : epáveso
{-Pl, 3} : epáveto
{+Pl, 3} : epávonto

g. SP_{11} is occupied by the formative n, which appears in the environment

$$\begin{bmatrix} i \\ [u] \\ [a] \end{bmatrix} \text{——} \begin{bmatrix} \emptyset \\ ([a]) \\ [e] \end{bmatrix} \#/ \{+\text{Pass}, -\text{Perf}, +\text{Past}, \begin{bmatrix} \{-\text{Pl}, 1, +\text{K}\} \\ \{-\text{K}\} \end{bmatrix}\}$$

e.g. {+Pass,-Perf,+Past} { {+K,-Pl,1} : epavómin
{-K} : pavómun(a), pavósun(a)
pavótan(e), pavómastan,
pavósastan, pavóntusan/óntan(e)

h. Finally, SP_{12} is occupied by a $\begin{bmatrix} -\text{back} \\ -\text{high} \\ \alpha\ \text{low} \end{bmatrix}$ segment (a, e)

which appears "optionally" in the context

$$\text{STEM} + V + (n) + C + \begin{bmatrix} V \\ -\text{front} \\ \alpha\ \text{high} \\ -\alpha\ \text{low} \end{bmatrix} + n \text{ —— } \# / \{+\text{Pass}, -\text{Perf}, +\text{Past}, -\text{K}\}$$

(i.e. when there are not more than two vowels in the string following the stem) and whose specification for the feature [low] co-varies over "+" or "-" with that of the feature [high] and is opposite to that of the feature [low] of the vowel preceding n, e.g.

{+Pass, -Perf, +Past, -K} : pavómun(a), pavósun(a), pavótan(e), pavóntan(e)

The F_{12} vowels may appear only if there are not more than two vowels in the string following the stem, e.g. pavómun(a), pavósun(a), pavótan(e), pavóntan(e), but pavómastan, pavósastan, pavóntusan.

In other words, the F_9 formatives ast and us never co-occur with F_{12} formatives in MGK (though they do in some other dialects; see 7.4.1.h. above).

7.5. In 7.4. above we analyzed the {+ Pass, - Perf} termination subsets. Below we will concern ourselves with termination subsets T_1, T_2, T_3, T_4, T_i and T_{ii} occurring "elsewhere", i.e.in the {- Pass} and/or {+ Perf} section of the verb system.

For certain problems concerning the "underlying" representations suggested in the literature for the {+ Pass, + Perf} termination groups see Ch.IV. 3.5.2. below.

Let us examine the {- K} termination groups first.

7.5.1. The {- K} termination subsets T_i and T_{ii} (see Table Two above) are of the following general structure:

		(i)	(ii)	(iii)
{- Pl}	{1}	V		
	{2}	V	s	
	{3}	V		
{+ Pl}	{1}	V	m	e
	{2}	V	t	e
	{3}	V	n	(e)

(Lower case Latin numerals are used here to tentatively identify each column in the structural grid of the termination subsets under consideration until later on in the discussion when we will have enough evidence to suggest its relationship with the seven place grid set up in 7.4. above in relation to the {+ Pass, - Perf } terminations .)

a. The schema above suggests that the two sets of {- K } terminations can be arranged on a three-place grid. They are differentiated only with respect to the precise quality of the vowel in (i), i.e. the same sets of segments occupy (ii) and (iii) in both T_i and T_{ii} termination subsets.

b. In column (i) the formative V appears in the context — # in the presence of the cluster {- Pl, - 2 } whereas in the presence

of the remaining combinations of values of Person and Number V of column (i) appears in the context —— C + (V) # and can be any Greek vowel depending on grammatical and stylistic considerations as depicted in the schema below:

			T_i ({- Past})	T_{ii} ({+ Past})
{{{- Pass} / {+ Perf}}, - K}	{-Pl}	{1}	o	a
		{2}	i	e
		{3}	i	e
	{-Pl}	{1}	u > o*	a
		{2}	e / i**	a
		{3}	u	a

* u is much more frequent than o in the {- Pass, - Past, - K} paradigm, e.g. pάv{o/u}me whereas in the {+ Pass, + Perf, - Past, - K} paradigm only u is possible, e.g. paftúme.

** i occurs only in {+ Pass} forms.

The above schema indicates that the termination-initial vowel for T_{ii} ({ + Past}) is [-back / -high], and either [-low] in {- Pl, -1} terminations or [+low] "elsewhere (i.e. in {1} and {+ Pl} terminations), e.g. épapsa, épapses, épapse, pάpsame, pάpsate, épapsan, pάpsan(e); in T_i ({- Past}) on the other hand the vowel under consideration

is [-low] and either [+front] in {2} and {-Pl,3} terminations or [+back] "elsewhere" (i.e. {1} and {+ Pl, 3} terminations); furthermore, it is [+high] in {- Pl, -1} (pávis, pávi), {+ Pass, + Pl, 2} (paftite), {+ Pl, 3} (pávun(e)) and, more often than not, in {+ Pl, 1} terminations (in {- Pass, - Past, + Pl, 1, - K} forms the $\left[\begin{smallmatrix} +\text{high} \\ +\text{back} \end{smallmatrix} \right]$ vowel alternates with a (much less frequently occurring) $\left[\begin{smallmatrix} -\text{high} \\ +\text{back} \end{smallmatrix} \right]$ vowel, e.g. pávume pávome, pápsume pápsome, whereas in {+ Pass, + Perf, - Past, + Pl, 1, - K} terminations only the former ($\left[\begin{smallmatrix} +\text{high} \\ +\text{back} \end{smallmatrix} \right]$) is possible, e.g. paftúme, ayapiθúme); finally, the vowel appearing in {- Pl, 1} and {- Pass, + Pl, 2} terminations is [-high] e.g. pávo, pávete. The schema below summarizing our observations concerning the termination-initial vowels in T_i and T_{ii} is a recasting of the one above in terms of distinctive features:

$\{ \left\{ \begin{smallmatrix} \{-\text{Pass}\} \\ \{+\text{Perf}\} \end{smallmatrix} \right\}$, - K $\}$												
{- Pl}						{+ Pl}						
{1}		{2}		{3}		{1}		{2}			{3}	
{Past}	-	+	-	+	-	+	-	+	{-Pass}	{+Pass}	+	-	+
[low]	-	+	-	-	-	-	-	+	-		+	-	+
[high]	-	-	+	-	+	-	+⟩-	-	-	+	-	+	-
[front]	-	-	+	+	+	+	-	-	+		-	-	-
[back]	+	-	-	-	-	-	+	-	-		-	+	-
ORTHO-GRAPHIC SYMBOL	o	a	i	e	i	o	u⟩o	a	e	i	a	u	a

c. In the second structural place [+ anter] consonants (s, m, t, n) appearing in {2} and {+ Pl} terminations of both T_i and T_{ii}, are further defined as [+nasal] in {+ Pl, -2} terminations, e.g. pávume, pávun(e), and as $\begin{bmatrix} \text{-nasal} \\ \text{-voiced} \\ \alpha\ \text{cont} \end{bmatrix}$ in {-α Pl, 2} terminations, e.g. pávis, pávete; also, as [-coron] in {1} terminations, e.g. pávume, and as [+coron]"elsewhere", e.g. pávis, pávete, pávun(e); finally, the $\begin{bmatrix} \text{-nasal} \\ \text{-voiced} \\ \text{+cont} \end{bmatrix}$ consonant is defined as [+strident] (s), e.g. pávis. The following schema summarizes our observations concerning the consonants in (ii):

	$\{\{^{\{\text{-Pass}\}}_{\{\text{+Perf}\}}\}, \text{-K}\}$			
	{-Pl, 2}	{+ Pl}		
		{1}	{2}	{3}
[anterior]	+	+	+	+
[nasal]	-	+	-	+
[voiced]	-	+	-	+
[continuant]	+	-	-	-
[coronal]	+	-	+	+
[strident]	+	-	-	-
ORTHOGRAPHIC SYMBOL	s	m	t	n

d. Finally, the third structural place is occupied by the formative e which appears categorically in {+ Pl, - 3} and "optionally" in

{+ Pl, 3} .(See Ch.V,9. below for conditions bearing upon the variable appearance of this "euphonic" final e; also, see next paragraph.)

7.5.2. Let us turn now to the {+ K} termination subsets T_1, T_2, T_3, and T_4. We will first examine T_1 and T_3 (see Table Two above) which more closely resemble in phonological shape, respectively, T_i and T_{ii} already analyzed above. T_1 ($\{\begin{Bmatrix}-\text{ Pass}\\+\text{ Perf}\end{Bmatrix}, -\text{ Past}, +\text{ K}\}$) and T_3 ({- Pass, + Perf, + Past, + K}) are of the following general shape:

		(i)	(ii)	(iii)	(iv)
{- Pl}	{1}	V			
	{2}	V	s		
	{3}	V			
{+ Pl}	{1}	V	m	e	n
	{2}	V	t	e	
	{3}	V	n		

(The classification of the nasal segment of the {+ Pl, 3} termination is to be revised later on in the discussion).

a. As shown in the schema above, T_1 and T_3 differ from T_i and T_{ii} in two respects: firstly, the vowel e of (iii) appears "optionally"

in the {+ Pl, 3} terminations of T_i ({ - K }) e.g. pávun(e), and T_{ii} e.g. pávan(e), but is always absent in the equivalent terminations of T_1 ({ + K }) , e.g.pávun, and T_3, e.g. épafsan; secondly, a fourth structural place is needed now to accommodate the final n of the { + Pl, 1} termination which appears in T_1 and T_3, e.g. pávomen, epáfsamen, but not in T_i or T_{ii}, e.g. pávume, pápsume, paftúme, pávame, pápsame, paftikame.

The suffixation of ("optionally" appearing) e to final n in {+ Pl, 3, - K} terminations, eg. pávun(e), and the fact that final n never appears in {+ Pl, 1, - K} forms, e.g. pávume, are not unrelated phenomena. For one thing, they correspond to similar phenomena in other sections of the grammar, e.g. póso(n) xronó(n) ise? (= How many years (= how old) are you?); ton yinekón(e) (= of the women); ton(e) vlépis? (= can you see him?), betraying a "conspiracy" on the { - K } level, against the pattern Vn # and in favour of the pattern CV # . Furthermore, within the limited area of the $\{\{^{\{+ \text{ Pass}\}}_{\{+ \text{ Perf}\}}\}, - K\}$ verb paradigm, the two phenomena combine to achieve { + Pl } terminations of the same general form, VCe # ,as opposed to { - Pl } terminations, which are of the form V(C) # .

b. The consonants of the second structural place, (ii), show the same distribution as in the case of T_i and T_{ii}.

c. The precise quality of the T_1 and T_3 termination-initial vowels (column (i)) is different from that of equivalent T_i and T_{ii} terminations in only two respects: firstly, in the {- Past, + Pl, 1, + K } terminations o,and never u, appears, e.g. pávomen, páfsomen, páfθómen, though it will be recalled (see 7.5.1. b. above) that in the T_i equivalent termination u is the rule with o occurring only occasionally; secondly, in the { + Past, - Pl, 2, + K } termination a appears, e.g. épafsas , and not e, as is the case with the { - K} equivalent termination, e.g. épapses. Contrast the scheme in 7.5.1.b. above to the one below:

		$\{\{\begin{matrix}\{-Pass\}\\\{+Perf\}\end{matrix}\}, -Past, +K\}$	{-Pass,+Perf,+Past,+K}
		T_1	T_3
{- Pl}	{1}	o	a
	{2}	i	a
	{3}	i	e
{+ Pl}	{1}	o	a
	{2}	e/i*	a
	{3}	u	a

* i appears only in {+ Pass} forms

Recast in distinctive feature terms the scheme above concerning the termination-initial vowels of subsets T_1 ({- Past}) and T_3 ({+ Past}) is as follows:

	{{{- Pass} / {+ Perf}}, + K}												
	{- Pl}						{+ Pl}						
	{1}		{2}		{3}		{1}		{2}			{3}	
{Past}	-	+	-	+	-	+	-	+	- {-Pass}	- {+Pass}	+	-	+
low	-	+	-	+	-	-	-	+	-	-	+	-	+
[high]	-	-	+	-	+	-	-	-	-	+	-	+	-
[front]	-	-	+	-	+	+	-	-	+	+	-	-	-
[back]	+	-	-	-	-	-	+	-	-	-	-	+	-
ORTHO-GRAPHIC SYMBOL	o	a	i	a	i	e	o	a	e	i	a	u	a

d. The classification of segments of T_1 and T_3 terminations in the schema at the beginning of 7.5.2. above has been carried out so that the similarities between T_1 and T_3 on the one hand and T_i and T_{ii} on the other (see 7.5.1. above) are shown clearly. Thus the final n of the {+ Pl, 3} terminations is classified in the second structural place, (ii), in compliance with the T_i/T_{ii} pattern, though the final n of the [+ Pl, 1] terminations is of necessity classified in the fourth structural place, (iv). Surely, however,

it would be more appropriate to recognize a single nasal appearing in the context —— # / {+ Pl, - 2} and classify it in (iv) since it cannot be classified in (ii) in both verb forms where it occurs ({+ Pl, 1} and {+ Pl, 3}):

		(i)	(ii)	(iii)	(iv)
{+ Pl}	{1}	V	m	e	n
	{2}	V	t	e	
	{3}	V			n

The above classification is better suited to account for the distribution of final n in T_1 and T_3 but is at variance with the T_i and T_{ii} terminations since it obscures the regular pattern of occurrence, throughout the {+ Pl} paradigm, of the vowel e:

		(i)	(ii)	(iii)	(iv)	(v)
{+ Pl}	{1}	V	m	e	n	
	{2}	V	t	e		
	{3}	V			n	(e)

to account for which we have to establish an additional, fifth, structural place in the grid. In other words, a unifying classification of all occurrences of n in the same structural place, (iv), enables us to make an attractively simple statement

(i.e. that n appears in the context — (V)# / { α K, α 1, - 2, + Pl }) but simultaneously results in no common classification of all occurrences of e, and vice versa. In this study we will adopt the classification in the schema in this paragraph (see above) and make up for its inadequacies in the rule system, where e, irrespective of the structural place in which it appears, can be shown to occur in the context

$$\begin{bmatrix} m \\ \{t \\ n\} \end{bmatrix} — \begin{bmatrix} (n) \\ \emptyset \end{bmatrix} \# / \{ + Pl, \langle - K, 3 \rangle \}$$

(the three-angled brackets include the cluster of values whose presence causes e to appear "optionally", e.g. {+ K, 1} : pávomen, {- K, 1} : pávume, {2} : pávete, {+ K, 3} : pávun, but {- K, 3} : pávun(e)). It should also be noted that the partly unsatisfactory formulation of the above schema has, in fact, its compensations since it will enable us to make a common statement concerning "optional" final vowels both in the section of the verb system discussed here, i.e. {- Pass} and /or {+ Perf} and in the {+ Pass, - Perf} section analyzed in 7.4. above (see 7.6. below).

7.5.3. The last two termination subsets to be examined are T_2 and T_4 (see Table Two above) whose segments, like those of T_1 and T_3, can be arranged in four columns, either so that similarities with the subsets T_i and T_{ii} are shown:

		T_2 ({-Pass,-Perf,+Past,+K})				T_4 ({+Pass,+Perf,+Past,+K})			
		(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
{-Pl}	{1}	o	n			i	n		
	{2}	e	s			i	s		
	{3}	e				i			
{+Pl}	{1}	o	m	e	n	i	m	e	n
	{2}	e	t	e		i	t	e	
	{3}	o	n			i	s	a	n

or on internal grounds, following the argument in 7.5.2. above, which is the classification on which the discussion below is based:

		T_2				T_4			
		(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
{-Pl}	{1}	o			n	i			
	{2}	e	s			i	s		
	{3}	e				i			
{+Pl}	{1}	o	m	e	n	i	m	e	n
	{2}	e	t	e		i	t	e	
	{3}	o			n	i	s	a	n

(Note that, if the alternative formulation discussed in Ch.IV,3.5.2. concerning the recognition of an F_4 segment $\underline{\Theta i}$ rather than $\underline{\Theta}$ were accepted, T_4 would appear with the first structural place empty,

e.g. <u>e + pȧf + θi + n</u> instead of <u>e + pȧf + θ + in</u>).

a. The termination subsets under consideration differ in their phonological shape from other termination subsets outside the {+ Pass, - Perf} section of the verb system in the following respects only: Firstly, they have a final <u>n</u> in {- Pl, 1} terminations (-<u>on</u>, -<u>in</u>); on the basis of the classification in the schema above, <u>n</u> can be specified as appearing in association with the values $\{^{\{1\}}_{\{+\ Pl,\ 3\}}\}$ in the context V —— # .

Secondly,, in column (i), <u>a</u>, characteristic of the other {+ Past} subsets, T_3 and T_{ii}, never in fact appears in T_2 and T_4; instead <u>i</u> appears throughout T_4 (but see Ch.IV,3.5.2.) while in T_2 the vowels appearing are $[\ ^{-high}_{-low}\ ]$, further specified as [+back] (<u>o</u>) in {1} and {+ Pl, 3} terminations and as [-back] (<u>e</u>) "elsewhere" ({2} , {- Pl, 3}). In fact, with respect to the quality of termination-initial vowels, the only termination in the groups under consideration that does not differ from grammatically equivalent terminations of $\{\{^{\{-Pass\}}_{\{+Perf\}}\}, -K\}$ subsets is the {- Pl, 3} termination of T_2, <u>e</u>. It is perhaps because T_2 and T_4 are so "uneconomical" (by being so different) that no version of them appears in the {- K} verb system (not that the latter is particularly inclined to economy, of course); instead, T_{ii} (most

closely resembling T_3, i.e. they both have termination initial a in most terminations as a "clear" exponent of the value {+ Past}) appears on the {- K} level in contrast to all three {+ K} terminations T_2, T_3, and T_4. In other words, in the {+ K} section of the verb system the distinction between the following clusters of grammatical values: {- Pass, - Perf, + Past}, {- Pass, + Perf, + Past} and {+ Pass, + Perf, + Past} is maintained by, among other means, the appearance of the termination subsets, respectively, T_2, T_3, and T_4, whereas, on the {- K} level the distinction between the three clusters above is neutralized as far as terminations are concerned, i.e. they all coincide with the presence of T_{ii}, though they are still distinguished through the contrast of other elements in structure, e.g.

	{-K}	{+K}
{- Pass, - Perf, + Past}	épava	épavon
{- Pass, + Perf, + Past}	épapsa	épafsa
{+ Pass, + Perf, + Past}	páftika	epáfθin

The third point to be made concerning the differences between T_2 and T_4 on the one hand and other {- Pass} and/or {+ Perf} subsets on the other (a point which, by the way, further corroborates one's view of, at least, T_4 as "uneconomical") is

that the {+ Pl, 3} termination of T_4 is of the form VCVC (-isan)[6] unlike all other {+ Pl, 3, + K} terminations, which are of the form VC (-un, -an, -on). In fairness, this is more due to limitations I have had to impose on the area of the grammar studied than to the facts of language: there are, that is, {+ Pl, 3} terminations of the form VCV(C), namely, -usi(n), -osi(n), e.g.

{- Pass, - Perf, - Past}: pávusi(n), pávosi(n)

{- Pass, + Perf, - Past}: páfsosi(n)

{+ Pass, + Perf, Past}: pafθósi(n)

where, (i) final n appears before a word-initial vowel, i.e. it is "euphonic", and,

(ii) the contrast between u and o in the {- Pass, - Perf, - Past} forms is one of Mood (a category not normally reflected in the inflectional paradigm of the verb in MGK), i.e. it corresponds to the contrast between, respectively, {- Subjunctive} and {+ Subjunctive}[7] ({+ Perf} forms are simultaneously {+ Subjunctive}, but {- Perf} forms are {± Subjunctive}, hence the exclusive presence of o in the {+ Perf} forms páfsosi(n) and pafθósi(n)). Such terminations, however, are characteristic of archaic written language and of some dialects but not of mainstream MGK, as a result of which they never appear in conversations on which this study is based (though they could well occur in the next few seconds of speech I record, of course).

Unlike them, -isan, which is included in this study, does appear in the corpus:

1/21/1 ff R.: ke mja stiymí skívi ke ton filái

(and all of a sudden he leans forward and kisses him)

E.C.: lipón? lipón?

(and then? and then?)

V.L.: metá?

(afterwards?)

R.: e, aftá, típot álo

(e, that's all, nothing else)

V.L.: metá apesí:θisan?

(did they retire afterwards?)

E.C.: étsi, ta páθi eksáptonte

(well, there you are, passions do tend to flare up!)

3/19/5 S.K.: i skilí edéθisan

(the canines have been tied!)

b. In the second structural position (see second schema at the beginning of 7.5.3. above) the consonants s, m, and t appear in both termination subsets in the presence of precisely the same clusters of grammatical values as described in 7.5.1. above. Moreover, the consonant s also appears in the case of the {+ Pl, 3}

termination of T_4 only, e.g. epáfθisan.

c. In column (iii) a set of [$^{-high}_{-back}$] vowels appear, further specified as [-low] (e) in {+ Pl, - 3} terminations, e.g. epávomen, epáfθimen, epávete, epáfθite, (i.e. the same as in the {- Pass} and/or {+ Perf} subsets) and as [+low] (a) in the {+ Pl, 3} termination of T_4 only, e.g. epáfθisan.

7.5.4. In conclusion, the following segments, appearing in five successive structural places, combine with each other in ways specified in the discussion above (7.5.1. to 7.5.3.) to make up {- Pass}and/or {+ Perf} terminations:

(i)	(ii)	(iii)	(iv)	(v)
i	m	e	n	e
e	s	a		
a	t			
o				
u				

7.6. In the schema in 7.4.5.a. above the analysis yielded a seven-place grid for the accommodation of formatives whose combirations make up {+ Pass, - Perf} terminations, while in the schema in 7.5.4. above five places were found adequate for the formatives of terminations other than {+ Pass, - Perf}.

To be able to make a statement as free of duplication as possible concerning the distribution of formatives in the terminations we will have (on grounds explained presently) to match the two schemata as follows (the schemata in 7.4.5.a. and 7.5.4. above correspond to, respectively, a. and b. below):

a.

6	7	8	9	10	11	12
e o u	n	m s t	ast θ us eθ	i e a o u	n	e a

b.

(i)		(ii)		(iii)	(iv)	(v)
i e a o u		m s t		e a	n	e

Column 6 corresponds to (i) since they both contain termination-initial vowels, i.e. formatives appearing in the morphological context STEM + ($\left\{\begin{matrix} y \\ us \\ 0 + (ik) \\ s \end{matrix}\right\}$) —— . The relation between (features of) the vowels in question and (clusters of) grammatical

values in specific morphological environments is described in 7.4.5.b., 7.5.1.b., 7.5.2.c. and 7.5.3.a. above.

Column 7, containing the formative n, which appears in the context STEM + $\left[\begin{matrix} V \\ +back \end{matrix} \right]$ —— t e.g. pávonte, has no equivalent outside the { + Pass, - Perf } section of the verb system in that terminations of the form VntX are exclusively { + Pass, - Perf, + Pl, 3}[8] (see 7.4.5.c. above).

Column 8 corresponds to (ii) in that in both schemata the consonants m, s and t appear with partly overlapping distribution, i.e. they appear in, respectively, {1}, {2} , and {3} verb forms in the context V + (n) —— X / { + Pass, - Perf } (see 7.4.5.d. above) whereas,in the context V —— X / $\left\{ \begin{matrix} \{- \text{ Pass}\} \\ \{+ \text{ Perf}\} \end{matrix} \right\}$, m appears in { + Pl, 1 } terminations, s in { - Pl, 2 } as well as in { + Pass, + Perf, + Past, + Pl, 3, + K } terminations, and t in { + Pl, 2 } terminations (see 7.5.1.c., 7.5.2.b,, and 7.5.3.b. above).

Column 9, containing the segments ast, θ, us and eθ has no equivalent outside the { + Pass, - Perf } section of the verb system (see 7.4.5.e. above).

Column 10 corresponds to (iii) in that the sets of vowels which they each accommodate appear in the context C —— (n(V))# and are exponents of various (clusters of) grammatical values as described

in 7.4.5.f., 7.5.1.a., 7.5.2.a.,d., and 7.5.3.c. above.

Column 11 corresponds to (iv) since they both accommodate the formative n appearing in the context —— (V) # in the presence of grammatical values as explained in 7.4.5.g., 7.5.1.c., 7.5.2.a.,b.,d., and 7.5.3.a.

Column 12 corresponds to (v) since they both contain $\left[\begin{smallmatrix}\text{-back}\\ \text{-high}\end{smallmatrix}\right]$ vowels (e, a) which appear "optionally" in the context n ——#/ {- K} and in the presence of additional (clusters of) grammatical values as specified in 7.4.5.h., 7.5.1.b., an d 7.5.2.d.

Integrating now our termination grid to the grid of structural places on the basis of which the whole of the verb system is described, we will employ the labels $SP_6, SP_7 \ldots SP_{12}$ for the last seven structural places, and $F_6, F_7 \ldots F_{12}$ for the corresponding sets of elements appearing in them:

SP_6	SP_7	SP_8	SP_9	SP_{10}	SP_{11}	SP_{12}
F_6	F_7	F_8	F_9	F_{10}	F_{11}	F_{12}
i e a o u	n	m s t	eθ θ ast us	i e a o u	n	e a

It will be realized that the recognition of the twenty-one segments above renders the fifty-three terminations of Table Two completely superfluous. Based on the analysis of the present section (Ch.III,7.) a rule system can easily be set up to account for the permissible combinations of the elements in the schema above without any reference to such constructs as (groups of) terminations. Thus, to refer to the same example as in the final paragraph of 7.2. above, for the derivation of the form <u>pȧv + o + m + e</u> the F_6 formative <u>o</u> will be selected by the rule system in the presence of the cluster {+ Pass, - Perf, 1, $ST_{\emptyset}$} and suffixed to the stem. Subsequently, <u>m</u> will be selected from the F_8 set in the presence of the cluster {+ Pass, - Perf, 1} and suffixed to the string <u>pav + o</u>. Finally, the F_{11} formative <u>e</u> will complete the derivation in the presence of the cluster {+ Pass, - Perf, - Past, - Pl}. For reasons that will be set forth in the next section (7.7.) the analysis reflected in the schema above and discussed in paragraphs 7.3. and onwards above is the one endorsed in this study (as distinct from the analysis based on termination types: see 7.2. above).

7.7. In 7.2. above we looked at the segments to the right of SP_5 from the point of view of their grammatical functioning as strings of the symbols V and C, we showed how eleven such types of termination are distributed in the verb system and we pointed

out a basic flaw of that point of view, namely, that it obscures a number of regularities concerning the distribution of sub-segments of terminations in various termination types according to the cluster of grammatical values present. Subsequently, in 7.3. to 7.6. we looked at terminations from a different view point. We ignored the established termination types, we recognized a seven-place grid in the structure of the segments to the right of SP_5 and stated the distribution in them of their constituent segments. Though each of the two approaches could serve as the basis for an adequate rule system, it should be realized that they both suffer from the same basic defect, namely, neither explicitly accounts for the regularities captured by the other. However, the latter solution, i.e. the one involving the abolition of the fifty-three terminations of Table Two in favour of seven small sets of formatives (a total of twenty-one formatives) is to be preferred on two grounds: firstly, it is free from duplication since it involves the recognition of sets of minimal formatives rather than mnemonically "convenient" (and rather numerous) terminations; secondly, it is based on the same process of segmentation and classification as implemented for those strings of the verb forms appearing in SP_1 to SP_5, rather than on an uneconomical hierarchy involving both terminations and their constituent parts, and characteristic (for no explicit reason) of only the strings to the right of F_5.

It would be interesting, therefore, to see if a combination of the two viewpoints (termination types and sets of subsegments) would produce useful results. In Table Four below the eleven termination types are arranged on the seven-place grid on the basis of the above analysis (section 7). On this arrangement the following points can be made:

a. Table Four reveals an interesting network of relations between (i) termination types as described in 7.2. above, (ii) the seven-place grid and related sets of segments as analyzed in 7.3. to 7.6. above, and (iii) clusters of grammatical and stylistic values.

b. To begin with, the table suggests that we should recognize two varieties of termination types 2,3,5 and 6 on the basis of the distribution of their subsegments on the seven-place grid: 2a occupies places 6 and 8, e.g. $\frac{2}{\text{pav}}\ \frac{6}{\text{i}}\ \frac{8}{\text{s}}$, 2b places 6 and 11, e.g. $\frac{2}{\text{pav}}\ \frac{6}{\text{u}}\ \frac{11}{\text{n}}$, 3a places 6,8 and 10, e.g. $\frac{2}{\text{pav}}\ \frac{6}{\text{u}}\ \frac{8}{\text{m}}\ \frac{10}{\text{e}}$, 3b places 6, 11 and 12, e.g. $\frac{2}{\text{pav}}\ \frac{6}{\text{u}}\ \frac{11}{\text{n}}\ \frac{12}{\text{e}}$, 5a places 6,8,10,11 and 12 e.g. $\frac{2}{\text{pav}}\ \frac{6}{\text{ð}}\ \frac{8}{\text{m}}\ \frac{10}{\text{u}}\ \frac{11}{\text{n}}\ \frac{12}{\text{a}}$, 5b places 6,8,9 and 10, e.g. $\frac{2}{\text{pav}}\ \frac{6}{\text{ð}}\ \frac{8}{\text{m}}\ \frac{9}{\text{eθ}}\ \frac{10}{\text{a}}$, 6a places 6,8,9 and 10 e.g. $\frac{2}{\text{pav}}\ \frac{6}{\text{e}}\ \frac{8}{\text{s}}\ \frac{9}{\text{θ}}\ \frac{10}{\text{e}}$, and, finally, 6b places 6,7,8, and 10, e.g. $\frac{2}{\text{pav}}\ \frac{6}{\text{o}}\ \frac{7}{\text{n}}\ \frac{8}{\text{t}}\ \frac{10}{\text{e}}$. The relevance of the distinction in terms of exponence of grammatical features by termination types is shown on the table.

c. Much more importantly, the major flaw of the description

TABLE FOUR (continued)

TERMINATION TYPES	STRUCTURAL PLACES							CLUSTERS OF GRAMMATICAL VALUES
	6	7	8	9	10	11	12	
4	V o		C m		V e	C n		{-Past, +Pl, 1, +K{{-Pass} {+Pass, +Perf}}}
								{+Pass, -Perf, +Past, +Pl, 1, +K}
	a		m		e	n		{-Pass. +Perf, +Past, +Pl, 1, +K}
	i		m		e	n		{+Pass, +Perf, +Past, +Pl, 1, +K}
	i		s		a	n		{+Pass, +Perf, +Past, +Pl, 3, +K}
	o		m		i	n		{+Pass, -Perf, +Past, -Pl, 1, +K}
	o		m		u	n		{+Pass, -Perf, +Past, -Pl, 1, -K}
	o		s		u	n		{+Pass, -Perf, +Past, -Pl, 2, -K}
	o		t		a	n		{+Pass, -Perf, +Past, -Pl, 3, -K}
5 (a)	V o		C m		V u	C n	V a	{+Pass, -Perf, +Past, -Pl, 1, -K}
	o		s		u	n	a	{+Pass, -Perf, +Past, -Pl, 2, -K}
	o		t		a	n	e	{+Pass, -Perf, +Past, -Pl, 3, -K}
(b)	V o		C m	V C e 0	V a			{+Pass, -Perf, +Pl, 1, +K}
6 (a)	V e		C s	C 0	V e			{+Pass, -Perf, +Pl, 2,{{-Past} {+Past, +K }}}
(b)	V o u o	C n n n	C t t t		V e e o			{+Pass, -Perf, -Past, +Pl, 3} {+Pass, -Perf, -Past, +Pl, 3, -K} {+Pass, -Perf, +Past, +Pl, 3, +K}
7	V o u	C n n	C t t		V a a	C n n		{+Pass, -Perf, +Past, +Pl, 3, -K} {+Pass, -Perf, +Past, +Pl, 3, -K}
8	V o u	C n n	C t t		V a a	C n n	V e e	{+Pass, -Perf, +Past, +Pl, 3, -K} {+Pass, -Perf, +Past, +Pl, 3, -K}
9	V o u	C n n	C t t	V C u s u s	V a a	C n n		{+Pass, -Perf, +Past, +Pl, 3, -K} {+Pass, -Perf, +Past, +Pl, 3, -K}
10	V o u o u		C m m s s	VCC ast ast ast ast	V e e e e			{+Pass, -Perf,+Pl, 1, -K} {+Pass, -Perf, +Pl, 1, -K} {+Pass, -Perf, +Pl, 2, -K} {+Pass, -Perf, +Pl, 2, -K}
11	V o u o u		C m m s s	VCC ast ast ast ast	V a a a a	C n n n n		{+Pass, -Perf, +Past, +Pl, 1, -K} {+Pass, -Perf, +Past, +Pl, 1, -K} {+Pass, -Perf, +Past, +Pl, 2, -K} {+Pass, -Perf, +Past, +Pl, 2, -K}

of the segments to the right of F_5 in terms of termination types (i.e. strings of symbols V and C), namely, that the distribution of a small number of segments in a number of different termination types was obscured, is now corrected: since we know, firstly, from Table Four, how the consonants and vowels of each termination type are distributed over the seven-place grid, and, secondly, from the schema at the end of 7.6. and related discussion above, what sets of segments appear in each place and what clusters of grammatical and stylistic values each segment is an exponent of, we can now establish, for instance, that the consonant cluster in termination type 9 is the same phonologically (nt) and grammatically ({ +Pass, - Perf, + Pl, 3 }) as the cluster in 8, 7 or 6b, and as such it is distributed over SP_7 and SP_8, but different from the cluster in 6a (sθ), a { + Pass, - Perf, + Pl, 2, { {- Past} / {+ K} } } formative, distributed over SP_8 and SP_9; we can also establish that the segment t of the cluster nt and s of sθ are related to one another as their classification in SP_8 indicates in that their precise phonological character varies, irrespective of termination type, in relation to the particular Person and Number values present; contrarywise, relevant classification accounts for the fact that the consonant cluster of 6a (sθ) is not "the same" as that of 10 and 11 (st) (though if their precise phonological shapes are considered they are identical, θ becoming t after s in the presence

of the value {- K}) the former being distributed over SP_8 and SP_9 while the latter falling entirely within SP_9 along with a preceding vowel <u>a</u> (<u>ast</u>).

<u>d</u>. According to Table Four the distribution of termination types in the two major subdivisions of the verb system, namely, {+ Pass, - Perf} and "elsewhere" ({- Pass} and/or {+ Perf}) is as follows:

	TT	STRUCTURAL PLACES							
		6	7	8	9	10	11	12	
{+Pass,-Perf}	5a	V		C		V	C	V	e.g. pavómuna
	5b	V		C	VC	V			e.g. pavómeθa
	6a	V		C	C	V			e.g. pávesθe
	6b	V	C	C		V			e.g. pávonte
	7	V	C	C		V	C		e.g. pávontan
	8	V	C	C		V	C	V	e.g. pavóntane
	9	V	C	C	VC	V	C		e.g. pavóntusan
	10	V		C	VCC	V			e.g. pavómaste
	11	V		C	VCC	V	C		e.g. pavómastan
{-Pass} {+Perf}	1	V							e.g. pávo,pávi,épava,épave
	2a	V		C					e.g. pávis,épaves
	2b	V					C		e.g. pávun,épavan,epáfθin
	3b	V					C	V	e.g. pávune,pápsane
either section	3a	V		C		V			e.g. pávume,pávome,pávese, pavete
	4	V		C		V	C		e.g. pávomen,epáfθisan, pavómun,epavómin

e. If the analysis captured in Table Four is incorporated in the grammar we can envisage a morpholexical component which, activated by a complex symbol such as

{ pav- ,+V , $ST_{\emptyset}$, + Pass, - Perf, + Past, - Pl, 1, - K } (=pavómuna)

would proceed in the following way to select the correct phonological representation: to begin with, the morpholexical rules would select the alternative termination types 4 (VCVC) to match the subset { + Pass, - Perf, + Past, - Pl, 1 } of the input, or 5a (VCVCV) to match the cluster { + Pass, - Perf, + Past, - Pl, - K } ; subsequently, redundancy rules would rewrite VCVC as

$$\begin{bmatrix} V \\ +back \\ -high \end{bmatrix} \begin{bmatrix} C \\ +anter \end{bmatrix} \begin{bmatrix} V \\ \alpha\ high \\ -\alpha\ low \end{bmatrix} \begin{bmatrix} C \\ +nasal \\ +anter \\ +coron \end{bmatrix} ;$$

then, the first consonant from the left would be further specified as [+nasal] in the presence of the grammatical value { 1 } and as [-coronal] by a redundancy rule (the only nasal next to termination initial vowel in type 4 is m) while the last vowel would be further specified as [-low] in the presence of the value { 1 } and as [-front] in the presence of the value { - K } , i.e. omun and not omin ({ + K }) or otan ({ 3 }). A similar procedure would be followed for the reading of type 5a (VCVCV): a redundancy rule would rewrite it as:

$$\begin{bmatrix} V \\ +back \\ -high \end{bmatrix} \begin{bmatrix} C \\ +ant \end{bmatrix} \begin{bmatrix} V \\ \alpha\ high \\ -\alpha\ low \end{bmatrix} \begin{bmatrix} C \\ +nasal \\ +anter \\ +coron \end{bmatrix} \begin{bmatrix} V \\ -back \\ -high \end{bmatrix};$$

the first consonant from the left would be further specified as m and the second vowel as [+high] as in the case of type 4 above; finally, the last vowel would be specified as [+low] in the presence of the feature {l} and its probability of occurrence in various phonological contexts (before a vowel, a consonant or pause) would be stated by variable rule (see Ch.V.8. below).

The formulation based on Table Four is superior to the two alternative formulations discussed earlier on in that it explicitly accounts for all aspects of the segments to the right of SP_5 investigated in the present study. However, it should be noted that it is considerably "uneconomical" since it incorporates all the information provided by the other two formulations plus explicit statements as to how they relate (i.e. how termination types are arranged on the seven-place grid). More importantly, it imposes for the segments to the right of SP_5, unlike the strings appearing in SP_1 to SP_5, a hierarchical relationship between termination types and their fully specified constituent parts. Consequently, we will

have to reject the above, third, fomulation in favour of the second (based on the seven-place grid of the schema at the end of 7.6. and related discussion) since the latter, but not the former, both is maximally economical and preserves the descriptive uniformity throughout the verb syntagm. Still, it does no harm to stress the fact that the third solution (that based on Table Four) accounts for the strings to the right of SP_5 in the most thorough way (at the expense of economy and uniformity of description, as we said) and as such, though rejected at this stage, should perhaps not be forgotten until such time as we know more about the inflectional system of the verb in MGK. The last sentence is perhaps a partial vindication of the "psychological reality" of terminations as indivisible wholes implicit in the treatment of the verb in traditional grammars (see 7.1. above).

8. To recapitulate, Table Five below shows the twelve structural places and related sets of elements which were recognized in the discussion in this chapter.

TABLE FIVE : The twelve structural places and related sets of elements in the regular monolectic verb paradigm in MGK.

SP_1	SP_2	SP_3	SP_4	SP_5	SP_6	SP_7	SP_8	SP_9	SP_{10}	SP_{11}	SP_{12}
F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	F_{10}	F_{11}	F_{12}
e	$\{ST_\emptyset\}$	a	s	y	i	n	m	eθ	i	n	e
i	$\{STv_1\}$	e	θ	us	e		s	θ	e		a
	$\{STv_2\}$	i		ik	a		t	ast	a		
					o			us	o		
					u				u		

NOTES TO CHAPTER III

1. The term "formative" is used here not in the sense of Chomsky and Halle, 1968, i.e. constituents in the surface syntactic structure, but in that of Matthews, 1967, 1973, i.e. phonological segments whose inflectionally motivated combinations make up words. In this study "formative" and "(phonological) segment" are used interchangeably, though it should be remembered that, strictly speaking, the former term refers to the morphological and the latter to the phonological aspect of the inflectional affixes in the structure of a verb form. As we will show in the analysis below, formatives can be either single or complex phonological segments, e.g. o, m and e on the one hand and ast on the other in the {+ Pass, - Perf, - Past, + Pl, 1, PÁVO} form

pav + ó + m + ast + e .

2. {$ST_{\emptyset}$} and {STv} are adaptations from respectively, STc and STv proposed by Babiniotis, 1972a. Babiniotis distinguishes between STc (PÁVO) and STv (AGAPÁO) verbs, i.e. between verbs with stem-final consonant and vowel respectively. The reason for our slightly different formulation is the need to account for verbs with stem-final vowel that follow the paradigm of PÁVO

and not of AGAPÁO, e.g. APOKLÍO (= I exclude) which cannot be accommodated under either of Babiniotis' labels. When we say that APOKLÍO follows the paradigm of PÁVO we mean in fact that its stem-final vowel, unlike the F_3 vowels of AGAPÁO, does not participate in sandhi interactions with following vowels

2	6	8	
pav	i	s	
2	6	8	
apokli	i	s	
2 3	6	8	
ayapa	i	s	→ ayapás

Also, we want to showthat the stem-final consonant of PÁVO and the stem-final vowels of AGAPÁO and DIMIURGÓ are different in that only the latter are morphologically motivated. An interesting point made by Babiniotis (p.180) concerning F_3 i in{+ Pass, - Perf, - K}forms is that it is a "superimposed subsidiary articulation 'i-like" (Chomsky and Halle, 1968, p.306).

3. Proposed only by Hamp.

4. The reason for this is that it is not always possible to place a formative unequivocally in one set rather than another. (See for instance the discussion in 6 above concerning the classification of y and us in F_5 rather than F_4). Some more

cases of indeterminacy of formatives with respect to classification will be found below, owing to the considerably complex relations between subsegments within the structure of the terminations.

5. The reversal of the order of importance between analytical constructs and the object of analysis hinted at abcve often derives from our ignoring or resenting the reluctance of the outside world to behave as our theories predict it should. It is an all too common sign of intellectual indulgence, of which linguists are by no means the only culprits, to take the stance, along with Hegel, that if reality does not fit our theories so much the worse for reality! For a discussion of the (socio)linguistic version of this problem see Ch.V,1.

6. For a historical account of the segment -<u>san</u> see Adams, 1972, p.65.

7. For the category of Mood see Warburton, 1970, p.84ff.

8. Historically speaking, the nasal of column 7 appearing in {+ Pass, - Perf, + Pl, 3} forms, e.g. <u>pávonto</u>, <u>epávonto</u>, is "the same" as the nasal of (iv) appearing again in {+ Pl, 3} but other than {+ Pass, - Perf} terminations, e.g. <u>pávun</u>, <u>épavan</u>, as a result

of the following diachronic process discussed in Adams, 1972, passim, and especially p.151ff: ont > ōnt > ōn > ūn > un, and ont > ant > an. To the extent that our formulation fails to establish the historical relation between the two n's it is to be regarded as unsatisfactory. On synchronic grounds, however, the two n's are not"the same", the decisive factor for their difference being that the former appears in medial position, in the context V —— t, and the latter in final position or in the context before an "optional" vowel: —— (V) #. Indeed, the final n of {+ Pl, 3} forms such as pávun or épavan has more "in common", positionally speaking, with the final n of {1} terminations such as epavómin, pávomen, epávomen, páfsomen, epáfsamen, pafθómen, and epáfθomen, than with its medially appearing "ancestor". Note, too, the spread of the form n (V) # throughout the {+ Pass, - Perf, + Past, - K} paradigm:

pavómun(a)
pavósun(a)
pavótan(e)
pavómastan
pavósastan
pávontan/pavóntusan/pavóntan(e)

It will be appreciated that since final n now co-occurs with its medially appearing predecessor in the {+ Pl, 3} forms of the above paradigm the two n's cannot possibly be regarded as "the same" and

have to be allocated to different structural places, e.g.

2	6	7	8	10	11	12
pȧv				a	n	(e)
pav	ȯ	n	t	a	n	(e)
pav	ȯ		m	u	n	(a)

CHAPTER IV

A SEGMENT OF A GENERATIVE GRAMMAR OF THE VERB INFLECTION IN MGK

1. INTRODUCTION

In this chapter we will attempt to set up a rule system that will adequately account for the inflectional morphology of the monolectic paradigm of the Greek verb.

The following types of rules should be distinguished at this point: firstly, within the "readjustment component" (see Chomsky and Halle, 1968) of a generative grammar, morpholexical rules[1] associate complex symbols of verbal lexical items appearing in the surface syntactic structure to sequences of phonological segments. Within morpholexical rules are recognized derivational rules, which account for (compound) stems such as en + top + iz of the lexeme ENTOPÍZO (=I spot), and inflectional rules, which account for inflectional affixes such as s or o in

en + top + iz + s + o (= I will spot); secondly, within the

phonological component, accentual rules assign stress to verb forms, whereas (morpho)phonological (or sandhi, i.e. "juncture") rules account for sandhi interactions between adjacent vowels or consonants, e.g. entopízso → e(n)dopíso. Our study concentrates on inflectional, accentual and morphophonological rules, though in discussing stress and "irregular" formations certain aspects of derivational morphology will be referred to.

The present chapter is concerned with the following:

In Section 2 certain questions related to the nature of the rules are discussed.

In Section 3 are formulated the inflectional rules accounting for the "regular" verb paradigm (some "irregular" verbs are also discussed).

In Section 4 the relevant accentual rules are formulated.

Section 5 contains the morphophonological (or sandhi) rules applying to adjacent consonants or vowels.

Finally, in Section 6, various classes of "irregular" verbs are

discussed in terms of the "alternative" means, i.e. other than those employed in the "regular" paradigm, by which grammatical destinctions are expressed in their structure.

2. CONVENTIONS ADOPTED AND CONVENTIONS REJECTED.

In this section we will introduce certain conventions underlying the rules which assign phonological shape to the complex symbol of a verb appearing in the surface syntactic structure. For instance, given a complex symbol such as {+ V, ayapV-, STv_1, + Pass, + Perf, + Past, + Pl, 1, - K}, we want to relate it, through a system of explicit rules, to the phonological representation ayapiθíkame.

2.1. Within the generative framework two models have been developed with respect to the formal nature of the rules that relate inflectional categories to phonological shape. One model is based on affixation rules and the other on segment transformations (see Warburton, 1973).

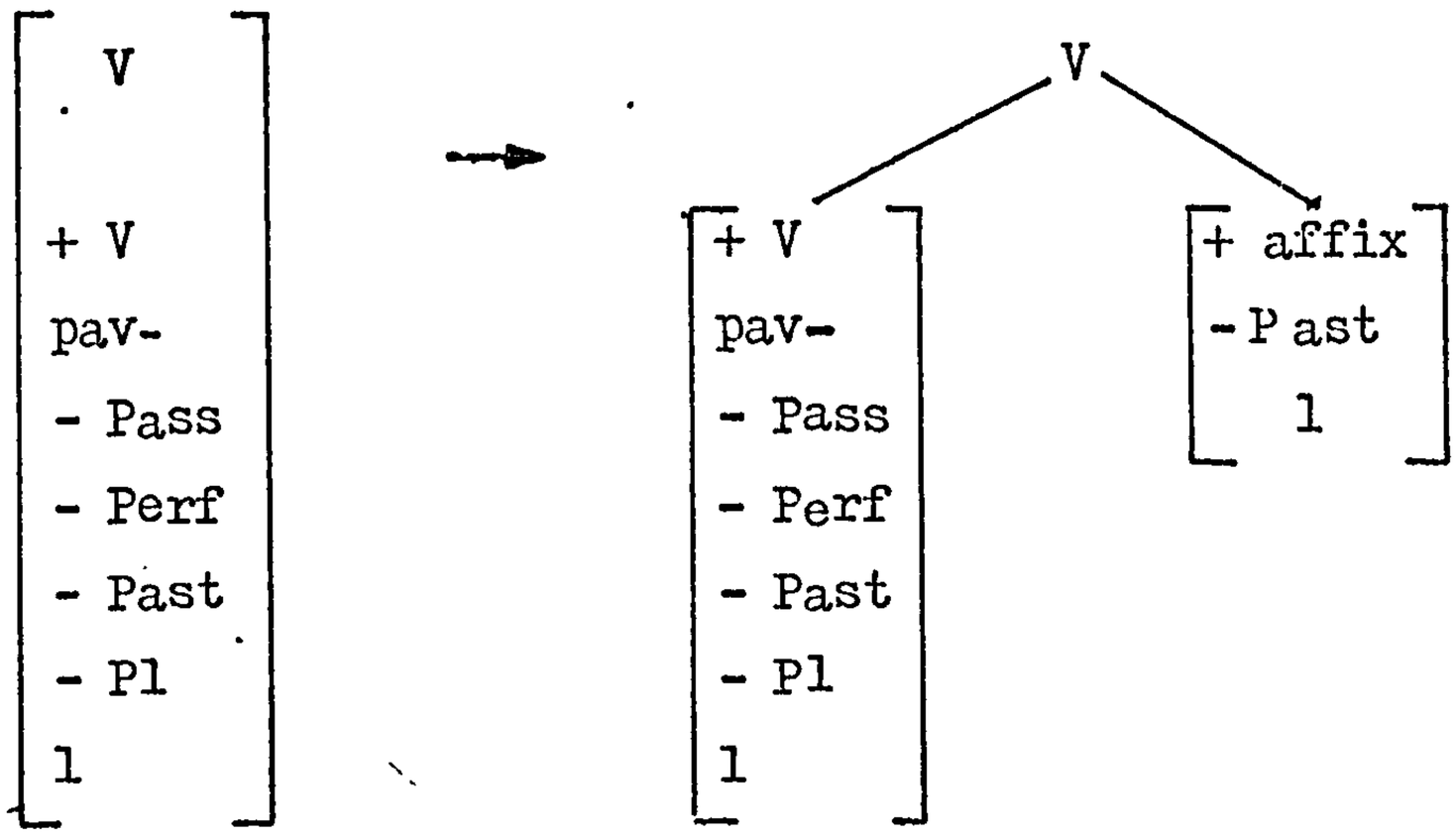
Affixation rules (Bierwisch, 1969; Matthews, 1967,1972), which are triggered off by the complex symbol of a lexical item in the surface syntactic structure, add prefixes and affixes to the stem.

Thus, the complex symbol {+ V, pav-, - Pass, - Perf, - Past, - Pl, 1 } would be associated with the phonological word pávo by an affixation rule as follows:

$$\emptyset \longrightarrow o \;/\; \left[\begin{array}{l} +\,V \\ pav- \\ -\,Pass \\ -\,Perf \\ -\,Past \\ -\,Pl \\ 1 \end{array}\right] \longrightarrow \#$$

Segment transformations (Postal, 1968; Jacobs and Rosenbaum, 1968; Warburton, 1973) operate on "a complex symbol with the grammatical categories represented as syntactic features ... to spell out some of these features as separate constituents ... while other rules will take advantage of the syntactic context given in the complex symbol in order to specify other phonological modifications". (Warburton, 1973,p.205-206).

Thus, given the above complex symbol dominated in the syntactic structure by the node V, a segment transformation would produce a result such as the following



Subsequently, the formative o would be introduced by a rewrite rule:

$$\begin{bmatrix} + \text{ affix} \\ - \text{ Past} \\ 1 \end{bmatrix} \longrightarrow \text{o} \quad .$$

Warburton criticizes affixation rules because in them syntactic features are not associated with affixes directly but are "only part of the specification of the complex symbol of the root morpheme" (p.200) As a result, morphologically conditioned exceptions to phonological rules affecting specific formatives cannot be accounted for satisfactorily in the above model. (p.199ff).

In contrast, Warburton argues, segment transformations enable us to

> "desribe a semi-agglutinating language like MG without having to force it into an agglutinating model as the IA approach would do. On the other hand one does not need to go into the opposite extreme of considering all the parts of the termination as indirectly related to syntactic features as Matthews' and Bierwisch's models do".(p.204)

Segment transformations allow us to make full use of the descriptive flexibility and power provided by features, i.e. refer to them "independently either as the input or as the environment of a rule, and phonologically irrelevant features need not be mentioned at all". (p.204). Exceptions to phonological rules can be dealt with easily via redundancy rules which can add an exception feature to the specification of a formative not undergoing a particular phonological rule.

Warburton's arguments against affixation rules and for segment transformations seem to be justified. However, her own analysis of the Greek verb inflection on the basis of segment transformations and rewrite rules is, as we argued in Ch.II,3. above, vitiated by the introduction of the concept of "markedness" and the adherence, in practice, if not in principle, to the "morphemic" (IA or IP) model. Thus, although she criticizes the fact that affixation rules, as used by Bierwisch and Matthews, establish an indirect relation between grammatical properties and phonological formatives, a number

of rules in her analysis (rules 3, 13, 14, 21 and 22) do just that, i.e. each rewrites the zero symbol ∅ as a formative not directly related to any "marked" grammatical values but simply appearing "in the context" of other fully specified grammatical formatives. It is difficult, therefore, to judge by her article whether an adequate description of the Greek verb inflection can be achieved on the basis of segment transformations and rewrite rules (and provided that the concept of "markedness" is dropped from the analysis, and also that a clear departure from the "morphemic" model is made).

In this study we take the view that affixation rules are not necessarily based on an indirect relation between grammatical values and affixes: given a complex verb symbol where grammatical categories are represented as features, a number of rules rewriting (clusters of) grammatical features as affixes in the context of other affixes are activated in intrinsic order, i.e. the output of one serves as the environment of another. The above formulation avoids the weaknesses of Bierwisch's and Matthews' model and can deal with exceptions in precisely the same way as suggested by Warburton. On the other hand, it is to be preferred, I think, to Warburton's rival model on the grounds of economy: for every rule

in our model there must be two rules in Warburton's, i.e. a segment transformation and a rewrite rule. Thus, the two rules accounting for pȧvo on the basis of Warburton's model (see rules above) can be replaced by a single rule in ours, namely,

{- Pass, - Perf, - Past, - Pl, 1} ⟶ o / STEM —— #

where a direct relation between the cluster of grammatical values and the suffix is established without the help of a "costly" transformation.

2.2. Some clarification is in order at this point concerning the concepts of simultaneous rules and of ordered rules (see Koutsoudas, 1975).

The formatives in the structure of a verb form must be seen as appearing simultaneously. For instance, none of the inflectional formatives in ayap + i + θ + ik + a + m + e can be shown in a non-arbitrary way to "precede" or "entail" the generation of the others. All we can say is that i appears between the stem and θ + ik + a + m + e , θ between ayap + i and ik + a + m + e ik between ayap + i + θ and a + m + e , etc, i.e. the position of each formative in structure is defined cyclically in relation to all other formatives with which it co-occurs. As a result, the inflectional rules accounting for the formatives in a verb form should apply simultaneously. Note that simultaneous order is here stipulated (but see 2.3. below) in the case of inflectional

rules only, whereas accentual and sandhi rules are partially ordered (see 4 and 5 below).

Now, it will be realized that simultaneous rules, though accurately reflecting the cumulate and extended exponence of inflectional features by, often, non-adjacent phonological segments, are, from the practical point of view, rather "costly" constructs. For instance, to account for the presence of θ and ik in the { + Pass, + Perf, + Past, STv_1, - K } paradigm (see Table One) we would need two simultaneous rules such as the following:

$$\text{(i)}\ \{+\text{Pass}, +\text{Perf}\} \longrightarrow \theta\ /\ X\ i]_{STEM} \text{ —— } ik + \left\{\begin{array}{l} e(s) \\ \\ a + \left(\left\{\begin{array}{l} m \\ t \end{array}\right\} + e\right) \\ \quad\ n\ +(e) \end{array}\right\} \#$$

$$\text{(ii)}\{+\text{Pass},+\text{Perf},+\text{Past},-\text{K}\} \longrightarrow ik\ /\ X\ i]_{STEM} + \theta \text{ —} \left\{\begin{array}{l} e(s) \\ a + \left(\left\{\begin{array}{l} m \\ t \end{array}\right\} + e\right) \\ \quad\ n\ +(e) \end{array}\right\} \#$$

e.g. ayap + i + θ + ik + a, ayap + i + θ + ik + es, ayap + i + θ + ik + e, ayap + i + θ + ik + a + m + e, etc.

The obvious solution is, of course, to do away with all the common and, as such, redundant formatives in the environment of the two rules, i.e.

(iii) {+ Pass, + Perf} ⟶ θ / STEM —

(iv) {+ Pass, + Perf, + Past, + K} ⟶ ik / STEM + θ —

Rules (iii) and (iv), however, are not just more economical versions of, respectively, (i) and (ii); rather, they are rules of a different kind, in that they apply in "intrinsic" order[2] (rather than simultaneously); i.e. the application of (iii) provides the environment for the application of (iv) but not vice versa as is the case with (i) and (ii).

The convention involved here, therefore, is that the system of "intrinsically" ordered rules in this study is to be seen as an economical version of a system of inflectional rules generating simultaneously all the formatives that make up a verb form.

An even more economical approach to rule writing would necessitate the inclusion in the input of (iv) above of only the non-redundant inflectional values, i.e.

(v) {+ Past, + K} ⟶ ik / STEM + θ —

As we argued in Ch.III,7.3. above, however, redundancy cannot be avoided in some rules accounting for formatives which always appear in the presence of the same values. Furthermore, in setting up (for the inflectioral system of the Greek verb, in which extraordinary complexity is compensated for by lavish redundancy) a fairly flexible

system of only intrinsically, rather than extrinsically, ordered rules, a measure of redundancy (even if some of it is easily avoidable as in the case of (iv) above), enhances the "readability" of the rules, a not altogether unworthy practical objective, it seems to me.

2.3. It would be appropriate to discuss at this point the desirability of ordering the rules "extrinsically"[2] for the sake of greater economy with respect to the number of symbols used in the rules. Extrinsically ordered rules would produce incorrect forms if applied in an order other than indicated. According to Matthews, 1967, (see Ch.II,4. above), a form such as ayap + i + θ + ik + a would be derived by the suffixation of i to the Root (R) ayap in the presence of the feature {+ Perf} to form the Primary Stem (S^1) ayap + i (p.279); to it would be suffixed θ in the presence of the cluster {+ Pass, + Perf} to form the Secondary Stem (S^2) ayap + i + θ (p.278); the derivation of the Tertiary Stem (S^3) would be achieved in the presence of the cluster {+ Pass, + Perf, + Past} by the further suffixation of ik: ayap + i + θ + ik (p.276); finally, the Verbal Form (V) would be derived by the suffixation of a in the presence of the cluster {+ Past, - Pl, 1}: ayap + i + θ + ik + a. To give an example of Matthews' rules, final a in ayapiθika would be derived by rule 10 (p.270) (modified

below to fit our conventions but unchanged in essence).

(vi) { Verb, + Past, - Pl, 1 } S^3 + a

which reads that if a grammatical word carries, among others, the subset { + Past, - Pl, 1} in its set of grammatical values, a is suffixed to the Tertiary Stem, e.g. ayap + i + θ + ik. However, exactly the same rule completes the { - Pass, - Perf, + Past, - Pl, 1} verb form e + pav + a, where a is in fact suffixed directly to the Root pav. In Matthews' rule system this apparent discrepancy is resolved by rewriting in {- Pass, - Perf} R as S^1, then S^1 as S^2, and S^2 as S^3 without the addition of any formatives, i.e. through the vacuous application of three successive rules. However, what precisely is a Tertiary or an Intermediate Stem in the derivation of a verb form solely depends on what rules have already applied. This means, as we argued in Ch.II.4, that the object of the analysis (i.e. the observable regularities concerning the distribution of formatives in the verb paradigm) is obscured in favour of the tool of the analysis (i.e. the classificatory device of the STEM). The result is not only obscurity but also complexity. Thus, if we want to check whether Matthews' rule 10 is "correct" i.e. if a is always and only attached to the Tertiary Stem, we will have to trace back all the rules preceding it, i.e. all the rules whose successive action creates S^3 stems, which can be quite a daunting task, even for a native

speaker of Greek. For Matthews' system of heavily interdependent rules to work, most rules are ordered extrinsically: for instance, rule 2 precedes rules 3, 5, 16 and 17, rule 3 precedes rules 5, 6, 12, 16 and 17, rule 7 precedes rules 9, 10, 12, 13, 14, 15, 16 and 17, and so on. Frankly, Matthews' system of fifty-five rules is of such unnecessary complexity that it simply cannot be read by a human being in any illuminating way, and one can only speculate whether it can be read by a computer.

In this study we have tried to improve on Matthews' rules by requiring the inclusion of sufficiently specific morphological environments in the rules so that they need not be "extrinsically" ordered.[3] For instance, Matthews' rule 10 above could be given the following shape to cover the generation of final a (see Table One):

$$\text{(vii)}\ \left\{\begin{Bmatrix}\{-\text{Pass}, \begin{Bmatrix}\{-\text{K}\}\\ \{+\text{Perf}\}\end{Bmatrix}\}\\ \{+\text{Perf}, -\text{K}\}\end{Bmatrix}, +\text{Past}, -\text{Pl}, 1\right\} \rightarrow \text{a} \,/\, \text{STEM} + \left(\begin{Bmatrix}\text{y}\\ \text{us}\\ \text{s}\\ \theta + \text{ik}\end{Bmatrix}\right) \text{---}\ \#$$

The rule accounts for final a in the following forms:

{-Past,-Pl,1}	{-Pass}	{-Perf}	{-K}	{STv_1}	ayáp + a + y + a ayap + á + us + a → ayapúsa
				{STv_2}	ɖimiury + é + us + a → ɖimiuryúsa
				{$ST_\emptyset$}	é + pav + a
		{+Perf}	{-K}	{STv_1}	ayáp + i + s + a
			{+K}		e + ayáp + i + sa → iyápisa
			{-K}	{STv_2}	(e) + ɖimiúry + i + s + a
			{+K}		e + ɖimiúry + i + s + a
			{-K}	{$ST_\emptyset$}	é + pap + s + a
			{+K}		é + paf + s + a
	{+Pass}		{-K}	{STv_1}	ayap + í + θ + ik + a
				{STv_2}	(e) + ɖimiury + í + θ + ik + a
				{$ST_\emptyset$}	(e) + páf + t + ik + a

Our version of Matthews' rule 10 may, perhaps, be considered as less "elegant" or "economical"than the original. On the other hand, our version is "simpler" than the original since it does away with extrinsic order and can be "read" on its own without recourse to any other rule in the system, i.e. in order for the rule to apply, one of the clusters of values of the input must be present in the complex symbol of the verb and also the corresponding formatives making up the context of the rule must have already been provided by the application of other rules, the important point being that we need not know which those rules are in checking the rule for correctness. Our rule system is also a truer picture of the cumulate and extended character of exponence in the verb since its emphasis is to show the association of clusters of inflectional values and strings of phonological segments directly, rather than indirectly via the solution of metalinguistic problems related to the writing of "economical" rule systems.

2.4. From our grammar is excluded the concept of <u>synchronic "processes"</u> (see Matthews, 1972, p.127 et passim), according to which a "basic" form changes into a different form in a certain morphological (and <u>not</u> phonological) context. For instance in Warburton, 1970, p.128, rule 22 changes "basic" <u>a</u> of <u>ayap + a-</u>

into i before s or θ, e.g.

{- Pass, - Perf, - Past, - Pl, 1}: ayap + ȧ + o

{- Pass, + Perf, - Past, - Pl, 1}: ayap + i̇ + s + o

{+ Pass, + Perf, - Past, - Pl, 1}: ayap + i + θ + ȯ

However, since it can only be arbitrarily determined that a changes to i rather than the other way around, it is more accurate, though possibly less economical with respect to the number of symbols used, to allow the grammar to generate a partially specified segment $[\ ^{V}_{-back}\ ]$ which would subsequently in the derivation be fully specified as [+low] (a) or [+high] (i) in the presence of different inflectional values (see rules 3, 4, 5 and 6 below), which is the practice adopted in the present study.

2.5. We have also excluded from our study the use of "basic" morphophonemes (see Matthews, 1972, p.365 et passim), i.e. phonemes with no synchronic status whatsoever which never appear overtly but which "facilitate" the setting up of rules that "account" for certain irregularities. In Warburton, 1970, use is made of "basic" morphophonemes "in order to explain some linguistic phenomena which otherwise would appear accidental" (p.160). Thus, to account for the appearance of s between the stem of such "irregular" verbs

as AKÚO (= I hear) (see "irregular formations" 4.3.4. below) and the F_4 formative $\underline{\theta}$, it is postulated by Warburton that the stem-final position is occupied by "basic" glide $\underline{h}$, which changes to "dental non-nasal" before another consonant:

$$akuh\begin{Bmatrix}s\\ \theta\end{Bmatrix}o \longrightarrow akus\begin{Bmatrix}s\\ \theta\end{Bmatrix}o$$

In different terms, it is postulated by Warburton that $\underline{h}$ changes to $\underline{s}$ before a consonant in roughly the same way that "overt" stem-final $\underline{v}$ changes to $\underline{f}$ in the same environment in the "regular" verb paradigm:

{-Perf}: pávo

$$\{+Perf\}: \quad pav\begin{Bmatrix}s\\ \theta\end{Bmatrix}o \longrightarrow paf\begin{Bmatrix}s\\ \theta\end{Bmatrix}o$$

the essential difference being that $\underline{v}$ appears overtly while $\underline{h}$ never does.

In our study, however, we take a different view, namely, that the necessity for "basic" morphophonemes only arises if we are determined to force all sorts of phenomena into the same explanatory mould, one involving the change of one segment into another: thus, only if we decide that the presence of $\underline{s}$ in $\underline{akúo}$, $\underline{akus\theta ó}$ is the product of change of one element into another, need we postulate a reconstructed, "basic" $\underline{h}$: $\underline{akúho}$, never appearing overtly[4]. If, on the other hand, we realize that we do not $\underline{have}$

to do anything of the sort, other solutions, intuitively more gratifying and synchronically more appropriate (reconstructed h might be of historical interest) suggest themselves. For instance, we may suggest that, whereas in the "regular" verb paradigm s and θ are contrastive elements belonging to the same set i.e. either one or the other may appear but never both at the same time, e.g. ayapíso, ayapiθó, in the case of the "irregular" verb AKÚO the formatives s and θ belong to adjacent sets and co-occur in {+ Pass, + Perf} forms: while in {- Pass, + Perf} forms only s is possible, e.g. $\overset{2}{\text{aku}}\ \underset{\text{s}}{\overset{4}{}}\ \underset{\text{o}}{\overset{6}{}}$, $\overset{2}{\text{ayap}}\ \underset{\text{i}}{\overset{3}{}}\ \underset{\text{s}}{\overset{4}{}}\ \underset{\text{o}}{\overset{6}{}}$, in {+ Pass, + Perf} forms both s and θ appear in that order: $\overset{2}{\text{aku}}\ \underset{\text{s}}{\overset{4}{}}\ \underset{\text{θ}}{\overset{4}{}}\ \underset{\text{o}}{\overset{6}{}}$ but $\overset{2}{\text{ayap}}\ \underset{\text{i}}{\overset{3}{}}\ \underset{\text{θ}}{\overset{4}{}}\ \underset{\text{o}}{\overset{6}{}}$.

From the synchronic point of view the fact that such a co-occurrence is limited to AKÚO and a few more verbs only, can be seen, for all practical purposes, as accidental: akusθó could just as easily be the rule and ayapiθó the exception. Also, both *akuθó and *ayapisθó are perfectly possible in terms of morpheme structure rules or conditions (see Stanley, 1967) and it is a matter of chance, synchronically speaking, that they are not realized by the language. It seems therefore that certain linguistic phenomena which "would appear accidental" in Warburton's terms, may in fact be accidental, which is of no concern; for if they are accidental, then they should be studied as such rather than be subjected to Procrustean

treatment such as processes involving "basic" morphophonemes.[5]

2.6. The above discussion on "reconstructed" h brings us to the problem of historical explanations in synchronic descriptions. In our analysis, historical explanations are included only if they meet the following restrictions:

(i) Only recognized segments may appear in underlying representations, e.g. the change of i between stem and termination in underlying ayap i eme into j in the context C —— V : ayapjéme.

(ii) The postulation of an underlying segment at a certain point in the structure of a word form should be supported by the "overt" appearance of the same segment at the same point in structure elsewhere in the paradigm: e.g. F_6 i in "underlying" ayap a i s (elided in overt ayap á s) appears "overtly" in pav i s and ayap a i .

(iii) A segment appears in an underlying representation even if it never appears in the corresponding "overt" representation, provided that it is historically attested and that the effects of its interaction with adjacent segments are similar to those produced by synchronically established sandhi interactions. For instance,

"underlying" F_3 e is postulated in the structure of DIMIURGÓ (= I create) because a) it is historically attested, b) its sandhi interaction with adjacent F_6 vowels produces the same results with respect to the number of syllabics and position of stress in the verb forms as that of the synchronically established a in AGAPÁO, e.g.

"overt" ayap + á + o or "overt" ayap + ó

"underlying" dimiury + é + o ⟶ "overt" dimiury + ó

where of two adjacent vowels one is elided and the surviving one carries the stress (see below section 4 on morphophonological rules); and c) as we shall see in 5.3.2. below, on the basis of the Hierarchy of Dominance principle; the vowels appearing between the stem of DIMIURGÓ, and the terminations cannot be anything else but the result of sandhi interaction of F_3 e with adjacent F_6 vowels.

2.7. Variable Rules

Variable rules are an extention of "optional" rules of traditional generative grammar, the basic difference being that only the former are attempts to explain, rather than simply state, cases of variation. Variable rules do not necessarily apply every time their input conditions are met, their probability of application being often affected by features of the environment. The output of a variable rule is included in three-cornered brackets ⟨ ⟩ :

(viii) {+Pass,-Perf} ⟶ ⟨a⟩ / un — # e.g. pavómun(a)

(Notice that, in representations of verb forms, segments introduced by variable rules appear in parenthesis, i.e. three-cornered brackets appear in rules only). If a rule applies variably in the presence of certain features of the environment only, and otherwise categorically, it is such features, rather than the output, that are included in three-cornered brackets:

(ix) $\begin{bmatrix} C \\ -voiced \\ +continuant \end{bmatrix}$ ⟶ [-continuant] / $\left\langle \begin{bmatrix} \text{———} \\ -coronal \\ +anterior \end{bmatrix} \right\rangle$ s e.g. yrápso but páfso or pápso

It will be realized that (ix) above is in fact a collapsed version of two separate rules, a categorical one (i.e. one applying always):

(x) $\begin{bmatrix} C \\ -voice \\ +continuant \end{bmatrix}$ ⟶ [-continuant] / — s e.g. yráfso ⟶ yrápso

and a variable one:

(xi) $\begin{bmatrix} C \\ -voice \\ +continuant \\ -coronal \\ +anterior \end{bmatrix}$ ⟶ ⟨[-continuant]⟩ / — s e.g. páfso or pápso

Three-cornered brackets are an adaptation from angled brackets as introduced in Labov, 1966. I have preferred three-cornered brackets, however, firstly, because the respective conventions are partly different, and secondly, because later in the study (see

4.1.3.; tentative rule (vii)) angled brackets will appear as used in traditional generative grammar (see Chomsky and Halle, 1968, p.76). In Ch.V. variable rules will be further refined on the basis of the relative weight of features of the linguistic environment, stylistic considerations, the context of situation, relative frequency of occurrence, etc.

3. THE INFIECTIONAL MORPHOIEXICAL RULES

We turn now to consideration of the inflectional morpholexical rules generating the formatives of the verb for each set of formatives separately.

3.1. The first set of formatives (F_1)

The augment e (or i, for such verbs as ΘÉLO (= I want) and KSÉRO (= I know)) may, but does not always, appear in {+ Past} forms depending on the following factors:

3.1.1. In most simple, as distinct from compound, verbs, the augment appears categorically in the presence of the values {+ Past, + K}. Otherwise, i.e. in the presence of the values {+ Past, - K}, its appearance is subject to further factors discussed below. For the time being, however, we will say that

the value {- K} causes the augment to appear "optionally":

(i) {+ Past} → e / # — STEM / ⟨{- K}⟩

The rule reads that e appears categorically before the stem of {+ Past}verb forms unless the feature {- K} is also present in their complex symbol, in which case e appears "optionally".

e.g. {+Pass,+Perf,+Past,+Pl,1} $\begin{matrix}\{+K\}\\\{-K\}\end{matrix}\begin{bmatrix}e\\(e)\end{bmatrix}$ + páf + θ + $\begin{bmatrix}\emptyset\\ik\end{bmatrix}$ + $\begin{bmatrix}i\\a\end{bmatrix}$ + m + e $\begin{bmatrix}n\\\emptyset\end{bmatrix}$

(where the stress is on the antepenult and F_4 θ changes, normally, to t after f in the {- K} forms).

3.1.2. In the case of verbs with stem-initial vowel the sandhi interaction between the augment and stem-initial vowels is treated by morphophonological rule 68 (see 5.3.9. below) e + ayápisa → iyápisa

The vowel that appears, in the presence of the feature {+ Past}, before a verb form beginning with a consonant has been traditionally referred to as a syllabic augment,

e.g. {- Past} : páv + o , {+ Past} : é + pav + a

In the case of verbs where an alternation between different vowels in stem-initial position corresponds to Tense distinctions, the vowel associated with the feature {+ Past} is traditionally called a "temporal" augment, an apt term for Classical Greek where it refers

to the extra length or duration of a stem-initial vowel associated with the value {+ Past} , but not for MGK where vowel-length distinctions are lost:

{-Pass,+Perf,+Past,-Pl,1}	{+K}	[i]	yápisa (= I loved)
	{-K}	[a]	
	{+K}	[i]	lpísa (= I hoped)
	{-K}	[e]	
	{+K}	[ó]	ktira (= I pity)
	{-K}	[í]	
	{+K}	í[l]Θ[on]	(= I came)
	{-K}	{r} [a]	
	{±K}	íxa	(= I had)

It will be noticed that in the above examples the "temporal" augment is categorical in the case of íxa and í{l/r}Θa irrespective of {± K} distinctions.

We can therefore extend tentative rule (i) above to account for the categorical appearance of e before the stems ex- and e{l/r}Θ -

(ii) {+ Past} → e /# ___ { STEM / ⟨{-K}⟩ (a)
{ ex- / e {l / r} θ - } (b)

The explanation introduced above to account for the "temporal" augment is based, up to a certain point, on historical considerations: e is posited in front of the verb stem as usual, though in the case of verbs with stem-initial vowel the two adjacent vowels coalesce into a single vowel: e + ayápon → iyápon. Our explanation departs from a strictly historical stance, however, in that no vowel length considerations are introduced in the rules, as, among others, Newton, 1972, for instance, does in dealing with the stress pattern in MGK (see 4 below). Failing the above kind of explanation we would have to treat all verbs with stem-initial vowel as exceptions to the first part of tentative rule (ii) above, i.e. as verbs expressing tense contrasts by, among other things, alternation of vowels in stem-initial position, an unsatisfactory solution, both because it is uneconomical, and, more importantly, because it would obscure the significance of the "temporal" augment in MGK: a relic from Classical Greek, rarely appearing in everyday speech for stylistic effect, humour, etc. More about this in Ch.V,3.below.

3.1.3. Certain verbs with stem-initial vowel never take a

"temporal" augment in the presence of the value {+ Past} irrespective of {± K} distinctions:

{- Pass, - Perf, - Pl, 1}

{- Past}	{+ Past}
aerízo (= I air)	aériza
epiplóno (= I furnish)	epíplona
orimázo (= I mature)	orímaza
iketévo (= I supplicate)	iketeva

Such verbs will be treated as exceptions and will be accounted for by preventing tentative rule (ii) from applying in their case through an exception feature in their lexical representation:

$$\begin{bmatrix} +V \\ V_1 \\ \text{-rule (ii)} \end{bmatrix}$$

where group V_1 comprises AERÍZO, EPIPLÓNO, ORIMÁZO, etc.

3.1.4. In the case of most of the verbs compounded with derivational prefixes (or "genuine" prepositions[6]) an augment appears, if at all, between the (last) prefix and the verbal root. In the presence of the value {- K} however, and in the case of prefixes

beginning with a consonant, such compound verbs tend to (but do not always) behave like simple verbs in that the augment is "optionally" (i.e. sometimes, but by no means always) transferred to word-initial position. Formally speaking, the morpheme boundary between the prefix and the root is "optionally" deleted prior to the appearance of the augment. Thus, in the case of the lexeme PROSFÉRO (= I offer), whose stem is made up of the preposition pros plus the verbal root fer-, the augment appears as follows:

$$\{-\text{ Pass, }-\text{ Past, }-\text{ Pl, 1}\} \quad \begin{cases} \{+\text{ K}\}: & \text{pros} + \acute{\text{e}} + \text{fer} + \text{a} \\ \{-\text{ K}\}: & (\text{e}) + \text{prós} + \text{fer} + \text{a} \end{cases}$$

In the case of a prefix beginning with a vowel, however, and in the presence of the value {- K} the augment is not transferred to word initial position, e.g. antídrase (he reacted) and not *e + antídrase → *intídrase.

We will therefore revise the first part of tentative rule (ii) above so that now it can specify an augment before a verbal root which may be preceded by zero or more derivational prefixes:

$$/ \# \text{ PREF}_0 \text{ —— ROOT } / \langle \{-\text{ K}\} \rangle$$

where the zero subscript means "zero or more" (depending on the lexeme). Note that the above revised form of the second part of

tentative rule (ii) presupposes a thorough analysis of the derivational structure of stems, and as such it lies, strictly speaking, outside the scope of a study on inflectional morphology such as the present one.

We will also specify that, in the presence of the feature {- K} and prior to the application of tentative rule (ii) above, the morpheme boundary between a prefix beginning with a consonant and the root is"optionally" deleted:

$$\text{(iii)}\quad \#[\text{C X}]_{\text{PREF}} + \begin{bmatrix}\text{ROOT}\\ \{-\text{K}\}\end{bmatrix} \longrightarrow \langle 1\ 2\ 4 \rangle$$

1 2 3 4

Tentative rule (iii) is extrinsically ordered before rule (ii).

3.1.5. In the case of {+ Past, - K} verb forms, e seldom, but by no means never, appears in unstressed position, e.g. {+ Pass, + Perf, + Past, + Pl, 1, -K} : paftíkame rather than epaftíkame. However, as the stress pattern normally associated with the value {+ Past}is proparoxytonic (see 4 below), if the verb form is disyllabic, the augment appears categorically to support the stress:

$$\text{(iv)}\quad \{+\ \text{Past}\} \longrightarrow \text{e} \quad /\#\text{——}\ \text{C}_o\ \text{V}\ \text{C}_o\ \text{V}\ \text{C}_o$$

e.g. épapsa.

It has been suggested (Babiniotis, 1970a) that the main function of the augment in MGK is to support the stress, rather than express the grammatical value {+ Past}. Evidence from our data suggests that Babiniotis is right on the whole, though there are enough examples of unstressed augments to persuade us that the augment still functions, however marginally, as an exponent of {+ Past}. Consider the following examples from the corpus:

1/5/23 P.D.: aftó to mína píra kenúrjes teníes ....
épira djó teníes (= this month I have bought new tapes ..., I have bought two tapes)

where of the two occurrences of the {- Pass, + Perf, + Past, - Pl, 1} form of PÉRNO (= I buy) the augment appears in the second only.

2/16/26 Y.L.: téknon mu, imártises (= my son, you have sinned)

where a "temporal" augment appears in the {- Pass, + Perf, + Past, - Pl, 2} form of AMARTÁNO (= I sin).

It will be appreciated that tentative rule (iv) above is essentially morphophonological and not morpholexical, and as such it is activated after all morpholexical rules have applied.

3.1.6. An augment (or, more generally, a word-initial vowel) may be elided, even if it is stressed, in accordance with the Hierarchy of Dominance principle (see 5.3.2. below) when preceded by a "stronger" word-final vowel (see Chadzidakis, 1889, p.221), provided that the preceding word is one of a small set comprising, for instance, the articles tu, ta, to, the relative particle pu, e.g.

tu ípe → tú pe (= he told him)

pu épese → pú pese (= that fell)

ta éfera → tá fera (= I brought them)

3.1.7. The rules set forth above cannot successfully account for some verbs compounded with prepositions or with words other than prepositions. The problem such verbs pose is related either to the positional mobility of the augment within a compound stem such as dis + arestV- of the lexeme DISARESTÓ (= I displease):

$$\{-\text{Pass},+\text{Perf},+\text{Past},-\text{Pl},1\} \quad \begin{cases} \{+K\}: \text{dis} + (e) + \text{arést} + i + s + a \rightarrow \begin{cases} \text{disirestisa} \\ \text{disarestisa} \end{cases} \\ \{-K\}: (e) + \text{dis} + \text{arést} + i + s + a \rightarrow \text{edisarestisa} \end{cases}$$

or the number of augments appearing, as in the stem amfi + svitV- of the lexeme AMFIZVITÓ (= I doubt) where either one or two augments may appear:

{-Pass,+Perf,+Past,-Pl.,1+K}: { e + amfi + zvít + i + s + a → imfizvítisa
                              { e + amfi + e + zvít + i + s + a → imfezvítisa

or the degree of cohesion of the components of the stem: the prefixes para (= too much) and ksana (= again), for instance, in the following examples may be stressed separately from the verb that follows, i.e. as separate words, in which case the augment appears before the verbal element:

e.g. pára ípja (= I drank too much)

ksána írθa (= I came again)

or they may be placed under the accentual pattern of the compound word as a whole, in which case the augment, if it appears at all, may either precede the prefix word or appear between it and the verbal stem:

e.g. (e)parápja (= I drank too much) or, paraípja

(e)ksanárθa (= I came again) or, ksanaírθa

Having confined our study to the inflectional, rather than to the derivational, morphology of the Greek verb, however, we will assume at this point that adequate, though ad hoc, information can be included in the lexicon, in the form of exception features, concerning the behaviour of particular compound verbs with respect to the position of the augment, i.e. we can treat all such verbs as

"exceptions" to the rules set forth above.

3.1.8. Verbs such as θÉLO (= I want) and KSÉRO (= I know) which take an augment i and not e can be accounted for either by stating in the lexicon that the set of augments contains i for θÉLO and KSÉRO and e for the rest of the verbs in the language, or, which is the solution endorsed here, by revising rules (ii), (iii), and (iv) above so that now their output is a vocalic segment partly specified as [+front]. A subsequent rule would then assign it full specification by adding to it the feature [+high] in the case of θÉLO and KSÉRO and [-high] elsewhere:

$$\text{(v)}\quad [^{V}_{+\text{front}}] \longrightarrow \begin{cases} [\ +\text{high}\ ] \\ [\ -\text{high}\ ] \end{cases} \;/\; \#\# \text{ —} \; \begin{Bmatrix} \theta\text{el-} \\ \text{kser-} \end{Bmatrix} \quad \begin{matrix} \text{(a)} \\ \text{(b)} \end{matrix}$$

3.1.9. We can now summarize rules (i) to (v) as follows:

Rule 1

$$\#\#[\ C\ X\ ]_{PREF} + [\ ^{ROOT}_{\{-K\}}\ ] \longrightarrow \langle 1 \quad 2 \quad 4 \rangle$$
$$1 \quad 2 \quad 3 \quad 4$$

e.g. {- K} : prós + fer + a → prósfer + a → (e)prósfer + a (= I offered)

Rule 2

$$\{+\text{Past}\} \rightarrow \begin{bmatrix} V \\ +\text{front} \end{bmatrix} / \begin{cases} \text{PREF}_o \text{ — ROOT } / \left\langle \{-\text{K}\} \right\rangle & \text{(a)} \\ \text{—} \begin{cases} \text{ex-} \\ \text{e}\{\substack{\text{l} \\ \text{r}}\}\theta\text{-} \end{cases} & \text{(b)} \\ \# \text{ —— } C_oVC_oVC_o & \text{(c)} \end{cases}$$

e.g.

(a) $\{+\text{K}\}\begin{bmatrix} \text{e} \\ (\text{e}) \end{bmatrix} + \text{pá} + \begin{bmatrix} \text{f} \\ \text{p} \end{bmatrix} + \text{s} + \text{a} + \text{m} + \text{e} + \begin{bmatrix} \text{n} \\ \emptyset \end{bmatrix}$ (= we stopped)

$\{+\text{K}\}$ / $\{-\text{K}\}$ $\text{epi} + \begin{bmatrix} \text{e} \\ (\text{e}) \end{bmatrix} + \text{krá}\text{ti} + \text{s} + \text{a} \rightarrow \begin{bmatrix} \text{epekrátisa} \\ \{\substack{\text{epekrátisa} \\ \text{epikrátisa}\}} \end{bmatrix}$ (= I dominated)

$\{+\text{K}\}\begin{bmatrix} \text{e} \\ (\emptyset) \end{bmatrix} + \text{ayápi} + \text{s} + \text{a} \rightarrow \begin{bmatrix} \text{iyápisa} \\ \text{ayápisa} \end{bmatrix}$ [7] (= I loved)

(b) é + ex + a → íxa (= I had)

é + e$\{\substack{\text{l} \\ \text{r}}\}\theta$ + a → í$\{\substack{\text{l} \\ \text{r}}\}\theta$a (= I came)

(c) pap + s + a → e + pap + s + a → é + pap + s + a (= I stopped)

Rule 3 $\begin{bmatrix} V \\ +\text{front} \end{bmatrix} \rightarrow \begin{cases} [\ +\text{high}\ ] \\ [\ -\text{high}\ ] \end{cases} / \# \text{ —— } \begin{cases} \theta\text{el-} \\ \text{kser-} \end{cases}$ (a) (b)

e.g. íθela, íksera, but épapsa.

Rule 1 is extrinsically ordered before rule 2, which in its turn is intrinsically ordered before rule 3 (the output of rule 2 is the input to rule 3).

In Ch.V.2 and 3 below we will discuss the effect of features of the environment on the frequency of application of the variable rules above.

3.2. The second set of formatives (F_2)

3.2.1. F_2 formatives, the lexical formatives or stems, do not normally express any grammatical distinctions. Thus, in the following verb forms the segment ayap- remains unaltered:

{- Pass, - Perf, - Past, - Pl, 1, - K} : ayap + á + o

{+ Pass, + Perf, - Past, + Pl, 2, - K} : ayap + i + θ + ú + m + e

3.2.2. However, the particular lexical class or "conjugation" to which a stem belongs entails the presence of different formatives in structure. For instance, {STv} verbs differ from $\{ST_{\emptyset}\}$ in that

(a) F_3 formatives appear in the stem structure of the former only:

{-Pass,-Perf,-Past,-Pl,1}

$\{ST_{\emptyset}\}$: páv + o

{STv} : ayap + á + o

(b) the F_5 formatives y and us appear in the case of {STv} verbs only:

{-Pass, Perf, +Past, -Pl, 1, -K}

{$ST_\emptyset$} : é + pav + a

{STv} : ayáp + a + y + a or ayap + ús + a

and (c) F_6 e follows the stem of {+ Pass, - Perf, - Past, - Pl, 1, STv, - K} forms only:

{+Pass, -Perf, -Past, -Pl, 1}

{$ST_\emptyset$} : páv + o + m + e

{-K STv}: ayap + [á / i] + [o / e] + m + e → [ayapóme / ayapjéme]

The presence of F_3 a is characteristic of {STv_1} verbs (e.g. AGAPÁO) whereas the presence of e is characteristic of verbs such as DIMIURGÓ (i.e. {STv_2} verbs (but see 3.3. below for a more detailed description of F_3 formatives)), e.g.

{-Pass, -Perf, -Past, +Pl, 2}

{STv_1}: ayap + á + e + t + e → ayapáte

{STv_2}: dimiury + é + ete → dimiuryíte

3.2.3. In a number of "irregular" verbs grammatical contrasts may be expressed in the alternation of partly or wholly suppletive stems (see 6 below).

{-Perf}	{+Perf}
vlép + o (= I see)	d + ó
pérn + o (= I take)	pár + o
piyén + o (= I go)	pá + o

3.2.4. With respect to stylistic, {± K}, distinctions, certain stems may occur only in the presence of the value {+ K} or only of {- K}, e.g.

{-K} : ksér + o (= I know) as opposed to {± K} ynoríz + o

{-K} : fér'n + o (= I bring) as opposed to {+ K} fér + o

3.2.5. It will be remembered from the discussion in Ch.III,3. and 4. and in section 3.1. in this chapter, that the stem-structure of {STv} verbs is of the form $PREFIX_o$ + ROOT + F_3 while that of $\{ST_\emptyset\}$ verbs is of the form $PREFIX_o$ + ROOT + $SUFFIX_o$ where the subscript $_o$ means "zero or more".

3.3. The third set of formatives (F_3)

3.3.1. As we have already mentioned (Ch.III,4.) F_3 comprises formatives that perform a double function simultaneously: qua vowels they are lexical (or derivational) formatives distinguishing {STv} from $\{ST_\emptyset\}$ verbs, i.e. they appear in stem-final position in the case of the former (e.g. $\{STv_1\}$: ayapá + o, $\{STv_2\}$: dimiuryé + o → dimiuryó) but not of the latter (e.g. $\{ST_\emptyset\}$: páv + o) so that the stems of the three verbs could be represented as ayapV- , dimiuryV- and pav- respectively; on the other hand, F_3 vowels function as inflectional formatives, i.e. as exponents of grammatical values,

on the basis of their precise vowel quality.

More specifically, as far as verbs following the paradigm of AGAPÁO go, the F_3 formatives are a in the structure of {- Perf} and i in that of {+ Perf} and {+ Pass, - Perf} verb forms. It will be noticed that a and i alternate in {+ Pass, - Perf} forms, not freely but in the presence of the stylistic values, respectively, {+ K} and {- K}. Elsewhere, i.e. in other than {+ Pass, - Perf} verb forms, a and i appear irrespective of {±K} distinctions. We can now formulate the following tentative rules for F_3 vowels a and i in the structure of such {STv} verbs as AGAPÁO (for DIMIURGÓ see next section):

(i) {-Pass,-Perf,STv} → a / X ——]$_{STEM}$ e.g. ayap + á + o
ayáp + a + y + a

(ii) {+Pass,-Perf,+K,STv} → a / X ——]$_{STEM}$ e.g. iyáp + a + o + n →
iyápon

(iii) {+Perf,STv$_1$} → i / X ——]$_{STEM}$ e.g. ayap + í + s + o
ayap + i + θ + ó

(iv) {+Pass,-Perf,-K,STv} → i / X ——]$_{STEM}$ e.g. ayap + i + e + m + e →
ayapjéme

3.3.2. A sizeable group of verbs following the paradigm of DIMIURGÓ (= I create) behave like AGAPÁO in as far as the distribution of overt F_3 i is concerned, e.g. dimiury + í + s + o, dimiury + i + θ + ó, dimiury + í + e + m + e → dimiuryjéme. Elsewhere, however, that is, when i is not present overtly, DIMIURGÓ appears to be a special case: to begin with, it does not behave like an {STv} verb, in that neither a nor any other F_3 vowel overtly appears in its {- Pass, - Perf} forms. Compare, for instance, the overt {- Pass, - Perf, - Past} forms of the two lexemes below:

	{-Pl,1}:	ayapáo	dimiuryó
{-Pass,-Perf,-Past}	{-Pl,2}:	ayapás	dimiuryís
	{+Pl,2}:	ayapáte	dimiuryíte

Notice, however, in the above examples that verb forms of the two lexemes realizing the same cluster of grammatical values have the same stress pattern: as we shall show in 4 below the position of the stress in {STv} verbs is influenced by the sandhi phenomena taking place between F_3 and adjacent F_6 vowels.

On the other hand, DIMIURGÓ cannot be assumed to be an $\{ST_{\emptyset}\}$ verb in that it differs from PÁVO as well, both with respect to the stress pattern of grammatically equivalent verb forms and with respect to a number of overt vowels appearing after the stem.

{-Pass,-Perf,-Past,-Pl,1} :	pάv + o	đimiuryó
{-Pass,-Perf,-Past,+Pl,2} :	pάv + e + t + e	đimiuryíte
{+Pass,-Perf,-Past,-Pl,1} :	pάv + o + m + e	đimiuryúme
{+Pass,-Perf,-Past,-Pl,2} :	pάv + e + s + e	đimiuryíse
{+Pass,-Perf,+Past,-Pl,1,+K} :	e + pav + ó + m + i + n	eđimiuryúmin
{-Pass,-Perf,+Past,-Pl,1,+K} :	é + pav + o + n	eđimiúryun

DIMIURGÓ has been dealt with in the literature (Hamp,1961; Koutsoudas,1962; Babiniotis,1972a) in the same way as AGAPÁO, namely, "overt" rather than "underlying" verb forms of the two paradigms have been segmented and the elements so isolated have been classified as specific to AGAPÁO or to DIMIURGÓ and as different from comparable elements of PÁVO. No effort has been made to state the regularities underlying the surface differences between the three paradigms as that would involve historical and stylistic considerations which the above scholars were not, presumably, prepared to include in their descriptions. On the other hand, Warburton, 1970, recognizes "underlying" stem-final e in the structure of DIMIURGÓ, but the only justification given for doing so is that DIMIURGÓ is "different" from AGAPÁO (p.128). Clearly, the fact that the two verbs are different is not enough to justify the recognition of an "underlying" e suffixed to the stem of verbs such as DIMIURGÓ.

The solution we have adopted here to deal with the multitude of formal innovations in the paradigm of DIMIURGÓ is, to a certain extent, a historically motivated one: the "underlying" representations of verb forms in the paradigm of DIMIURGÓ coincide with earlier attested verb forms with F_3 e; in different terms, we postulate the "existence" of F_3 e in the "underlying" representations of DIMIURGÓ in MGK on the grounds that, though e does not appear overtly in MGK, the vestiges of its overt presence in Ancient Greek, i.e. vowels at the juncture of stem and termination that differ from those in PÁVO and AGAPÁO, and stress-pattern that is the same as that of contracted verb forms in AGAPAO, are still present in MGK. More precisely, we postulate that "underlying" F_3 e in the paradigm of DIMIURGÓ in MGK interacts with adjacent F_6 vowels to produce single vowels which are different from those resulting from the interaction between a and F_6 vowels in the case of AGAPÁO. The result of the sandhi phenomena in the two paradigms, however, are the same with respect to the overall number of syllables and the stress pattern of grammatically equivalent contracted verb forms, e.g.:

{- Pass, - Perf, - Past}

{-Pl,1} ayap + á + o → ayapó, dimiury + é + o → dimiuryó

{-Pl,2} ayap + á + i + s → ayapás, dimiury + é + i + s → dimiuryís

{+Pl,2} ayap + á + e + t + e → ayapáte, dimiury + é + e + t + e → dimiuryíte

The historical solution introduced above greatly enhances the economy of the grammar in that the considerable number of formal differences between AGAPÀO and DIMIURGÓ can be reduced to a single contrast, namely, that between F_3 a and e respectively.

However, the postulation of "underlying" F_3 e in the paradigm of DIMIURGÓ can be partly defended on synchronic grounds as well. As we shall show in 5.3.5. below, the overt vowels appearing at the juncture between stem and termination are the product of the following sandhi interactions:

(a) e + o# → o # e.g. dimiury + é + o → dimiuryó

(b) e + o → u e.g. edimiury + e + o + n → edimiúryun

(c) e + e → i e.g. dimiury + é + e + t + e → dimiuryíte

(d) e + i → i e.g. dimiury + é + i + s → dimiuryís

(e) e + u → u e.g. dimiury + é + u + n → dimiuryún

where, in agreement with the synchronically valid "Hierarchy of Dominance" principle (see 5.3.2. below), e is elided before the "stronger" vowels o, i and u in, respectively, (a), (d) and (c), whereas (b) and (c) are cases of coalescence, the resulting vowel having the same value for the features [back] and [round] as, but being higher than, the second of the original two vowels. The partial application of the "Hierarchy of Dominance" principle must be

seen as the result of the fact that the above sandhi phenomena are the reflection in MGK of Ancient Greek interactions between vowels where length distinctions were linguistically significant. As such, the five sandhi cases above cannot but comply only partially to a MGK "law" such as the "Hierarchy of Dominance" principle from which distinctions of length are absent. It should also be realized that on the basis of the "HoD" principle, we can explain why a normally appears overtly in AGAPÁO, while e never does in DIMIURGÓ: the former is the most dominant vowel in the language, whereas the latter in the least dominant, at least in some environments (see discussion on Hierarchy of Dominance in 5.3.2. below).

Our phonological solution, however, of the problem presented by $\{STv_2\}$ verbs (DIMIURGÓ) appears to conceal the fact that the different formal means by which grammatical distinctions are expressed in the structure of such verbs, though explainable in historical terms on the basis of regular phonological alternations, are completely opaque phonologically in MGK and as such completely morphologised. In other words, the difference between ayapáo, ayapás, ayapái, etc. on the one hand and dimiuryó, dimiuryís, dimiuryí, etc., on the other is, synchronically speaking, one best expressed, perhaps, in terms of different conjugations. Nevertheless, taking such a narrowly

morphological viewpoint would have in its turn concealed the regularities revealed by our phonological/diachronic solution. Furthermore, the fact that the sandhi rules operating on stem-final and adjacent F_6 vowels in the case of DIMIURGÓ are categorical throughout the paradigm so that in fact F_3 e never appears overtly (unlike AGAPÁO, where some sandhi rules are variable in the presence of the value {- K}, e.g. ayapáo or ayapó, ayapái or ayapá, ayapáume → ayapúme or ayapáme, etc.) might best be accounted for in terms of "living" vs. "dead" rules (see Wright, 1972, p.58). "Living" phonological rules account for the alternation between otherwise identical "overt" forms: for instance, both ayapáo and ayapó, also both ayapái and ayapá are used in actual conversation (albeit at different frequency levels) so that the interactions a + o → o and a + i → a can be regarded as part of the current linguistic competence of speakers. "Dead" rules, on the other hand, relate "underlying" forms to "overt" forms, the former never appearing overtly, synchronically speaking, but constituting part of an older stage of the language: for instance, "overt" dimiuryó derives from Ancient Greek dī:miu:ryéo:, but the latter form is not part of MGK. "Dead" rules have a place in a synchronic description such as this study only if their output is in some way "the same" as that of comparable "living" rules: for instance, we stipulate e + o ## → o ## because "overt" dimiuryó is "the same", in

terms of relative number of syllables and stress pattern, as ayapó, the latter obviously deriving from "overt" ayapáo through the "living" sandhi interaction a + o # → o #.

We can now revise tentative rules (i) and (ii) above to account for F_3 e of {STv_2} verbs:

(v) {-Pass, -Perf} → [a / e] / X —]$_{STEM}$ / [{STv_1} / {STv_2}]

e.g. STv_1 : ayapáo

STv_2 : dimiuryéo → dimiuryó

(vi) {+Pass, -Perf, +K} → [a / e] / X —]$_{STEM}$ / [{STv_1} / {STv_2}]

e.g. {STv_1} : ayapáome → ayapóme

{STv_2} : dimiuryéome → dimiuryúme

Note that, as it stands, tentative rule (iv) (also (iii) above) is valid both for {STv_1} and {STv_2} verbs, i.e. in the presence of the cluster {+ Pass, - Perf, - K} the F_3 formative i appears in the structure of both groups of verbs and is subsequently desyllabified in the context C — V (see 4.2. below). The formulation is neat and, what is more, points to the fact that {STv_2} verbs tend to follow the paradigm of {STv_1} verbs in the presence of the value {- K} (see Ch.V.3. below) in contrast to the

value {+ K}, in whose presence {STv_1} verbs have F_3 a and {STv_2} verbs e (the latter, in fact, can have e in the presence of the value {- K} too). A different formulation, less neat as far as morpholexical rules go, would be to recognize for {STv_2} verbs F_3 e only (i.e. never i) in the presence of the cluster {+ Pass, - Perf} and irrespective of {± K} distinctions. Subsequently, e would interact with adjacent F_6 vowels to yield a single vowel in ways mentioned above subject to {± K} distinctions; or, alternatively, it would be desyllabified in the context C — V and in the presence of the value {- K} along with F_3 i. The rule that would thus desyllabify front vowels in the context C — V would be valid outside the verb too, e.g. yeórgios → yjóryos (= George), tu pedíu → tu pedjú (= of the child).

3.3.3. A number of {STv} verbs, e.g. KRATÁO (= I hold), PATÁO (= I step), follow in the presence of the value {- Perf} either the {+ K} paradigm of DIMIURGÓ or the {- K} paradigm of AGAPÁO, e.g.

$$\{-\text{Pass}, -\text{Perf}, +\text{Past}, -\text{Pl}, 1\} \quad \begin{matrix}\{+K\}\\ \{-K\}\end{matrix}\begin{bmatrix} e \\ (e) \end{bmatrix} + \text{krát} + \begin{bmatrix} e \\ a \end{bmatrix} + \begin{bmatrix} \emptyset \\ y \end{bmatrix} + \begin{bmatrix} on \\ a \end{bmatrix} \rightarrow \begin{bmatrix} \text{ekrátun} \\ (e)\text{krátaya} \end{bmatrix}$$

We can account for KRATÁO and PATÁO by adding two more parts to tentative rule (v) above:

(vii) $\{-\text{Pass},-\text{Perf}\} \rightarrow \begin{bmatrix} e \\ a \end{bmatrix} / X \text{ —— }]_{\text{STEM}} / \{ \begin{bmatrix} \{+K\} \\ \{-K\} \end{bmatrix}, \text{STv}_3 \}$

e.g. {+K} : ekrátеon → ekrátun

{-K} : (e)krátaya

The rule reads that in the presence of the cluster {- Pass, - Perf} F_3 e or a appear with the values, respectively, {+ K} and {- K} in stem-final position in the case of {STv_3} verbs, i.e. KRATÁO, PATÁO, etc.

Also, tentative rule (vi) above will have to be extended to account for the appearance of F_3 e in {STv_3} verbs in the presence of the cluster {+ Pass, - Perf, + K} :

(viii) $\{+\text{Pass},-\text{Perf},+K\} \rightarrow \begin{bmatrix} a \\ e \end{bmatrix} / X \text{ —— }]_{\text{STEM}} / \begin{bmatrix} \{STv_1\} \\ \{STv_2\} \\ \{STv_3\} \end{bmatrix}$

e.g. {STv_1} : ayapáome → ayapóme

{STv_2} : dimiuryéome → dimiuryúme

{STv_3} : kratéome → kratúme

3.3.4. A number of verbs deviate from the above rules in various ways. For instance, the verbs FORÁO (= I wear), PONÁO (= I ache), VARÁO (= I hit), BORÚ (= I can), KALÚ (= I invite), etc., have F_3 e with the value {+ Perf}, e.g. for + é + s + o, pon + é + s + o,

etc. Again, the verbs STENOXORÁO (= I sadden) and SINXORÁO (= I forgive) have either {+ K} i or {- K} e in {+ Perf}forms, e.g. stenoxor +[i/e]+ s + o, while {- Perf}forms follow the paradigm of KRATÁO (see 3.3.3. above). Also the verbs SKÁO (= I shut up), XALÁO (= I destroy), PINÁO (= I am hungry), GELÁO (= I laugh), etc., have F_3 a irrespective of Aspect, e.g. {- Perf} pin + á + o, {+ Perf} pin + á + s + o. Finally, other verbs have no {+ K}forms (e.g. BORÓ); or do not tolerate the appearance of certain inflectional formatives in their structure and thus fail to maintain certain grammatical distinctions (for instance, BORÓ has no {+ Pass} forms); or behave as {STv} verbs (i.e. have F_3 vowels) in only parts of their paradigms, e.g. ΘÉLO is {STv} only in the presence of the value {+ Perf} : {- Perf} : Θél + o, {+ Perf} : Θel + i + s + o. We will assume that for such "irregular" verbs there will be instructions in the lexicon in the form of exception features blocking the application of regular rules when necessary, followed by ad hoc or "minor" rules accounting for the peculiarities of such verbs with respect to F_3 vowels (or other "deviant" elements) appearing in their structures.

3.3.5. Below are summarized the rules discussed in 3.3.

Rule 4

$$\{-\text{Pass}, -\text{Perf}\} \rightarrow \begin{bmatrix} a \\ \\ e \end{bmatrix} / X -]_{\text{STEM}} / \begin{bmatrix} \{STv_1\} & \text{(a)} \\ \{STv_3, -K\} & \\ \{STv_2\} & \text{(b)} \\ \{STv_3, +K\} & \end{bmatrix}$$

e.g. (a) $\{STv_1\}$: ayap + á + o, ayáp + a + y + a

$\{STv_3 - K\}$: krat + á + o, (e) + krát + a + y + a

(b) $\{STv_2\}$: đimiury + é + o ⟶ đimiuryó

$\{STv_3 + K\}$: krat + é + o ⟶ krató

Rule 5

$$\{+\text{Pass}, -\text{Perf}\} \rightarrow \begin{bmatrix} a \\ \\ e \end{bmatrix} / X -]_{\text{STEM}} / \begin{bmatrix} \{STv_1, +K\} & \text{(a)} \\ \{STv_2\} & \text{(b)} \\ \{STv_3, +K\} & \end{bmatrix}$$

e.g. (a) $\{STv_1, +K\}$: ayap + á + o + m + e ⟶ ayapóme

(b) $\{STv_2\}$: đimiury + é + o + m + e ⟶ đimiuryúme

$\{STv_3, +K\}$: krat + é + o + m + e ⟶ kratúme

Rule 6

$$\{+Pass, -Perf, STv, -K\} \longrightarrow i \;/\; X \;\text{—}\;]_{STEM}$$

e.g. {STv, - K} : ayap + í + e + m + e ⟶ ayapjéme

đimiury + í + e + m + e ⟶ đimiuryjéme

krat + í + e + m + e ⟶ kratjéme

As the rules are unordered, either rule 5b or rule 6 may apply on {+ Pass, - Perf, STv_2, -K} forms to produce, respectively, đimiury + é + o + m + e ⟶ đimiuryóme or đimiury + í + e + m + e ⟶ đimiuryjéme (but see 3.3.6. below).

Rule 7

$$\{+Perf, STv\} \longrightarrow i \;/\; X \;\text{—}\;]_{STEM}$$

e.g. ayap + í + s + o, ayap + i + θ + ó

đimiury + í + s + o, đimiury + i + θ + ó

krat + í + s + o, krat + i + θ + ó

3.3.6. An alternative, freer of redundancy, formulation of rules 4,5,6 and 7 above would be based on the fact that all F_3 formatives are [-back] vowels, i.e. an {STv} verb always has a [-back] vowel in stem-final position:

Rule 8

$$\{ST_V\} \longrightarrow \begin{bmatrix} V \\ -back \end{bmatrix} / \quad X \quad \text{—} \quad]_{STEM}$$

Subsequently, the precise quality of the output of rule 8 would be defined for $\{STv_1\}$, $\{STv_2\}$ and $\{STv_3\}$. Thus rules 4, 5 and 7 above would be revised as, respectively, parts (a), (b) and (c) of rule 9 below, whereas rule 6 would take the form of rule 10 below:

Rule 9

$$\begin{bmatrix} V \\ -back \end{bmatrix} \longrightarrow \left[\begin{bmatrix} \begin{bmatrix} +low \end{bmatrix} \\ \begin{bmatrix} -low \\ -high \end{bmatrix} \end{bmatrix} / X \text{—}]_{STEM} / \left[\begin{bmatrix} \{STv_1\} \\ \{STv_3, -K\} \end{bmatrix}, -Pass, -Perf \right] \right.$$

(a')

(a")

$$\left. \begin{bmatrix} \begin{bmatrix} \{STv_1, +K\} \\ \{STv_2\} \\ \{STv_3, +K\} \end{bmatrix}, +Pass, -Perf \end{bmatrix} \right]$$

(b')

(b")

$$\left. \begin{bmatrix} \begin{bmatrix} +low \end{bmatrix} \\ \begin{bmatrix} -low \\ -high \end{bmatrix} \\ \begin{bmatrix} +high \end{bmatrix} \end{bmatrix} / X \text{—}]_{STEM} / \begin{bmatrix} \{+Perf\} \end{bmatrix} \right]$$

(c)

Rule 10

$$\begin{bmatrix} V \\ -back \end{bmatrix} \longrightarrow [\ +high\ ] \ / \ X \text{—}]_{STEM} \ / \ \{\ STv,\ -K,\ +Pass,\ -Perf\ \}$$

Rules 9 and 10, which are unordered with respect to each other, are

intrinsically ordered after rule 8, since the latter provides the input to the former.

It will be realized that if rule 10 were incorporated into rule 9 (as, say, section (d)) it would be in conjunctive order in relation to section (b) since both sections apply on {+ Pass, - Perf, STv_2, - K} forms. As a result section (b) would always apply first on such forms and section (d) would never apply. In the formulation adopted here rule 9b and rule 10 are unordered with respect to each other and therefore either may apply first on a given {+ Pass, - Perf, STv_2, - K} form. Nevertheless, the above formulation is misleading in that it suggests that rules 9b and 10 are in "free" variation, i.e. that they have a 50/50 chance of applying each. This and similar questions left unaccounted for by rules 8 to 10 above will be examined in Ch.V,4. below from an explicitly variationist viewpoint.

3.4. The fourth set of formatives (F_4)

3.4.1. The F_4 formatives appearing in the "regular" paradigm of both {$ST_\emptyset$} and {STv} verbs can be accounted for by the following rules:

(i) {-Pass, +Perf} → s/STEM ——— e.g. pa̱pso, ayapi̱so

(ii) {+Pass, +Perf} → θ/STEM ——— e.g. pafθo̱, ayapiθo̱

the two rules can be collapsed into a single rule as follows:

(iii) $\{+\text{Perf}\} \longrightarrow \begin{bmatrix} s \\ \theta \end{bmatrix} \; / \; \text{STEM} \; \underline{\quad} \; / \; \begin{bmatrix} \{-\text{ Pass}\} \\ \{+\text{ Pass}\} \end{bmatrix}$

3.4.2. In the presence of the value $\{-\text{ K}\}$ $\underline{\theta}$ changes, more often than not, to $\underline{t}$ in the context after a voiceless fricative, whereas elsewhere only $\underline{\theta}$ is possible irrespective of $\{\pm\text{ K}\}$ distinctions. Since the alternation between $\underline{\theta}$ and $\underline{t}$ is phonetically motivated, we do not need to include $\underline{t}$ in the set of F_4 formatives: after the specification of $\underline{\theta}$ by morpholexical rule (iii) above a morphophonemic rule (see rule 56b in 5 below) will apply variably to change $\underline{\theta}$ to $\underline{t}$ in the context after a voiceless fricative (progressive manner dissimilation), e.g.

paf + θ + ó or paf + t + ó

ayap + i + θ + ó

A different way to account for the alternation between F_4 $\underline{\theta}$ and $\underline{t}$ would be to introduce a partly specified consonantal segment with the features [- voice, + anterior, + coronal] in {+ Pass, + Perf} forms; subsequently, the segment would be fully specified either as $\underline{\theta}$ ([+continuant, -strident]) or as $\underline{t}$ ([-continuant]) after a voiceless fricative, and as $\underline{\theta}$ elsewhere. However, the above solution would prevent certain morphophonemic generalizations

(see 5.2. below) which are possible only if a fully specified segment (θ) rather than an incompletely specified one is the output of the morpholexical rules. For instance, when θ is suffixed to the stem plek- (= to knit), stem-final k is assimilated to θ with respect to the feature [+continuant]: plexθ-. Subsequently, progressive manner dissimilation (characteristic of the value {- K}) changes θ to t "optionally". If, however, the unspecified with respect to the feature [continuant] segment was suffixed to plek- there would be no non-ad hoc way of further specifying it as θ and not as t, since both kθ and kt are acceptable clusters (e.g. ekθlípto (= I squeeze), ektipóno (= I print)). If kt were selected by a variable rule, the only further change possible would be the regressive manner dissimilation of k to x before t : xt; which would leave the "overt" cluster xθ unaccounted for, unless it was treated as an exception. Such a solution would be contrary to the facts, however, as xθ is a perfectly acceptable cluster in MGK:

plekθó → plexθó → plex{θ/t}ó (= I will be knitted)

3.4.3. An alternative, less redundant (compared to rule (iii) above), way to account for the F_4 formatives s and θ would be to allow the grammar to generate in {+ Perf} forms a segment partly specified as [+anterior, +coronal, -voice, +continuant], i.e.

unspecified only with respect to the feature [strident]:

$$\text{(iv)}\ \{+\text{Perf}\} \longrightarrow \begin{bmatrix} \text{C} \\ +\text{anter} \\ +\text{coron} \\ -\text{voice} \\ +\text{cont} \end{bmatrix} \ / \ \text{STEM} \text{ ——}$$

Subsequently, the output of (iv) above would be fully specified either as [+strident] (s) or [- strident] (θ) in the presence of the values, respectively, {- Pass} and {+ Pass} :

$$\text{(v)}\quad \begin{bmatrix} \text{C} \\ +\text{ant} \\ +\text{coron} \\ -\text{voice} \\ +\text{cont} \end{bmatrix} \longrightarrow \begin{cases} [\ +\text{str}\ ] \ / \ \{-\ \text{Pass}\} & \text{(a)} \\ [\ -\text{str}\ ] \ / \ \{+\ \text{Pass}\} & \text{(b)} \end{cases}$$

or, in a more economical form:

$$\text{(vi)}\quad \begin{bmatrix} \text{C} \\ +\text{ant} \\ +\text{coron} \\ -\text{voice} \\ +\text{cont} \end{bmatrix} \longrightarrow [\ -\alpha\ \text{str}\ ] \ / \ \{\ \alpha\ \text{Pass}\ \}$$

where the variables - α and α signify that the features [str] and {Pass} have opposite values: if one has the value "plus" the other has the value "minus".

In this study we will adopt rule 11 below, a combined version of (iv) and (vi) above, to account for F_4 s and θ[8] :

Rule 11

$$\{+\text{Perf},\ -\alpha\ \text{Pass}\} \longrightarrow \begin{bmatrix} \text{C} \\ +\text{anter} \\ +\text{coron} \\ -\text{voice} \\ +\text{cont} \\ \alpha\ \text{strident} \end{bmatrix} \ / \ \text{STEM} \text{ ——}$$

3.5. The fifth set of formatives (F_5)

3.5.1. The F_5 formatives are y, us and ik, all three of them appearing in the presence of the value {- K} only. Of them, ik is suffixed to θ by the following rule:

(i) {+Pass,+Perf,+Past,-K} ⟶ ik/ + θ ——

e.g. ayap + i + θ + i + k + a (cf. {+ K} equivalent iyap + i + θ + i + n where ik does not appear). θ is preceded in the rule above by a morpheme boundary to distinguish it from stem-final θ, e.g. piθ + o (= I persuade).

Since we know from rule 11 above that θ is a {+ Pass, + Perf} formative we can omit these features from tentative rule (i) above

(ii) {+Past,-K} ⟶ ik / + θ ——

(It will be remembered from the discussion in the introduction to this chapter (see 2.2. above) that a more economical rule such as (ii) above does not indicate that θ "conditions" ik in any way, more than ik could be said to condition θ).

The formatives y and us appear in {-Pass,-Perf,+Past,STv,-K} forms. More specifically, y appears only in the structure of verbs following

the paradigm of AGAPÁO ({STv$_1$}) whereas <u>us</u> appears in the paradigm of both AGAPÁO ({STv$_1$}) and DIMIURGÓ ({STv$_2$}):

$$\text{(iii)}\ \{\text{-Pass,-Perf,+Past,-K}\} \longrightarrow \begin{bmatrix} \{^{y}_{us}\} \\ \\ us \end{bmatrix} \ /\text{STEM} - / \begin{bmatrix} \{\text{STv}_1\} \\ \\ \{\text{STv}_2\} \end{bmatrix} \qquad \begin{matrix} \text{(a)} \\ \\ \text{(b)} \end{matrix}$$

e.g. {STv$_1$}: ayap + a + $\{^{y}_{us}\}$ + a $\longrightarrow$ $\{^{ayápaya}_{ayapúsa}\}$

{STv$_2$}: (e) + dimiury + é + us + a $\longrightarrow$ (e)dimiuryúsa

We could now summarize tentative rules (ii) and (iii) above as rule 12 below:

<u>Rule 12</u>

$$\{\text{+Past,-K}\} \longrightarrow \left\{ \begin{matrix} \begin{bmatrix} \{^{y}_{us}\} \\ us \end{bmatrix} / \text{STEM} - / \{\text{-Pass,-Perf} \begin{bmatrix} \{\text{STv}_1\} \\ \{\text{STv}_2\} \end{bmatrix}\} & \begin{matrix} \text{(a')} \\ \text{(a")} \end{matrix} \\ \text{ik} \ / + \theta \ \text{——} & \text{(b)} \end{matrix} \right.$$

3.5.2. The recognition of the two successive segments F_4 <u>θ</u> and F_5 <u>ik</u> appearing in the presence of the clusters, respectively, {+ Pass, + Perf} and {+ Pass, + Perf, + Past, - K} is not as obvious as the above presentation might appear to suggest. Indeed, our formulation appears to run counter to the obvious fact that, in terms of the phonological shape of the suffixes to the right of

θ as well as of the stress pattern, the {+ Pass, + Perf, - Past} paradigm of all regular verbs,

ayapiθ ó

ayapiθ ís

ayapiθ í

ayapiθ[ó / ú]me[n / ø]

ayapiθ í te

ayapiθ ú n[ø / (e)]

is similar to the {- Pass, - Perf, - Past} paradigm of {STv_1} verbs and almost identical to that of {STv_2} verbs (apart from the {+Pl, 1, +K} forms).

{STv_1}

ayapó (or ayapáo)

ayapás

ayapá (or ayapái)

ayap[ó / á]me[n / ø]

ayapá te

ayap[ú / á]n[ø / (e)]

{STv_2}

dimiurgó

dimiurgís

dimiurgí

dimiurgúme[n / ø]

dimiurgí te

dimiurgún[ø / (e)]

Since the particular overt shape of the {- Pass, - Perf, - Past, STv} paradigm of AGAPÁO and DIMIURGÓ above is the result of sandhi interaction between F_3 a (for AGAPÁO) or e (for DIMIURGÓ) and adjacent

F_6 vowels (see 3.3. above) it is reasonable to assume that in the case of the {+ Pass, + Perf, - Past} paradigm, too, similar interactions are at play, i.e. that next to θ a vowel never appearing overtly interacts with adjacent F_6 vowels to produce the observable surface realizations.

ayapiθ V́ o ⟶ ayapiθó

ayapiθ V́ is ⟶ ayapiθís

ayapiθ V́ i ⟶ ayapiθí

etc.

As for the exact phonetic character of the postulated vowel, three solutions are proposed in the literature.

Firstly, Warburton, 1973, p.211, suggests that it is i, on the grounds that i also appears overtly in {+ Past} forms:

{- Past} ayapiθio ⟶ ayapiθó

{+ Past} ayapíθika

Furthermore, Warburton suggests that i should be regarded as independent both from the feature {+ Pass} and the suffix θ, in that it also appears in the {- Pass, + Perf} paradigm of certain irregular verbs whose {+ Perf} stem is made up of one or more consonants only:

VRÍSKO (= I find), vrío ⟶ vró, vríka

BÉNO (= I enter), bío ⟶ bó, bíka

VGÉNO (= I go out), vyío ⟶ vyó, vyíka.

Warburton's latter proposal does not conflict with either of the two proposals below and it fits quite well with our analysis, in that rule 12 above, accounting for the appearance of s and θ, would be retained unchanged, i.e. we would not need to postulate s and θi and consequently treat them in separate rules (but see discussion below). To accommodate Warburton's latter proposal we would have to allocate i to an additional, distinct set, say (in order not to upset the labelling of sets and structural places adopted so far), F_{4a}, and k to F_5 : $\underset{\text{ayap}}{\underline{2}}\ \underline{3}\ \underline{4}\ \underline{4a}\ \underline{6}\ \underset{\text{i θ i o,}}{}$ $\underset{\text{ayap}}{\underline{2}}\ \underline{3}\ \underline{4}\ \underline{4a}\ \underline{5}\ \underline{6}\ \underset{\text{i θ i k a.}}{}$

Secondly, Tsitsopoulos, 1972,p.46, proposes "underlying" e, which becomes i before a consonant,

e.g. ayapiθéo → ayapiθó

ayapíθeka → ayapíθika

in just the same way that e in dimiuryéo → dimiuryó becomes i before a consonant (in the {+ Perf} paradigm):

dimiuryéso → dimiuryíso

dimiuryeθéo → dimiuryiθéo → dimiuryiθó.

Thirdly, there is historical support for the postulation of a "long" (or, perhaps, [+tense]) vowel e: (See Adams, 1972, p.71; Tzartzanos, 1950, p.106).

A complication with all three solutions arises when we consider the

{+ K} side of the {+ Pass, + Perf, + Past} paradigm:

iyap + i̱ + θ + i + n

iyap + i̱ + θ + i + s

iyap + i̱ + θ + i

iyap + i̱ + θ + i + m + e + n

iyap + i̱ + θ + i + t + e

iyap + i̱ + θ + i + s + a + n

Whereas in the analysis adopted so far in this study i following θ is classified as an F_6 formative:

$$\underset{\text{iyap}}{\underline{2}} + \underset{\text{i}}{\underline{3}} + \underset{\theta}{\underline{4}} + \underset{\text{i}}{\underline{6}} + \underset{\text{n}}{\underline{11}}$$

If one of the above three solutions were adopted, i (e or e:) would have to be restructured in SP_{4a} and SP_6 would be left empty. Indeed, the historical view concerning the {+ Pass, + Perf, + Past, + K} paradigm is that it has no "thematic" (i.e. F_6) vowels (Adams, 1972, p.71; Tzartzanos, 1950, p.106). The alternative solution, i.e. to postulate i both in SP_{4a} and in SP_6, $\underset{\text{iyap}}{\underline{2}}\ \underset{\text{i}}{\underline{3}}\ \underset{\theta}{\underline{4}}\ \underset{\text{i}}{\underline{4a}}\ \underset{\text{i}}{\underline{6}}\ \underset{\text{n}}{\underline{11}} \rightarrow$ iyapi̱θin, would be hopelessly ad hoc synchronically and completely unfounded historically, i.e. it would be just a way out, rather than an explanation.

To accommodate any of the three solutions proposed above, then, we would need a rule such as the following (from which mention of the verbs VRÍSKO, BÉNO and VGÉNO, which provide, after all, the

evidence for the postulation of a separate segment i, i.e. θ + i, is excluded for reasons explained below)

(vii) {+Pass,+Perf} → i / + θ ——

whereas, part (b) of rule 12 above accounting for the suffixation of ik to θ in the {+ Past, - K} paradigm would have to be revised now to suffix k to θ + i instead

(viii) {+Past,-K} → K / + θ + i ——

Also, rule 21 (see 3.6.2. below), to the extent that it accounts for F_6 i in the {+ Pass, + Perf, + Past, + K} paradigm (also rule 22), would have to be dropped from the grammar (see also Ch. III, 7.5.3.).

In greater detail, with respect to the first of the three solutions proposed above, i.e. i suffixed to θ, it should be made clear that the change CiV → CV, e.g. ayapiθío → ayapiθó, is completely alien to MGK where, either no change occurs, e.g. idrío (= I establish) idríis, idríi, etc., or, often in the presence of the feature {- K}, i is desyllabified, e.g. ayapíeme → ayapjéme (rule 39 below). See also Tsitsopoulos, 1972, who considers the above solution independently from Warburton and rejects it for much the same reasons as explained here.

As for the third solution, i.e. the postulation of a "long" vowel, e:, we run into trouble for the simple reason that there are no long vowels in MGK (see discussion on "long" vowels in 4 below). It is interesting to note here that even within the generative framework, where underlying segments that never appear overtly are rife, "long" vowels are not automatically acceptable by everybody. Tsitsopoulos, 1972, for instance, who attempts, passim, throughout his book to find sufficient motivation for the postulation of "long" vowels in MGK, reaches the conclusion that

> "strictly speaking, the existence of length as an actual, specific phonological feature has been proven nowhere in this section ... This is intrinsically impossible given the nature of the relationship between underlying and surface representations in phonology. But what has been shown is that MG should be given credit for a somewhat more complex vocalic inventory than its five surface segments." (p.54).

That leaves us with the second solution, i.e. the postulation of e, the most attractive of the three, given the near identity of the {+ Pass, + Perf, - Past} and {- Pass, - Perf, - Past, STv_2} paradigms (see examples at the beginning of this section): In other words, if the same vowel, e, is postulated both for the {- Pass, - Perf, - Past, STv_2} paradigm and for the {+ Pass, + Perf, - Past} of all regular verbs, the grammar is simplified considerably.

However, there is no non-ad hoc way to account for the difference between the two paradigms with respect to the {+ Pl, 1} forms:

$$\{+\text{Pass},+\text{Perf},-\text{Past}\}\ \begin{matrix}\{+K\}\\ \{-K\}\end{matrix}\ \text{ayapi}\theta\text{é}\begin{bmatrix}\text{o}\\ \{\text{o}\\ \text{u}\}\end{bmatrix}\text{me}\begin{bmatrix}\text{n}\\ \emptyset\end{bmatrix}\rightarrow\text{ayapi}\theta\begin{bmatrix}\acute{\text{o}}\\ \acute{\text{u}}\end{bmatrix}\text{me}\begin{bmatrix}\text{n}\\ \emptyset\end{bmatrix}$$

$$\{-\text{Pass},-\text{Perf},-\text{Past},\text{STv}_2\}\ \begin{matrix}\{+K\}\\ \{-K\}\end{matrix}\ \text{dimiuryi}\theta\text{é}\begin{bmatrix}\text{o}\\ \{\text{o}\\ \text{u}\}\end{bmatrix}\text{me}\begin{bmatrix}\text{n}\\ \emptyset\end{bmatrix}\rightarrow\text{dimiuryi}\theta\acute{\text{u}}\text{me}\begin{bmatrix}\text{n}\\ \emptyset\end{bmatrix}$$

As is clear from the examples above, in the case of {+ Pass, + Perf, - Past, + K} forms <u>e + o</u> → <u>o</u>, whereas in {+ Pass, + Perf, - Past, - K} forms e + $\{^{\text{o}}_{\text{u}}\}$ → <u>u</u>. As for {- Pass, - Perf, - Past, STv_2} forms, the outcome is <u>u</u> whether <u>e</u> interacts with following <u>o</u> or <u>u</u>, and irrespective of $\{\pm K\}$ distinctions: <u>e + $\{^{\text{o}}_{\text{u}}\}$</u> → <u>u</u>.

It should also be noted that the postulation by Warburton of <u>i</u> as a separate segment from <u>θ</u> (<u>θ + i</u> rather than <u>θi</u>), though convenient as far as the simplicity of our rules goes, is in fact based on rather shaky ground, namely, the identity of behaviour between {- Pass, + Perf, - Past} forms of the irregular verbs VRÍSKO, BÉNO and VGÉNO on the one hand and the {+ Pass, + Perf, - Past} forms of the regular paradigm on the other:

4(a)	vrío	→	vró	(b)	ayapiθío	→	ayapiθó
	vríis	→	vrís		ayapiθíis	→	ayapiθís
	vríi	→	vrís		ayapiθíi	→	ayapiθí
	vríume	→	vrúme		ayapiθíume	→	ayapiθúme
	vríete	→	vríte		ayapiθíete	→	ayapiθíte
	vríun(e)	→	vrún(e)		ayapiθíun(e)	→	ayapiθún(e)

As a matter of fact, the above "identity" is only partial, for, often, the {- Pass, + Perf, - Past} forms of the irregular verbs in question behave exactly like their {- Pass, + Perf, - Past} equivalents of the regular paradigm. This is achieved by moving the stress on to the preceding particle (<u>na</u> (= to) or <u>θa</u> (= going to) i.e. the two adjacent words behave as if they were a single word with respect to the stress pattern), and by the appearance of F_6 <u>e</u> rather than <u>i</u> in the {+ Pl, 2} forms.

5(a)	ná vro	(b)	ayapíso
	ná vris		ayapísis
	ná vri		ayapísi
	ná vrume		ayapísume
	ná vrete		ayapísete
	ná vrun		ayapísun

To my mind, then, the analogical pull of the conflicting overt {+ Pass, + Perf, - Past} and {- Pass, + Perf, - Past} paradigms is a satisfactory candidate for accounting for the oscillating behaviour of the {+ Perf} forms of VRÍSKO, BÉNO and VGÉNO and

nothing more is gained by the postulation of a vowel i which somehow keeps popping in and out of the "underlying" representation, thus causing different overt realizations, but never condescends to appear overtly. In other words, I think that the evidence the above "irregular" verbs provide supports the formulation suggested in this study (θ + ik) rather than any of its rivals.

It seems, therefore, that each of the three solutions provide some explanations for the facts under analysis which are lacking in our formulation though all three are inferior to it in other respects. This being the case, we will reserve judgement and retain the four solutions as roughly equally unsatisfactory alternatives, but for the sake of expediency we will base the construction of the relevant rules on our formulation.

3.5.3. It may be useful at this point to comment on the descriptive problems posed by y and us.

To begin with, it can be argued that the appearance of y in the structure of {STv} verbs seems to be phonetically motivated[9], i.e. it appears (at a historically later period in the language) as an "intrusive" syllable marker : VV ⟶ VyV, e.g.

$$\underset{\text{ayáp}}{\overset{2}{}}\ \underset{a}{\overset{3}{}}\ \underset{e}{\overset{6}{}}\ \underset{s}{\overset{8}{}} \longrightarrow \underset{\text{ayáp}}{\overset{2}{}}\ \underset{a}{\overset{3}{}}\ \underset{y}{\overset{5}{}}\ \underset{e}{\overset{6}{}}\ \underset{s}{\overset{8}{}}$$

as an alternative, in the limited case of {- Pass, - Perf, + Past} forms, to the historically earlier way of resolving hiatus by sandhi interaction of adjacent vowels : VV → V, e.g.

$$\underset{\text{iyáp}}{\overset{2}{}}\ \underset{a}{\overset{3}{}}\ \underset{e}{\overset{6}{}}\ \underset{s}{\overset{8}{}} \longrightarrow \underset{\text{iyáp}}{\overset{2}{}}\ \underset{a}{\overset{3}{}}\ \underset{s}{\overset{8}{}}$$

The phonetically motivated appearance of y is also extended in MGK to such originally {$ST_{\emptyset}$} verbs as AKÚO (= I hear), KÉO (= I burn), KLÉO (= I weep) and PTÉO (= I am to blame). These verbs have stem-final vowels (and not consonants as most {$ST_{\emptyset}$} verbs have) which originally did not interact with adjacent F_6 vowels, e.g. aku + o, aku + i + s, aku + i, aku + o + m + e + n, etc.

In MGK, however, the stem-final vowels of the above verbs are normally (but not always) reinterpreted as F_3 formatives: in {- Pass, - Past, - K} forms they interact with adjacent vowels (if the latter are not word-final) e.g.
akúo, akús, akúi, akúme, etc.

Other areas of the paradigms of the above verbs where y is epenthesized between stem-final /F_3 vowel and adjacent F_6 are the following:

{-Pass,-Perf,+Past,-K} ėke + y + a (from {- Past} kė + o)

ȧku + y + a (from {- Past} akú + o)

ėfte + y + a (from {- Past} fte + o)

{+Pass,-Perf,-K} kė + y + ome, ke + y + ó + m + u + n + (a)

klė + y + o + m + e, kle + y + ć + m + u + n + (a)

akú + y + o + m + e, aku + y + ó + m + u + n + (a)

(PTÉO has no {+ Pass} forms)

However, adopting a clearly phonetic interpretation of y-epenthesis:

(ix) $\emptyset \longrightarrow y \;/\; V - V$

would be misleading since y-epenthesis is strictly limited to certain areas of the verb paradigm as we have shown above. Elsewhere, cases of hiatus are resolved by sandhi interaction (ayapáis → ayapás) or no interaction at all (ayapáo, akúo).

It is also interesting to note that[3] y does not appear in the structure of the sizeable group of verbs following the paradigm of DIMIURGÓ, ($\{STv_2\}$), the explanation being that, in diachronic terms, F_3 e was restructured into the underlying representation

(i.e. only contracted forms had been used) prior to the appearance in the language of y-epenthesis as an alternative way of resolving hiatus. In different terms, y cannot function as an "intrusive" syllable marker in the structure of DIMIURGÓ because the environment V — V is never available in overt representations (i.e. all "overt" forms are contracted forms). Compare

{-Pass,-Perf,+Past,-Pl,1}: ayápae ⟶ ayápaye

ákue ⟶ ákuye

edimiúryee ⟶ edimiúryi

But even if we adopted a morphophonological solution for the appearance of y:

$$(x)\quad \emptyset \longrightarrow y \;/\; V - V \;/\; \left\{ -\text{Perf},\ -\text{K},\ \left\{ \begin{array}{l} \{-\text{Pass},+\text{Past}\ \{\begin{smallmatrix}\{STv_1\}\\ \{VG_1\}\end{smallmatrix}\}\} \\ \{-\text{Pass},VG_1\} \end{array} \right\} \right\}$$

where $\{STv_1\}$ AGAPÁO and $\{VG_1\}$ (i.e. Verb Group 1) AKÚO, KÉO, KLÉO, etc., we run into the additional complication of accounting for cases where y is not a historically "later" {- K} element epenthesized in the context V — V : indeed, in the case of such verbs as TRÓ(G)O (= I eat) and LÉ(G)O (= I speak) y behaves in exactly the reverse way: it is a historically "earlier" stem-final {+ K}

element usually elided in MGK between two vowels in {- Pass, - Perf, - Past} verb forms,(also in {- Pass, + Perf, - Past} forms in the case of TRÓ(G)O after the stem fa-):

$$\{-\text{Pass},-\text{Perf},-\text{Past}\}\ \begin{matrix}\{+K\}\\ \{-K\}\end{matrix}\ : \text{tró}\begin{bmatrix} y \\ \emptyset \end{bmatrix} o,\quad \text{lé}\begin{bmatrix} y \\ \emptyset \end{bmatrix} o$$

$$\{-\text{Pass},+\text{Perf},-\text{Past}\}\ \begin{matrix}\{+K\}\\ \{-K\}\end{matrix}\ \text{fá}\begin{bmatrix} y \\ \emptyset \end{bmatrix} o$$

Elsewhere in the structure of the above verbs and also of verbs of the form PREF + LEGO, y is categorically present as a stem-final consonant:

{+Pass, -Perf} troý + o + m + e, léy + o + m + e, epiléy + o + m + e

({+Pass, +Perf} fayoθó derives from underlying fay + on + θ + ó, where the stem fayon- is made up of the root fay- and the lexical suffix -on-)

It seems, therefore, that in spite of the phonetically motivated origin of y, the morphological formulation adopted in this study (rule 12 above) best reflects its present status in the "regular" $\{STv_1\}$ paradigm (AGAPÁO). As for its function in the $\{VG_1\}$ verbs, it could be accounted for by a "minor" rule of the form of (x) above (from which the symbol $\{STv_1\}$ would be omitted), while in

TRÓ(G)O and LÉ(G)O its status would be explained by a rule such as the following morphophonological one:

(xi) $y \rightarrow \emptyset \;/\; V - V \;/\; \{-Pass, -Past, -K, VG_2\}$

where $\{VG_2\}$: TRÓ(G)O, LÉ(G)O.

(Rule (xi) could easily be conflated with (the revised form of) rule (x)).

3.5.3. The problem with the third F_4 formative, us, is that it never appears in the structure of $\{ST_\emptyset\}$ verbs, though that is structurally possible, e.g.

$\{ST_V\}$	$\{ST_\emptyset\}$
ayap + ús + a + m + e	*(e) + pav + ús + a + m + e
	instead of the correct
	(e) + páv + a + m + e

and though its alternative y can be shown to be phonetically motivated in historical terms (see 3.5.2. above) no such motivation is in evidence in the case of us. Furthermore, with respect to stress, us, though a {+ Past} formative, is not related to the proparoxytonic stress pattern normally associated with {+ Past} verb forms (see 4.2.4. below):

	{- Past}	{+ Past}
{-Pass, -Perf}	ayap + á + o	ayáp + a + y + a but ayap + ús + a
{-Pass, +Perf}	ayap + í + s + o	ayáp + i + s + a

Most theories about the origin of us (see Babiniotis, 1972a, p.216 for a review), are largely speculative and of little consequence to a synchronic description. Babiniotis' structural approach, however, deserves some consideration. According to Babiniotis the following structural change took place:

> "the uniform representation of Aspect [by s] was established, throughout the Active Voice (i.e. in the environment before {+ Active})... whenever Aspect was expressed by an overt allomorph ...
> Aspect → s / ——— {+ Active}"

or, in our terms, the use of the {- Pass, + Perf} formative s started spreading into the {- Pass, - Perf} paradigm. One of the effects of the above development was that "the overt allomorph un of structure IIb" (or {- Pass, - Perf, + Past, STv} in our terms) "changed to us (ayápuna → ayapúsa; the stress pattern of the paradigm seems to have been fixed on the basis of the plural)"[10] e.g. ayapúsame.

The following points can be made with respect to Babiniotis' suggestion. To begin with, no explanation is offered why us

appears in the structure of {STv} verbs only, though as we have shown above, its appearance in the {$ST_{\emptyset}$} paradigm is structurally possible; secondly, no justification is provided why the assumed "spread" of the {- Pass, + Perf} formative s into the {- Pass, - Perf} paradigm should be combined with un, when it could have appeared in its own right, i.e. independently from un, e.g. * ayáp + a + s + a instead of the correct ayáp + a + y + a or ayap + ú + s + a, or * ayap + á + s + a for greater differentiation from the {+ Perf} form ayáp + i + s + a; lastly, no explanation is offered why the stress pattern of the paradigm ayapúsa, ayapúses, etc. should have been "fixed on the basis of the plural" when the proparoxytonic stress pattern normally associated with {+-Past} throughout the verb paradigm would have been much more likely:

* ayápusa
* ayápuses
* ayápuse
ayapúsame
ayapúsate
ayapúsan(e)

It seems, therefore, that us is opaque enough even without its being related to unmotivated speculations concerning the appearance of s, a consistently {+ Perf} element, into the area of {- Perf}. In our description the opaqueness of us is fully recognized and a tentative formulation is proposed: us appears between

F_3 a (for AGAPÁO) or e (for DIMIURGÓ) and F_6 vowels in {- Pass, - Perf, + Past, - K} forms: ayapá + us + a.

Our hypothesis is, in fact, corroborated by the superficially deviant stress patterns (paroxytonic stress in the case of monosyllablic terminations in spite of the value {+ Past} being present, e.g. ayapúsa) as it can be interpreted as one more case of the effect of sandhi interactions on the position of the stress on "overt" contracted forms: {+ Past} "underlying" ayap + á + us + a stressed on the antepenult undergoes sandhi change á + u → ú (the stress moves on to the surviving vowel) and becomes ayapúsa in the same way that "overt" uncontracted ayap + á + o and ayapái alternate, respectively, with overt contracted ayapó and ayapá.

Another point to be made with respect to the opacity of us concerns the fact that the stipulated sandhi interaction between F_3 a and F_6 u in the case of AGAPÁO yields u in violation of the HoD principle (see 5.3.2.) (whereas in the case of DIMIURGÓ the elision of F_3 e before F_6 u is in agreement with the HoD principle). To begin with, HoD is not violated with respect to a + u in the case of us only. In the case of the following

verb forms <u>a + u</u> yield "optionally" either <u>a</u> or, less often, <u>u</u>:

{-Pass,-Perf,-Past,+Pl,1} ayap + á + u + m + e ⟶ ayap{ú / á}me

{-Pass,-Perf,-Past,+Pl,3} ayap + á + u + n +(e) ⟶ ayap{ú / á}n (e)

While, however, in the case of the examples just given, the violation of HoD is "optional" and may be explained in terms of the paradigmatic pressure by grammatically equivalent {$ST_{\emptyset}$} and {STv_2} forms (e.g. <u>pávume</u>, <u>pávun(e)</u>, and <u>dimiuryúme</u>, <u>dimiuryún(e)</u>) in the case of forms where <u>us</u> is present no such explanation is available. Moreover, HoD is violated categorically, i.e. <u>a + u</u> always yields <u>u</u>.

Finally, notice that <u>us</u> appears 'optionally' as an F_9 formative in the limited case of {+ Pass - Perf, + Past, - K} forms and as "arbitrarily" or "opaquely" as it does in {- Pass, - Perf, + Past, - K} forms:

{+Pass,-Perf,+Past,-K} (e) + pav + ó + n + t + us + a + n or

(e) + pav + ó + n + t + a + n + (e)

3.6. <u>The sixth set of formatives</u> (F_6)

The rules for this and the remaining sets of formatives are based

on the detailed discussion in Ch.III. For a meaningful reading it would be necessary for the reader to check each rule against Table One as well as against the relevant section of Ch.III as indicated below.

As with most of the rules presented earlier on in this chapter, the morpholexical rules accounting for sets F_6 to F_{12} are unordered, i.e. they apply in random sequential ordering. Due to the particularly complex exponence relations, however, between grammatical values on the one hand and F_6 to F_{12} formatives (particularly F_6 and F_{10}), on the other, the great advantage of an unordered set of rules has been achieved through the inclusion of a certain degree of redundancy (in terms of number of symbols) in the rules as we will see below.

3.6.1. For rules 13 to 16 below, see Ch.III, 7.4.5. and Table One, section {+ Pass, - Perf} , column SP_6.

Rule 13

$$\{+\text{Pass},-\text{Perf}\} \longrightarrow \left[\begin{array}{c} V \\ \left\{\begin{array}{c}[\ -\text{back}\ ] \\ [\ -\text{high}\ ] \\ [\ -\text{low}\ ]\end{array}\right\}\end{array}\right] \ / \ \text{STEM} \ \text{——}$$

Rule 14

$$\begin{bmatrix} V \\ +back \end{bmatrix} \longrightarrow [\ +high\ ] \ /\ STEM\ —\ /\ \{\ +Pass, -Perf, +Pl, -K\}$$

Rule 15

$$\begin{bmatrix} V \\ +back \end{bmatrix} \longrightarrow [\ -high\ ] \ /\ STEM\ —/\ \left\{ +Pass, -Perf, \left\{ \begin{matrix} \{+Past, -K\} \\ 1, \left\{ \begin{matrix} \{+Past\} \\ \{+Pl\} \\ \{+K\} \\ \{-STv_1\} \end{matrix} \right\} \\ +Pl, \left\{ \begin{matrix} \{2, -K\} \\ \{3\} \end{matrix} \right\} \end{matrix} \right\} \right\}$$ (a) (b) (c)

Rule 16

$$\begin{bmatrix} V \\ -low \\ -high \end{bmatrix} \longrightarrow [\ -back\ ] \ /\ STEM\ —\ /\ \left\{ +Pass, -Perf, \left\{ \begin{matrix} \{-Pl, -1\}, \{-Past\} \\ \{+Pl, 2\} \quad \{+K\} \\ \\ \{-Past, -Pl, 1, STv, -K\} \end{matrix} \right\} \right\}$$ (a) (b)

3.6.2. For rules 17 to 23 below see Ch.III, 7.5.1b/2c/3a, as well as Table One, sections {- Pass} and {+ Pass, + Perf}, column SP_6 .

Rule 17

$$\left\{\begin{Bmatrix}\text{-Pass}\\ \text{+Perf}\end{Bmatrix}, \text{-Past}\right\} \rightarrow \begin{bmatrix}\text{V}\\ \text{-low}\end{bmatrix} \;/\; \text{STEM}\left(\begin{Bmatrix}\text{s}\\ \theta\end{Bmatrix}\right) \;\_\_$$

Rule 18

$$\begin{bmatrix}\text{V}\\ \text{-low}\end{bmatrix} \rightarrow \begin{bmatrix}\begin{bmatrix}\text{+front}\end{bmatrix}\\ \begin{bmatrix}\text{-front}\end{bmatrix}\\ \begin{bmatrix}\text{-high}\end{bmatrix}\\ \begin{bmatrix}\text{+high}\end{bmatrix}\end{bmatrix} / \text{STEM}\left(\begin{Bmatrix}\text{s}\\ \theta\end{Bmatrix}\right) \_\_ / \left\{\text{-Past}, \begin{bmatrix}\begin{bmatrix}\text{-high}\end{bmatrix}\\ \begin{bmatrix}\text{+high}\end{bmatrix}\\ \begin{bmatrix}\pm\text{high}\end{bmatrix}\end{bmatrix}\right\}$$

$$\left\{\begin{Bmatrix}\text{-Pass}\\ \text{+Perf}\end{Bmatrix}, \begin{bmatrix}\begin{Bmatrix}2\\ \text{-P1,3}\end{Bmatrix}\\ \begin{Bmatrix}1\\ \text{+P1,3}\end{Bmatrix}\\ \begin{Bmatrix}\text{-P1,1}\\ \text{+P1,1,+K}\end{Bmatrix}\\ \begin{Bmatrix}\text{-P1,-1}\\ \text{+P1,3}\end{Bmatrix}\end{bmatrix}\right\} \quad \text{(a')}\ \text{(a")}\ \text{(a"')}\ \text{(a"")}$$

$$\begin{bmatrix}\text{-Pass,+P1,2}\\ \text{+Pass,+Perf,+P1,}\begin{Bmatrix}2\\ 1,\text{-K}\end{Bmatrix}\\ \text{-Pass,+P1,1,-K}\end{bmatrix} \quad \text{(b')}\ \text{(b")}\ \text{(b"')}$$

Rule 19

$$\left\{\text{+Past}, \begin{Bmatrix}\text{-K}, \begin{Bmatrix}\text{-Pass}\\ \text{+Perf}\end{Bmatrix}\\ \text{+K, -Pass, +Perf}\end{Bmatrix}\right\} \rightarrow \begin{bmatrix}\text{V}\\ \text{-back}\\ \text{-high}\end{bmatrix} \;/\; \text{STEM}\left(\begin{Bmatrix}\text{y}\\ \text{us}\\ \text{s}\\ \theta + \text{ik}\end{Bmatrix}\right) \;\_\_$$

Rule 20

$$\begin{bmatrix} V \\ -back \\ -high \end{bmatrix} \rightarrow \left\{ \begin{bmatrix} [-low] \\ [+low] \end{bmatrix} \right\} / STEM \left(\begin{Bmatrix} y \\ us \\ s \\ \theta + ik \end{Bmatrix} \right) — / \left\{ +Past, \left\{ \begin{matrix} \{-K, \{-Pass\}, \begin{bmatrix} \{-Pl,1\} \\ \{1\} \\ \{+Pl\} \end{bmatrix} \} \\ \{+K, -Pass, -Perf, \begin{bmatrix} \{-Pl,3\} \\ \{-3\} \\ \{+Pl\} \end{bmatrix} \} \end{matrix} \right\} \right\} \quad \begin{matrix} (a') \\ (a'') \\ (b') \\ (b'') \end{matrix}$$

Rule 21

$$\{\alpha Pass, \alpha Perf, +Past, +K\} \rightarrow \begin{bmatrix} V \\ -low \\ \alpha\ high \end{bmatrix} \quad / \ STEM \ \ (\theta) —$$

Rule 22

$$\begin{bmatrix} V \\ +high \end{bmatrix} \rightarrow [\ +front\ ] \ / \ STEM + \theta —/ \{+Past, +K\}$$

Rule 23

$$\begin{bmatrix} V \\ -high \end{bmatrix} \rightarrow \begin{bmatrix} [\ +back\ ] \\ [\ -back\ ] \end{bmatrix} / STEM — / \{ \begin{bmatrix} \{1\} \\ \{+Pl,3\} \end{bmatrix}, \begin{bmatrix} \{2\} \\ \{-Pl,3\} \end{bmatrix}, -Pass, -Perf, +Past, +K \} \quad \begin{matrix} (a) \\ (b) \end{matrix}$$

3.7. The seventh set of formatives (F_7)

For rule 24 below see Ch.III,7.4.5.c., also Table One, section {+Pass,-Perf}, column SP_7.

Rule 24

$$\{+\text{Pass},-\text{Perf},+\text{Pl},3\} \rightarrow n \;/\; \text{STEM} + \begin{bmatrix} V \\ +\text{back} \end{bmatrix} \text{——}$$

3.8. The eighth set of formatives (F_8)

3.8.1. For rule 25 below, see Ch.III,7.4.5.d., and Table One, section {+Pass-Perf} , column SP_8.

Rule 25

$$\{+\text{Pass},-\text{Perf},\alpha\ 1,\ \beta 2\} \rightarrow \begin{bmatrix} C \\ +\ \text{anter} \\ \alpha\ \text{nasal} \\ \alpha\ \text{voiced} \\ -\alpha\ \text{coron} \\ \beta\ \text{cont} \\ \beta\ \text{strid} \end{bmatrix} \;/\; \text{STEM} + V + (n) \text{——}$$

3.8.2. For rules 26 and 27 below see Ch.III,7.5.1c/2b/3b.,and Table One, sections {- Pass} and {+Pass,+Perf}, column SP_8.

Rule 26

$$\{\{\{\text{-Pass}\}\{\text{+Perf}\}\}, \alpha\ \text{Pl}, \beta\ 1\} \longrightarrow \left[\begin{array}{l} \text{C} \\ \text{+ anter} \\ \beta\ \text{nasal} \\ \beta\ \text{voiced} \\ -\alpha\ \text{cont} \\ -\beta\text{coron} \\ -\alpha\ \text{strid} \end{array}\right] / \text{STEM} \left(\left\{\begin{array}{l} \text{y} \\ \text{us} \\ \text{s} \\ \theta(\text{ik}) \end{array}\right\}\right) + \text{V} \text{ ——}$$

Rule 27

$$\{+\text{Pass},+\text{Perf},+\text{Past},+\text{Pl},3,+\text{K}\} \longrightarrow \text{s} / \text{STEM} + \theta + \text{i} \text{ ——}$$

3.9. The ninth set of formatives (F_9)

For rule 28 below see Ch.III,7.4.5.e and Table One, section {+ Pass, - Perf, + Pl}, column SP_9.

Rule 28

$$\{+\text{Pass},-\text{Perf},+\text{Pl}\} \longrightarrow \left[\begin{array}{l} \left[\begin{array}{l} \text{ast} \\ \text{e}\theta \\ \theta \\ \langle\text{us}\rangle \end{array}\right] \\ \left[\begin{array}{l} \text{ast} \\ \theta \end{array}\right] \end{array}\right] / \text{STEM} + \left[\begin{array}{l} \text{V+(n)+C} \\ \\ \\ \\ \left[\begin{array}{l} \text{o} \\ \text{u} \end{array}\right] + \text{s} \\ \left[\begin{array}{l} \\ \text{e} \end{array}\right] \end{array}\right] \text{ ——} / \left[\begin{array}{ll} \left[\begin{array}{l} \{-\text{K}, \{\{1\}\{+\text{Past},2\}\}\} \\ \{1, +\text{K}\} \\ \{2, +\text{K}\} \\ \{+\text{Past},3,-\text{K}\} \end{array}\right] & \text{(a)} \\ & \text{(b)} \\ & \text{(c)} \\ & \text{(d)} \\ \{-\text{Past},2,-\text{K}\} & \text{(e')} \\ & \text{(e")} \end{array}\right]$$

3.10 The tenth set of formatives (F_{10})

For rules 29 to 32 below see Ch.III,7.4.5.f, 7.5.1.d, 7.5.2.a/d, and 7.5.3.c; also Table One, column SP_{10}.

Rule 29

$$\{+Pass,-Perf\} \longrightarrow V \ / \ STEM + V + (n) + C + \left(\begin{Bmatrix} \theta \\ e\theta \\ ast \\ us \end{Bmatrix}\right) \text{ ——}$$

Rule 30

$$V \longrightarrow \begin{bmatrix} \begin{bmatrix} +high \\ \{\alpha\ front\} \end{bmatrix} \\ \begin{bmatrix} +low \end{bmatrix} \\ \begin{bmatrix} +front \\ -high \end{bmatrix} \\ \begin{bmatrix} +back \\ -high \end{bmatrix} \\ \begin{bmatrix} -back \\ \beta\ low \end{bmatrix} \end{bmatrix} / STEM + V + \begin{bmatrix} C \\ \begin{bmatrix} e\theta \\ (n)+t+(us) \end{bmatrix} \\ (n)+C+\begin{bmatrix} \theta \\ (ast) \end{bmatrix} \\ (n)+C \\ C+ast \end{bmatrix} — / \begin{bmatrix} \{+Pass,-Perf, \begin{bmatrix} \{1,\alpha K\} \\ \{2,-K\} \end{bmatrix}\} (a) \\ \begin{bmatrix} \{\pm Past\} \\ \{+Past,-K\} \end{bmatrix} (b' \\ (b'' \\ \begin{bmatrix} \{\pm Past\} \\ \{-Past\} \end{bmatrix} \} (c' \\ (c'' \\ \{+Past,+K,\begin{Bmatrix} \{-Pl,-1\} \\ \{3\} \end{Bmatrix}\} (d) \\ \{+Past,+Pl,-3,-K\} (e) \end{bmatrix}$$

Rule 31

$$\{\begin{Bmatrix}\{-\text{Pass}\}\\ \{+\text{Perf}\}\end{Bmatrix}, +\text{Pl}, -3\} \longrightarrow e/ + V + \begin{Bmatrix}m\\ t\end{Bmatrix} \text{ ——}$$

Rule 32

$$\{+\text{ Pass, } +\text{ Perf, } +\text{ Past, } +\text{ Pl, } 3, +\text{ K}\} \longrightarrow a\ /\ +\ i\ +\ s \text{ ——}$$

3.11. The eleventh set of formatives (F_{11})

For rules 33 to 35 see Ch.III, 7.4.5.g, 7.5.1.c, 7.5.2.a/b/d, and 7.5.3.a, as well as Table One, column SP_{11}.

Rule 33

$$\{+\text{Pass}, -\text{Perf}, +\text{Past}, \begin{Bmatrix}\{-\text{Pl}, 1, +\text{K}\}\\ \{-\text{K}\}\end{Bmatrix}\} \longrightarrow n/\text{STEM}+V+(n)+C+\left(\begin{Bmatrix}\text{ast}\\ \text{us}\end{Bmatrix}\right)+\begin{bmatrix}V\\ \alpha\ \text{high}\\ -\alpha\ \text{low}\end{bmatrix} \text{ ——}$$

Rule 34

$$\{\begin{Bmatrix}\{-\text{Pass}\}\\ \{+\text{Perf}\}\end{Bmatrix}, +\text{Pl}\} \longrightarrow n\ /\ \begin{cases}+\ m\ +\ e\ \text{——}\#/\{1,+\text{K}\} & \text{(a)}\\ \text{STEM}\ +\left(\begin{Bmatrix}y\\ us\\ s\\ \theta\ +\ \left(\begin{Bmatrix}ik\\ i+s\end{Bmatrix}\right)\end{Bmatrix}\right)+\ V\ \text{——}\ /\ \{3\} & \text{(b)}\end{cases}$$

Rule 35

$$\{\alpha \text{ Pass}, \alpha \text{ Perf}, + \text{Past}, + \text{K}, - \text{Pl}, 1\} \longrightarrow n \,/ \text{STEM} + (\theta) + \text{V} \text{ ——}$$

3.12. The twelfth set of formatives (F_{12})

For rules 36 and 37 see Ch.III,7.4.5.h, 7.5.1.b/2.d, and Table One, column SP_{12}.

Rule 36

$$\{-\text{K}\} \longrightarrow \left\langle \begin{bmatrix} \text{V} \\ -\text{back} \\ -\text{high} \end{bmatrix} \right\rangle \; / \# \text{ STEM} + \text{C}_o\text{V}^1_o\text{C}_o\text{Vn} \text{ —— } \#$$

Rule 37

$$\begin{bmatrix} \text{V} \\ -\text{back} \\ -\text{high} \end{bmatrix} \longrightarrow \begin{bmatrix} [\alpha \text{ low}] \\ \\ [- \text{ low}] \end{bmatrix} /+ \begin{bmatrix} \text{V} \\ -\text{front} \\ \alpha \text{ high} \\ -\alpha \text{ low} \end{bmatrix} \; +n \text{ —— } \# / \begin{bmatrix} \{+\text{Pass}, -\text{Perf}, +\text{Past}\} & \text{(a)} \\ & \\ \{3\} & \text{(b)} \end{bmatrix}$$

4. THE STRESS PATTERN OF THE VERB IN MGK

4.1.1. The stress pattern in MGK reflects, up to a certain point, Ancient Greek accentual regularities. In AG the accent fell as far back as the "three mora rule"[11] would permit, viz, not further back than the antepenult if the final vowel was short (in which case each of the three last vowels was worth one mora) irrespective of the length of the vowels in the penult and antepenult syllables, and not further back than the penult if the final vowel was long, i.e. worth two mora, e.g.

ánθro:pos (= man) but anθró:pu:(= of the man)

In the post-classical era, vowel-length distinctions were lost and pitch accent was replaced by expiratory

stress (Newton, 1972a, p.37). In MGK stress continues to fall, largely, but by no means always, where AG accent used to. As a result, the stress pattern appears irregular to some extent, since stress movement can no longer be associated with an independently existing phonetic feature such as vowel length e.g.

Nominative : ἄnθropos

Genitive : anθrópu

4.1.2. In Newton's terms, the ancient predictable accentual shift from ἄnθro:pos to anθró:pu: is continued by the superficially unpredictable shift from ἄnθropos to anθrópu. Newton further suggests that by recognizing an underlying length feature in the vowels we can retain the "three mora rule" (p.37).

$$\text{(i)}\quad V \longrightarrow [+\text{stress}] \;/\; \text{---}\; C_o \begin{bmatrix} V \\ -\text{stress} \end{bmatrix} \quad C_o \left(\begin{bmatrix} V \\ -\text{long} \\ -\text{stress} \end{bmatrix} \right) C_o \,\#$$

Furthermore,

> "To make the shift from modern [ἄnθropos] to [anθrópu] more intelligible, it is useful to consider the underlying form of [anθrópu] to be /ἄnθropū/, so that the stress shift becomes predictable". (p.12)

Warburton, 1976, on the other hand, objects to Newton's phonological solution (also endorsed in Adams, 1972; Tsitsopoulos, 1973 and

Malikouti-Drachman, 1976, the latter favouring a sequence of two vowels rather than a "long" vowel in the "underlying" representation) on two grounds:

Firstly, because it is a historical one. She argues that "synchronic rules should capture generalizations that native speakers, ignorant of their language's history, can make on the basis of synchronic data alone" (p.262)

Secondly, because Newton's solution "requires the additional rule of length elimination", which, furthermore, follows the stress rule in an extrinsically ordered sequence, "and this, according to some recent theories (e.g. Koutsoudas, et al, 1974) is either totally wrong or must be considered more costly than an unordered solution" (p.264).

Warburton, 1970, offers a morphological solution to the problem, represented by tentative rule (ii) below, (corresponding to rule 4 in Warburton, 1976):

$$\text{(ii)}\quad V \longrightarrow [+\text{stress}] \;/\; \left\{ \begin{array}{l} \_\_ \; C_o \begin{bmatrix} V \\ +S \end{bmatrix} \; C_o \; \# \\ \_\_ \; C_o \begin{bmatrix} V \\ -\text{stress} \end{bmatrix} \; C_o \begin{bmatrix} V \\ -\text{stress} \end{bmatrix} \; C_o \; \# \end{array} \right\}$$

where C_0 means zero or more consonants, and [+S], meaning "special", is used as a mnemonic or cover symbol for the following list of suffixes whose presence causes the stress to fall on the penult:

Verb suffixes: -o, -is, -i, -un

Noun suffixes: -u, -on, -us.

The first part of rule (ii) above accounts for the stress of such verb forms as pávo, pávis, pávi, pávun, and such noun forms as Sing.Gen: anθrópu, Pl.Gen: anθrópon, Pl.Accus: anθrópus.

In Warburton, 1976, it is realized that both Newton's phonological and Warburton's morphological solutions (respectively, tentative rules (i) and (ii) above) fail to capture the different ways in which the loss of vowel length has affected nouns and verbs in terms of their stability and regularity: In the case of nouns, the suffixes -u, -on, and -us, whose presence causes the stress to move to the right in relation to its position elsewhere in the same noun paradigm, have to be memorized by children learning their language as a list, since they do not share a single feature, i.e. they are not all Plural, or all Genitive,and, therefore, sometimes "mistakes" occur in that either the shift fails to occur

before some of these suffixes, e.g. ἀnθropu (instead of the "correct" anθrópu) or the shift occurs before the wrong suffix, e.g. anθrópi (instead of the "correct" ἀnθropi. In the case of verbs, on the other hand, no reference is necessary to the list of affixes which have undergone length elimination, since stress is reinterpreted so that now it is accounted for on the basis of the morphological notions of STEM and PAST. The new solution is captured by the following four rules (corresponding to rules A, B, C and D in the original (p.272)).

(iii) Stress final vowel of stem.

e.g. pάvo, tipóno (= I publish), epistréfo (= I return)

(iv) If the two final vowels of a noun are unstressed, stress penult before the suffixes -u, -on, and -us.

e.g. ἀnθropos, but anθrópu, anθrópon, anθrópus.

(v) Stress antepenult of {+ Past} forms.

e.g. épava, pάvame, paftíkate, pavómuna.

(vi) If the last three vowels in a word are unstressed, stress the antepenult and erase other stresses.

e.g. rule (iii) will yield {+Pass,-Perf,-Past,+Pl,1,-K} *pάvomaste, on which

rule (vi) will apply to produce the correct pavómaste.

According to Warburton, rule (iii) "can best be seen as a lexical redundancy rule" since it "makes reference only to the notion of the stem, and stems are listed in the dictionary". Therefore,"it must apply before any of the rules of the phonological component".

Rules (iv), (v) and (vi) are unordered and can apply cyclically.

4.1.3. The above six rules, however, cannot account for the desyllabification of i in forms such as ayapiómaste → ayapjómaste, combined with stress movement in forms such as ayapiéme → ayapjéme.

To account for such forms, Newton, 1972a, suggests that desyllabification is independent of stress, and that, first, stress is assigned:

ayapieme → ayapiéme

ayapiomuna → ayapiómuna

then i is desyllabified:

ayapiéme → ayapjéme

ayapiómuna → ayapjómuna

followed by stress shift:

ayapjeme → ayapjéme

The reverse order of application: first glide formation, then stress, is proposed by Newton for verbs such as TELIÓNO (= I finish) LJÓNO (= I melt), NJÚθO (= I feel) etc., e.g.

teliona → teljona → téljona

telioname → teljoname → teljóname

However, in Warburton, 1976, it is suggested that Newton's solution must be rejected on the grounds that (a) it is counter-intuitive to postulate the desyllabification of stressed i, (b) nouns such as tamías (= cashier) will have to be marked as exceptional since they do not undergo glide formation, (c) extrinsically ordered rules are "costly", and (d) it would constitute an ordering paradox if the rules applied in different order in the case of AGAPÁO from that of TELIÓNO, as Newton suggests.

On the other hand, Adams, 1972, p.176, has proposed a single rule for glide formation and stress shift, repeated below as tentative rule (vii):

$$\text{(vii)}\quad \begin{bmatrix} V \\ \text{-back} \\ \langle +\text{stress} \rangle \end{bmatrix} \quad V \longrightarrow \quad [\ \text{-syllabic}\ ] \qquad \begin{bmatrix} V \\ \langle +\text{stress} \rangle \end{bmatrix}$$

$$\qquad\qquad\quad 1 \qquad\quad 2 \qquad\qquad\quad 1 \qquad\qquad 2$$

where the angled brackets mean that the feature [+stress] appears in the output only if it also appears in the input.[12]

Rule (vii) is still inadequate with respect to Warburton's objection (b) above, and also fails to account for the proparoxytonic stress on téljona from "underlying" teliona. In fact, Adams suggests that "the non-syllabic has been restructured into the underlying representation and hence is never stressable" (p.176). Newton, 1972 b, p.89, however, thinks (and Warburton agrees) that underlying j "would be unique to these forms and would often be in alternation with i in other constructions containing the same morpheme", e.g. téljona (= I was finishing), telía (= full stop), and vrádjase (= night has fallen), vrádi (= evening) etc. On the other hand, Malikouti-Drachman, 1976, p.109, suggests that there is good cause for the postulation of an underlying glide in Greek.

Warburton, 1976, proposes rules (viii) and (ix) below (corresponding respectively, to rules E and F in the original, p.272) to deal with desyllabification and stress movement (a) in verbs such as AGAPÁO, (b) in verbs such as TELIÓNO and NIÓθO, (c) in nouns such as vrádi, vradjú, and (d) in nouns where no glide formation takes

place, e.g. tamías, tamía:

(viii) Reduce unstressed i in the context of another vowel.

e.g. ayapiómaste → ayapjómastė

(ix) Where the above rules produce stem variation between CíV or VíC and CjV or VjC respectively, shift stress from i to its adjacent vowel.

e.g. ayapíeme → ayapiéme because of

ayapiómaste → ayapjómaste.

Also, teliona → teliónа because of

teliónаme → teljónаme. Rule (viii) then changes ayapiéme and teliónа to ayapjéme and teljónа, and finally rule (v) reapplies on teljónа to yield the correct téljonа. It will be noticed that the context of rule (ix) "is not restricted to the features of the immediate phonological or morphological environment of the segment that undergoes change, but makes reference to the whole paradigm" (p.273).

4.2. The solutions suggested by the scholars above are not general enough since they cannot account for the following, rather numerous, cases.

4.2.1. Warburton's rule (iii) ("stress final vowel of stem") can account for all {- Pass, - Past} forms:

{- Pass, - Past}

{- Perf}	{+ Perf}
pávo	pápso
pávis	pápsis
pávi	pápsi
pávume/pávome(n)	pápsume/pá{f/p}some(n)
pávete	pápsete
pávun(e)	pápsun(e)

and, in combination with rule (vi) ("If the last three vowels in a word are unstressed, stress the antepenult and erase other stresses"), for {+ Pass, - Perf, - Past} forms:

{+ Pass, - Perf, - Past}

pávome
pávese
pávete
pávomeθa → pavómeθa
pávesθe/ pávosaste → pavósaste
pávonte

but not for the {+ Pass, + Perf, - Past} paradigm (or for anything else):

{+ Pass, + Perf, - Past}

paftó
paftís
paftí
paftúme/pafθómen
paftíte
paftún(e)

where the stress always falls on the syllable following the stem.

To account for the above cases we will need, firstly, to limit the application of rule (iii) above in the case of {- Pass, - Past} and {+ Pass, - Perf, - Past} forms only[13] (i.e. not in the case of, among others, {+ Pass, + Perf, - Past} forms)

$$(x) \quad V \rightarrow [\ +\text{stress}\ ] \,/\, \text{---}\ C_o\ ]_{STEM} \,/\, \{-\text{Past}, \begin{Bmatrix} \{-\text{Pass}\} \\ \{-\text{Perf}\} \end{Bmatrix}\}$$

e.g. pávo, pápso, pávome.

Secondly, to introduce a new rule according to which {+Pass,+Perf, -Past} verb forms are stressed on the syllable following the stem:

(xi) V → [+stress] / STEM + C_o — / {+Pass,+Perf,-Past}

e.g. paftó, paftís, pafti, etc, ayapiθó, ayapiθís, ayapiθí, etc.

and, thirdly, to keep rule (vi) (recast below in terms of our conventions as rule (xi)) in order to avoid wrong forms such as *pávomaste, *pávosaste.

(xii) # X V́ Z V C_o V C_o V C_o # ⟶ # X V Z V́ C_o V C_o V C_o #

e.g. pávomaste ⟶ pavómaste, pávosaste ⟶ pavósaste

Rule (xii) is intrinsically ordered last, since it applies on the appropriate output of other rules. Rules (x) and (xi) are, as they stand, unordered with respect to one another since their input conditions never overlap. It will be realized that, had we ordered extrinsically rule (xi) before rule (x), we would have had to mention in the environment of the latter only the value {- Past}, in which case rule (xi) would stress {+ Pass, + Perf, - Past} verb forms before rule (x) was tried for application, i.e. rule (xi) would "bleed" rule (x) so that the latter applied in the case of all {- Past} forms not already stressed by rule (xi). As we explained at the beginning of this chapter, however, we prefer to be a bit more "extravagant" in the number of symbols employed in each rule and have the great advantage of as many unordered rules as possible.

Note that our rule (xi) would still be needed if a suggestion by, among others, Warburton, in a later article than the one discussed in this section, were accepted (see discussion in 3.5.2. in this chapter for a rejection, on other grounds, of the proposal in question) to wit, that {+ Pass, + Perf, - Past} overt forms : <u>paftó</u>, <u>paftís</u>

pafti, etc., are derived from "underlying" forms, respectively, pafθío, pafθíis, pafθíi, etc. As is obvious, both overt and "underlying" forms are stressed on the syllable following the stem.

4.2.2. Rule (v) above ("Stress antepenult of {+ Past} forms") fails to account for such {+ Pass, + Perf, + Past, - Pl, + K} forms as epáfθin, epáfθis, epáfθi, and for such {+ Pass, - Perf, +Past, - Pl, 1, + K} forms as epavómin. Since all these forms have a final segment CiC_o^1 (or CiC(C)) in their structure and since they all have in common the value {+ Past}[14] we can account for them on the basis of the following rule:

(xiii) $V \rightarrow [+\text{stress}] / \text{---} CiC_o^1 \# / \{+ \text{Past}\}$

which will be extrinsically ordered before rule (v) reproduced below, in terms of our conventions, as rule (xiv):

(xiv) $V \rightarrow [+\text{stress}] / \text{---} C_oVC_oVC_o \# / \{+ \text{Past}\}$

In other words, given a {+ Past} verb form, rule (xiii) is tried first for application. If the form ends in a segment of the general structure CiC_o^1 and realizes, among others, the value {+ Past}, rule (xiii) provides the appropriate stress. Otherwise rule (xiv) applies. It is obvious, therefore, that the two rules are in "bleeding" order since the latter applies in the case of {+ Past}

forms not already treated by the former. The "cost" of ordering the two rules extrinsically could be avoided, it might be argued, if a condition was added to rule (xiv)

CONDITION : $\sim CiC_{o}^{1}\#$

to block it from applying in the case of forms such as epáfθin, epáfθis, epáfθi and epavómin, a procedure which, as is obvious, is not exactly "economical". A third solution, which is the one adopted later on in this section, is to accommodate the two rules into a single rule (see 4.2.9. below) whose various sections are ordered in relation to one another by means of the brace notation.

It should be mentioned that the paroxytonic stress pattern associated with such verb forms as epáfθin, epáfθis, epáfθi or epavómin, "deviant" though it is in MGK since it is an exception to the more general rule (xiv) above ("stress antepenult of {+ Past}forms"), in fact reflects AG regularities("long" final vowel). Indeed, in Newton's terms, i, the final syllabic common to all the above forms, may be said to be worth two mora (see 4.1. above). Given the disappearance of length distinctions in MGK, however, {+ Past} verb forms with terminal segments of the general structure CiC_{o}^{1} cannot but be treated as exceptions. In fact, even if an "underlying" length feature were allowed in a grammar of MGK the above forms would still be marked as exceptional for not all verb forms ending in CiC_{o}^{1} are stressed on the penult: paftís, pafti.

4.2.3. Warburton's rule (v) ("stress antepenult of {+ Past} forms") reproduced above as rule (xiv) fails to account for the stress of the {+ Pass, - Perf, + Past, - K} paradigm whenever F_{12} "euphonic" vowels are not present, or, which amounts to the same result, whenever there are not more than two syllables following the stem:

{+Pass,-Perf,+Past,-K}	{-Pl}	{1}	pavómun(a)
		{2}	pavósun(a)
		{3}	pavótan(e)
	{+Pl}	{1}	pavómaste/pavómastan
		{2}	pavósaste/pavósastan
		{3}	pavóntan(e)/pavóntusan/pávontan

In fact, if we set aside for the moment the {+ Pl, 3} alternant pávontan which is stressed by rule (v)(or(xiv))above, the rest of the forms in the paradigm under consideration are always stressed on the syllable following the stem, whether that is the antepenult, in which case we could say that rule (xiv) applies, or the penult, in which case rule (xiv) certainly does not apply. It seems, therefore, that here stress placement is determined not so much on morphophonological grounds (i.e. in terms of the proparoxytonic stress pattern normally associated with the feature {+ Past}; see rule (xiv)), but predominantly on morphological grounds, (i.e. in

relation to the stem): "Stress syllable following stem of {+ Pass, - Perf, + Past, - K} forms".

As is obvious from the examples above, the two regularities "conspire" to place the stress on the same syllable in the case of {+ Pass, - Perf, + Past, - K} verb forms with three syllables following the stem, but are in conflict in the case of two syllables following the stem. When in conflict, the morphological rule (rule (xv) below) dominates the morphophonological rule (xiv), i.e. verb forms with two syllables following the stem are stressed on the penult, apart from one of the {+ Pl, 3} alternants, pavontan, where either rule may apply: pavóntan or pávontan, the latter being the more common of the two (see Ch.V, 9 below). It seems, therefore, that a tendency towards morphologization of stress placement is at work here. The tendency is triggered off by the instability of the final "euphonic" F_{12} vowels in the paradigm under consideration: Rule (xiv), the "original" morphophonological rule, stresses the verb forms of the paradigm, most of which have three syllables following the stem, either categorically: pavómaste/pavómastan pavósaste/pavósastan, pavóntusan, or "optionally", pavómun(a), pavósun(a), pavótan(e), pavóntan(e), the final "optional" F_{12} vowel being present more often than not (see Ch.V.8). The fact that, "accidentally", the antepenult carrying the stress follows

the stem in most of the forms of the paradigm is, historically speaking, gradually vested in morphological significance: {+ Pass, - Perf, + Past, - K} forms are stressed on the syllable following the stem. The new, morphological, pattern not only acquires autonomy, but also begins to dominate the old, morpho-phonological pattern. The fact is both revealed and favoured by the behaviour of F_{12} vowels in the structure of the forms under consideration, where they are variously present or absent, though more often present than not as we said above. In other words, in the (infrequent) absence of F_{12} vowels (which leaves {+ Pass, - Perf, + Past, - K} forms with only two syllables following the stem), rule (xiv) could easily apply to place the stress on the antepenultimate. In fact, however, this is only occasionally the case and only with respect to the {+ Pl, 3} form pávontan, whereas the remaining forms with two syllables following the stem strongly resist the application of rule (xiv) ?pávomun, ?pávosun, ?pávotan (at least in the data on which this study is based), the tendency being for alternants with or without F_{12} vowels in their structure to be stressed on the same syllable in relation to the stem rather than in relation to the word boundary at the end of the word.

To account for the stress pattern of the forms under consideration we will need a morphological rule such as rule (xv) below, which

is extrinsically ordered before rule (xiv) above. (Later on in the discussion the two rules will be incorporated in a single rule through the brace notation).

(xv) $V \longrightarrow [\ +\text{stress}\ ]\ /\ \text{STEM} \text{ ——/} \{+\text{Pass}, -\text{Perf}, +\text{Past}, -\text{K}, \begin{Bmatrix} \{-\text{Pl}\} \\ \{-3\} \end{Bmatrix}\}$

Rule (xv) places the stress on the syllable following the stem in the case of all {+ Pass, - Perf, + Past, - K} verb forms apart from the {+ Pl, 3} alternatives, pavontusan, pavontane, pavontan.

Our blocking of rule (xv) from applying in the case of all {+ Pl, 3} forms is partly a matter of economy and partly a matter of necessity: two of them, pavontusan and pavontane could easily be treated by rule (xv): pavóntusan, pavóntane, but, since they both have three syllables following the stem it makes no difference whether they are treated by rule (xv) ("Put the stress on the syllable following the stem of {+ Pass, - Perf, + Past, - K} forms") or by rule (xiv) ("Put the stress on the antepenult of {+ Past} forms"). The problem is the form pavontan, which is stressed either on the penult (i.e. according to rule (xv): pavóntan) or on the antepenult (i.e. according to rule (xiv): pávontan). The obvious solution would be,

of course, to allow rule (xv) to apply variably in the case of {+ Pl, 3} forms:

(xv'): V → [+stress] / STEM — /{+Pass,-Perf,+Past,-K, ⟨+Pl,3⟩}

If the rule applies in the case of {+ Pl, 3} forms we get: pavóntusan, pavóntane or pavóntan. If it does not, rule (xiv) is activated to produce: pavóntusan, pavóntane, or pávontan. However, pavontan behaves in the same way as other {+ Past, + Pl, 3, -K} forms in the verb system, as we shall show presently (4.2.4.) and it would be both more economical and more informative to treat all such forms by the same rule (rule (xvi)). Note, too, that at first glance, there seems to be no reason why {+ Pass, - Perf, + Past, - K, + Pl, 3} forms such as pavontan could not be treated either by variable rule (xv') above or variable rule (xvi) below or both: whichever is tried first for application, the result is the same: either the form is stressed on the penult: pavóntan, or or it is not stressed:pavontan. In the latter case, the other rule is tried and it either stresses the form: pavóntan, or it does not: pavontan. In the latter case, it is the turn of rule (xiv) which now places the stress on the antepenult categorically: pávontan. From a probabilistic point of view, however, the above solution would be unacceptable because pavontan would have a much greater chance to be stressed on the penult than other {+ Past, + Pl, 3, -K} forms, not as a result of different observed frequencies in the

data, but simply because the former but not the latter would be exposed to the input probability of either rule (xv') or rule (xvi) and if it was not stressed on the penult the first time it would be exposed to the input probability of the remaining of the two rules.

4.2.4. Warburton's rule (v)("Stress antepenult of {+ Past} forms") reproduced above as rule (xiv) cannot account for certain {+ Past, + Pl, 3, - K} alternants that are in fact stressed on the penult.

{+Past,+Pl,3,-K}	{-Pass}	{-Perf}	pávan (but: pávane, épavan)
		{+Perf}	pápsan (but: pápsane, épapsan)
	{+Pass}	{-Perf}	pavóntan (but: pávontan, pavóntane, pavóntusan)
		{+Perf}	paftíkan (but: páftikan, paftíkane)

In all the above forms, rule (xiv) is violated under the paradigmatic pressure of the remaining {+ Pl} forms, e.g.

pávame

pávate

pávan(e)

(or, in the case of pavóntan), under the paradigmatic pressure of all other forms with which it contrasts with respect to

Number and Person: see examples at the beginning of, and discussion throughout 4.2.3. above).

The tendency towards morphologization of the stress pattern of {+ Past} forms both favours and is favoured by the instability of "optional" unstressed augment and "optional" F_{12} vowels. The augment, as we showed in 3.1.5. above, appears categorically whenever it is needed to support the proparoxytonic stress pattern normally associated with the value {+ Past} (i.e. in the case of disyllabic verb forms), otherwise it tends not to appear, e.g. ép̀ava, but p̀avame, nòmize, d̀imiùryises. Clearly, then, the tendency for the dissociation of the augment from the value {+ Past} interacts favourably with the tendency for the dissociation of the proparoxytonic stress pattern from the same value. In other words, if the proparoxytonic stress pattern is not obligatory in the presence of the value {+ Past}, there is no need for an augment in the case of disyllabic {+ Past} forms. Again, as we argued in 4.2.3. above with respect to the forms pavontan(e), the instability of F_{12} e causes the dissociation of the proparoxytonic accentual pattern from the value {+ Past}, owing, evidently, to the "uneconomical" result of having to stress a different syllable or of even having a syllable especially added (i.e. the augment) to support the stress according to whether the F_{12} vowel is present or not.

e.g. pávare or épavan, paftíkane or páftikan, pavóntane or pávontan.

Instead, a different accentual pattern, which is independent of the presence or absence of F_{12} e, is favoured, e.g.

pavómastan
pavósastan
pavóntan(e)

Obviously, the new accentual pattern removes one constraint on the behaviour of F_{12} e: it is not necessary for F_{12} e to appear in the case of disyllabic {+ Past} forms (any more than it is for the augment) since it is not necessary for {+ Past} forms to be stressed on the antepenult: épavan, pávane, pávan.

To account for the {+ Past, + Pl, 3, - K} forms under consideration we will need a variable rule such as the following.

$$(xvi)\quad V \longrightarrow [+\text{stress}] \,/\, \#\left\langle [XVY]_{STEM} \right\rangle C_o \,\_\, C_o V\ n\#\ /\ \{+\text{Past}, +\text{Pl}, 3, -K\}$$

The rule reads that {+ Past, + Pl, 3, - K} verb forms are stressed on the penultimate categorically if they have only two syllables, e.g. pávan, pápsan, and variably otherwise, e.g. paftíkan/páftikan. The provision that the forms in question should end in -Vn blocks the rule from applying in the case of {+ Pl, 3} forms ending in -e: *pavánе, *papsáne. The provision that, for the rule to apply on a

{+ Past, + Pl, 3 - K} verb form, the stem should not be followed by more than two syllables, effectively blocks incorrect forms such as *pavontúsan. Rule (xvi) is ordered extrinsically before rule (xiv) above (but see 4.2.5. below). It provides stress for disyllabic forms such as pávan and pápsan which cannot be dealt with by rule (xiv). Furthermore, if it applies on such verb forms as paftikan or pavontan the result is paftíkan and pavóntan. If it does not, rule (xiv) applies to yield: páftikan, pávontan.

It should be noted that rule (xvi) above is unsatisfactory to the extent that it does not explicitly state that the behaviour of the verb forms treated by it is conditioned by the paradigmatic pressure of other verb forms with which they contrast as regards Number and Person. In other words, rule (xvi) obscures the fact that rule (xiv) ("Stress the antepenult of {+ Past} verb forms") is rendered opaque by a new tendency for the fixing of stress in relation to the stem so that paradigmatic similarity is preserved. The reason is that on the basis of the current generative formalization used in this study no reference can be made to paradigmatic tendencies in any explicit way.[15] A different way to deal with the verb forms treated by rule (xvi) would be to modify the relevant variable morpholexical rule 36 so that F_{12} vowels appear categorically, e.g.

pavane rather than pavan(e). Then {+ Past} forms would be stressed on the antepenultimate by rule (xiv) without special mention of {+ Past, + Pl, 3, - K} forms, e.g. pavómaste, pavósaste, pavóntane. Subsequently, F_{12} vowels would be made "optional" by a later rule, e.g. pavóntane → pavóntan(e) and rule (xiv) would be allowed to reapply in the case of verb forms with more than two syllables, but variably this time, e.g. pavóntan/pávontan.

However, the alternative formulation just suggested does not recognize explicitly, any more than rule (xvi) does, the emergence of a morphologically motivated accentual pattern vis-à-vis the old phonological one. Moreover, it upsets the neat rule system adopted so far in three respects: firstly, it introduces the need for a substantial amount of extrinsic ordering; secondly, it allows morpholexical rules to apply after accentual rules; and thirdly, it allows the categorical appearance of formatives which are subsequently made "optional". Therefore, we will retain rule (xvi), both because it is considerably simpler than the alternative and because, if it does not explicitly account for the cause of the behaviour of the {+ Past, + Pl, 3, - K} forms in question (i.e. "Stress all {+ Past, +Pl} forms on the same syllable in relation to the stem") at least it can detect the symptoms satisfactorily ("Stress {+ Past, + Pl, 3, -K} forms on the penult categorically if they are disyllabic and variably if they have three or more syllables.")

4.2.5. The solutions proposed by Warburton, Newton and Adams with respect to desyllabification and stress movement (see 4.1.3. above) fail to grasp the exact nature of the problem posed by verbs such as TELIÓNO. Indeed, while F_3 i is desyllabified categorically in the case of such "regular" {STv} verbs as AGAPÁO in the presence of the cluster {+ Pass, - Perf} :

ayapíeme ⟶ ayapjéme

ayapiómaste ⟶ ayapjómaste

in the case of the $\{ST_{\emptyset}\}$ verb TELIÓNO i is desyllabified "optionally" in {- K} forms but never in {+ K} forms, e.g.

$\{^{+}_{-}K\}$	$\{-K\}$
teliónо	teljónо
$\left[\begin{smallmatrix}e\\(e)\end{smallmatrix}\right]$ teliosa	(e) teljosa

depending on speed of delivery or style as the following examples from the data amply demonstrate:

1/15/16 R.: den éxo tipota na pó, teliosa, ánte

(= I have nothing to say, I have finished, that's all)

1/25/2 V.L.: e, pes mu, teliose.

(= come on, tell me, finish with it)

1/17/7 V.L.: Oríste, téljose i musikí

(= There! The music is over)

1/47/3 E.C.: i jortí mu den téljose xtes

(= my birthday celebrations did not finish yesterday)

1/68/9 P.D.: eyó téljosa. sinexíste pedjá

(= I have finished. Carry on, folks)

On the other hand, i appears in stem-medial position in the case of TELIÓNO, i.e. it does not function grammatically, while in the case of AGAPÁO, i is an F_3 formative whose desyllabification in {+ Pass, - Perf} forms produces the same results with respect to stress pattern and overall number of syllables as the sandhi interaction between its {- K} alternant a and adjacent vowels:

{- K} ayapíeme ⟶ ayapjéme

{+ K} ayapáome ⟶ ayapóme

In other words, there seems to be a convergence of means towards the same objective in the case of the desyllabification of F_3 i of AGAPÁO which is not present in the desyllabification of i in the stem of TELIÓNO. We suggest, therefore, that variable glide formation in the case of TELIÓNO is related to the effect of such considerations as $\{\pm K\}$ distinctions on the stem, and not on the inflectional structure. As such, it falls outside the area of

this investigation. Suffice it to say, however, that in the case of such {- K} lexemes as LJÓNO (= I melt) (as opposed to its {+ K} equivalent TÍKOME), i is desyllabified categorically, while in the case of MIÓNO (= I belittle), a lexeme neutral with respect to {± K} distinctions, i is never desyllabified.

4.2.6. With respect to glide formation and stress movement in the paradigm of AGAPÁO, Warburton's rules (viii) and (ix) above will not be included in our description, first, because they make reference to the whole paradigm in order to apply (see discussion in 4.1.3. and note 15 in 4.2.4. above), and second, because,, though they are possibly necessary in a statement concerning the stress of both nouns and verbs they do not seem to be so if only the verb stress is considered. On the other hand, Adams' rule (vii) above accounts for cases of glide-formation of the form CíV ⟶ CjV́ only and not of the form CiV́ ⟶ CjV́, e.g. ayapióma**s**te ⟶ ayapjóma**s**te. It will be necessary, therefore, to modify rule (vii) to account for both varieties of glide formation

$$\text{(xvii)}\quad \underset{1}{\begin{bmatrix} \text{i} \\ -\alpha\ \text{stress} \end{bmatrix}} + \underset{2}{\begin{bmatrix} \text{V} \\ \alpha\ \text{stress} \end{bmatrix}} \longrightarrow \underset{1}{[\text{-syllabic}]} + \underset{2}{\begin{bmatrix} \text{V} \\ \text{+ stress} \end{bmatrix}}$$

The rule reads that i is desyllabified before another vowel. The

Greek variables -α and α indicate opposite value for the feature [stress] for the two vowels in the input. The vowel of the output carries the feature [+stress], whichever of the vowels of the input carries the same feature. Angled brackets (see note 12 in 4.1.3. above) are not necessary in rule (xvii) for the particular point we are discussing since glide formation in the "regular" {SIv} paradigm always results in the form CjV́, i.e. the input is always of the form either CíV or CiV́.

4.2.7. Rules (i) to (ix) above cannot account for the stress variation of such alternative overt forms as ayapáo and ayapó, ayapái and ayapá, ayápaya and ayapúsa, ayápayes and ayapúses, etc., neither can they account for such contracted forms as dimiuryó, dimiuryís, dimiuryúme, etc. In this study we assume that stress rules (xii), (xiii), (xiv) and (xvi) above apply after all morpholexical rules have applied and before any morphophonological rules. On the contrary, rule (xvii) above is a combination of two simultaneous rules, a glide formation rule and a stress movement rule. We can therefore extend rule (xvii) above to cover all sandhi phenomena involving adjacent vowels either of which is stressed

$$\text{(xviii)}\ \begin{bmatrix} V \\ -\alpha\ \text{stress} \end{bmatrix} + \begin{bmatrix} V \\ \alpha\ \text{stress} \end{bmatrix} \rightarrow (\ [\text{-syllabic}]\ ) \begin{bmatrix} V \\ +\ \text{stress} \end{bmatrix}$$

The rule accounts for the sandhi interaction between two vowels, one of which is stressed, resulting in glide formation: ayapíeme → ayapjéme, ayapiómaste → ayapjómaste; or the elision of the first vowel: dimiuryéo → dimiuryó, ayapaúsame → ayapúsame; or, of the second : ayapáis → ayapás, ayapaómeθa → ayapómeθa; or for sandhi interactions resulting in the coalescence of two vowels into a third vowel which has only some of its features specified in the same way as either of the original vowels: dimiuryéete → dimiuryíte, dimiuryeómeθa → dimiuryúmeθa. Rule (xviii) must be seen as applying simultaneously with all sandhi rules (see 5.3. below) applying on adjacent vowels.

4.2.8. In the case of disyllabic {+ Perf, + Past} verb forms (or trisyllabic, if the augment is present) of such "irregular" verbs as PIGÉNO (= I go), LÉ(G)O (= I say), ÉRXOME (= I come), PÍNO (= I drink), PÉRNO (= I take), VRÍSKO (=I find), BÉNO (= I enter), and VGÉNO (= I go out) the stress falls on the penultimate.

	{+Perf,+Past,-Pl,1}
PIGÉNO	(e)píya
LÉ(G)O	ípa
ÉRXOME	í{l, r}θa
PÍNO	ípja
PÉRNO	(e)píra
VRÍSKO	(e)vríka
BÉNO	(e)bíka
VGÉNO	(e)vyíka

For such verbs the relevant rules accounting for regular verbs will be blocked in the lexicon through a rule exception feature and instead a "minor" rule such as the following will treat them:

(xix) $V \longrightarrow [+\text{stress}] / \# C_o \text{ — } C_oVC_o \# / \{+\text{Perf},+\text{Past},IRR_1\}$

where $\{IRR_1\}$ stands for such "irregular" verbs as PIGÉNO, PÍNO, etc.

4.2.9. The accentual regularities isolated in the preceding discussion can now be given the following, somewhat neater and free from extrinsic ordering, form:

Rule 38

$$V \rightarrow [+\text{stress}] / \begin{cases} -C_o]_{STEM} / \{-\text{Past}, \begin{Bmatrix}\{-\text{Pass}\}\\ \{-\text{Perf}\}\end{Bmatrix}\} & \text{(a)} \\ -C_o iC_o^1 \#/ \ \{+\text{Past}\} & \text{(b)} \\ STEM + C_o \text{ — } / \ \{+\text{Pass}, \begin{Bmatrix}\{-\text{Perf},+\text{Past},-K, \begin{Bmatrix}\{-Pl\}\\ \{-3\}\end{Bmatrix}\}\\ \{+\text{Perf},-\text{Past}\}\end{Bmatrix}\} & \text{(c)} \\ \#\langle \overline{XVY}]_{STEM} \rangle C_o \text{ — } C_oV \ n\#/ \ \{+\text{Past},+Pl,3,-K\} & \text{(d)} \\ -C_oVC_oVC_o \# / \{+\text{Past}\} & \text{(e)} \end{cases}$$

Rule 39

$$\begin{bmatrix} V \\ -\alpha \text{ stress} \end{bmatrix} + \begin{bmatrix} V \\ \alpha \text{ stress} \end{bmatrix} \longrightarrow ([\text{ -syllabic }]) \begin{bmatrix} V \\ + \text{ stress} \end{bmatrix}$$

Rule 40

#X V́.Z V C_o V C_o V C_o#→#X V Z V́ C_o V C_o V C_o#

Examples. (square brackets indicate the tentative rule in the discussion above corresponding to the rules in this section)

Rule 38: (a) [rule (x)]

{-Past} { {-Pass} { {-Perf} : pávo, pávis, pávi, etc.
{-Pass} { {+Perf} : pápso, pápsis, pápsi, etc.
{+Pass,-Perf} : pávome, pávese, pávete, *pávomaste, *pávosaste (see rule 40)

(b) [rule (xiii)]

{+Pass,+Past,-Pl,+K} { {+Perf} : epáfθin, epáfθis, epáfθi
{+Pass,+Past,-Pl,+K} { {-Perf,1} : epavómin

(c) [rules (xi), (xv)]

{+Pass} { {-Perf,+Past,-K} : pavómun(a), pavósun(a), pavóntan(e)etc
{+Pass} { {+Perf,-Past} : paftó, paftís, pafti, etc.

(d) [rule (xvi)]

{+Past,+Pl,3,-K} { {-Pass} { {-Perf}: pávan, kaθarízan
{+Past,+Pl,3,-K} { {-Pass} { {+Perf}: pápsan, kaθarísan
{+Past,+Pl,3,-K} { {+Pass} { {-Perf}: pavóntan
{+Past,+Pl,3,-K} { {+Pass} { {+Perf}: paftíkan

(e) [rule (xiv)]

{-Pass,-Perf,+Past,-K} : ėpava, ėpaves, ėpave, pȧvame, pȧvate, ėpavan, pȧvane

Rule 39 [rule (xviii)]

{+Pass,-Perf,-Past,+Pl,1,STv_1,-K} : ayapi̇omaste ⟶ ayapjómaste

Rule 40 [rule (xii)]

pȧvomaste ⟶ pavómaste

As the brace notation indicates, the five sections of rule 38 are ordered conjunctively. First, section (a) applies, then section (b), etc. The particular order of application makes no difference in the case of the feature {-Past} (sections (a), (b) and (c)) nor does the order of application of sections (b),(c) and (d) make any difference as regards the feature {+ Past} since their structural descriptions never overlap. However, each of sections (b), (c) and (d) is in bleeding order vis-à-vis section (e) i.e. section (e) applies on {+ Past} forms not already treated by sections (b), (c) or (d). Take, for instance, {+ Past, + Pl, 3, -K} forms with three or more syllables such as pavontan, paftikan, kopanisan, which satisfy the input conditions of both sections (d) and (e). First, variable section (d) is activated. If it

applies, the result is pavóntan, paftíkan, kopanísan, and section (e) does not apply, of course. If (d) does not apply, however, section (e) is activated by the forms in question to produce pávontan, páftikan and kopánisan. Notice that (d) is variable in the case of {+ Past, + Pl, 3, - K} forms with three or more syllables, but categorical in the case of disyllabic forms: pávan but épavan/epávan.

Notice too, that for section (d) to apply in the case of a {+ Past, + Pl, 3, - K} form with more than two syllables, the penult must follow the stem, i.e. pavóntan, paftíkan but *pavontúsan. The provision that section (c) does not apply in the case of {+ Pass, - Perf, + Past, + Pl, 3, - K} forms allows forms such as pavontan to be treated either by section (d): pavóntan, or (e): pávontan, and pavontane, pavontusan by section (e): pavóntane, pavóntusan. Still, the last two forms would have been the output of section (c) too, had it applied on them. It is, therefore, because of forms such as pavontan, i.e. with two syllables following the stem, that section (c) is blocked from applying on any {+ Past, + Pl, 3} forms. The relative order of application of rules 39 and 40 is of no importance provided that either can reapply, i.e. apply cyclically, given the creation by the other of the right environment. Take, for instance a {+ Pass, - Perf, - Past, + Pl, 1, STv_1, - K} form such as ayapiomaste.

Rule 38a applies first to put the stress on the last syllable of the stem: ayapiomaste. Subsequently, if rule 39 applies before rule 40, the result is the correct overt form ayapjómaste, whereas if rule 40 is activated before rule 39, we get ayapiómaste which activates rule 39 to yield ayapjómaste.

Rules 39 and 40 are intrinsically ordered after rule 38 since they operate on the latter's appropriate output. After the application of rules 39 or 40, rule 38 is rendered opaque. It tolerates opacity and does not reapply (in the same way that when F_6 i is elided after F_3 a in ayapáis → ayapás, the relevant morpholexical rule accounting for the appearance of F_6 i is not reactivated). Rule 39 is both an accentual and a sandhi rule; therefore, it should be seen as applying after stress rule 38 simultaneously with all sandhi rules affecting adjacent vowels.

4.2.10 In a discussion in Warburton, 1976, p.276, on the difference between rules A and C (reproduced in 4.1.2. above as (iii) and (v)) with respect to opacity, Warburton suggests that, after glide formation, A and C are rendered opaque, but while A tolerates opacity and does not reapply, e.g. ayapieme → ayapjéme, rule C reapplies teliona → toljóna → téljona. It is

further suggested that this is so because C has an important semantic function which A has not: after the application of glide formation rules the difference between {- Past} and {+ Past} in the forms below

{- Past}	{+ Past}
teljóno	*teljóna
teljónis	*teljónes
teljóni	*teljóne

is only marked by the contrast between o/a and i/e.

> "However, given the fact that Greek vowels in final unstressed position are lax and often voiceless and that unstressed /e/ is raised to a position close to /i/, it becomes apparent that the vocalic oppositions alone are not sufficient to mark the tense opposition. The ante-penult stress makes this distinction much clearer, and this is the reason, I think that rule (C) requires to be transparent". (p.276)

Still, as we have shown in 4.2.5. above, glide formation in the marginal case of TELIÓNO functions in a completely different way grammatically and stylistically from the regular paradigm of {STv} verbs represented by AGAPÁO, and it certainly should be seen as taking place "optionally" before the application of the stress rules. (After the variable application of the glide-formation rule teliona or teljona are stressed by rule 40 above: teliona or téljona).

Therefore, it would be rash to rely so heavily on a marginal case in speculating, as Warburton does, on certain universal qualities distinguishing some morphological rules from others (ibid.,p.277), especially if only a small section of the regular verb paradigm has been taken into consideration, which results in a set of rules of inadequate generality. Indeed, in the discussion on Warburton's rules above, we showed that rules A and C do tolerate opacity in a considerable number of cases, e.g.

{- Past}: ayapáo → ayapó

{+ Past}: ayapáusa → ayapúsa

{- Past}: ayapíeme → ayapjéme

{+ Past}: ayapjómun

{+ Past}: írθa

which is why we had to revise rules A and C and reject the rest. Moreover, rule C tolerates opacity even in some forms where Tense distinctions are reflected in the contrast of vowels in unstressed final position:

{- Past}	{+ Past}
pávun	pávan
pápsun	pápsan

(but see Ch.V 2.2.1. on the principle of the maximal differentiation of vowels)

e.g. 1/7/15 R. pos ton léyan aftón pu ...

(= what did they call the man who ...)

1/53/13 E.C. xtízan ta pulá foljés

(= birds were building nests)

2/19/20 Y.L. ke yrápsan eglézika? (= and they took English?)

In our treatment, rules A and C, revised as, respectively, sections (a) and (e) of rule 38, are rendered opaque not only by the phonetically motivated rule 39 but also by the morphemically motivated sections (b), (c) and (d) of rule 38 and by one another. Admittedly, our rules 38 to 40 do not look very promising with respect to a universal theory of grammar, but they do reflect accurately the regularities within the variation obtaining in the verb in MGK.

4.2.11. Below we will examine briefly alternative treatments of stress suggested in a number of studies.

Hamp, 1961, assigns the stress to the "thematic vowel" (roughly, our F_6 vowels) which for him indicates the Tense. e.g. ayapás (where in terms of the present study the last a is an F_3, and not F_6, formative). Whenever, however, the stress does not fall on the "thematic vowel", which happens quite often, we have to assume that it falls somewhere on the stem (p.109), e.g. xáno (= I lose)

unless otherwise indicated. Thus, the "allomorph" (é) ← a in the {- Pass, - Perf, + Past} paradigm éxana, éxanes, éxane, xáname, etc., means that the stress moves to the left of the "thematic vowel" a and that the augment e "appears when the number of syllables (namely, two) allows the stress to move to the left beyond the base" (p.109). We are not told how it is that the stress moves two syllables to the left of the "thematic vowel" in éxana, éxanes, and éxane (the "thematic vowel" a does not even appear in the last two forms! (see Ch.II,2 above)) but only one syllable in xáname. Neither are we told why the thematic vowel, a "marker" of Tense (according to Hamp) was chosen as the carrier of stress since any segment would have done just as well or as badly if subjected to the same determined treatment. Hamp's analysis in fact contributes little to knowledge of the verb stress in MGK.

4.2.12. The morphological treatment of stress in Koutsoudas, 1962, is to be evaluated more highly than Hamp's only in that it is consistent and leaves nothing to the imagination. However, the basic assumption is the same : the stress is assigned to what for Koutsoudas is the "Voice-and-Aspect" morpheme. If the stress falls elsewhere, the fact is indicated by devices such as the following:

"tertiary stem". For, as we have shown in our discussion on Matthews' analysis in Ch.II,2 above, it is quite normal for a tertiary stem to be the same as a primary or a secondary one (since it can be generated by the vacuous application of two or three rules on one another's output) nor are all tertiary stems "alike" in that they do not contain the same or comparable elements (in terms of exponence of grammatical values). Thus, the underlined segments in the forms below are all "tertiary" according to Matthews, though in our analysis most of them are shown to contain fairly dissimilar elements (in terms of exponence) as is indicated by the superscripts. The first three forms are stressed according to Matthews' first morphological operation, the next two according to his second and the last two according to the phonological rule.

	2 3 6 pon a o
FIRST MORPHOLOGICAL OPERATION	2 3 6 8 10 pon j e m e
	2 3 4 6 pon e θ ð
SECOND MORPHOLOGICAL OPERATION	2 3 4 6 pon e s o
	2 5 6 pon us a
PHONOLOGICAL RULE	2 3 4 5 6 pon e θ ik a
	2 3 5 6 pon a y a

Notice that ponéso and poneθó on the one hand and ponúsa and pónaya on the other, contain grammatically "similar" segments but are stressed by different operations.
It is clear that Matthews' analysis does little or nothing to clarify matters.

4.2.14. Babiniotis, 1972a,(see also Ch.II,2 above) correctly treats the distribution of the verb stress on the unifying basis of the syllable rather than of morphological segments. A general rule assigns the stress to the antepenult in the case of most verb forms. A second rule in two parts accommodates exceptions to the first rule, i.e. forms not stressed on the antepenult: such forms are stressed either on the penult or on the ultimate on the basis of (i) the number of syllables of the termination, and (ii) the structural paradigm to which each form belongs. Thus, members of the ib structural paradigm (or {+ Pass, - Perf, - Past} in our terms) are stressed on the penultimate in the case of a disyllabic termination e.g. $\underline{\overset{2}{a}\overset{3}{y}\overset{6}{a}\overset{8}{p}\ \overset{10}{j}}\ \underline{\overset{6}{e}\ \overset{8}{m}\ \overset{10}{e}}$, $\underline{\overset{2}{a}\overset{3}{y}\overset{6}{a}\overset{8}{p}\ \overset{10}{j}}\ \underline{\overset{6}{e}\ \overset{8}{s}\ \overset{10}{e}}$ (the underlining of forms is in accordance with Babiniotis' distinction between STEM and TERMINATION, but the superscripts refer to our analysis); otherwise, they follow the general rule and are stressed on the antepenult, e.g. $\underline{\overset{2}{a}\overset{3}{v}\overset{6}{a}\overset{8}{p}\ \overset{9}{j}}\ \underline{\overset{6}{o}\ \overset{8}{m}\ \overset{9}{a}\overset{10}{s}\overset{10}{t}\ \overset{10}{e}}$. However, Babiniotis' analysis offers no explanation why members of the ia structural paradigm, e.g. yráfome, corresponding, in our terms,

to the same cluster of grammatical values as ib, follows the general rule without exception: yráfome, yráfese, yráfete, yrafómaste, etc. In our treatment, the paroxytonic stress on ayapjéme is the result of a process of glide formation and stress movement on "underlying" ayapíeme (whose stress is consistent with Babiniotis' general rule). Of course, Babiniotis is fully aware of the phonological and historical forces operating within the verb system, as his discussion on alternative treatments of the verb stress shows (p.166). He nevertheless chooses to confine his own analysis within strictly synchronic and (partly) "morphemic" limits. Also, though his "structural paradigms" have been set up, implictly rather than explicitly, on the basis of grammatical and stylistic considerations, he makes no attempt to overtly relate such considerations to stress. The decision is, of course, legitimate. On the other hand, no merit can be given to it if the price is a "rule" where exceptions to another rule are simply listed in a completely opaque way. Moreover, Babiniotis' word of caution that his formulation is of a general character and does not exclude other kinds of formulations, possibly more economical (p.163), does not justify the opacity of the rules with respect to a number of regularities that may be discerned and stated.

4.2.15. Conclusion

Three rules (38 to 40) account for stress placement in the verb in

MGK. Of them, 38 is partly morphological (sections (a) to (d), and partly morphophonological (section (e)), while 39 and 40 are phonetically motivated. Rule 39, a stress movement rule, operates on the output of the previous rule whenever, of two adjacent vowels participating in sandhi interaction, one is stressed. As such, rule 39 is to be seen as applying simultaneously with the relevant sandhi rules (see 5.3. below) whenever a stressed vowel is involved. Finally, rule 40 ensures that the stress never falls beyond the third syllable from the end of a verb form.

5. THE MORPHOPHONOLOGICAL (OR SANDHI) RULES

5.1. In this section of Ch.IV will be described a number of sandhi (i.e. juncture) phenomena, often morphologically conditioned (hence the term "morphophonological rules") occurring, mainly between

(a) stem-final consonants and adjacent F_4 consonants (s, θ), e.g. pávso → pá{f, p}so;

(b) nasals and adjacent voiceless plosives, e.g. pávonte → pávo(n)de;

(c) F_3 and F_6 vowels, e.g. ayapáis → ayapás; and

(d) augments and stem- (or root-) initial vowel, e.g. eayápaon → iyápon.

Some of the phenomena described are characteristic of certain groups of verbs only or of certain morphological environments only, while others also occur in sections of the grammar outside the verb.

It will be remembered from the discussion in 3.3.2. above that only variable sandhi rules, e.g. ayapȁo → ayapȁo/ayapó, have synchronic validity, i.e. they are "living" rules and as such part of the linguistic competence of native speakers. Categorical sandhi rules, e.g. dimiuryéete → dimiuryíte, are of diachronic value, i.e. they are "dead" rules, and their function in our description is to achieve maximum generality by showing the difference in phonological shape between certain forms today to be the result of the application in the past of certain sandhi rules on some, but not all, of a number of structurally very similar forms. Thus, dimiuryéo goes to dimiuryó categorically, ayapȁo goes to ayapó "optionally" (i.e. through a variable rule) and idrío is not affected by any sandhi interactions.

5.2. Sandhi phenomena involving adjacent consonants

5.2.1. Consider the following examples of {+ Perf} "underlying" verb forms, i.e. verb forms after all the morpholexical (also

accentual, which is irrelevant here) rules have applied, where stem-final [+ anterior, + coronal] segments are followed by formatives s or θ.

prosyión + s + o ⟶ prosyióso (PROSGIÓNO = I land)

prosyion + θ + ó ⟶ prosyioθó

kalípt + s + o ⟶ kalípso (KALÍPTO = I cover)

kalipt + θ + ó ⟶ kalipθó

paradód + s + o ⟶ paradóso (PARADÍDO = I hand in)

paradod + θ + ó ⟶ paradoθó

ayoráz + s + o ⟶ ayoráso (AGORÁZO = I buy)

but:

ayoraz + θ + ó ⟶ ayorasθó

Apart from the last example, where z is assimilated to following θ for the feature [-voiced] rather than elided, in the remaining examples [+anterior, +coronal] segments are elided before s or θ, i.e. before other [+anterior, +coronal] segments.

(i) $\begin{bmatrix} C \\ +\text{anterior} \\ +\text{coronal} \end{bmatrix}_1 + \begin{bmatrix} C \\ +\text{anterior} \\ +\text{coronal} \end{bmatrix}_2 \longrightarrow 2$

In order to block the rule from applying in the case of sθ we will

specify that the rule does not apply on sequences of consonants of the form [+strident] + [-strident] (see rule (ii) below). Moreover, to block the rule from applying in the case of clusters involving a nasal followed by a plosive (see 5.2.4. below for the relevant rule) e.g. pàvonte → pàvo(n)de, when both segments have in common the features [+anterior, +coronal], we will limit the application of the rule to the case of a [+continuant] second segment:

(ii)

$$\underset{1}{\begin{bmatrix} C \\ +\text{anterior} \\ +\text{coronal} \\ \sim\langle +\text{strident}\rangle \end{bmatrix}} \quad \underset{2}{\begin{bmatrix} C \\ +\text{anterior} \\ +\text{coronal} \\ +\text{continuant} \\ \sim\langle -\text{strident}\rangle \end{bmatrix}} \longrightarrow 2$$

Angled brackets (see note 12 in this chapter) preceded by tildes[16] require that the rule does not apply in the case of a cluster made up of a [+strident] followed by a [-strident] consonant (all other combinations of the values "plus" and "minus" for the feature [strident] in the adjacent consonants allow the application of the rule).

Notice that the sequences $\underline{\begin{Bmatrix} d \\ z \end{Bmatrix} + \begin{Bmatrix} \theta \\ s \end{Bmatrix}}$ in the examples at the beginning

of this section (i.e. consonant clusters where both members are [+cont, +coron, +anter], but whereas the first is [+voiced, -strident], the second is [-voiced, +strident]) could be treated by a regressive voice assimilation rule (see rule (iii) below) yielding $\underline{\begin{Bmatrix}\theta\\ s\end{Bmatrix} + \begin{Bmatrix}\theta\\ s\end{Bmatrix}}$, after which rule(ii) above would apply. In a wider study of the sandhi processes in MGK it might prove more appropriate to treat cases such as the following, $\underline{\theta + \theta} \rightarrow \underline{\theta}$ and $\underline{s + s} \rightarrow \underline{s}$, as cases of degemination[17] rather than as cases of deletion of a segment in the context before another.

Note, too, that a nasal is not always deleted before $\underline{s}$ or $\underline{\theta}$: for instance, in the case of such verbs as MOLÍNO (= I defile), APEFθÍNOME (= I address), ESθÁNOME (= I feel), etc., stem-final $\underline{n}$ is never deleted before F_4 $\underline{\theta}$: $\underline{molin\theta o}$, $\underline{apef\theta in\theta o}$, $\underline{es\theta an\theta o}$. In fact, the cluster $\underline{n\theta}$ occurs quite commonly throughout the language, (i.e. apart from the juncture of verb stems and F_4 formative $\underline{\theta}$), e.g. $\underline{en\theta imio}$ (= souvenir), $\underline{án\theta ropos}$ (= man), $\underline{án\theta os}$ (= flower). Also, in some verbs $\underline{s}$ is deleted after stem-final $\underline{n}$ (rather than the other way around as rule (ii) above indicates), e.g. $\underline{krinso} \rightarrow$ $\underline{krino}$ (= I will judge). Still, in the case of verbs such as KRÍNO it will be more appropriate to state in the lexicon via a rule exception feature that F_4 formative $\underline{s}$ does not appear in their

structure rather than delete s after n. It should be noted that the cluster ns appears at morphological juncture in a considerable number of words, e.g. énsimo (= stamp), ensomátosis (= incorporation) etc. Note also that F_4 s is deleted after stem-final r (or, to follow the same argument as in the case of KRÍNO above, is prevented by a rule exception feature in the lexicon from appearing after stem-final r) in certain sections of the paradigm of such verbs as FÉRO (= I bring), e.g. {- Pass, ± Perf, - Past} : féro; nevertheless, rs appears in the imperative férsu (= behave yourself) and in the noun férsimo (= behaviour). Finally, r is not deleted before θ, e.g. ferθó. All such cases will be treated as exceptions to rule (ii) above, i.e. in the lexical entries for such lexemes as FÉRO or KRÍNO, rule (ii) will be blocked from applying via an exception feature and ad hoc rules will be introduced.

5.2.2. All other stem-final [+voiced] consonants (other than nasals, which are always [+voiced]) are assimilated to following s or θ with respect to the feature [-voiced]:

(iii) [+voiced] ⟶ [-voiced] /—[-voiced]

e.g. aníyso⟶anísxso (⟶ aníkso) (ANÍGO (= I open))

aniyθó⟶anisxθó

pávso ⟶ páfso (PÁVO (= I stop))

pavθó ⟶ pafθó

Again, [-continuant] segments (other than [+anterior,+coronal]; see rule (ii) above for such segments) become [+continuant] before θ, i.e. they are assimilated with respect to the feature [+continuant] to a following [+continuant,-strident] consonant.[18]

(iv) $\begin{bmatrix} C \\ -\text{continuant} \\ \sim \begin{bmatrix} +\text{anterior} \\ +\text{coronal} \end{bmatrix} \end{bmatrix} \longrightarrow [\ +\text{continuant}\ ] / — \begin{bmatrix} C \\ +\text{continuant} \\ -\text{strident} \end{bmatrix}$

e.g. paralipθó⟶paralifθó (PARALÍPO (= I omit))

plekθó⟶plexθó (PLÉKO (= I knit))

Note that either of rules (iii) and (iv) above can apply before the other as far as voiced plosives are concerned. For instance, if (iii) applies first on $\{^{g}_{b}\} + \{^{s}_{\theta}\}$, the output is $\{^{k}_{p}\} + \{^{s}_{\theta}\}$, e.g.

sfígso → sfíkso (SFÍGO (= I squeeze))

sfigθó → sfikθó

apopémbso → apopémpso (APOPÉMBO (= I send away)

apopembθó → apopempθó

Then rule (iv) applies on $\{^{k}_{p}\} + \theta$ to yield $\{^{x}_{f}\} + \theta$, e.g.

sfikθó → sfixθó, apopempθó → apopemfθó.

If, on the other hand, (iv) applies first we have

$\{^{g}_{b}\} + \theta \rightarrow \{^{y}_{v}\} + \theta$, e.g. sfigθó → sfiyθó, apopembθó → apopemvθó.

Then rule (iii) applies on $\{^{y}_{v}\} + \{^{s}_{\theta}\}$ to yield $\{^{x}_{f}\} + \{^{s}_{\theta}\}$, e.g.

sfiyθó → sfixθó, apopemvθó → apopemfθó, sfíyso → sfíxso,

apopémvso → apopémfso.

5.2.3. Voiceless fricatives change before s as follows:

[-anterior, -coronal], i.e. x, is categorically dissimilated to s in respect of the feature [+continuant]:

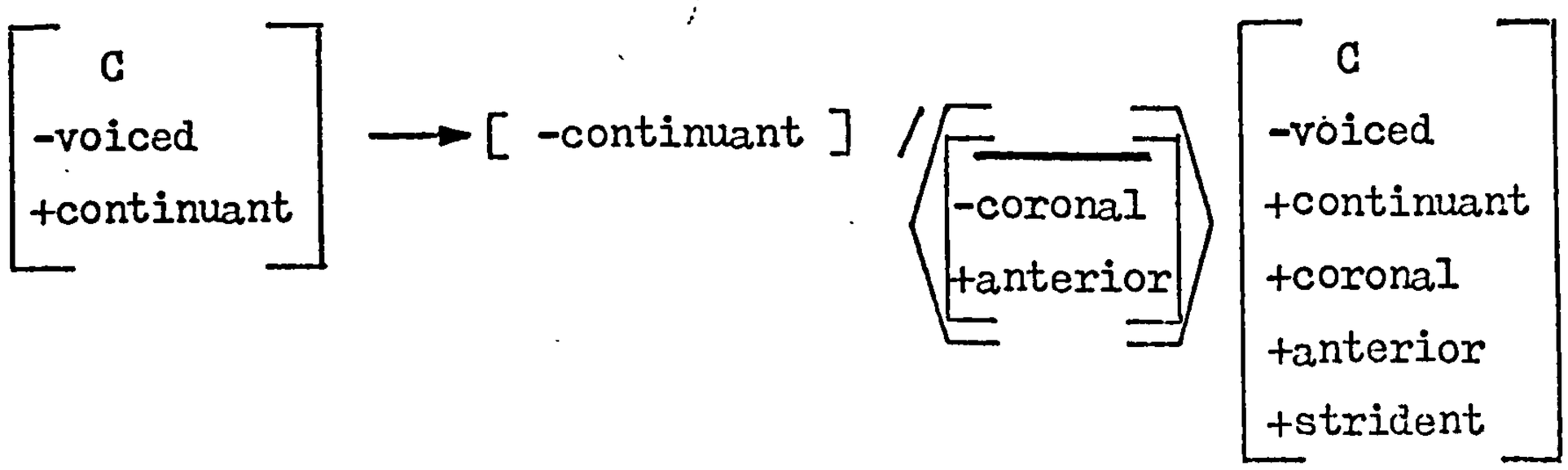
x → k / — s e.g. sfíxso → sfíkso,

while [+anterior, -coronal], i.e. f, changes to p "optionally":

f → ⟨p⟩ / — s e.g. páfso → pá$\{^{f}_{p}\}$ so.

The above change is characteristic of the feature {- K} but is not favoured by the feature {+ K} (see Ch.V,11).

(v)



The rule reads that a voiceless fricative changes to plosive before s categorically, unless it has the features [-coronal, +anterior] (i.e. unless it is f), in which case the change is "optional".

Note that in the case of clusters θs and ss the structural descriptions of both rules (v) and (ii) above are met.

The order of application between the two rules is immaterial, for if (ii) applies first, (v) cannot apply afterwards, e.g. $\underline{\begin{Bmatrix}\theta\\ s\end{Bmatrix} + s \rightarrow \dot{s}}$, while if (v) applies first, e.g. $\underline{\begin{Bmatrix}\theta\\ s\end{Bmatrix} + s \rightarrow ts}$, rule (ii) can still apply: $\underline{ts \rightarrow s}$ [19].

On the other hand, θ,a [-strident] segment, becomes [- continuant] "optionally" in the context after a voiceless fricative:

(vi)

$$\begin{bmatrix} C \\ -\text{voiced} \\ +\text{continuant} \\ -\text{strident} \end{bmatrix} \rightarrow \langle [-\text{continuant}] \rangle / \begin{bmatrix} C \\ -\text{voiced} \\ -\text{continuant} \end{bmatrix} \text{——}$$

Rules (v) and (vi) both operate on voiceless fricatives to change them into plosives in the environment of another voiceless fricative. They can therefore be collapsed in the following form:

(vii)

$$\begin{bmatrix} C \\ -\text{voice} \\ +\text{continuant} \end{bmatrix} \rightarrow [-\text{continuant}] / \begin{cases} \langle \begin{bmatrix} -\text{coronal} \\ +\text{anterior} \end{bmatrix} \rangle \begin{bmatrix} C \\ -\text{voiced} \\ +\text{continuant} \\ +\text{coronal} \\ +\text{anterior} \\ +\text{strident} \end{bmatrix} & \text{(a)} \\ \langle \begin{bmatrix} C \\ -\text{voiced} \\ +\text{continuant} \end{bmatrix} \begin{bmatrix} -\text{strident} \end{bmatrix} \rangle & \text{(b)} \end{cases}$$

The rule reads that a voiceless fricative changes to plosive a) categorically if it precedes s, unless it also has the features [-coronal, +anterior], in which case the change is "optional", e.g. sfíxso → sfíkso, páfso → pá{f/p}so.

b) "optionally" if it also has the feature [-strident] and follows another voiceless fricative, e.g. pafθó → paf{θ/t}ó.

5.2.4. Finally, we want to account for the interaction involving F_7 n and adjacent F_8 t : nt → (n)d :progressive voice assimilation changes the voiceless plosive to voiced; subsequently, and depending on such factors as lexical class involved, social characteristics of the speaker, speed of delivery, style, etc.[20], the two consonants coalesce "optionally": nd → (n)d.

(viii)

$$\begin{bmatrix} C \\ -\text{voiced} \\ -\text{continuant} \end{bmatrix} \longrightarrow [\ +\text{voiced}\ ] \ / \ \begin{bmatrix} C \\ +\text{nasal} \end{bmatrix} \ \_\_\_$$

e.g. pávonte → pávonde

(ix)

$$\begin{bmatrix} C \\ +\text{nasal} \end{bmatrix} \longrightarrow \emptyset \ / \ \_\_\_ \ \begin{bmatrix} C \\ -\text{continuant} \\ +\text{voiced} \end{bmatrix}$$

e.g. pávonde → pávo(n)de

Rules (viii) and (ix) apply in that order. See Ch.V,11. below for variable constraints on rule (ix).

5.2.5. Tentative rules (i) to (ix) above will now be organized in the following way:

Rule 41

$$\begin{bmatrix} C \\ +\text{anterior} \\ +\text{coronal} \\ \sim \langle +\text{strident} \rangle \end{bmatrix}_1 + \begin{bmatrix} C \\ +\text{anterior} \\ +\text{coronal} \\ +\text{continuant} \\ \sim \langle -\text{strident} \rangle \end{bmatrix}_2 \longrightarrow 2$$

Rule 42

$$\begin{bmatrix} C \\ +\text{voiced} \end{bmatrix} \longrightarrow [\ -\text{voiced}\ ] \ / \ \text{—} \ \begin{bmatrix} C \\ -\text{voiced} \end{bmatrix}$$

Rule 43

$$\begin{bmatrix} C \\ -\text{continuant} \\ \sim \begin{bmatrix} +\text{anterior} \\ +\text{coronal} \end{bmatrix} \end{bmatrix} \longrightarrow [\ +\text{continuant}\ ] \ / \ \text{——} \ \begin{bmatrix} C \\ +\text{continuant} \\ -\text{strident} \end{bmatrix}$$

Rule 44

$$\begin{bmatrix} C \\ -\text{voiced} \\ +\text{continuant} \end{bmatrix} \longrightarrow [\ -\text{continuant}] \ / \left\{ \begin{array}{ll} \left\langle \begin{bmatrix} -\text{coronal} \\ +\text{anterior} \end{bmatrix} \right\rangle & \begin{bmatrix} C \\ -\text{voiced} \\ +\text{continuant} \\ +\text{coronal} \\ +\text{anterior} \\ +\text{strident} \end{bmatrix} \\ \left\langle \begin{bmatrix} C \\ -\text{voiced} \\ +\text{continuant} \end{bmatrix} \right. & \left. \begin{bmatrix} \\ -\text{strident} \end{bmatrix} \right\rangle \end{array} \right\} \begin{array}{l} \text{(a)} \\ \\ \\ \\ \\ \\ \text{(b)} \end{array}$$

Rule 45

$$\begin{bmatrix} C \\ -\text{voiced} \\ -\text{continuant} \end{bmatrix} \rightarrow [\ +\text{voiced}\ ] \ / \ \begin{bmatrix} C \\ +\text{nasal} \end{bmatrix} \ \_\_\_$$

Rule 46

$$\begin{bmatrix} C \\ +\text{nasal} \end{bmatrix} \rightarrow \langle \emptyset \rangle / \ \_\_\_ \ \begin{bmatrix} C \\ -\text{continuant} \\ +\text{voiced} \end{bmatrix}$$

The rules constitute an unordered set but are intrinsically ordered after morpholexical rule 11 accounting for F_4 s and θ (see 3.4.3. above) and extrinsically after all morpholexical and accentual rules. Furthermore, rule 45 is intrinsically ordered before rule 46.

Alternatively, rules 41 and 43 could take the following form (see notes 16 and 18 above):

Rule 41'

$$\begin{bmatrix} C \\ +\text{anterior} \\ +\text{coronal} \\ \{[+\text{strident}]\ [-\text{strident}]\}_{1} \end{bmatrix}_{1} + \begin{bmatrix} C \\ +\text{anterior} \\ +\text{coronal} \\ +\text{continuant} \\ \{[+\text{strident}]\ [\overset{+}{-}\text{strident}]\}_{1} \end{bmatrix}_{2} \longrightarrow 2$$

Rule 43'

$$\begin{bmatrix} C \\ -\text{continuant} \end{bmatrix} \longrightarrow [\ +\text{continuant}\ ] \ / \ \text{——} \begin{bmatrix} C \\ +\text{continuant} \\ -\text{strident} \end{bmatrix}$$

Rule 41' is in extrinsic ("bleeding") order before rule 43' in that the application of the former prevents the latter from applying on clusters whose first consonant is [+anterior, +coronal].

5.3. Sandhi phenomena involving adjacent vowels

5.3.1. A number of regularities (i.e. synchronic phonological processes, analogical formations, rules of AG transferred to MGK

through (and as reflected in) the written language, etc.), sometimes converging, often diverging and occasionally alternating, decide the product in overt representations of the sandhi interaction between F_3 vowels and adjacent F_6 vowels, e.g. ayapáo → ayapó, and between augments and stem-initial vowels, e.g. eayápon → iyápon.

5.3.2. To begin with, a principle of contraction, the Hierarchy of Dominance (HoD) principle, decides in a number of cases, but by no means always, which of two adjacent vowels in the "underlying" representation is elided. According to the HoD principle, introduced by Chatzidakis in 1888, (see Chadzidakis, 1905,p.211; also Mirambel, 1959,p.43; Triandafyllidis, 1964,p.27 and p.29; 1976, p.36; Koutsoudas, 1962,p.16; Householder, et al, 1964, p.12; Newton, 1972b, p.42; and Matthews, 1974, p.112) vowels in MGK may be arranged in a hierarchy of dominance, so that of two adjacent vowels the surviving one is that which occurs before the other in the sequence a〉 o〉 u〉 e〉 i. Or, to put it more generally, of two adjacent vowels, irrespective of the order of occurrence, back vowels are "stronger" than front ones and low vowels dominate higher ones.[21] However, the relative dominance between the front vowels e and i is not quite certain, i.e. their relative height does not decide which of the two is elided, in that either of them may dominate the other: according to Koutsoudas, 1962, e + i → i and i (unstressed) + e

→ e (we are not told what happens if a stressed i is followed by e). It seems, therefore, that HoD is based primarily on the specification a vowel has for the feature [front] and only secondarily on the specification for [high] and [low]. Indeed, the principle does not apply in the case of adjacent [+front] vowels, in that it is the first of the two that is elided, irrespective of relative height or position of stress. A more accurate formulation of HoD would, therefore, be as follows:

A [-front] vowel dominates a [+front] one irrespective of their relative height or order of occurrence, while, of two [+front] adjacent vowels the first is elided irrespective of relative height: to put it more economically, a [+front] vowel is elided after a [-front] one or before another vowel, irrespective of its specific phonetic value :

Rule 47

$$\begin{bmatrix} V \\ +front \end{bmatrix} \rightarrow \emptyset \; / \; \left\{ \begin{bmatrix} V \\ -front \end{bmatrix} \_ \right\} \qquad \text{(a)}$$

$$\_\_ \; V \qquad \text{(b)}$$

e.g. (a) θa íme → θá me (= I will be), to éfera → tó fera (= I brought it), ayapáete → ayapáte, ayapáis → ayapás.

(b) me ólus → m ólus (= with everybody), me íde → m íde (= he saw me)

On the other hand, of two adjacent [-front] vowels, irrespective of their relative order of occurrence, the relatively lower dominates the other. Making use of the numbered brace notation (see note 16) we obtain the following rule:

Rule 48

$$\begin{bmatrix} V \\ \text{-front} \\ \left\{ \begin{matrix} [-\alpha\ \text{high}] \\ [-\beta\ \text{low}] \end{matrix} \right\} \\ 1 \quad\quad 1 \end{bmatrix} + \begin{bmatrix} V \\ \text{-front} \\ \left\{ \begin{matrix} [\alpha\ \text{high}] \\ [\beta\ \text{low}] \end{matrix} \right\} \\ 1 \quad\quad 1 \end{bmatrix} \longrightarrow \begin{bmatrix} V \\ \text{-front} \\ \left\{ \begin{matrix} [-\text{high}] \\ [+\text{low}] \end{matrix} \right\} \\ 1 \quad\quad 1 \end{bmatrix}$$

e.g. <u>to akús</u> → <u>takús</u> (= you hear it), <u>mu arésι</u> → <u>m arésι</u> (= I like it), <u>ioánis</u> → <u>jánis</u> (= John), <u>ayapáume</u> → <u>ayapáme</u> (= we love)

By no means all cases of adjacent vowels are resolved on the basis of HoD. Sandhi phenomena that cannot be accounted for by the HoD principle are of two sorts: (i) analogical formations, etc. "irregular" <u>kéume</u> → <u>kéme</u> (= we burn) (<u>e + u</u> → <u>e</u> instead of <u>u</u>) under the paradigmatic pull of "regular" <u>ayapáume</u> → <u>ayapáme</u>. (ii) vestiges of contractions historically prior to the introduction of HoD into Greek, e.g.

e + o → u : dimiuryéomen → dimiuryúmen

e + e → i : dimiuryéete → dimiuryíte

a + o → o : ayapáomen → ayapómen

As a result, to account for the overt forms dimiuryúmen, dimiuryíte and ayapómen, it is necessary to recognize contractions in breach of HoD.[22]

5.3.3. In the case of {STv_1} verbs F_3 a often interacts with adjacent F_6 vowels i, e, o and u according to HoD, i.e.

a + V ⟶ a.

e.g. ayapáis ⟶ ayapás, ayapáete ⟶ ayapáte, ayapáome ⟶ ayapáme, ayapáune ⟶ ayapáne.[23]

However, HoD does not apply in the following cases (the rules for which will be ordered extrinsically before HoD rules 47 and 48.):

(a) Word final F_6 i following F_3 a is elided "optionally" in the presence of the value {- K} and categorically otherwise:

Rule 49

$$i \rightarrow \begin{bmatrix} \langle \emptyset \rangle \\ \emptyset \end{bmatrix} / a \text{ —— } \# \ / \{ STv, \begin{bmatrix} \{- K\} \\ \{+ K\} \end{bmatrix} \}$$

CONDITION: Apply the rule instead of HoD.

e.g. {- Pass, - Perf, - Past, - Pl, 3, STv_1} $\begin{matrix} \{-K\} \\ \{+K\} \end{matrix}$ ayapái ⟶ $\begin{bmatrix} \text{ayapái/ayapá} \\ \text{ayapá} \end{bmatrix}$

Rule 49 applies instead of HoD rules, i.e. verb forms meeting the input conditions of the variable section of rule 49 and left unprocessed, e.g. ayapái, do not undergo HoD.

(b) F_3 a appearing before word final F_6 o is elided "optionally" in the presence of the feature {- K}and categorically otherwise, whereas, when F_6 o is followed by a phonological segment (i.e. is not word-final) in the presence of the feature {+ K}, F_3 a is elided categorically:

Rule 50

$$a \rightarrow \begin{bmatrix} [\langle\emptyset\rangle] \\ \emptyset \\ \\ \emptyset \end{bmatrix} / \text{——} \; o \begin{bmatrix} \# \\ \\ [+segm] \end{bmatrix} / \{STv, \begin{bmatrix} [\{-K\}] \\ [+K] \\ \\ \{+K\} \end{bmatrix}\} \qquad \begin{matrix} (a') \\ (a'') \\ \\ (b) \end{matrix}$$

CONDITION: Apply the rule instead of HoD

e.g.

$\{-Pass,-Perf,-Past,-Pl,1,STv_1\}$ $\begin{matrix}\{-K\}\\\{+K\}\end{matrix}$: ayapáo → $\begin{bmatrix}\{\text{ayapáo}\\\text{ayapó}\}\\ \text{ayapó}\end{bmatrix}$

$\{-Pass,-Perf,-Past,+Pl,1,STv_1\ +K\}$: ayapáomen → ayapómen

$\{-Pass,-Perf,+Past,-Pl,1,STv_1\ +K\}$: iyapáon → iyápon

$\{+Pass,-Perf,-Past,+Pl,1,STv_1\ +K\}$: ayapaómeθa → ayapómeθa

As in the case of rule 49 above, rule 50 applies instead of HoD, so that, in the case of verb forms such as ayapáo, which meet the structural description of the variable section of rule 50 (section (a')) but are not in fact treated by it, HoD is blocked from applying. Section (b) of rule 50 applies only in the presence of the value {+ K}. This is so because {- K} forms such as $\{-Pass,-Perf,-Past,+Pl,1,STv_1,-K\}$

ayapáome are in fact treated by HoD : ayapáome → ayapáme, and not by rule 50b : ayapáome →*ayapóme.

(c) F_3 a preceding F_6 u is elided "optionally" or categorically in the presence of the values, respectively, {- K} or {+ K} :

Rule 51

$$a \rightarrow \begin{bmatrix} \langle \emptyset \rangle \\ \emptyset \end{bmatrix} / \text{ — } u / \{ STv, \begin{bmatrix} \{-K\} \\ \{+K\} \end{bmatrix} \}$$

CONDITION: Apply the rule before HoD

e.g. {-Pass,-Perf,-Past, + Pl}$\begin{cases} \{1, -K\} : \text{ayapáume} \rightarrow (\text{ayapúme}) \\ \{3\}\begin{cases} \{-K\} : \text{ayapáun(e)} \rightarrow (\text{ayapún(e)}) \\ \{+K\} : \text{ayapáun} \rightarrow \text{ayapun} \end{cases} \end{cases}$

Rule 51 applies before HoD but in this case HoD is allowed to apply on verb forms such as ayapáume or ayapáun(e) above if they are left untreated by the variable section of rule 51, e.g. ayapáume → ayapáme, ayapáun(e) → ayapán(e).

It seems that the analogical pull of the overt paradigm of such verbs as DIMIURGÓ or PÁVO causes F_6 u to dominate preceding F_3 a in the case of AGAPÁO:[24]

{-Pass,-Perf,-Past,+Pl,-K}$\begin{cases} \{1\} : \text{dimiuryúme, pávume, ayapúme/ayapáme} \\ \{3\} : \text{dimiuryún(e), pávun(e), ayapún(e)/ayapán(e)} \end{cases}$

It will be noticed that the above three rules apply "optionally" in the presence of the value {- K}, whereas, all other things being equal, the substitution of the value {+ K} for {- K} causes them to apply categorically. The fact will be dealt with on the basis of a more explicitly variationist and, at the same time, more economical formulation in Ch.V,12 below.

5.3.4. F_3 i is desyllabified in the context C - V in the structure of {STv} verbs (AGAPÀO, DIMIURGÓ).

Rule 52

$$\begin{bmatrix} V \\ +\text{syllabic} \\ +\text{high} \\ +\text{front} \end{bmatrix} \longrightarrow [\ -\ \text{syllabic}\ ] \quad / \quad C \text{ —— } V$$

e.g. ayapiese ⟶ ayapjése, dimiuryiese ⟶ dimiuryjése.

The rule is extrinsically ordered before the HoD rules.

It will be recalled that in 3.3.2. above it was suggested that the postulation of F_3 e or i for{STv_1} verbs in the presence of the cluster {+Pass, -Perf, -K} (in {+Pass, -Perf, +K} forms only F_3 e appears) allows us to stress the similarities between{STv_1} and {STv_2} verbs in the presence of the value {- K}. However, a different formulation was also suggested, namely, the recognition of F_3 e only (never i) for {STv_2} verbs irrespective of {$\pm$K} distinctions.

Various sandhi rules would account for the elision of F_3 e before an F_6 vowel, e.g. dimiuryéo → dimiuryó, or for the coalescence of the two vowels, e.g. dimiuryéete → dimiuryíte.

The latter solution has the following point to recommend it: under the analogical pull of the {STv_1} paradigm, F_3 e is desyllabified in the context C - V (just as F_3 i is) e.g. dimiuryéunte → dimiuryjúnte, a process quite common outside the verb too: yeóryios → yjóryos (= George), panoréa → panórja (a girl's name). If the latter alternative formulation is accepted, rule 52 should take the following, more general form:

Rule 53

$$\begin{bmatrix} +\text{syllabic} \\ +\text{front} \end{bmatrix} \longrightarrow [\ -\text{syllabic}\ ] \quad / \ C \text{ — } V.$$

However, under the influence of sandhi interactions of AG as transferred to MGK through the written language, e coalesces with following e or o (both of them [-high, -low] vowels). The resulting vowel is higher than the two original vowels and has the same specification for the feature [back] as the second vowel: e + o → u, e + e → i.

Rule 54

$$\begin{bmatrix} V \\ -\text{high} \\ -\text{low} \\ -\text{back} \end{bmatrix} + \begin{bmatrix} V \\ -\text{high} \\ -\text{low} \\ \alpha\ \text{back} \end{bmatrix} \longrightarrow \begin{bmatrix} V \\ +\text{high} \\ \alpha\ \text{back} \end{bmatrix}$$

CONDITION: Apply in the case of {STv} verbs before HoD.

e.g. <u>dimiuryeómeθa</u> → <u>dimiuryúmeθa</u>, <u>dimiuryéetc</u> → <u>dimiuryíte</u>.

The rule is extrinsically ordered before the HoD rules.

5.3.6. In the case of the verbs FOVÀME (= I am afraid), KIMÀME (= I am asleep), and θIMÀME (= I remember), to which we will refer henceforth as $\{STv_4\}$ verbs, F_3 <u>a</u> is elided before F_6 <u>o</u> or <u>u</u> in $\{+ Pl\}$ forms in breach of HoD.

<u>Rule 55</u>

$$\begin{bmatrix} V \\ +low \end{bmatrix} \rightarrow \emptyset \; / \; — \; \begin{bmatrix} V \\ +back \end{bmatrix} \; / \; \{ STv_4 \, , + Pl \}$$

Rule 55 is extrinsically ordered before the HoD rules

e.g. <u>fova$\begin{Bmatrix} o \\ u \end{Bmatrix}$maste</u> → <u>fov$\begin{Bmatrix} o \\ u \end{Bmatrix}$maste</u>, <u>fova$\begin{Bmatrix} o \\ u \end{Bmatrix}$nte</u> → <u>fov$\begin{Bmatrix} o \\ u \end{Bmatrix}$nte</u>

$\{STv_4\}$ verbs follow the paradigm of DIMIURGÓ (i.e. they behave as $\{STv_2\}$ verbs) in the presence of the value $\{+ K\}$,

e.g. <u>fovéome</u> → <u>fovúme</u>, <u>fovéese</u> → <u>fovíse</u>, etc.

The significance of the pattern provided by $\{STv_4\}$ verbs (FOVÀME) should be noticed: though the sandhi interactions obtaining in their structure are different from those in the structure of AGAPÀO, the effect on the overall number of syllables and stress

pattern between grammatically equivalent verb forms is the same:

		{+ Pass, - Perf, - Past, 1}	
		{-Pl}	{+Pl}
{STv_1}	{+K}	ayapáome → ayapóme,	ayapaómeθa → ayapómeθa
	{-K}	ayapíeme → ayapjéme,	ayapiómaste → ayapjómaste
{STv_4, -K}		fováome → fováme,	fovaómaste → fovómaste

5.3.7. The verbs AKÚO (= I hear), PTÈO (= I am to blame), KÈO (= I burn), KLÈO (= I weep) etc. referred to in 3.5.3. above as {VC_1} verbs, behave as {$ST_\emptyset$} verbs in the presence of the value {+ K}, in which case no interaction occurs between stem-final vowels and F_6 vowels, whereas in the presence of the value {- K} they behave as {STv} verbs in that their stem - final vowels interact with adjacent F_6 vowels, e.g.

		{- Pass, - Perf, - Past}	
		{+ K}	{-K}
{-Pl}	{1}	akúo	akúo
	{2}	akúis	akús
	{3}	akúi	akúi
{+Pl}	{1}	akúomen	akúme
	{2}	akúete	akúte
	{3}	akúun	akún(e)

In the latter case the analogical pull of the overt paradigm of AGAPÁO causes a restructuring in the above verbs so that their originally stem-final vowels become, in the presence of the value {- K}, F_3 formatives:

Rule 56

$$\begin{matrix} V & V \\ 1 & 2 \end{matrix} \begin{bmatrix} \# \\ X \\ 3 \end{bmatrix} \longrightarrow \begin{bmatrix} 1 & 2 \\ & 1 \\ & 3 \end{bmatrix}$$

CONDITION: Apply instead of HoD in the case of $\{VG_1\}$ verbs

The rule applies <u>instead</u> of HoD so that forms such as <u>akúo</u> or <u>akúi</u> that are left untreated by it do not subsequently undergo HoD (note, however, dialectal <u>akó</u> < <u>akúo</u>).

5.3.8. In the case of $\{ST_\emptyset\}$ verbs with stem-final <u>i</u>: APODIKNÍO (= I prove), APOKLÍO (= I exclude) ISXÍO (= I am valid), no sandhi interactions take place between <u>i</u> and F_6 vowels, e.g. <u>apoklío</u>, <u>apokliís</u>, <u>apoklíi</u>, <u>apokliúme</u>, etc.

5.3.9. When, in the presence of the feature {+ K}, an augment appears before a stem- or root-initial vowel, the two vowels yield <u>i</u> in most cases (see 3.1. above on temporal augments).

Rule 57

$$e + V\ X\ ]_{STEM} \longrightarrow i\ X\ ]_{STEM}$$

e + ayápisa ⟶ iyápisa (= I loved)

e + élpisa ⟶ ílpisa (= I hoped)

though a small group of verbs (e.g. IKTÍRO (= I pity), ORIMÁZO (= I mature)) behave idiosyncratically:

e + íktira ⟶ óktira (= I pitied)

e + orímasa ⟶ orímasa (= I matured)

6. "IRREGULAR" FORMATIONS

6.1. In our discussion of the regular verb paradigm we have often mentioned in passing various alternative formations. This section of Ch.IV contains an account of the most salient types of "irregularity" in the corpus. However, to reduce the size of this study, the explicit rules accounting for such "irregular" forms within a complete grammar of MGK will not be formulated here. Rather, the principles on which such rules would be based are discussed and examples given.

Irregular verbs differ from regular ones in that rule exception features block some of the inflectional rules discussed above from applying in their case; furthermore, for at least some irregular verbs, minor rules, i.e. rules not holding for the regular paradigm, account for exponence relations between grammatical values and inflectional formatives. In greater detail, irregular verbs differ from "regular" ones in (any combination of) the following six respects: firstly, certain formatives do not appear in the structure of some verbs; secondly, some verbs may follow the $\{ST_{\emptyset}\}$ paradigm in the presence of certain (clusters of) grammatical values and the {STv} paradigm in the presence of other (clusters of) values; thirdly, certain stems may co-occur with only {+ K} or only {- K} formatives elsewhere in structure; fourthly, some verbs may alternate partly or wholly suppletive stems; fifthly, in the structure of some verbs the exponence relation between certain (clusters of) grammatical values and inflectional formatives deviates from the regular pattern provided by the rules discussed above; sixthly, general stress or sandhi rules may be violated in the case of certain verbs. The six cases of "irregularity" are exemplified as follows:

6.2. Non-appearance of formatives

Certain inflectional formatives do not appear in the structure of

a number of irregular verbs. In the following examples, F_4 s fails to appear (so that, morphologically speaking, aspectual contrasts are neutralized in {- Passive} forms):

{-Pass, ±Perf, -Past, -Pl} : éxo (= I have), ofílo (= I owe), prépi (= it is necessary), trémo (= I tremble), ksέro (= I know), kάno (= I do), metaféro (= I carry), aposíro (= I recall)

while F_4 θ ({+ Pass, + Perf}) does not appear in the structure of the verbs ENGRÁFO (=I record), KÓVO (= I cut), GÍNOME (= I become) etc., as in the examples below:

{+Pass, -Past, -Pl, 1} { {-Perf}: enyrάfome, kόvome, yínome ; {+Perf}: enyrafό, kopό, yinό

Again, some verbs lack word-medial F_6 vowels. Compare the following forms of irregular ÍME (= I am), from which F_6 o is missing, to regular PÁVO:

pavómuna, pavósuna, pavótane,
ímuna, ísuna, ítane, etc.

6.3. Conjugation alternation

In the regular verb paradigm the distinction between {$ST_\emptyset$} and {STv} verbs is grammatically irrelevant in so far as exactly

the same grammatical distinctions are expressed in the structure of verbs of both conjugations (though, of course, certain formatives appear only in the structure of {STv} verbs but not in that of $\{ST_{\emptyset}\}$ verbs (see 3.2.2. above)).

A number of verbs, however, for example, θέLO (= I want), ÉFXOME (= I wish), KÁθOME (= I sit), IPÓSXOME (= I promise), DIAMARTÍROME (= I protest) behave as $\{ST_{\emptyset}\}$ verbs in the presence of certain grammatical values and as {STv} verbs in the presence of others:

$$\{-\text{Past},-\text{Pl},1\}\begin{cases}\{-\text{Perf},ST_{\emptyset}\}: \text{θélo, éfxome, kaθome, ipósxome, djamartírome}\\ \{+\text{Perf},\text{STv}\}: \text{θelíso, efxiθó, kaθíso, iposxeθó, djamartiriθó}\end{cases}$$

where F_3 vowels (characteristic of {STv} verbs) appear in {+ Perf} forms only.

6.4. Stem specificity with respect to stylistic level of co-occurrence (LC)

Although in the regular verb paradigm the stem is non-specific with respect to the stylistic level of co-occurrence ({+K} or {-K}), e.g.(summarizing the forms epáveto and (e)pavótan(e))

$$\{+\text{Pass},-\text{Perf},+\text{Past},-\text{Pl},3\}\begin{cases}\{+K\}: \begin{bmatrix}e\end{bmatrix}\\ \{-K\}: \begin{bmatrix}(e)\end{bmatrix}\end{cases} + \text{pav}+\begin{bmatrix}e\\o\end{bmatrix}+\text{t}+\begin{bmatrix}o\\a\end{bmatrix}+\begin{bmatrix}\emptyset\\n\end{bmatrix}+\begin{bmatrix}\emptyset\\(e)\end{bmatrix}$$

the stems of certain verbs normally co-occur with only {+ K} or only {- K} elements elsewhere in structure. For instance, the {+ Pass, - Perf, + Past, - Pl, 3} form of the verbal lexeme PRÓKIME (= I am about to) in the following extract from the corpus:

2/9/6 M.L. <u>epróki</u>to na ipotimiθí
((the dollar) was about to be devaluated)

is ipso facto {+ K}, i.e. there is no {- K} equivalent :
* (e)prokítan(e).

Again, the stems of the {- K} lexemes NJÓθO (= I feel), VGAZO (= I put out) and PJÁNO (= I touch) would normally co-occur with {- K} formatives only, e.g. {- Pass, - Perf, + Past, - Pl, 1} : <u>énjoθa</u>, <u>évyaza</u>, <u>épjana</u>, and not *<u>énjoθon</u>, *<u>évyazon</u>, *<u>épjanon</u> (such forms might, however, as we argued in Ch.I.4, be used for the sake of humour as ad hoc creations).

6.5. <u>Partial or total suppletion</u>

Although the stems of regular verbs remain the same (allowing for the effects of sandhi phenomena at formative boundaries) throughout the paradigm, all grammatical distinctions being expressed by inflectional (and not by derivational) formatives, most irregular

verbs express grammatical distinctions through the contrast of partly or wholly suppletive stems as follows:

6.5.1. Derivational suffix deletion

Derivational suffixes such as -n-, -en-, -ni-, -isk-, etc., are not normally exponents of grammatical values. However, in the structure of certain irregular verbs, e.g. MAΘÉNO (= I learn), APODIKNÍO (= I prove), VRÍSKO (= I find), LAVÉNO (= I receive), PAΘÉNO (= I suffer), etc., such derivational suffixes may appear only in the presence of certain (clusters of) grammatical values and not of others, e.g.

{-Pass, -Past, -Pl, 1}

{-Perf}	{+Perf}
fér<u>n</u>o	fér o
maθ<u>é</u>no	máθ o
apoðiknío	apoðík so
vrísko	vr ó

6.5.2. Internal vowel change

In the lexical structure of the following verbs; DÍNO (= I give), SOPÉNO (= I am silent), APODÍDO (= I render), PIÉNO (= I wash), SIMÉNO (= I mean), DRÉPOME (= I am ashamed), MÉNO (= I say), KATASTRÉFO (= I destroy), etc., certain grammatical contrasts may

be expressed through the alternation of stem-medial vowels, e.g.

{- Perf}	{+ Perf}
dı́no	dóso
sopéno	sopáso
apodı́do	apodóso
pléno	plı́no
katastréfome	katastrafó etc.

(where the deletion of n or d before s is predictable by rule 41 in 5.2.5. above).

6.5.3. Stem-final consonant alternation/deletion

(a) A number of verbs, e.g. NJÁZO (= I interest), SKJÁZO (= I frighten), PIRÁZO (= I annoy), FONÁZO (= I shout), TARÁZO (= I shake), NISTÁZO (= I am sleepy), PRÍZO (= I swell), PÉZO (= I play), ΛNGÍZO (= I touch), have stem-final z in {- Perf} forms and a voiceless velar before F_4 s or θ in {+ Perf} forms:

{- Past, - Pl, 1}		
{-Pass}		{+Pass, +Perf}
{-Perf}	{+Perf}	
njázo	njákso	nja{x, s}tó
skjázo	skjákso	skjaxtó
pirázo	pirákso	piraxtó
fonázo	fonákso	—
tarázo	tarákso	taraxtó

(b) Under the analogical pull of the verbs in (a) above, a stem-final voiceless velar appears in the {+ Perf} paradigm, i.e. before F_4 s or θ, of the following irregular verbs: PTÉO (= I am to blame), PETÁO (= I fly), KITÁO (= I look), etc. which in {- Perf} forms have stem-final vowel:

{- Past, - Pl, 1}		
{- Perf, - Pass}	{+ Perf}	
	{-Pass}	{+Pass}
ftéo	ftékso	-
petáo	petákso	petaxtó
kitá(z)o	kitákso	kitaxtó

A different formulation is adopted in Babiniotis, 1972a, p.218ff, with respect to the verbs discussed in this paragraph where ks is recognized as an "allomorph" of s, e.g. roti + ks + a, i.e. ks is, in our terms, an exponent of the value {+ Perf}. If Babiniotis' suggestion is adopted, however, we will also have to recognize xθ as an allomorph of θ for the verbs discussed here. It may be argued, therefore, that the formulation adopted in this study is more economical if no more illuminating.

(c) Also, z alternates with l in the case of the verbs VÁZO (= I put) and VGÁZO (= I take out):

$$\{-\text{Pass}, -\text{Past}, -\text{Pl}, 1\}\begin{cases}\{-\text{Perf}\} : \text{vázo}, & \text{vgázo} \\ \{+\text{Perf}\} : \text{válo}, & \text{vgálo}\end{cases}$$

(d) In the structure of the verbs PÍΘO (= I persuade), KLÍNO (= I shut), FΘÁNO (= I reach), PJÁNO (= I touch), GÉVOME (= I taste), AKÚO (= I hear) etc., s appears in stem-final position before Θ:

{- Past, - Pl, 1}		
{- Pass}		{+Pass,+Perf}
{-Perf}	{+Perf}	
píΘo	píso	pisΘó
klíno	klíso	klisΘó
pjáno	pjáso	pjastó

It seems that, in the case of such verbs, after the normal deletion of stem-final Θ or n before F_4 s (see rule 41) in {- Pass} forms, s is restructured as a stem-final consonant in {+ Pass} forms. Alternatively, and following Babiniotis' suggestion in (b) above, we could postulate a {+ Pass, + Perf} formative sΘ for the verbs discussed here.

6.5.4. Other cases of partial suppletion are exhibited, in an episodic or ad hoc way, in the structure of the verbs PIGÉNO (= I go), STÉKOME (= I stand), KÉO (= I burn), KLÉO (= I weep),

FÉVGO (= I leave), PÉFTO (= I fall), ÉRXOME (= I come), θÉTO (= I put), ANALAMVÁNO (= I take over), etc.:

{- Pass, - Past, - Pl, 1}

{-Perf}	{+ Perf}
piyéno	páo
stékome	staθó
kéo	kápso
kléo	klápso
févgo	fíyo
péfto	péso

6.5.5. Total suppletion

Total suppletion is exhibited episodically in the structure of the verbs VLÉPO (= I see), and LÉ(G)O (= I say):

{- Pass, - Past, - Pl, 1}

{-Perf}	{+Perf}
vlépo	dó
léo	pó

6.6. Exponence relations between grammatical values and inflectional formatives accounted for by minor rules.

The rules discussed in this chapter account for exponence relations holding in the structure of regular verbs between grammatical values and inflectional formatives. Some of these rules, however,

cannot account for the exponence relations in the inflectional structure of the following verbs (for which minor rules, not formulated here, account): BÉNO (= I enter), ANEVÉNO (= I ascend) SIMVÉNO (= I happen), VRÍSKO (= I find), IÉ(G)O (= I say), VLÉPO (= I look), GÍNOME (= I become), KÁΘOME (= I sit) and ÉRXOME (= I come). Compare the following examples to the regular paradigm provided by PÁVO on Table One.

{- Past, - Pl, 1}

{-Perf}	{+Perf}
béno	bó
anevéno	anevó or anévo
yínome	yíno or yinó
káΘome	kaΘíso
léo	pó
vlépo	ðó

6.7. Violation of stress or sandhi rules

For the violation of such rules in the structure or certain verbs see 4.2. and 5. above.

6.8. It will have been noticed that normally more than one of the six cases of "irregularity" mentioned above co-occur in the structure

of one and the same verb. Thus, in the case of the verb ΛΝΕΥΈΝΟ (= I ascend),

	{-Perf}	{+Perf}
{- Past}	anevénete	anevíte
{+ Past}	anevénate	anevíkate

four cases of deviation are present simultaneously: the formatives s and θ do not appear in the {+ Perf} forms; the stem co-occurs with {- K} formatives only; the lexical suffix -en- appears in {- Perf} but not in {+ Perf} forms; finally, the {+ Pass, - Past} paroxytonic stress pattern and the termination -ite are semantically vacuous. Aspectual contrasts are expressed in the alternation of forms which in the regular paradigm also express Voice contrasts (i.e. {- Perf} and {+ Perf} forms of this verb "look like", respectively, {-Pass,-Perf} and {+Pass,+Perf} forms in the regular paradigm).

In a complete grammar of MGK, irregular verbs would be accounted for (a) by rule exception features in the lexicon blocking the appearance of certain formatives in their structure or otherwise defining the particular kind of deviation characteristic of a

certain verb; for instance, the lexeme ANEVÉNO would be followed by instructions in the lexicon such as the following:

(i) ~Rule 11 (generating s and θ. See 3.4.3. above)

(ii) ~[+K] (blocking [+ K] elements from appearing in the structure of ANEVÉNO)

(iii) [- Perf] → en / anev —

(iv) [+ Perf] → [+ Perf, + Pass] accounting for the expression of the value [+ Perf] by [+ Perf, + Pass] formatives always.

(b) for larger groups of irregular verbs minor rules will be ordered extrinsically before the rules accounting for the normal cases. See, for example, sandhi rules 49 and 56 (accounting for interactions between adjacent vowels in breach of the HoD principle) which precede rules 47 and 48.

7. SUMMARY

Chapter IV contains an exhaustive (in so far as the regular paradigm is concerned) and explicit synchronic grammar of the inflectional morphology of the verb in MGK in the form of 57 rules. Of them, rules 1 to 37 are morpholexical rules relating unordered clusters of grammatical values to sequences of formatives. Rules 38 to 40 account for the stress pattern. Rules 41 to 57 account for

phonological (or sandhi) processes at formative boundaries.

Variability considerations are accounted for in two ways: firstly through the correlation in the rules of the features {+ K} and {- K} on the one hand and inflectional formatives on the other; secondly, through the incorporation in the rule system of a number of variable rules accounting for linguistic behaviour on a "more-or-less" rather than an "either/or" basis.

Cases of variability isolated in this chapter will be further discussed in Ch.V. below in probabilistic terms, i.e. the probability of appearance of an "optional" form will be correlated to the presence of features of the linguistic environment and to the context of situation.

NOTES TO CHAPTER IV

1. The term "morpholexical" is borrowed from Matthews, 1972.

2. See Chomsky, 1965, p.223.

3. But see Hyman, 1975, p.129, for an interpretation of extrinsic order, as covering rule systems such as Matthews' as well as the one proposed in this study. However, this broader interpretation of extrinsic order is not generally acceptable as pointed out to me by A. Fox (personal communication), i.e. the general consensus would be that the inflectional rules in this study are intrinsically ordered, in contrast to most of Matthews' rules, which are in extrinsic order.

4. A correspondence h : s, is, however, common enough in many languages, for instance Andalusian : Castilian Spanish (T.F. Mitchell, personal communication).

5. It should be noted, however, in fairness to Warburton, that a high degree of abstractness of underlying forms (i.e. "basic" morphophonemes") is often accepted by many a generativist, though the issue is still both controversial and persistent. See, among others, Halle, 1962; Postal, 1968; Hyman, 1970; and Ashworth, 1973, for arguments, or simply declarations of faith, in favour of such a position. On the other hand, deriving "anything" from "anything" is not digestible by everybody. See, for instance, what instructive and amusing Wright, 1972, has to say on the subject (p.67ff). See also, Allen, 1973, p.18 ("Formulation is not always equivalent to explanation" [Emphasis original]); Mitchell, 1975,p.10 ("... rule-philosophizing easily degenerates into its own kind of 'phatic communion'"), and, with reference to the proliferation of alternative and equally arbitrary "underlying representations" for an overt form, Haas, 1978 ("Too many good things and no criteria for choosing" (p.298)).

6. In traditional grammars of Greek (e.g. Triandafyllidis, 1964, Tzartzanos, 1945), a distinction is drawn between "genuine" (kíries) and "spurious" (kataxristikés) prepositions: the former perform both syntactic and derivational functions in that they both introduce prepositional phrases and participate in the construction of compound stems,

e.g. epí tis trapézis (= on the table)

epitrapézios inos (= table wine)

parά tin θάlasan (= near the sea)

paraθalásios (= coastal)

while the latter introduce prepositional phrases only, e.g.

me to plío (= by boat)

yja to pásxa (= for Easter)

7. An augment does not normally appear before a stem beginning with a vowel; see Ch.V, 2.3. below.

8. See Ch.III,3. above for objections raised in Warburton, 1973,p.197, concerning the form of rule 11 in relation to the concept of "markedness".

9. See Babiniotis, 1972a,p.211.

10. My translation from Greek.

11. It should be clarified that the "three mora rule", though a convenient point from which to start our discussion on the stress pattern of the verb in MGK, can hardly account for AG accent.

For a review of the relevant literature and an interesting alternative hypothesis involving the Firthian concept of contonation, see Allen, 1973 (reviewed by Mickley,1977).

12. The use of angled brackets in Adams' rule (vii), also adopted in this study, is that introduced in Chomsky and Halle, 1968, p.76, namely, "it permits the expression of discontinuous dependencies", in that "an expression with angled brackets abbreviates two expressions - one in which all angled brackets appear and another in which none of these elements appear".

13. In view of the discussion in this section (4.2.) Warburton's claim that rule (iii) above must apply before any of the rules of the phonological component, seems to serve little purpose.

14. They also have in common the cluster {+ Pass, - Pl, + K} as is clear from the above examples, but that can be regarded as "redundant" information since terminal segments of the form CiC_0^1 always appear in the presence of the cluster {- Pl, + K} and if they are {+ Past} they are also {+ Pass} (see Table One). We need to mention the value {+ Past} in our rule (xiii) below, however, to block it from applying in the case of such {- Past} forms as <u>pávis</u>, <u>pávi</u>, <u>pápsis</u>, <u>pápsi</u>, <u>paftís</u>, <u>pafti</u>, etc.

15. It should be mentioned, however, that Kisseberth's global rules, whose status is currently being debated by generative phonologists, are meant to do just that, i.e. refer to the derivational history of a form, the argument being that underlying forms are available to native speakers at any stage of the derivation.

16. The tilde (~) has been used by Labov (for instance, 1972c, p.78) for the specification of negative environments. An alternative, less economical but possibly more elegant,way, i.e. the numbered brace notation,could be used here (though this notation cannot always replace the tilde notation):

$$\begin{bmatrix} C \\ +\text{anterior} \\ +\text{coronal} \\ \begin{Bmatrix}[+\text{strident}] \\ [-\text{strident}]\end{Bmatrix} \\ 1 \qquad 1 \end{bmatrix}_1 + \begin{bmatrix} C \\ +\text{anterior} \\ +\text{coronal} \\ \begin{Bmatrix}[+\text{strident}] \\ [\pm\text{strident}]\end{Bmatrix} \\ 1 \qquad 1 \end{bmatrix}_2 \longrightarrow 2$$

i.e. for the rule to apply, either both consonants must be [+ strident] or the first [-strident] and the second [±strident].

17. MGK, unlike AG and some modern dialects, has no geminate clusters (or long consonants: see Newton, 1972b, p.88ff). Still, under the influence of the written language, two identical adjacent plosives appearing at derivational formative boundaries in a "learned" word are sometimes pronounced in careful speech (or reading) with greater tenseness than a single consonant and with a longer period between closure and release, e.g.

ek + kaθάrisis → ek:aθάrisis (= purge)

18. To avoid the somewhat cumbersome tilde notation in rule (iv) below we could order the rule extrinsically after rule (ii). Thus, given a consonant cluster of the form:

$$\begin{bmatrix} C \\ -contin \\ +anter \\ +coron \end{bmatrix} + \begin{bmatrix} C \\ -cont \\ -strid \end{bmatrix}$$

rule (ii) would apply first to delete the first segment, and therefore rule (iv), which now could be given the simpler form

$$\begin{bmatrix} C \\ -cont \end{bmatrix} \longrightarrow [+cont] \; / \; \text{—} \begin{bmatrix} C \\ +cont \\ -strid \end{bmatrix}$$

would be blocked from applying in the case of such clusters.

19. Rule (ii) does not apply in the case of overt ἐkatsa (= I sat down) deriving from alternative overt ekáθisa before the application of the stress rule through weak vowel syncope; cf. also métsa (= I got drunk), occurring in parts of Lesbos, from méθisa (Newton, 1972b, p.9.)

20. The problem of the status of voiced plosives as phonological segments appearing independently from adjacent nasals goes beyond the particular interaction between F_7 n and F_8 t in {+ Pass, - Perf, + Pl, 3} forms, e.g. pávonte → pávo(n)de, pávontan → pávo(n)dan (See, for instance Hamp, 1961; Koutsoudas, 1962; Householder et al, 1964; Warburton, 1970, and most importantly, Setatos, 1969b). It is for this reason that, as they stand, rules (viii) and (ix) below apply outside the inflexional formatives of the verb and also across word boundaries, and involve not only [+anterior, +coronal] segments (nt), but also [+anterior, -coronal] (mp) and [-anterior, -coronal] (ŋk). In fact, the two rules under consideration are preceded by a categorical rule stating that a nasal and a following plosive are homorganic, i.e. nt, nd, mp, ŋk, ŋg. For instance, a compound stem such as e(ŋ)katalípo (= I desert) derives from en + katalípo; béno (= I enter) from en + véno → em + véno → em + béno → m + béno → béno (initial unstressed vowel is often elided in MGK: (i)méra (= day), (e)vdomáda (= week); eggéfalos

(= brain) from en + kefali; tin paraskevi' → ti(m) baraskevi'

(= on Friday), etc. The two rules do not normally apply in the case of such words of foreign origin as sampánja (= champagne) and certain Katharevousa expressions, e.g. en ti vasilía su (= in your kingdom), (or, rather, in the above cases, their application may be evaluated by some educated speakers as stigmatized/vulgar: sa(m)bánja (possibly expected of some newly-rich), e(n) di vasilia su). Finally, in certain words of foreign origin, a voiced plosive may appear in its own right, i.e. not as a result of an adjacent nasal, e.g. robót, kláb, banána.

21. One of the examples in Triandafyllidis, 1964,(deleted in the 1976 edition) in support of the HoD principle actually disproves it: par ólo pu (= in spite of the fact that) from pará ólo pu.

22. In AG the result of such contractions was a long vowel or a diphthong. By the 4th or 5th c. A.D.,however, length distinctions had been lost and diphthongs were pronounced as single (short) vowels.

23. Some of these contractions are truly synchronic, e.g.

{- K} ayapá{o/u}me → ayapáme, as opposed to {+ K} ayapáomen → ayapómen, the latter form preserving, via the written language, the AG categorical interaction a + o → o: (i.e. long o, or omega, reflected in traditional

spelling as ω); others, which passed from a variable to a categorical stage in AG, are also categorical in MGK, e.g. ayapáis → ayapás, or have reverted to a variable state, e.g. ayapái → ayapá/ayapái.

24. See Babiniotis, 1972a, p.189 for the "dynamics of u", i.e. the tendency for F_6 o to be replaced by u in {- Past} forms.

25. See Warburton, 1970, for the structure of the verb phrase in MGK.

CHAPTER V

PATTERNS OF VARIABILITY IN THE VERB INFLECTION

1. INTRODUCTION

1.1. Variable rules

In the preceding chapters we traced the intricate patterns of variability and invariance in the verb inflection. In particular, we accounted for the inflectional reflexes of $\{\pm K\}$ distinctions in a way that is free from the confusion associated with the concept of diglossia.

The fifty-seven rules in Ch.IV. provide an explicit account of that pattern to the extent that they associate a particular cluster of grammatical and stylistic values with a particular string of formatives (categorical rules) or with alternative (strings of) formatives (variable rules).

In this chapter we will concentrate on the variable rules introduced in Ch.IV. and attempt to establish features of the

linguistic environment affecting their probability of application in the situational context under investigation, i.e. informal conversations between educated Athenians who are on friendly terms with one another.

Before we embark on a discussion of each rule, however, it would be useful to assess the status of variable rules in current sociolinguistic thought.

Variable rules were proposed by Labov in 1969 as an extension of "optional" rules of traditional generative grammar. The principles, however, underlying the two types of rules are very different.

"Optional" rules are based on the assumption that the speaker knows that there is variation in language but that the pattern of variation, if any, is not part of his competence, and, therefore, of no central interest to linguistic theory, i.e. at a certain point in structure, one or more "optional" forms are available for the speaker to choose from but which one he chooses on a particular occasion is a matter of <u>performance</u>; consequently, it can be safely ignored along with other irrelevant features of linguistic behaviour[1] such as hesitation, errors, and the like.

Variable rules, on the other hand, stem from a belief in the central importance of variation in language: since language varies through time and space (geographical and social), and even from speaker to speaker (and no linguist, of whatever persuasion, would doubt that), it is difficult to see how variability can be considered as marginal to linguistic theory. Note, not just difficult to deal with, which is a completely different consideration, but of marginal interest.

Again, "optional" rules are considered by the traditional generativist as part of the linguistic knowledge of an ideal speaker (who often turns out to be none other than the humble generativist grammarian himself). Variable rules, on the other hand, are usually set up on the basis of observations of the linguistic behaviour of the members of a community. Such rules are relevant both for the community and, normally, for the individual speaker, since individuals do not use their language primarily to talk to themselves but to communicate with each other. Therefore, the members of a linguistic community necessarily share a large number of rules. Where they differ, however, is the probability or application of a variable rule in their speech: some members (or social groups) may always

apply the rule, others very frequently, others rather infrequently, and still others never, depending on the degree of homogeneity of the community (see Cedergren and Sankoff, 1974; Sankoff, 1974; Heidelberger Forschungsprojekt "Pidgin-Deutsch", 1978; and, of course, the work of Labov). Whether production mirrors perception, i.e. whether members of a community in whose speech a particular rule never applies cannot interpret the application of the rule in the speech of other members, is a different question. Labov has shown in at least some cases it does not: black interviewees who were asked to repeat "Standard English" sentences actually "translated" the sentences into their own dialect, which could only have happened if the boys perceived them correctly but could not, or would not, produce the "white man's" structures.

1.2. Variable constraints

Central in the development of the theory of variable rules is the concept of the variable constraint. Each of the members of a family of constraints (i.e. each of the variants of a variable constraint) affect the application of a variable rule differently. Thus, given an "optional" rule of the traditional generativist form:

$$X \longrightarrow (Y) \;/\; Z \;\_\_\_$$

we may in fact observe that the frequency of application of the rule

in our recorded data varies according to the constraints present at various points in the structure of the form meeting the input conditions of the rule[2]:

$$X \longrightarrow \langle Y \rangle \;/\; \left\langle \begin{matrix} A_1 \\ A_2 \end{matrix} \right\rangle \quad Z \left[\begin{matrix} \\ B_1 \\ B_2 \end{matrix} \right\rangle \quad \left\langle \begin{matrix} C_1 \\ C_2 \\ C_3 \end{matrix} \right]$$

where Z is a minimally required feature, i.e. it must be present in a form for the rule to apply at all, and A, B and C are families of constraints whose members are arranged in the three-cornered brackets from top to bottom in order of weight, i.e. each member contributes to the application of the rule a probability that is greater than that contributed by the member below it. A probability being a number ranging between 0 and 1, the relative weight of the members of each family of constraints above could be expressed as follows:

$$1 \geqslant p\langle A_1 \rangle > p\langle A_2 \rangle \geqslant 0$$

$$1 \geqslant p\langle B_1 \rangle > p\langle B_2 \rangle \geqslant 0$$

$$1 \geqslant p\langle C_1 \rangle > p\langle C_2 \rangle > p\langle C_3 \rangle \geqslant 0$$

The rule is also associated with an input probability p_o, which is the probability of the rule applying when none of the constraints

are present, i.e. when only the minimal features are present, or when only the environment containing the weakest combination of constraints is present.

The effect of various extralinguistic constraints on the operation of a variable rule, i.e. social constraints (social class, age, sex, etc.), stylistic constraints (formality of the situation, metaphorical use of language, etc.), as well as the contribution of individual speakers, can be expressed in precisely the same way as that of linguistic constraints.

In certain cases, constraints belonging to different families may be ordered. Thus, for instance, in the rule above, the following relations may obtain:

$$1 \geq p\langle B_1 \rangle > p\langle A_1 \rangle > p\langle C_1 \rangle \geq 0$$

Furthermore, according to the "strong geometric ordering" hypothesis (see 1.3.1. below) it is often the case that constraints of different families are ordered hierarchically so that the effect of the highest constraint on the rule application is greater than the combined effect of the constraints below it in the hierarchy.

1.3. In the literature it has been found that normally only a small number of (families of) constraints can have an appreciable effect on a variable rule. It is therefore a relatively easy matter to arrange the members of a family of constraints in terms of their relative weight by simply noting, for each member, the proportion of times that the rule applies out of the total number of forms in whose structure the member in question is present and, therefore, the rule might have applied (Fasold, 1978).

However, a number of models have been developed for the calculation of the precise effect on rule application of the constraints present in a particular environment. Before we review these models we should note, with Labov, that "the development of the variable rule notation ... must be seen as independent of the quantitative interpretation in terms of probability of functions ... " (1972a,p.99).

1.3.1. The additive model

In the original model proposed by Labov (see Labov, 1972a, Ch.3), the proportions provided by each of the constraints present in a particular environment are added together to arrive at the output frequency of a rule for a particular sample. The effect of a particular constraint depends only on the presence of the constraint in the environment,

i.e. it is independent from the effect of other constraints present (the "independence" hypothesis):

The model suffers from a number of related defects. To begin with, the sum of the contributions of individual constraints is often greater than one. To avoid the above undesirable effect, two conventions are employed.

According to the "truncation" convention, if the contributions of individual constraints total more than one or less than zero, the output frequency of the rule is taken to be, respectively, one or zero.

Alternatively, a "strong geometric ordering" is assumed concerning the relative sizes of the contributions of the constraints present in a particular environment: the effect of a particular constraint is greater than the sum of the effects of the constraints below it in the hierarchy.

As is obvious, the "truncation" convention has no theoretical validity, i.e. it is simply a device to rescue the additive model. As for the "strong geometric ordering" convention, the problem is that some of the constraints in certain rules have roughly the same effect on the rule application, i.e.

they are <u>not</u> geometrically ordered.[3]

More importantly, the "independence" hypothesis breaks down in cases where the effect of a constraint increases in a particular social context, as a result of language change, etc. For then the additive model will necessitate that the effects of the other constraints be artificially reduced if the sum is not to exceed one.

Another defect associated with, though not inherent in, the original model, is that the output frequency of the rule is a mean value specific to a particular sample and therefore cannot be predicted accurately.

1.3.2. <u>The multiplicative model</u>

To counter the above defects of the additive model, Cedergren and Sankoff, 1974, propose a <u>multiplicative</u> model for the analysis of variable rules. According to it, by multiplying rather than adding the contributions of the constraints present in an environment we arrive at the probability of the rule applying in a particular environment.

Since the effects of individual constraints are multiplied rather

than added, their product cannot be less than zero or exceed one.

As a further result, the effects of various constraints are (treated as) independent from one another, i.e. the effect of one constraint on the rule may increase or decrease (through time or social or geographical space) without that affecting the other constraints.

Furthermore, the co-authors have made a distinction between frequencies, which are random variables and cannot be predicted with accuracy, and probabilities, which are stable values: the former belong to performance, but the latter are part of a speaker's competence. On the basis of observed frequencies for a particular environment and using the statistical method of "maximum likelihood" they can calculate the probabilities associated with each constraint. These probabilities are then fed into the multiplicative model (or the additive model, whenever the sum does not exceed one) to arrive at the probability of the rule applying in a particular environment.

D. Sankoff and his associates (see Rousseau and Sankoff, 1978; Guy, 1975) have developed a number of computer programs to achieve

more and more refinement and power in comparing, on the basis of iterative maximization methods, maximum likelihood estimates for the additive and the multiplicative models and for a large number of constraints, i.e. in finding the values that maximize the probability of the observed data being generated by the model.

In particular, it is claimed that the programs can detect the existence of subsets in the data, i.e. slightly different grammars (in terms of the relative weight of constraints) corresponding to different groups of speakers within the same linguistic community. In different terms, the programs are designed to, among other things, trace cases of interdependence between social and linguistic constraints (also between various types of linguistic constraints). Indeed, the "independence" hypothesis is, in terms of Labov, 1972a, "only an hypothesis and is subject to empirical verification" (p.96,n.17); and according to Cedergren and Sankoff, 1974,

> "unless there is some theoretical reason to suspect one of these kinds of interaction, the assumption of independence seems the most reasonable and non-committal; at least, independence is the null hypothesis suitable for a wide range of empirical situations".(p.339)

1.4. With respect to the "independence" hypothesis, Kay, 1978, points out that, although variationists are not committed to it

in that they assume independence between constraints but have developed methods for tracing cases of dependence, in fact neither the concept of variable rule nor the (additive or multiplicative) models proposed for the interpretation of variable rules can account for, rather than simply detect, dependence on equal terms with independence between constraints[4]. The particular notation we have adopted in this study (see 1.8, below) in response to Kay's arguments, accounts for cases of independence as well as dependence between constraints without obscuring the distinction between the two types of relations.

1.5. Another point to be made concerns the status of the probabilities associated with the features in the environment of a variable rule. As we said earlier on, such probabilities are assigned by Cedergren and Sankoff, 1974, to competence, as opposed to corresponding observed frequencies which are assigned to performance (p.353). However, a few pages earlier on the co-authors state that

> "the numerical quantities associated with the features in the environment of a rule are indications of the relative weight which they contribute to the applicability of the rule, rather than the existence of discrete probabilities in the head of the speaker. Their precise values, as in any behavioral model, are not critical; they represent analytical abstractions of tendencies which may vary somewhat from day to day or from speaker to speaker" (p.335).

We see then that probabilities are stable values assigned to competence, yet at the same time they are simply analytical abstractions of tendencies, indications of the weight of features, and their values are not critical, neither do they exist in the head of the speaker. The confusion is caused, no doubt, by the wish of the co-authors to develop powerful models for the probabilistic interpretation of variable rules without appearing to fall foul of Bickerton's scathing argumentation (1971), of which they are well aware, concerning the impossibility of an individual having internalized a variable rule (i.e. a community rule) and deciding on a particular occasion whether to use a particular "optional" form on the basis of the percentage for that form reached so far by him, by his interlocutors and also by group-members not physically present![5]

The point is, therefore, that the association of the question concerning the status of quantitative models for variable rule analysis on the one hand and the competence-performance controversy on the other helps resolve neither. What we are suggesting here is that the calculation of probabilities is perhaps a useful heuristic tool for the setting up of families of constraints for a particular rule when large quantities of data produced by a

great number of speakers are processed. However, the object of the analysis is to set up such families of constraints, and, in most cases, this can be achieved on the basis of, in D. Sankoff's terms, "Labov's pencil-and-paper, trial-and-error evaluations" (1978,p.xiv), which renders more elaborate computational methods rather superfluous most of the time.

More pertinently, linguistic data does not always yield conveniently large numbers of environments satisfying the input conditions of a variable rule to justify or even make possible the employment of such probabilistic models. An easy way out, of course, is to ignore rules whose input conditions are rarely met in the data and concentrate on more convenient rules whose input conditions are satisfied more frequently. In fact, this is precisely what happens in most current sociolinguistic work. The trend was set in Labov, 1972b,where we read that "one of the most useful properties of a linguistic variable to serve as the focus for the study of a speech community" is frequent occurrence:

> "... we want an item that is frequent, which occurs so often in the course of undirected natural conversation that its behavior can be charted from unstructured contexts and brief interviews". (p.8.)

Labov's stance was justified by the need to face the problems

associated with the testing of a hypothesis at its inception. However, such insistence of the descriptively convenient, even after the model has acquired sufficient sophistication, is a kind of idealization, not unlike that practiced by traditional generativists. What is studied is not natural language but only those aspects of it that fit the model. For language contains both very frequent patterns and also others that occur only rarely, and a model that it based on high observed frequencies necessarily produces a distorted picture of language. Lavandera, 1978, p.174, is of relevance here:

> "It is not the case ... that differences in scores alone are significant, rather, the forms themselves carry differences in meaning".

Also, Wolfram, 1974, p.192:

> "At this point we would caution that the notion of quantitative significance ... should not be confused with social significance. It may well be the case that very infrequent occurrences of a particular form are sufficient to socially mark an individual".

In this study we take the view (documented below) that the breaking of statistical expectations for the sake of social or stylistic effect is of necessity infrequent, yet all the more meaningful for that. An utterance such as

a! na mja polikí arkús! (= Ah! there's a polar bear!)

produced by a teenager with reference to a rather corpulent lady

in a white fur coat walking through a park in a suburb of Athens on a snowy day in winter 1974, is a case in point. The word arkús (= bear) is an ad-hoc creation to add a clearly linguistic dimension to the joke. Compare arkús with the recognized vernacular synonym arkúda, and learned árktos. The (broken) regularities underlying the creation of arkús are as follows:

(a) Originally 1st declension nouns such as θálasa (= sea) may take (partly) different endings in MGK to express {± K} distinctions, while the stem remains the same:

1st declension

	{+ K}		{- K}
Nom:		θálasa	
Gen:	θalásis		θálasas
Acc:	θálasan		θálasa
	etc.		etc.

(b) Originally 3rd declension nouns such as akrís (= locust) follow in MGK either the {+ K} side of the 3rd declension or the {- K} side of the 1st declension, the stem akrid- remaining the same (apart from the sandhi interaction ds → s):

	{+ K} (3rd declension)	{- K} (1st declension)
Nom:	akríds → akrís	akrída
Gen:	akrídos	akrídas
Acc:	akrída	
	etc.	etc.

(c) An originally 2nd declension noun such as árktos (= bear), on the other hand, (normally) follows in MGK the {+ K} side of the 2nd declension, in contrast to the vernacular synonym arkúda which (normally) follows the {- K} side of the 1st declension. In other words in this case {± K}distinctions are expressed not only by the alternation of endings, but also of stems:

	{+ K} (arkt- + 2nd declension)	{- K} (arkúd- + 1st declension)
Nom:	árktos	arkúda
Gen:	árktu	arkúdas
Acc:	árkton	arkúda
	etc.	etc.

It is clear now that the ad-hoc creation of arkús is the result of the mock-hypercorrective assumption that {- K} akrída (case (b)) and {- K} arkúda (case (c)) belong to the same lexical class: since they behave in exactly the same way in the presence of the value {- K} they must do so in the presence of the value {+ K} too. In other

words, if {- K} <u>akrída</u> corresponds to {+ K} <u>akrís</u>, then {- K} <u>arkúda</u> must correspond to {+ K} <u>arkús</u>[6] .

Do we ignore a form like <u>arkús</u> just because it appears only once in our data (and, probably, in the history of the Greek language, for that matter, apart from its record here) and therefore cannot be treated by the probabilistic models? The answer, as far as I can see, is that we should not, for the undoubted significance of the form (everybody present had a good laugh) lies precisely in its rarity and in its being the result of breaking, rather than applying, the relevant rules. At the same time, however, breaking the rules is a highly structured process in that not all rules may be broken if the result is to be stylistically or socially significant (rather than a slip of the tongue).

1.6. Implicational scales analysis

1.6.1. Variable rule analysis, based on observations of the relative frequency with which a form appears in correlation with various features of the linguistic and social context, is often contrasted to the "wave" (or dynamic or implicational) model of analysis. The latter is based not on frequencies but on the implications that the appearance of a certain form has for others (inter-rule implications), or the implications that the appearance of a form in a certain context has for its appearance in other contexts

(intra-rule implications). Thus, given for form A three possible environments, —X, —Y, and —Z, the model predicts a number of linguistic varieties, i.e. A never appears in any of the three environments in the speech of some members of the community; the remaining speakers are differentiated according to whether their varieties are characterized by the appearance of A in one, two or all three environments. More importantly, the three environments can be arranged, according to the "wave" model, in a hierarchy of weight so that A appears in the heaviest environment first, then in the one below it, and so on (Bailey, 1973, p.67). If the appearance of A is represented as 1 and its non-appearance as 0, and if —Y is heavier than —X, and —Z is the heaviest: —X < —Y < —Z, the following arrangement, referred to as a scalogram, would be predicted by the theory:

Varieties	Environments		
	—X	—Y	—Z
V_1	0	0	0
V_2	0	0	1
V_3	0	1	1
V_4	1	1	1

where the appearance of A in a particular place in the scalogram implies its appearance (in the heavier linguistic environment) to

the right and (in the varieties) below.

The scalogram above represents the standard "wave" theory. According to it, (i) variation is represented in competence as a set of implicationally arranged, slightly different, categorical grammars; (ii) the arrangement always depicts change in time (i.e. relations of earlier-later): a form reaches one environment after the other in the speech of successive individuals; (iii) criterial for the direction of the change is the relative weight of the relevant environments; and (iv) having arranged individual speakers on the basis of their linguistic behaviour, their social characteristics can then be correlated to the linguistic dimension.

1.6.2. On point (i) above the model has developed as follows: Owing to the observable fact that the variously categorical presence or absence of a feature in a certain environment for two members of a speech community is rarely the case, "wave" theorists (for instance, Bickerton, 1971, 1973; Bailey, 1973) allow the inclusion in scalograms of "split cells", i.e. cells in a scalogram where a form appears "optionally". If optional appearance of a form is represented by X, our scalogram above takes now a form such as the following[7].

Varieties	Environments		
	-X	-Y	-Z
V_1	0	0	0
V_2	0	0	X
V_3	0	0	1
V_4	0	X	1
V_5	0	1	1
V_6	X	1	1
V_7	1	1	1

Still, the problem remains of how to allocate speakers to one variety rather than another, adjacent to it, on the basis of the proportion of times a form appears in their speech: what proportion of appearances of a form should be taken to be categorical presence or absence, or "optional" presence? Is, for instance, 5% appearance of a form categorical absence or "optional" presence? And if we decide that the latter is the case for a particular form does that mean that 5% appearance is sufficient for any form to be regarded as "optional"? And is a form appearing 5% of the time as "optional" as another appearing, say, 75% of the time? Methods for deciding a "threshold" or "cutting point" (see Fasold, 1970, p.553) are of little interest for a theory of language since their main function is to rescue the particular version of the "wave" model under

consideration rather than to explain variability in language[8].

To deal with the above difficulties, some proponents of the "wave" theory (De Camp, 1973,p.146; Bailey, 1973,p.80) have gone further towards accepting the relevance of quantitative data. According to this version of the "wave" model as a competence principle, a form first appears at a low frequency in the heaviest environment. As its frequency increases through time it also begins to appear at a low frequency in the second heavier environment and so on.

It is clear, therefore, that the condition concerning the implicational arrangement of categorical states in "wave" theory has been relaxed in the direction of the evidence provided by the variable rule theory.

1.6.3. On point (ii) in 1.6.1. above, concerning the view of implicational arrangement as necessarily depicting one-dimensional change in time it should be noted that such change is not always in evidence.

Fasold, 1973, considers three cases that are accounted for by the concept of "more - less" but not of that of "earlier - later".

The three cases are rule acceleration (i.e. a later, and therefore lighter, rule accelerates ahead of an older, and therefore heavier, rule), rule stagnation (where a rule becomes arrested at the variable stage) and rule inhibition (where a variable rule, instead of going to completion, begins to apply less and less frequently). Fasold suggests that in such cases, speakers do not observe earlier - later or inhibition - expansion relations among rules. What motivates the reweighting of a rule in their speech is the wish to sound like the members of the social group with which they identify (p.195). Still, Bailey, 1973, p.82ff. argues that the time-differentiated spreading wave is preserved in all three cases. For the first case, rule acceleration, he suggests that reweighting begins at the origin of a wave, i.e. at a point along the diagonal where the most recent change has occurred (p.69) and results in the rearrangement of the relevant columns (i.e. rules, in this case).

G. Sankoff, 1974, in her turn, argues that

> "... when a non-end point becomes the focus of a change, this tends to destroy scaling ... where the geography offers more than one dimension of change and influence, where the social stratification is not necessarily correlated with geography, where historical change may be reversible, there is no reason to expect one-dimensional scaling. Well known phenomena such as middle-class hypercorrection of conscious variables, multiple geographic foci of innovations, and age group specific usages are all incompatible with simple scaling."(p.43)

In this study we have often referred to earlier - later relations between forms contrasting with respect to {± K} distinctions : {+ K} forms are characteristic of earlier stages of the language, as opposed to {- K} forms in which innovations are incorporated. However, it will be remembered that in Ch.I,4. we suggested that, given a number of points in structure where either {+ K} or {- K} forms may appear, the data provides little evidence as to which form implies which. For instance, given the following set of twelve utterances, all meaning "my child, you have sinned",

$$\left\{\begin{matrix}\text{tékno(n)}\\ \text{pedí}\end{matrix}\right\}\ \text{mu},\quad \left\{\begin{matrix}\text{i}\\ \text{a}\end{matrix}\right\}+\ \text{mártis}\ +\left\{\begin{matrix}\text{e}\\ \text{a}\end{matrix}\right\}\ \text{s}.$$

there is no non-arbitrary way of setting up an implicational scale for them (apart from the "pure" {+ K} téknon mu, imártisas and the "pure" {- K} pedí mu, amártises) nor is it possible to predict that, in fact, téknon mu, imártises appears in the data[9].

Furthermore, given that {+ K} forms have been introduced in MGK over the past one hundred and fifty years largely as a result of deliberate language policy on the part of the state, as a consequence of which a child normally acquires most {+ K} (i.e. "older") forms at a later age through instruction at school, one cannot see how one-dimensional scaling can be constructed here. Add to that the

effects (inhibitory or favourable) of language ideology and the linearity we get is that of a bouncing ball.

Also, characteristic of such constructions as <u>téknon mu, imártises</u> is their rarity. Indeed, and contrary to De Camp's fear (1973,p.147), "the scaling by frequencies of a large number of individual speakers based on free-recorded speech behaviour would be an enormous task, involving many hours of listening to tapes and counting", only in the case of some types of variables. For variables such as the ones discussed above the problem is rarity of tokens, not abundance.

Of course, we could construct a questionnaire (De Camp, 1973,p.147; Ross, 1973), define the context of situation as that of, say, informal conversation among friends, and elicit acceptability judgements for the above potential utterances on a scale of 0 to 10; subsequently, we could ask the subjects to rank the utterances on the dimension Katharevousa-Demotiki (see Ch.I,4). However, such a method, though of great value, introduces uncontrolled variables, potentially affecting the judgement of subjects,such as linguistic ideology or "purism", the effect of written or auditory stimuli in the formal questionnaire situation, and the like.

It seems, therefore, that one-dimensional scaling in time is not

always possible or desirable.

1.6.4. Point (iii) in 1.6.1. above, namely, that implicational scales depict change progressing from heavier to lighter environments, parallels the "strong geometric ordering" postulate assumed in some variable rule studies (see 1.3.1. above). However, relative weighting of environments (rather than of individual features in an environment[10]) can be accounted for in variable rule analysis but does not constitute a necessary condition for the application of a variable rule (at least not in most studies). In constrast, weight relations are a necessary and sufficient condition for implicational analysis. It follows, therefore, that implicational scales are of limited applicability compared to variable rules since both models can account for cases characteristic of "strong geometric ordering" of environments but only the latter can account for variation where such ordering does not obtain.

Note, too, with respect to the question of independence of features, that according to Bailey, 1973,

> "... features are not independent. It is known that the values that promote or inhibit rule outputs may be quite different in lighter-weighted features according as the values of heavier-weighted features change." (p.81)

It will be remembered (see 1.3.1. above) that in variable rule analysis features are assumed independent (the null hypothesis) unless otherwise observed in the data.

1.6.5. Point (iv) in 1.6.1. above refers to the fact that in implicational analysis non-linguistic data is correlated to linguistic data but not vice versa. In De Camp's terms (1971)

> "The implicational analysis permits us to establish a speech continuum, a hierarchy of varieties based entirely on the co-occurrences of features, and also a hierarchy of features based entirely on the similarities and differences of varieties in their use of these features. Because non-linguistic data (age, sex, socio-economic status, etc.) have not been used in establishing these hierarchies, such data can now be correlated to the continuum without circularity of argument." (p.36)

It will be noticed that the assumed freedom from circularity for the "wave" model is in fact based on the inability of the model to incorporate explanations concerning the effect of non-linguistic factors on variation. For what matters in the model is the implications that the appearance of a linguistic form has for other forms. The effect of extra-linguistic factors on language (for instance, on the reweighting of environments; see 1.6.2. above) can be noted ex post facto only. In other words, the

correlation between extra-linguistic and linguistic features is one-directional only: the former are always correlated to the latter, but never vice versa.

In contrast, though in variable rule analysis it is often the case that, according to De Camp, 1971,"linguistic data is correlated to preconceived categories of age, income, education, etc., instead of correlating these non-linguistic variables to the linguistic data" (p.355), this is not a necessary condition for the application of the model as G. Sankoff, 1974,p.45ff., argues[11]. In other words, the model is flexible enough to allow the correlation between extra-linguistic and linguistic data in whichever direction provides more adequate explanations.

1.7. It seems, therefore, that the variable rule model is considerably more flexible than the "wave" model and can account for various types of variation that can only be forced into the "wave" model or explained away by it.

It should not escape our attention, however, that a theory that makes a strong claim is a "better" theory methodologically in that it is more testable compared to a more "flexible" model. In other words, flexibility does not always imply explanatory power

and variable rules are very flexible indeed.

Below we will make use of implicational scaling whenever appropriate in the analysis of the variable rules.

1.8. In the light of the above discussion, we can now set forth the conventions underlying the analysis in this chapter of the variability obtaining in our data.

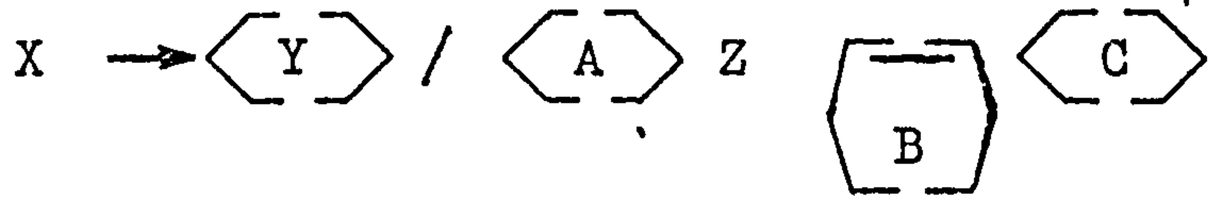
To begin with, the primary task will be the isolation of families of constraints bearing upon the application of a variable rule.

Secondly, we are interested in establishing relations in terms of weight (i.e. relative effect on the application of a rule) between constraints within the same family or across families. We assume the weak hypothesis that such relations (normally) obtain within a family of constraints but not necessarily across families. In the latter case the "strong geometric ordering" hypothesis will serve as a guide for the tracing of such ordering where it does exist but it will not be regarded as a necessary condition for relations across families.

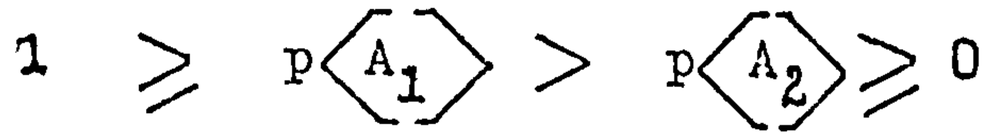
Thirdly, observed frequencies will be used as heuristic tools for

the establishment of families of constraints as well as of weight relations between constraints within and across families. However, the availability of statistically significant frequency data in the corpus will not be taken as a sufficient, not even as a necessary, condition for establishing such relations.[12]

From the notational point of view, a single symbol will represent a family of constraints in a variable rule, so that the hypothetical rule in 1.2. above will take the following shape



In a separate table following the rule the relative order of the members of each family of constraints will be given in terms of the probabilities they contribute to the rule, i.e.



etc.

The precise probabilities, however, will not be calculated as that would add little to the understanding of the way constraints are organized.

In the case of rules for which there are no sufficient data, I will

rely on my intuitions for the particular constraints proposed. This is legitimate, for the relevance of such constraints is subject to empirical assessment on the bases of more, and perhaps better, data.

The rules below are group rules, but, given the high degree of cohesion between the members of the group in terms of social characteristics, they can be regarded as valid for individual members too. Though based on the linguistic behaviour of only a few people in a single style (informal), the rules can be proposed for further assessment as rules valid for educated Athenians in general. Together with the categorical rules of Ch.IV they can serve as a basis for variationist studies of Greek with a wider social, geographic and temporal focus.

2. VARIATION IN SP_1

2.1. Rule 1 (Ch.IV,3.1.9.) reproduced below as (i)

(i) $\# \; [\; C \; X \;]_{PREF} \; + \; \left[\begin{matrix}\text{ROOT} \\ \{-K\}\end{matrix}\right] \longrightarrow \langle 1 \;\; 2 \;\; 4 \rangle$

1 2 3 4

states that the morpheme boundary between a prefix beginning with a consonant and the root is variably deleted in the presence of the value {- K}.

The application of rule (i) above causes the augment to appear (through the application of rule 2a; see Ch.IV, 3.1.9., also 3. in this chapter) at the beginning of the word, e.g.

e + pro + timi + s + a (= I preferred) rather than between the prefix and the root, e.g. pro + e + tim + i + s + a .

In its present form rule (i) above misses certain important generalizations concerning the effect of various constraints or features of the linguistic environment on its variable application. It will therefore be revised below accordingly.

2.1.1. The $\langle \{K\} \rangle$ variable [13] constraint

For the majority of compound verbs, rule (i) applies, if at all,

in the presence of the value {- K} but never of {+ K} . We can formulate the above observation by setting up a variable constraint ⟨{K}⟩ whose two variants, {+ K} and {- K} , contribute different probabilities to the rule (a probability p ranges over 0, i.e. 0% application, and 1, i.e. 100% application):

$$\langle\{K\}\rangle : \quad 0 = p\langle\{+\ K\}\rangle < p\langle\{-\ K\}\rangle < 1$$

i.e. the presence of the variant {+ K} blocks rule (i) from applying, since $p\langle\{+\ K\}\rangle = 0$, whereas the variant {- K} contributes a probability greater than zero, though (much) smaller than 1,

i.e. $0 < p\langle\{-\ K\}\rangle < 1$

2.1.2. The ⟨LC⟩ variable constraint

As we said above, for most compound verbs, $p\langle\{+\ K\}\rangle = 0$, i.e. in the presence of the value {+ K} the morpheme boundary between the prefix and the root is never deleted, as a result of which the augment appears between the prefix and the root and not in word-initial position.

However, for a small group of verbs, e.g. ENPODÍZO (= I hinder), PRÓKITE (= going to), PRONOÓ (= I provide), PROSTATÉVO (= I protest), PROFθANÓ (= I am in time for somebody or something), etc., (see Vostantzoglou, 1967, pp.473-4) rule (i) above applies categorically

in the presence of the constraint {+ K} e.g.

$$p\ \langle\{+\ K\}\rangle = 1$$

e.g. {-Pass,+Perf,+Past,-Pl,1,+K}: { e + en + pó͡diz + s + a → impó͡disa ; e + pro + nói + s + a → epronóisa ; e + pro + statev + s + a → eprostát-efsa

2/9/6 M.L. Ke <u>eprókito</u> na ipotimiθí, ke ópos ipotimíθike

(= and it was going to be devalued, and indeed it was devalued)

Other lexemes, e.g. PROTIMÓ (= I prefer), interact with the constraint {+ K} to cause rule (i) to apply variably

$$1 > p\ \langle\{+\ K\}\rangle > 0$$

e.g. {-Pass,+Perf,+Past,-Pl,1,+K}: { e + pro + tími + s + a → eprotímisa ; pro + e + tími + s + a → proetímisa

It appears, therefore, that the lexical class ⟨LC⟩ to which a verbal lexeme belongs interacts with the constraint {+ K} to affect the probability of application of rule (i). In other words, the family of constraints ⟨LC⟩ comprising the following members :

⟨LC - 1⟩ i.e. the majority of compound verbs

⟨LC - 2⟩ i.e. PROTIMÓ

⟨LC - 3⟩ i.e. ENPODÍZO, PRONOÓ, PROSTATÉVO, PROFΘÁNO, etc.

is independent of the constraint {- K} but not of {+ K}.

As is shown in the following scalar arrangement attached to rule (i) in the grammar:

	{+ K}	{- K}
⟨LC - 1⟩	p = 0	0<p<1
⟨LC - 2⟩	0<p<1	0<p<1
⟨LC - 3⟩	p = 1	0<p<1

the probabilities contributed to the application of rule (i) by {- K} remain unaffected by the presence of the various constraints of the ⟨LC⟩ family, though the ones contributed by {+ K} vary with the ⟨LC⟩ variant present, i.e. ⟨LC - 1⟩ : zero application, ⟨LC - 2⟩ : variable application, and ⟨LC - 3⟩ : categorical application.

2.1.3. The ⟨SYL⟩ variable constraint

Rule (i) above reads that for the morpheme boundary between prefix and stem to be deleted in the presence of the feature {- K} the prefix must begin with a consonant. In more general terms, we

can set up a variable constraint ⟨SYL⟩ , a mnemonic for prefix-initial [± syllabic], with two variants, ⟨C⟩ i.e. a prefix-initial consonant, and ⟨V⟩ i.e. a prefix-initial vowel. Furthermore we can show the relation between the members of ⟨{K}⟩ and those of ⟨SYL⟩ in terms of probabilities contributed to the application of rule (i) to be as follows:

	{+ K}	{- K}
⟨C⟩	$0 \leqslant p \leqslant 1$	$0 < p < 1$
⟨V⟩	$0 \leqslant p \leqslant 1$	$p = 0$

i.e. {+ K} remains unaffected by the presence of the variants of ⟨SYL⟩ ; on the other hand, {- K} interacts with ⟨C⟩ to cause the rule to apply variably, and with ⟨V⟩ to block the rule from applying.

For certain problems concerning the motivation for the inclusion of the constraints ⟨SYL⟩ in rule (i) see 2.2.4. below.

2.1.4. The above observations concerning the interdependence of {+ K} and ⟨LC⟩ on the one hand (see 2.1.2. above), and of {- K} and ⟨SYL⟩ on the other (see 2.1.3. above) serve as counter-evidence to the independence of constraints hypothesis (see 1.3.1. above).

In this section (section 2.1.) we have mentioned two cases of interdependence between linguistic constraints, i.e. ⟨{K}⟩, ⟨LC⟩ and ⟨SYL⟩ with respect to rule (i), though, because of the low probability of application of the rule[14] we will assume only tentative value for our observations.

Rule (i) can now be given the following form

Rule 58

#	$PREF_o$	+	ROOT	→	⟨1	2	4⟩
1	2		3		4		

with the variant constraints of the families ⟨{K}⟩, ⟨LC⟩ and ⟨SYL⟩ interacting to affect its probability of application as follows:

	{+ K}	{- K}	
⟨LC - 1⟩	p = 0	0<p<1	⟨C⟩
⟨LC - 2⟩	0<p<1		
⟨LC - 3⟩	p = 1	p = 0	⟨V⟩

where (apart from the familiar symbols {+ K} and {- K}):

⟨LC - 1⟩ : most compound verbs

⟨LC - 2⟩ : PROTIMÓ

⟨LC - 3⟩ : ENTOPÍZO, PRONOÓ, PROSTATÉVO, PROFθÁNO, etc.

⟨C⟩ : prefix-initial consonant

⟨V⟩ : prefix-initial vowel

2.2. Let us turn now to the variable first part of rule 2 in Ch.IV, 3.1.9., repeated below as rule (ii) (for simplicity we will take the output of the rule to be e rather than $\begin{bmatrix} V \\ +front \end{bmatrix}$ i.e. e or i)

(ii) {+ Past} → e / $PREF_o$ —— ROOT / ⟨{- K}⟩

According to (ii) above, in the presence of the grammatical value {+ Past}, an augment e appears between a prefix, if there is one, and a verbal root, "optionally" in the case of the value {- K} and categorically otherwise, i.e. in the presence of the value {+ K}.

Three families of constraints bear upon the likelihood of appearance of an unstressed augment in the structure of a verb form: the presence or absence of certain inflectional formatives, the presence or absence of a derivational prefix, and a vocalic or

consonantal following environment[15]. Such constraints affect the appearance of an unstressed augment (but see 2.2.5.a. below)

2.2.1. The effect of different types of inflectional formatives on the probability of appearance of an augment

(a): Formatives appearing in the presence of the value {+ K} as determined by the rules in Ch.IV above, imply, in terms of the "wave" model, the categorical presence of an augment, e.g.

2/9/6 M.L. ke eprókito na ipotimiθí ke ópos ipotimíθike

(= and (the dollar) was going to be devalued as indeed it was devalued);

where the {+ K} F_6 formative o appears.

1/22/2 V.L. meta apesírθisan?

(= did they retire to bed after [he had kissed him]?)

cf. {- K} aposírθikan

3/3/4 S.M. o plapútas ton ipoδéxtike, étsi? kj ótan ton ipeδéxθi ... árxise kjéleye to páter imón

(= Plaputas received [King Otto], right? and when he received him ... he started delivering the Lord's Prayer [again and again, because he was uneducated and could not deliver a formal speech])

cf. {- K} ipoδéxtike, which is, in fact, produced

by the same speaker in the same utterance.

1/60/15 E.C. ... ke ípa ... ke vévea morí θa me léi,opóte esí eksanéstis, e?

(... and I said ... of course [my husband] will call me "mori" [a rude appellative originally meaning "silly"], whereupon you were furious, weren't you?)

where the lexeme EKSANÍSTAME takes only {+ K}

formatives, i.e. -is,instead of {- K} -ikes.

3/17/5 S.K. i skili edéθisan

(= the dogs have been fastened!)

cf. {-K} deθíkane

(b): {- K} formatives imply the categorical absence of an augment.

1/22/8 V.L. i parástasi dimiuryíθike me filjá

(= the theatrical performance was created with the help of kisses)

cf. {+ K} edimiuryíθi

2/20/7 J.L. alá de mu·es, esí ótan ísuna spudastís endjaferósuna?

eyó prosopiká den endjaferómuna

(but tell me, when you were a student did you show any interest [in your studies]? Personally, I wasn't interested)

cf. {+ K} endjeféreso, endjeferómin

(c): Formatives neutral with respect to {± K} distinctions, referred to henceforth as the set of constraints ⟨N⟩, favour a small measure of augments (0.19)(see also examples in 2.2.5.a):

2/6/20 J.L. aftós o típos íne ekseretiká petiximénos típos, ðiladí o jánis ... pu <u>ayórase</u> metaxirizméno, énas fílos mu, apó amerikáno, to xi tóra tría xrónja

(= this model is an extremely successful model, that is Janis ... who <u>bought</u> a second hand one, a friend of mine, from an American, has had it now for three years)

c.f. {+ K} <u>iyórase</u>

1/19/1 R. ke telikà <u>katálikse</u> na mu pi, akús? e! ... ópos ke naxi se pernáo tésera péde xrónja

(= and finally [little Dimitris] <u>told me in conclusion</u>, how about that, e, anyway, I am your elder by four or five years)

c.f. {+ K} <u>katélikse</u>

(d): A very small percentage of augments (0.05) is favoured by the presence of certain inflectional formatives which have not been explicitly recognized in the rule system of Ch.IV and which will be referred to, for mnemonic purposes, as "quasi-neutral" ⟨Q-N⟩. Notwithstanding the scarcity of evidence in the corpus we could

attempt to define, very tentatively, the formatives in question as follows:

Certain combinations of grammatical values can be matched with a single string of formatives (excluding, for the time being, augments), apart from a certain point in structure where two formatives may alternate in correlation with {± K} distinctions. If the two contrastive formatives are vowels that differ minimally, i.e. by a single phonetic feature, there may not be sufficient perceptual cues for the strict observance of restrictions concerning the co-occurrence of {+ K} formatives on the one hand and {- K} formatives on the other. As a result, the {- K} formative may sometimes co-occur with a {+ K} unstressed augment. Thus, in the following extract from our data

2/16/26 J.L.: téknon mu, imártises

(= my child, you have sinned)

imártises (e + amart + i + s + e + s) occurs instead of the expected {+ K} form imártisas or the "correct" {- K} form amártises. In other words, {- K} F_6 e co-occurs with a "temporal" augment (and with the {+ K} lexical item téknon (= child) as opposed to {- K} pedí), whereas elsewhere in our data it consistently coincides with the absence of an augment.

2/6/16 M.L. prospaθí na se písi óti to <u>ayórases</u> ftinά yjaftó sta léi tóra aftά

(= he is trying to persuade you that you <u>bought</u> it cheaply, that's why he is now telling you these things)

c.f. {+ K} <u>iyórasas</u>

Other formatives qualifying for ⟨Q-N⟩ status might be F_6 <u>a</u> which contrasts minimally with F_6 <u>e</u> in the following forms:

$$\{-\text{Pass},-\text{Perf},+\text{Past},+\text{Pl},2\} \quad \begin{matrix}\{+K\}\\ \{-K\}\end{matrix}\begin{bmatrix} e \\ (e)\end{bmatrix} \text{pάv} \begin{bmatrix} e \\ a\end{bmatrix} \text{te}$$

and F_{10} <u>u</u> contrasting with F_{10} <u>i</u> in the forms

$$\{+\text{Pass},-\text{Perf},+\text{Past},-\text{Pl},1\} \quad \begin{matrix}\{+K\}\\ \{-K\}\end{matrix}\begin{bmatrix} e \\ (e)\end{bmatrix} \text{pavóm} \begin{bmatrix} i \\ u\end{bmatrix} \text{n}$$

As we said above, the evidence from our data is too inconclusive to allow a thorough statement concerning such formatives. (For instance, can consonants be ⟨Q-N⟩ formatives, or can more than one structural place harbour ⟨Q-N⟩ formatives in a single verb form?) Consequently, no attempt at formalization of the above tentative definition will be made here other than the incorporation of the symbol ⟨Q-N⟩ as a variable constraint in the rule under

consideration (see below), where ⟨Q-N⟩ stand for such {- K} formatives in the examples above as F_6 e in imartises, F_6 a in pávate and F_{10} u in pavómun (but see next paragraph). It should be mentioned, however, that an adequate formulation, rather than simple listing, concerning ⟨Q-N⟩ formatives would contain explicit recognition of their phonetic motivation and their syntagmatic and paradigmatic conditioning, i.e. qua vowels, they should be minimally different from their {+ K} alternants, whereas qua formatives, they should be the only ones in the structure of {- K} verb forms (before the application of the augment rules) to distinguish them from their {+ K} alternants.

A final tentative suggestion concerning ⟨Q-N⟩ formatives involves a principle of classification of phonological systems and rules as more or less "natural", namely, that of maximum differentiation. According to Schane, 1972:

> "In maximum differentiation there is a tendency for segments to be kept perceptually as far apart from one another as possible. Thus, given a three-vowel system, i a u is more natural than, say, e a o. In the first case high vowels are opposed to the low one; in the second case mid vowels are opposed to the low one. The desirability of i a u is explained by maximum differentiation, as this is the only three-vowel system where the extreme corners of the vowel triangle are represented. Similarly, if there are two high vowels in a system they will be i and u, rather than, say, i and ü, since the former are opposed in two features, backness and rounding, whereas the latter are less differentiated, being opposed only in one feature, rounding. (p.210)

Contrarywise, the appearance of a syllabic augment in the presence of a {- K} formative, say F_{10} u, which is maximally opposed, in Schane's terms, to its {+ K} alternant, i, i.e. epavómun instead of either of the "expected" forms {+ K} epavómin or {- K} pavómun, would hardly be felt to function metaphorically, i.e. to mark a stylistic shift to the {+ K} level, while a "temporal" augment, (i.e. a stylistically "powerful" {+ K} formative) in the same context would probably be interpreted as a jocular experimentation with language, i.e. having fun matching clearly incongruous formatives in the same syntagm, rather than as characteristic of a more general linguistic tendency (though games involving the combination of incompatible formatives via the breaking of co-occurrence restrictions are not uncommon).

As we have already indicated in the discussion above, each of the four linguistic constraints under consideration affects the likelihood of the appearance of an unstressed augment to a different extent, i.e. the constraints are ordered in terms of relative weight. In Table Six below, for each of the four constraints is given the number of occurrence of the augment over the total number of cases where it might have appeared. The same number is also given in parenthesis as a percentage.

TABLE SIX: The effect of four categories of inflectional formatives on the relative frequency of occurrence of the augment.

{+ K}	⟨ N ⟩	⟨ Q-N ⟩	{-K}
$\frac{4}{4}$	$\frac{4}{21}$	$\frac{1}{18}$	$\frac{0}{219}$
(1)	(0.19)	(0.05)	(0)

To modify rule (ii) above now so as to include the information provided by Table Six we could replace the constraint {- K} by the symbol ⟨ INFF ⟩, standing for the family of constraints which the totality of inflectional formatives constitute:

(iii) {+Past} ⟶ e / $PREF_o$ —— ROOT ⟨ INFF ⟩

where ⟨ INFF ⟩ : {+ K}, ⟨ N ⟩, ⟨ Q-N ⟩ and {- K} inflectional formatives, and then specify separately the relative effect that the four subcategories of variants of the variable ⟨ INFF ⟩ have on the frequency of application of the rule, i.e. on the dependent variable whose values range between 1 (100% application) and 0 (zero application):

⟨ INFF ⟩: 1 = p⟨ {+ K} ⟩ > p⟨ N ⟩ > p⟨ Q-N ⟩ > p⟨ {- K} ⟩ = 0

or, to go back to our remarks on linguistic games involving the occasional breaking of even the strictest restrictions concerning the co-occurrence of {+ K} formatives on the one hand and of {- K} on the other:

$\langle$INFF$\rangle$: $1 \geq p \langle \{+ K\} \rangle > p \langle N \rangle > p \langle Q\text{-}N \rangle > p \langle \{- K\} \rangle \geq 0$

where {+ K} is equal to or less than 1, and {- K} equal to or greater than 0, i.e. the presence of {+ K} inflectional formatives causes the augment rule to apply almost categorically whereas in the presence of {- K} formatives augments almost never appear; the effect of $\langle$ N $\rangle$ formatives is less than that of {+ K} and greater than that of $\langle$ Q-N $\rangle$ formatives, the latter, in their turn, favouring the application of the rule to a greater extent than {- K} formatives.

2.2.2. <u>The effect of the presence or absence of a derivational prefix on the frequency of appearance of an augment</u>

The data in our possession suggests that the appearance of an augment is favoured at a frequency level of 0.22 by the presence of certain inflectional prefixes before the verb root, e.g.

3/4/1 S.M. ... stalméni ap tus túrkus, alá metá <u>epanestátisan</u>

kj aftí

([the Albanians] were sent by the Turks, but then they too <u>revolted</u>)

c.f. {- K} <u>epanastátisan</u>

It will be remembered from rule 2c in Ch.IV, 3.1.9. above, that the augment appears categorically, in the case of disyllabic verb

forms, to support the proparoxytonic stress associated with the grammatical value {+ Past} , e.g. pava ⟶ epava ⟶ ėpava. In the case of compound verb forms, however, there is never any shortage of syllabics to support the proparoxytonic stress in the presence of the value {+ Past}. Therefore, the augment is variable at all times, i.e. irrespective of the number of syllabics between the place where the augment potentially appears and the end of the verb form.

Table Seven below shows the effect of two environments, namely, # PREF —— ROOT (compound stems) and # —— ROOT (simple stems) on the number of times an augment appears in our data. For each environment the number of augments is given over the number of cases in which an augment might have appeared, the equivalent percentage being included in parenthesis.

TABLE SEVEN: Effect of compound or single stems on augment frequency levels

# PREF —— ROOT	# —— ROOT
$\frac{6}{27}$ (0.22)	$\frac{3}{232}$ (0.012)

Rule (iii) above will be recast now to reflect the findings in Table Seven. In it, the variable constraint ⟨PREF⟩ will comprise the variants ⟨PREF$_1$⟩ i.e. the presence of one or more prefixes in the stem, and ⟨PREF^0⟩ i.e. absence of a prefix from the stem (simple stem):

(iv) {+Past} → e / # ⟨PREF⟩ — ROOT ⟨INFF⟩

where ⟨PREF⟩: $1 \geqslant p$ ⟨PREF$_1$⟩ $> p$ ⟨PREF^0⟩ $\geqslant 0$

2.2.3. <u>The effect of a following vowel or consonant on the augment frequency level</u>

Our data suggests that the augment is, roughly, as likely to appear before a stem-, or, in the case of compound verbs, a root-initial consonant, as before a vowel, as Table Eight below shows:

<u>TABLE EIGHT:</u> <u>The effect of a preconsonantal or prevocalic environment on the augment frequency levels</u>

# PREF$_o$ — [C X]$_{ROOT}$	# PREF$_o$ — [V X]$_{ROOT}$
$\frac{8}{234}$ (0.034)	$\frac{1}{25}$ (0.04)

This being the case, no distinction between a preconsonantal and a prevocalic environment should be made in rule (iv) above. The

number of augments in the data, however, is probably too small to reliably allow us to isolate all the relevant constraints. At this point, it would be useful to draw a distinction between the quantitative weight of a constraint, i.e. the frequency level it contributes to a rule relative to those contributed by other constraints, and its qualitative weight, i.e. its relative power for the expression of such metaphorical or stylistic functions as irony, pomposity, humour, anger, formality and the like. What we are suggesting here, then, is that the quantitative weight of a constraint of a variable rule is inversely proportionate to its qualitative weight or, in more common sense terms, the more "unexpected" the turn of phrase, the more effective it can be stylistically whatever the stylistic effect sought might be. Now, it should be clarified that the quantification of stylistic weight is not easy, or even necessarily possible (c.f. Labov, 1972 b, p.240). If, however, our distinction above were assumed correct, Table Seven could receive a (tentative) interpretation other than indicated by the frequency levels of the two environments: indeed, it seems that an augment which appears before a vowel, (the two coalescing to a single, different overt vowel, or "temporal" augment, e.g. e + amártisa → imártisa) can be used for stylistic purposes more effectively than an augment appearing

before a consonant.

Thus, in the three extracts from our data below, imártises (e + amártises) is "funny" whereas épira and epíye are not. Note that the same speaker who uses épira also uses the alternant píra (no augment) in practically the same breath without any appreciably different stylistic effect.

2/16/16ff M.L. re sí, o sokrátis θa yíni[b̥]a[b̥]ás [devoiced plosives] aftó to mína málon

(= you know, Socratis is going to be a father this month, most probably)

J.L. ne? (= is that so?)

T. pjos? (= who?)

M.L. P.D. o sokrátis (= Socratis)

T. a! babas! (= ah! a father!)

M.L. óxi, mitéra (= no, a mother!)

P.D. papás akústike, étsi?

(= it sounded like "a priest", didn't it?)

T. papás! (= a priest!)

J.L. [laughs]

P.D. prépi na prosékis tus íxus su,re.

(= you must be careful with your sounds, you)

J.L. Kírie eléison

(= [chanting] Kyrie eleison)

P.D. fantázese to sokráti na ðiðáski me kalimáfki

pós ðjáolo to léne?

(= can you imagine Socratis preaching wearing a kalimafki hat, how the devil do they call it?)

J.L. téknon mu, imártises! ðen ayripnúses enantíon

tu pirazmú!

(= my child you have sinned! You were not vigilant against temptation!)

2/5/18ff M.L. ðe mu les, yráftikes s aftó to klab, eki péra pu

pulái tis ténies ke tus ðískus

(= by the way, have you joined this club, the one that sells tapes and records?)

T. xa! θes na pas na psonísis?

(= hm! you want to go and shop?)

P.D. kséparaðjástika, aftó to mína píra kenúryjes ténies

(= I am broke. This month I bought new tapes)

J.L. íne yraménos sto mosxáto.

(= he has joined the Moschato branch)

P.D. épira ðjó ténies ... tis pira timí mélus , as púme,

ala íne akrivá, re, ekatón evðominta ðraxmés i

teniúles.

(= I bought two tapes ... I bought them at a member's price, you know, but they are expensive, damn it, a hundred and seventy drachmas for the crummy little tapes).

3/16/8· A. oréa stafílja ... eláte, pú íste, pjós ítane, pjós epíye mésa
(= beautiful grapes [for you]! Come on, where are you, who was it, who went inside?)

Since, therefore, an augment appearing before a vowel is felt to be stylistically more powerful than one appearing before a consonant, we may assume that this is so because the former is less expected or frequent than the latter. Consequently, rule (iv) will now be revised to account for the variable constraint ⟨SYL⟩ (see 2.1.3. above) comprising the variants ⟨C⟩ and ⟨V⟩.

Rule 59

$$\{+\text{Past}\} \longrightarrow e / \# \langle \text{PREF} \rangle \; \_\_ \; \Big[\langle \text{SYL} \rangle X \Big]_{\text{ROOT}} \; \langle \text{INFF} \rangle$$

where $\langle \text{PREF} \rangle$: $1 \geqslant p\langle \text{PREF}_1 \rangle > p\langle \text{PREF}^{0} \rangle \geqslant 0$

$\langle \text{SYL} \rangle$: $1 \geqslant p\langle \text{C} \rangle > p\langle \text{V} \rangle \geqslant 0$

$\langle \text{INFF} \rangle$: $1 \geqslant p\langle \{+\text{K}\} \rangle > p\langle \text{N} \rangle > p\langle \text{Q-N} \rangle > p\langle \{-\text{K}\} \rangle \geqslant 0$

2.2.4. It will be remembered from the discussion in 2.1.2. above that the morpheme boundary between a prefix beginning with a vowel and a root is always deleted in the limited case of ⟨LC - 3⟩ verbs if the value {+ K} is present, e.g. en + podíz + o → en + podízo →

<u>empodízo</u> (= I hinder). As a result, rule 59 above does not normally apply to place an augment before {+ Past} forms of most compound verbs whose stems begin with a vowel. Since, however, the effect of a following consonantal or vocalic environment on the appearance of an augment (before a simple stem or the root of a compound verb) has also been discussed in section 2.1.3. above, it would appear that we are missing a generalization here. Indeed, the effect of a following vocalic or consonantal segment on the probability of application of an augment is accounted for by two rules: firstly, by rule 59, the main augment rule, as it were; secondly, and only indirectly, by rule 58, which, as we mentioned in note 14, is basically concerned with the degree of cohesion between a prefix and a root and only incidentally related to the augment rule.

The obvious way to correct the above unsatisfactory formulation would be, first, to disengage rule 58 above from the family of constraints ⟨SYL⟩ i.e. to ignore the effect of the prefix-initial consonant or vowel on the optional deletion of the morpheme boundary between prefix and root, and, second, to account, in rule 59 above, for the fact that, in the case of compound verbs where the morpheme boundary between prefix and root has been deleted by rule 58, the

augment never appears before a prefix-initial vowel (unless the lexeme belongs to the ⟨LC - 3⟩ group, e.g. ENPODÍZO; see 2.1.2. above). Now, to revise rule 59 above so that it reads as indicated in the preceding sentence would necessitate a global rule (see Ch.IV, 4.2.4., n.15) i.e. we would have to include in its structural description the requirement that the rule does not apply on {+ Past} verb forms with word-initial vowels that have undergone rule 58, (i.e. compound verb forms on which rule 58 has already applied to delete the morpheme boundary between prefix and root). In the present state of the art, however, there are no generally acceptable formal means for making the application of a generative rule conditional upon the derivational history of a string, i.e. if a string satisfies the input conditions of a rule, the rule applies, irrespective of what other rules have applied to give the string its present structure. We will therefore conclude that rules 58 and 59 cannot be profitably revised.

2.2.5. A number of additional constraints appear to our intuition to affect the application of the augment rule. However, since no significant frequencies can be found in the data in support of our intuition, we will simply suggest the existence of such constraints below (i.e. we will not include them in the augment rule) for future testing against additional data.

(a): The frequency of appearance of a (stressed or unstressed) augment seems to be affected by the number of syllables in the following environment within a verb form: two syllables (in cases where the augment is not needed to support the proparoxytonic stress associated with the value {+ Past} i.e. in compound verbs and in such "irregular" simple verbs as allow a paroxytonic stress in some {+ Past} forms; see examples below) or three syllables seem to favour the appearance of the augment, e.g.

1/68/10 V.L. eyó apoxórisa ... ne, paréðosa ti skitáli

(= I have retired [from participation in the chat] ... yes, I have handed over the baton [with reference to a relay race])

cf. apo + e + xorisa → apexórisa (with augment)
para + ðosa → paráðosa (without augment)

3/14/18 S.M. katá tis ðóðeka i óra skái to lástixo tu taksí

pu mas metéfere ke ksenixtísame yja ðen íxe yrílo.

(= round about midnight we had a flat tyre in the taxi that was carrying us [over a mountain] and we spent the night there, for [the taxi driver] had no jack)

cf. metáfere

On the other hand, four or more syllables seem to inhibit the appearance of an augment, e.g.

1/58/13 E.C. ðiladí eyó pu to ðimiúryisa ...

(= so I who have created it ...)

cf. eðimiúryisa

1/15/16 R. e, ti, den éxo tipota na pó, teliosa, ánde.

(= what now? I have nothing to say, I have finished, that's it)

cf. eteliosa

No examples of an augment appearing in the above context (four or more syllables) are found in the data.

(b): In the case of compound verbs, a prefix-final vowel seems to favour the appearance of an augment (see examples in (a) above) whereas a prefix-final consonant inhibits it; in fact, no examples of an augment appearing in the latter context occur in our conversations, e.g.

1/52/8 E.C. de se proskalésame sti sizítisi

(= we did not invite you to the conversation)

cf. pros + e + kalesame → prosekalésame (with augment)

(c): Finally, the appearance of an augment is affected according to whether the particular lexeme involved can be regarded as "learned" ({+learned}) or not ({-learned}). Loosely, for a rigid definition would be untenable in the absence of exhaustive description, {+learned} lexemes either survive in MGK from AG relatively intact phonologically and semantically or are recent

additions to the language made up of roots and derivational affixes drawn from A.G. In contrast, {-learned} lexemes are either relatively recent borrowings from other languages (Italian, Turkish, etc.) or, if descending from AG, they have changed over the centuries to a considerable extent phonologically and/or semantically. The appearance of an augment is favoured by {+learned} and disfavoured by {-learned} lexemes. In the examples below verb forms of the two groups of lexemes appear.

{+learned}

2/9/6 M.L. ... ke eprókito na ipotimiθí
(= and it was going to be devalued)

1/60/15 E.C. esí eksanéstis, e!
(= you were furious, weren't you?)

{-learned}

2/13/10 P.D. pu ísaste tósi óra ... léo kj eyó, metanjósane ...
ti yínete.
(= where have you been all this time ... I thought, have they changed their mind, what's going on)

cf. {-learned} METANJÓNO and {+learned} METANOÓ

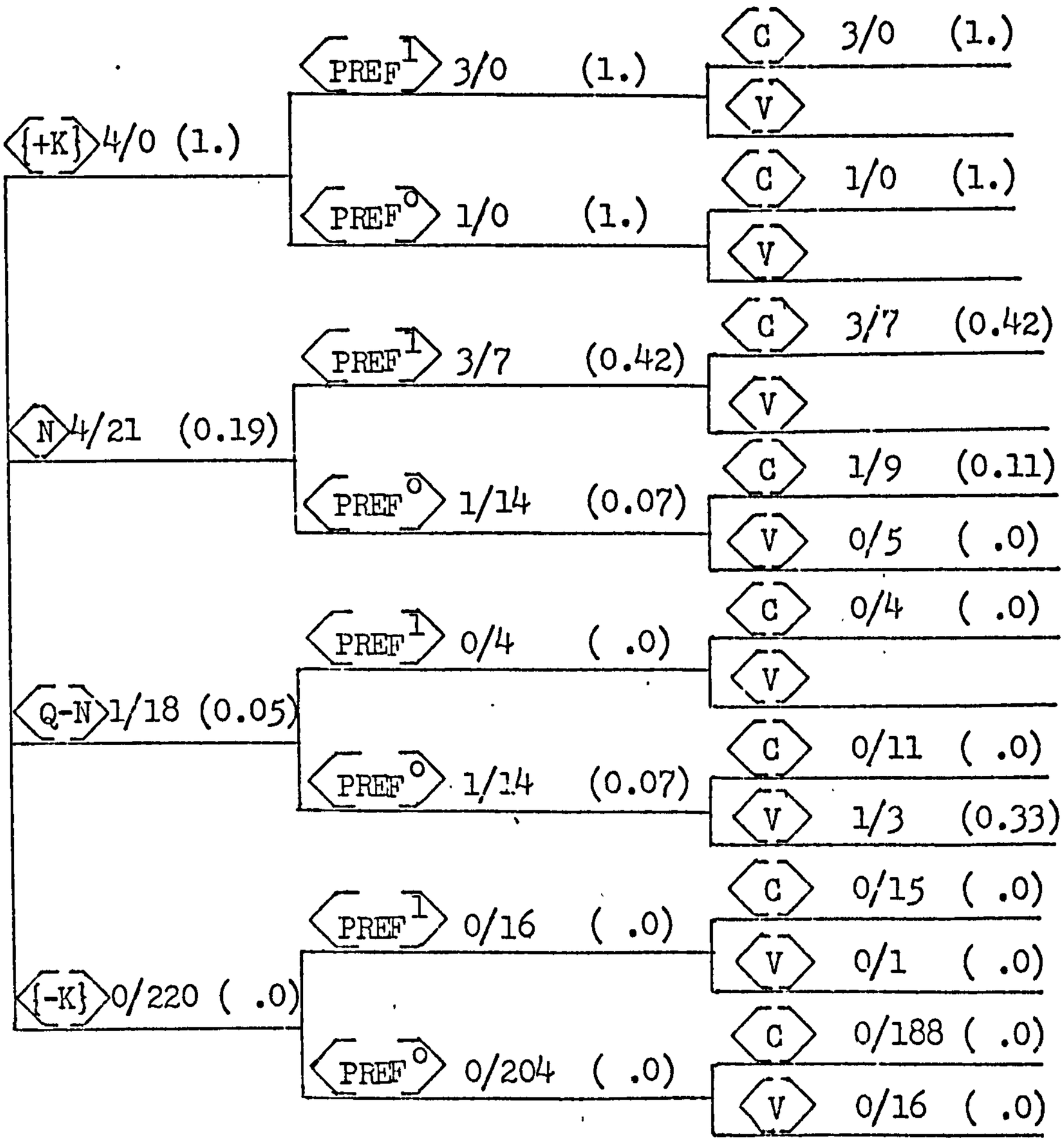
2/13/19 J.L. eyó ðen ímuna aptin arxí yjatí to xa ksexási, ki
íðes, kaθómuna spíti ke to kolováraya ke ðen píya
(= I wasn't there from the beginning because I had forgotten about it, and you saw me, I was at home arse-slapping [i.e. pottering about] and I didn't go)

2/13/18 M.L. ke đe tus <u>ksexézate</u>? áma ítan điladí tétjo θrásos, tóso polí, as púme.

(= and why didn't you <u>shit on</u> them [i.e. why didn't you give them a piece of your mind]? if it was a case of such cheek, that much, you see).

Notice that in the case of such {+learned} lexemes as PRÓKIME and EKSANÍSTAME in the examples above the presence of an augment is categorical rather than simply favoured.

2.2.6. It remains now to find out if weight relationships can be established between constraints across the three families influencing rule 59. For some combinations of constraints (i.e. environments) the data is, unfortunately, scant or non-existent. However, the following horizontal tree (see 1.6.4.,n.10 above) can be constructed:



Apart from a few discrepancies due to small numbers or lack of data, the general tendency is for observed frequencies to diminish as we move from top to bottom. The heaviest constraints in each family can be arranged in the following relative order of weight.

$$1 \geqslant p\langle +K \rangle > p\langle \text{PREF}^1 \rangle > p\langle C \rangle \geqslant 0$$

Again, due to lack of sufficient data it cannot be conclusively shown whether the above hierarchical ordering is geometric or not.

3. VARIATION IN SP_3

Rules 9b" and 10 in Ch.IV, 3.3.6. above, state, among other things, that in the presence of the cluster {+ Pass, - Perf, - K} {STv_2} verbs (e.g. DIMIURGÓ) have either F_3 e or i in stem-final position, e.g.

{+Pass,-Perf,STv_2,-K}	{-Past,+Pl}	{1}	dimiury[e,i]ómaste → dimiury[ú,jó]maste
		{2}	dimiury[e,i]ósaste → dimiury[ú,jó]saste
	{+Past,1}	{-Pl}	dimiury[e,i]ómuna → dimiury[ú,jó]muna
		{+Pl}	dimiury[e,i]óntusan → dimiury[ú,jó]ntusan

In our conversations we find that e is more frequently encountered than i, though, due to the small number of {+ Pass, - Perf, STv_2, - K} forms, the evidence is to be considered as inconclusive, e.g.

1/91/1 V.L. rúbi, pes ta dikà su, pu sinenoúmaste

(= Rubi, tell me your news, seeing that you and I can communicate [i.e. have a lot in common])

where sineno + e + ómaste → sinenoúmaste

2/13/15 J.L. ðiladí sinenoúntusan ke milúsan me ... me mjá tétja ... θrasítita

(= that is, they communicated [i.e. they discussed the examination questions] and talked with ... with such ... cheek!)

where sineno + e + óntusan → sinenoúntusan

1/36/6 P.D. rúbi, ótan arxisis na eksomoloyjése ... e?

(= Rubi, when you are about to [want to] confess [your sins] ... OK? [i.e. come to me])

where eksomoloy + í + ese → eksomoloyjése

It should be noted that the appearance of F_3 i in the structure of $\{STv_2\}$ verbs in the presence of the cluster {+ Pass, - Perf, - K} indicates in fact that $\{STv_2\}$ verbs are currently beginning to fall under the analogical pull of the structural paradigm of the $\{STv_1\}$ verbs: within the {+ Pass, - Perf} section of the verb system $\{STv_1\}$ verbs have F_3 a or i in the presence of the values, respectively, {+ K} and {- K}, whereas $\{STv_2\}$ verbs have e irrespective of $\{\pm K\}$ distinctions or i in the presence of the value {- K}, e.g.

	{+Pass, -Perf, +Pl, 1}	
	$\{STv_1\}$	$\{STv_2\}$
{+K}	ayap + a + ómeθa → ayapómeθa	ðimiury + e + ómeθa → ðimiuryúmeθa
{-K}	ayap + i + ómaste → ayapjómaste	ðimiury + [e, i] + ómaste → ðimiury[ú, jó]maste

During the restructuring process, which we will refer to, from now on, with the mnemonic STv - UP, i.e. the {STv} unification process, the class of $\{STv_2\}$ verbs does not behave uniformly with the result that a certain degree of more or less clear subclassification is in evidence: for one, not all $\{STv_2\}$ verbs accept F_3 i in their structure at the same degree of readiness; cf. arnúme/arnjéme (= I refuse), sinkinúme/sinkinjéme (= I am moved), sinenoúme/sinenojéme (= I communicate), eksomoloyúme/eksomoloyjéme (= I confess), but asxolúme/(?)asxoljéme (= I occupy myself), θeorúme/*θeorjéme (= I am considered), enoúme/*enojéme (= I am meant), mimúme/*mimjéme (= I imitate) etc. We will refer to $\{STv_2\}$ verbs not yet reached by the restructuring process in question as $\{STv_{2a}\}$ verbs (e.g. ΘΕΟΡΌ, ΕΝΟΌ, ΜΙΜΎΜΕ, etc.).

Most $\{STv_2\}$ verbs (e.g. DIMIURGÓ, SINKINÓ, EKSOMOLOGÓ, etc.), which we will henceforth refer to as $\{STv_{2b}\}$ verbs, submit, as we said above, to the paradigmatic pull of the $\{STv_1\}$ group, in that the F_3 formative i (characteristic of $\{STv_1\}$ verbs) sometimes appears in their structure in the limited case of the {+ Pass, - Perf, - K} forms. Also, and this is not covered by rules 9b" and 10, F_3 a may, though not normally, appear in their structure instead of e in the presence of the cluster {- Pass, - Perf, - K}. The use

is characteristic of uneducated speech. In the examples below, K.is a cleaning lady at a hotel, jovially dismissing my townfolk "nice" talk:

(a) P.D. me sinxorite (= forgive me [i.e. sorry]!)

K. se sixorá̱o (= I forgive you!)

cf. standard sinxorṓ from "underlying" sinxoréo; notice too nx → x in K.'s speech.

(b) P.D. efxaristṓ (= thanks!)

K. ti fxaristás, kalé (= why do you thank me, dear!)

cf. standard efxaristís from "underlying" efxaristéis; notice too the elision of the unstressed word-initial vowel in K's speech: efxaristás → fxaristás.

Again, a small number of verbs, which we will here call $\{STv_{2c}\}$[16] e.g. KRATṓ (= I hold), PATṓ (= I step), SIZITṓ (= I talk), KTIPṓ (= I hit), etc., accept F_3 i much more readily than other $\{STv_2\}$ verbs in the presence of the cluster {+ Pass, - Perf, - K} : kratiete → kratjéte, patiete → patjéte, sizitiete → sizitjéte, xtipiete → xtipjéte, rather than kratéete → kratíte, patéete → patíte, sizitéete → sizitíte, xtipiete → xtipíte. Furthermore, the paradigmatic pull of $\{STv_1\}$ on $\{STv_{2c}\}$ verbs extends throughout the {- Perf, - K} section of the inflectional system, i.e. not only

in the presence of the {+ Pass, - Perf, - K} as is the case with {STv_{2b}} verbs, but also in the presence of the {- Pass, - Perf, - K} cluster, e.g.

1/26/15 E.C. ipoθéto oti éxete yefsθí ke <u>sizitáo</u> mazí sas

(= I assume that you have had a taste [of sex] and [that's why] I <u>talk</u> with you)

cf. <u>sizit + é + o</u> → <u>sizitó</u>

1/35/16ff
E.C. íne θriskeftikjá i yjayjá, e?

(= she is religious, your grandma, isn't she?)

R. poli! <u>kratái</u> sarakostés, prámata!

(= Very much! She <u>observes</u> Lent and things)

cf. <u>krat + é + i</u> → <u>kratí</u>

Finally, some verbs, e.g. POLÓ (= I sell), OMILÓ (= I speak), PERIPATÓ (= I walk), FILÓ (= I kiss), EKINÓ (= I set off) etc., behave in MGK either as {STv_2} verbs if the feature {+ K} is present, or as {STv_1} verbs in the presence of the feature {- K}. Their variable behaviour, however, is not limited to the inflectional formatives employed; in some of them the phonological shape of the stem may vary:

{STv$_2$, +K}	{STv$_1$, -K}
peripatéo ⟶ peripató	p{e/o}rpatáo
omiléo ⟶ omiló	miláo
ekinéo ⟶ ekinó	ksekináo
ipiretéo ⟶ ipireto	(i)peretáo
enoxléo ⟶ enoxló	(e)noxláo

In others, a considerable difference in meaning, quite distinct from such shades of metaphorical meaning as normally associated with {± K} distinctions, may be in evidence, e.g.

{STv$_2$}	{STv$_1$}
filéo ⟶ filó (= I love)	filáo (= I kiss)
kaléo ⟶ kaló (= I invite)	kaláo (= I challenge [in youngster's slang])
sinxoréo ⟶ sinxoró (= I forgive)	si xorádo (= I pray for somebody's soul)

Finally, both a phonological and a semantic change can be associated with the appearance of F_3 e (characteristic of {STv$_2$}) or F_3 a or i (characteristic of {STv$_1$}) in the structure of some, originally {STv$_2$} verbs, eg.

{STv$_2$}	{STv$_1$}
eksiyéome ⟶ eksiyúme (= I explain myself)	ksiyjéme (= I treat somebody)

It is perhaps more appropriate to regard such forms as peripató/perpatáo, filó/filáo, or eksiyúme/ksiyjéme as belonging not to "the same" lexeme but to different lexemes which form, in Setatos' terms, (1969a), doublets. In each doublet, an {STv_2} verb (e.g. PERIPATÓ, FILÓ, EKSIGÓ) contrasts with an {STv_1} "descendant", i.e. no longer a member of the {STv_2} group (PERPATÁO, FILÁO, KSIGÁO), the contrast often coinciding with semantic and/or phonological differences. Note, too, that the topic of conversation or the amount of formal education of the interlocutors is relevant here: informal topics and social groups with limited formal education favour the appearance of F_3 a or i instead of e in the structure of {STv_2} verbs. In other words, informality (stylistic dimension) and lack of formal education (social dimension), i.e. in general, language use at a remove from the conservative influence of the norms of formal education, encourages the unification of all {STv} subgroups under the structural model of {STv_1} verbs (AGAPÁO).

In conclusion, there is a tendency (STv - UP) among all subgroups of {STv} verbs to behave according to the model of the {STv_1} paradigm (AGAPÁO). The above tendency has some important correlates. To begin with, in the case of {STv_2} verbs, it is categorically blocked in the presence of the feature {+ K} (i.e. it is associated with the feature {- K}); secondly, originally {STv_2} verbs are

differentiated according to the frequency levels in their structure of such formatives characteristic of {STv_1} verbs as F_3 a or i (see also 4. below for the distribution of F_5 formatives y and us in the structure of {STv} verbs). Some of them ({STv_{2a}}) accept neither; most ({STv_{2b}}) occasionally accept i and, more rarely, a; others ({STv_{2c}}) accept both quite frequently; thirdly, the alternation between a or i on the one hand and e on the other, coincides for some, but not all, originally {STv_2} verbs with more or less considerable phonological and/or semantic differences in the stem, a process which results in lexical doublets, each made up of an {STv_2} verb and an {STv_1} "descendant"; fourthly, the structural change in question is more readily associated with informal situations and social groups that have not had much formal education; lastly, a paradox is in evidence here: the general unificatory process under consideration (Let all {STv} verbs behave like {STv_1} verbs) causes a considerable amount of diversification among {STv_2} verbs in that some of them in some situational contexts favour the process more than others; in other words the tendency for the merging of the two groups, {STv_1} and {STv_2}, into one, {STv}, causes, in fact, the differentiation of the {STv} group into four subgroups: {STv_1}, {STv_{2a}}, {STv_{2b}}, and {STv_{2c}}, a situation

which could be self-eliminatory (i.e. emerge for the sole purpose of facilitating the completion of STv - UP) or could become "stagnant" (i.e. stable). Such a process of short term lexical class diversification for the sake of long term unity is not uncommon in the course of linguistic change. As Labov, 1972b, observes, "There is now good evidence that the course of linguistic change involves the temporary dissolution of word classes" (p.246).

The above discussed dynamic patterns characteristic of the {STv} group of verbs are not grasped by the rules in Ch.IV,3.3.6. accounting for the distribution of F_3 formatives in the structure of {STv} verbs. To account for the effect of various grammatical and stylistic features on the process which draws all {STv} verbs into the structural paradigm of {STv_1} verbs (STv - UP), we will retain, first of all, rule 8 above, reproduced below for the convenience of the reader.

Rule 8

$$\{STv\} \longrightarrow \begin{bmatrix} V \\ -\ back \end{bmatrix} \ / \ X \ \text{——} \ ]_{STEM}$$

The rule states that all {STv} verbs have a [-back] vowel (i, e or a) in stem-final position, i.e. in SP_3, e.g. ayap + á + o, dimiury + í + s + o, dimiury + é + ome ⟶ dimiuryúme, ayap + í + eme

→ ayapjéme. Subsequently, rule 9b" above will be revised as rule 60 below on the basis of, among other things, a distinction within the {STv} group between $\{STv_1\}$ verbs on the one hand, and, on the other, $\{STv_2\}$ verbs, the latter being further subclassified into $\{STv_{2c}\}$ (KRATÓ, PATÓ, SIZITÓ, KTIPÓ, etc.) $\{STv_{2b}\}$ (DIMIURGÓ, SINKINÓ, EKSOMOLOGÓ, etc.) and $\{STv_{2a}\}$ (ΘEORÓ, ENOÓ, MIMÚME, etc.)

Rule 60

$$\begin{bmatrix} V \\ -back \end{bmatrix} \rightarrow \left[\begin{array}{l} [+low] \\ [-low \\ -high] \\ [\alpha\ low \\ -\alpha\ high] \\ [-low \\ -high] \\ [+high] \\ [\alpha\ low \\ -\alpha\ high] \\ [-low \\ -high] \end{array} / X\ -]_{STEM} / \left[\begin{array}{ll} \{STv_1 \\ STv_2, +K\}, -Pass, -Perf\} & (a') \\ & (a'') \\ \{STv_1, K\} \\ \{STv_2, +K\}, +Pass, -Perf\} & (b') \\ & (b'') \\ \{STv, +Perf\} & (c) \\ \{\langle STv_2 \rangle, -K, \langle \alpha Pass \rangle, -Perf\} & (d) \end{array} \right] \right.$$

where $\langle \{STv_2\} \rangle : 1 \geq p\langle \{STv_{2c}\} \rangle > p\langle \{STv_{2b}\} \rangle > p\langle \{STv_{2a}\} \rangle \geq 0$

and $\langle \{\overline{+}\ Pass\} \rangle : 1 \geq p\langle \{+Pass\} \rangle > p\langle \{-Pass\} \rangle \geq 0$

Rule 60 states that the [-back] vowel appearing in stem-final position in the structure of {STv} verbs is either [+low] (a) or $\begin{bmatrix}\text{-low}\\ \text{-high}\end{bmatrix}$ (e) or [+ high] (i) according to the "plus" or "minus" value of the features {Pass}, {Perf} , {K} present, also, according to the {STv} subgroup involved. The categorical sections of the rule are clear enough: the precise phonological nature of the [-back] stem-final vowel correlates with clusters of grammatical values as follows:

(i) [+low] (a): {STv_1,-Pass,-Perf} e.g. ayap + á + o (see (a'))

{STv_1,+K,+Pass,-Perf} e.g. ayap + á + ome → ayapome (see (b'))

(ii) $\begin{bmatrix}\text{-low}\\ \text{-high}\end{bmatrix}$(e): {$STv_2$,+K,-Pass,-Perf} e.g. dimiury + é + o → dimiuryó (see (a") but notice variable (a) too)

{STv_2,+K,+Pass,-Perf} e.g. dimiury + é + ome → dimiuryúme (see (b") but notice variable (d) too)

(iii) [+high] (i): {STv_1,-K,+Pass,-Perf} e.g. ayap + í + eme → ayapjéme (see (b'))

{STv, +Perf} e.g. ayap + í +s + o, ayap + i + θ + ó. dimiury + i + so, dimiury + i + θ + ó

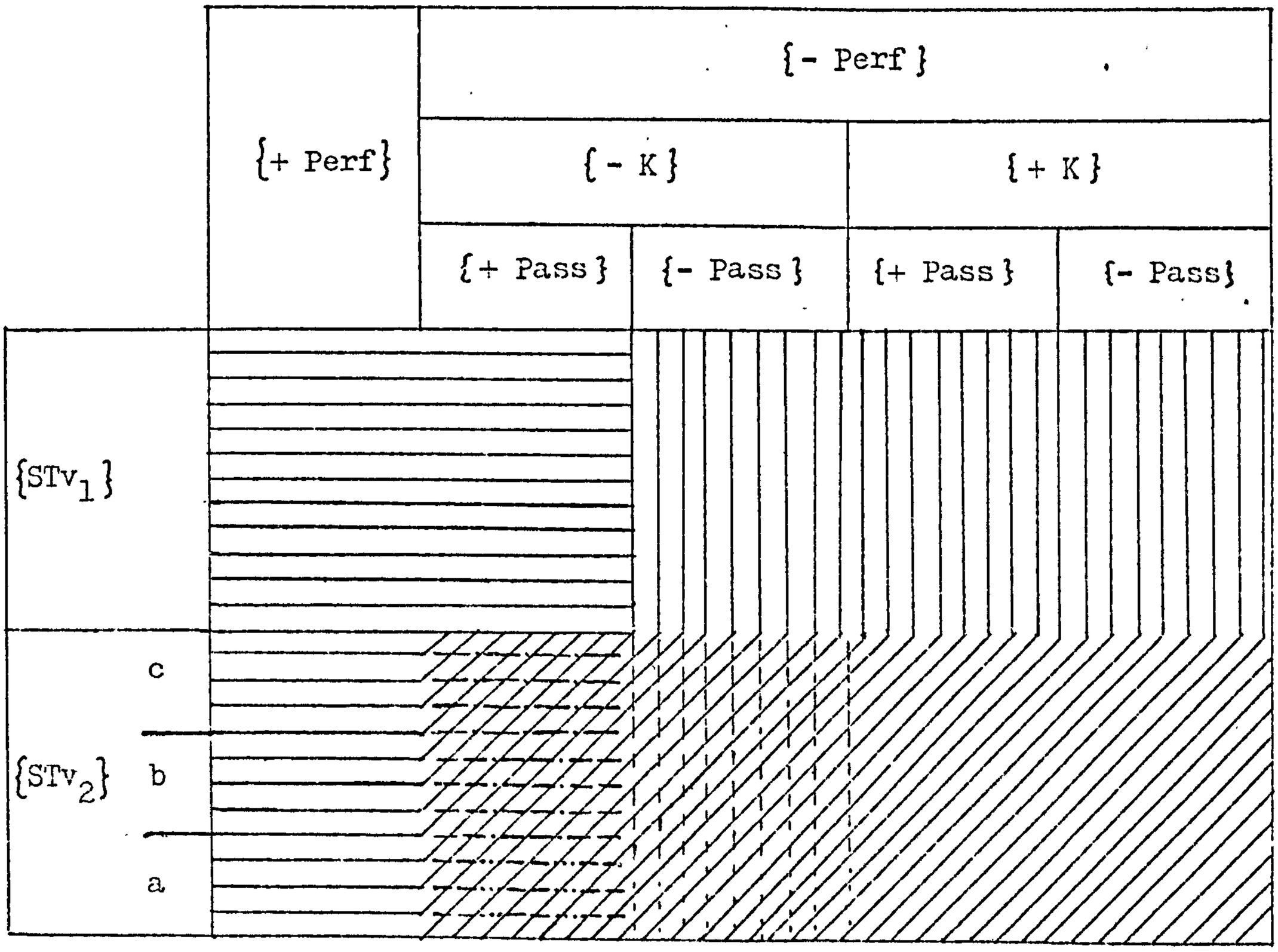
The variable section of the rule, on the other hand, (section (d)) refers to the appearance of the alternatives [+low] (a) or $\begin{bmatrix}\text{-low}\\ \text{-high}\end{bmatrix}$ (c) in the presence of the cluster {STv_2, -K, -Pass, -Perf}

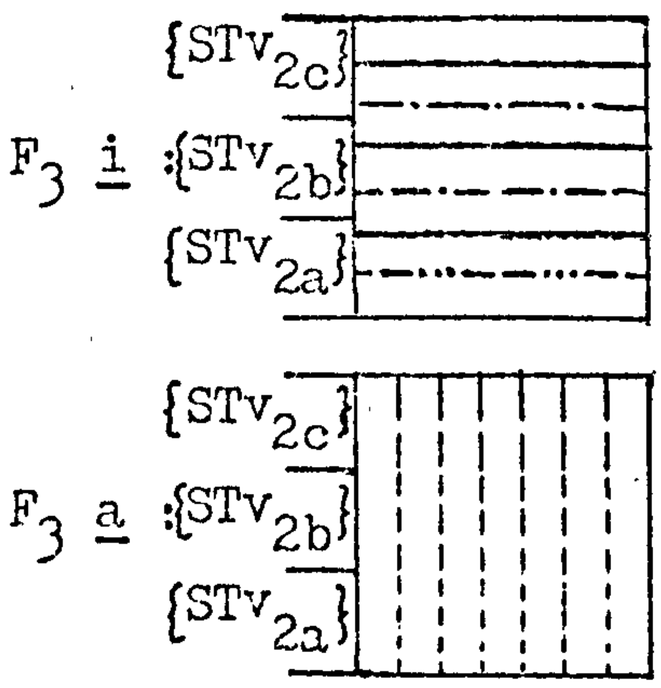
e.g. krat + á + i + s ⟶ kratás or krat + é + i + s ⟶ krátis,
and of [+high] (i) or $\begin{bmatrix}\text{-low}\\ \text{-high}\end{bmatrix}$ (e) in the presence of the
cluster {STv_2, -K, +Pass, -Perf}, e.g. sineno + i + óntusan ⟶
sinenojóntusan or sineno + e + óntusan ⟶ sinenoúntusan. The
order in which the alternative clusters appear in the three-
cornered brackets in the output of the rule is significant in
that the one at the top is the heavier of the two[17]. The
variable application of the rule ranges, as indicated at the
bottom of the rule, between the values 1 and 0. 1 refers to
100% appearance of the heavier cluster at the top of the three-
cornered brackets $\begin{bmatrix}\alpha\ \text{low}\\ -\alpha\ \text{high}\end{bmatrix}$ (i.e. a or i in the presence of
the features, respectively, {- Pass} and {+ Pass} and, consequently,
0% appearance of the cluster at the bottom of the three-cornered
brackets $\begin{bmatrix}\text{-low}\\ \text{-high}\end{bmatrix}$(e). Conversely, 0 refers to 0% appearance of a
or i and, consequently, 100% appearance of e. The expression $\langle\{STv_2\}\rangle$
in the environment of the rule summarizes, as indicated at the bottom
of the rule, the relative effect of the three {STv_2} subgroups on
the variable application of the rule: the appearance of [+low]
(a) or [+high] (i), rather than $\begin{bmatrix}\text{-low}\\ \text{-high}\end{bmatrix}$ (e), is favoured by the
presence of the feature {STv_{2c}} more than by {STv_{2b}} and least by
{STv_{2a}}. Likewise, the expression $\langle\{\text{-}\alpha\ \text{Pass}\}\rangle$ signifies, as indicated

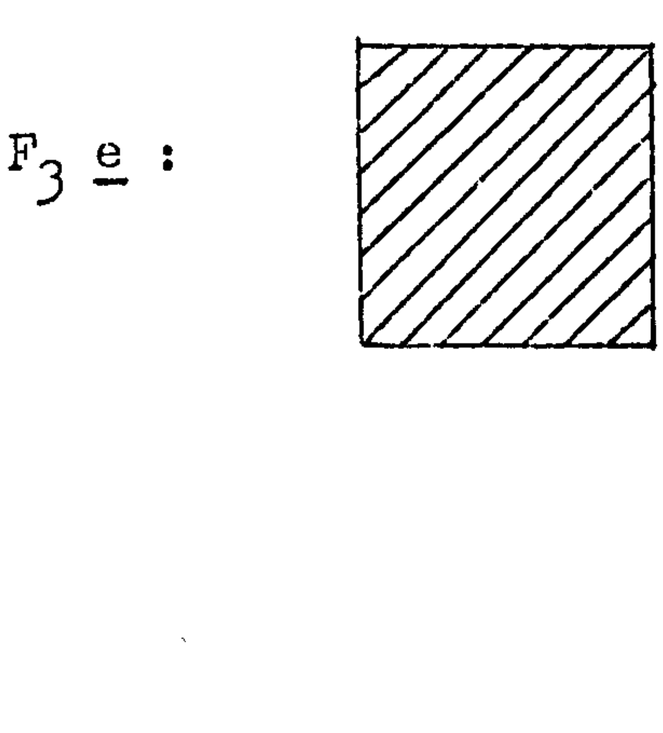
at the bottom of the rule, that the feature {+ Pass} favours the variable application of the rule (i.e. the appearance of F_3 a or i rather than e), more than the feature {- Pass} does.

It should be emphasized that rule 60 is not a conglomeration of unrelated phenomena, but a model of remarkably regular dynamic relationships between clusters of grammatical and stylistic values on the one hand and phonological form on the other. Diagram 1 may help to enhance our understanding of rule 60.

Diagram 1: The STv-UP process as affecting the correlation of F_3 formatives i, e and a with clusters of grammatical and stylistic values.







According to Diagram 1, the STv - UP process is affected, as regards the distribution of F_3 formatives i, e and a, by various contrastive grammatical and stylistic features, as follows:

(i) It is complete in the presence of the feature {+ Perf} but on-going in the presence of {- Perf}. Indeed, all regular {+ Perf} forms of {STv} verbs have F_3 i (but see Ch.IV,3.3.4. above for some exceptions), e.g. ayap + í + s + o, ayap + i + θ + ó, dimiury + í + s + o, dimiury + i + θ + ó, i deriving from a or e ({- Perf}) through "raising" (see Adams, 1972). We can express the relative effect that the values {+ Perf} and {- Perf} have on the STv - UP process as follows:

$$1 = p\langle\{+\text{ Perf}\}\rangle > p\langle\{-\text{ Perf}\}\rangle \geqslant 0$$

The above relation is reflected in rule 60 in that the simplest section of the rule (section (c)) is the one where the feature {+ Perf} is present whereas sections (a), (b) and (d) deal with the complex phenomena associated with the feature {- Perf}.

(ii) In the presence of the value {- Perf} the STv - UP process is categorically blocked by the feature {+ K} but favoured by the feature {- K} :

$$1 \geqslant p\langle\{-\text{ K}\}\rangle > p\langle\{+\text{ K}\}\rangle = 0$$

e.g.

$$\{+\text{Pass},-\text{Perf},-\text{Past},+\text{Pl},1\}\begin{cases}\{+K\}\begin{cases}\{STv_1\}: ayap + a + \acute{o}me\theta a \rightarrow ayap\acute{o}me\theta a\\ \{STv_2\}: \eth imiury + e + \acute{o}me\theta a \rightarrow \eth imiury\acute{u}me\theta a\end{cases}\\ \{-K\}\begin{cases}\{STv_1\}: ayap + i + \acute{o}maste \rightarrow ayapj\acute{o}maste\\ \{STv_2\}:\begin{cases}\eth imiury + e + \acute{o}maste \rightarrow \eth imiury\acute{u}maste\\ \eth imiury + i + \acute{o}maste \rightarrow \eth imiuryj\acute{o}maste\end{cases}\end{cases}\end{cases}$$

In rule 60 the above relation is reflected accurately in that the rule always applies categorically in the presence of the feature {+ K} whereas, in the presence of the feature {- K} it often applies variably (section (d)).

(iii) To consider the relative effect of the values {+ Pass} and {- Pass} on the STv - UP process we must first realize that there is another, independent, process going on within the $\{STv_1\}$ subgroup (which of course spreads on to the $\{STv_2\}$ subgroup via the STv - UP process): it involves the spread of F_3 i, originally associated with the feature {+ Perf}, into the structure of {- Perf, + Pass, - K} forms too:

			{+ K}	{-K}
{-Past, STv_1}	{-Pass}	{-Perf}	ayap + á + o → ayapó	ayapáo or ayapó
		{+Perf}	ayap + í + s + o	ayap + í + s + o
	{+Pass}	{-Perf}	ayap + á + ome → ayapóme	ayap + í + eme → ayapjéme
		{+Perf}	ayap + i + θ + ó	ayap + i + θ + ó

It will be noticed in the examples above that in this structural change too - the "i-dynamics", in Babiniotis' terms [18] - the features {- Perf} and {- K} behave as in the case of the STv - UP process: F_3 i, characteristic of the feature {+ Perf} , begins to appear in the presence of the cluster {- Perf, - K} but not of {- Perf, + K} . It will also be noticed that the change under consideration is favoured by the feature {+ Pass} but is categorically blocked by {- Pass}. The two values of the category of Voice behave in the same way as regards the STv - UP process: indeed, as we mentioned in the discussion at the beginning of this section, F_3 formatives characteristic of $\{STv_1\}$ verbs tend to appear in the structure of $\{STv_2\}$ subgroups more often in the presence of the feature {+ Pass} than in the presence of {- Pass}. The fact is depicted in Diagram 1 by employing interrupted lines or dots in the two cells defined by the clusters, respectively, $\{STv_2$, - Perf, - K, + Pass$\}$ and $\{STv_2$, - Perf, - K, - Pass$\}$. In rule 60 the same fact is expressed by allowing the variable section of the rule (section (d)) to be favoured by the feature {+ Pass} more than by {- Pass} as indicated at the bottom of the rule, where

$$\left\langle \left\{ \begin{matrix} + \\ - \end{matrix} \text{ Pass} \right\} \right\rangle \; : \; 1 \geqslant \; p\left\langle \{+ \text{ Pass}\} \right\rangle > \; p\left\langle \{- \text{ Pass}\} \right\rangle \geqslant 0$$

(iv) Finally, as reflected in Diagram 1, the STv - UP process

is always in the direction of {STv_1} verbs, i.e. {STv_2} verbs favour the appearance in their structure of F_3 formatives *i* or *a*, characteristic of {STv_1} verbs, as alternatives to their own *e*, but the reverse is never the case. The fact is reflected in rule 60 in that in the variable section of the rule (section (d)) firstly, the feature {STv_2}, but not {STv_1}, is present, and, secondly, the features $\begin{bmatrix} \alpha \text{ low} \\ -\alpha \text{ high} \end{bmatrix}$ (*a*, *i*), originally associated with the {STv_1} group of verbs, are ordered in the three-cornered brackets in the output of the rule above the features $\begin{bmatrix} \text{-high} \\ \text{-low} \end{bmatrix}$ (*e*), the ordering indicating the direction of structural change: *a* or *i*, characteristic of {STv_1} verbs, tend to replace *e*, characteristic of {STv_2} verbs, but the reverse is not the case. Furthermore, the STv - UP process is favoured more by {STv_{2c}} verbs (KRATÓ), less by {STv_{2b}} (DIMIURGÓ), and least by {STv_{2a}} (ΘEORÓ), a fact reflected in Diagram 1 in allowing for greater gaps in the interrupted lines or the dots as we move from {STv_{2c}} to {STv_{2b}} to {STv_{2a}}. The same tendency is expressed in rule 60 above by appropriately ordering the variants of the variable {STv_2} (see bottom of the rule).

4. VARIATION IN SP_5

In the light of the above discussion on STv - UP it is necessary

now to re-examine section (a) of rule 12 (Ch.IV, 3.5.1.) reproduced below as rule (i):

(i)

$$\{-\text{Pass}, -\text{Perf}, +\text{Past}, -\text{K}\} \rightarrow \begin{bmatrix} \{y \\ us\} \\ us \end{bmatrix} / \text{STEM} \text{——} / \begin{bmatrix} \{STv_1\} \\ \{STv_2\} \end{bmatrix} \quad \begin{matrix} (a) \\ (b) \end{matrix}$$

The rule states that, in the presence of the cluster {- Pass, - Perf, + Past, - K}, the F_5 formatives y or us are suffixed to the stem of $\{STv_1\}$ verbs, whereas $\{STv_2\}$ verbs accept F_5 us only, e.g.

$\{STv_1\}$: ayap + a + $\begin{bmatrix} y \\ us \end{bmatrix}$ a → $\begin{bmatrix} ayápaya \\ ayapúsa \end{bmatrix}$

$\{STv_2\}$: d̄imiury + ė + us + a → d̄imiuryúsa

Obviously, as it stands, rule (i) does not take into consideration STv - UP, the tendency, that is, for $\{STv_2\}$ subgroups to behave like $\{STv_1\}$ verbs. Furthermore, it makes no claim as to the relative frequency of appearance of us or y in the structure of $\{STv_1\}$ verbs.

With respect to the latter of the two problems mentioned above, there does not seem to be sufficient evidence in our data concerning the relative frequency levels of y and us in the structure of $\{STv_1\}$ verbs to suggest ordering them one way rather than another,

(us appears four times and y five times).

1/1/18ff V.L. pántos éxume pi praymatiká ekpliktiká polá prámata
(= Really, we have indeed spoken surprisingly much)

E.C. nómiza oti θa stamátayes sto ekpliktiká
(= I thought you were going to stop at "surprisingly")
cf. stamatúses

1/33/3 R. léi, na dóso, léi, ... eftá draxmés yja na páro - pinúsa, alá na dóso eftá draxmés yia na páro mía tirópita, léi
(= she says, to think of spending, she says ... seven drachmas to buy - I was hungry, but to think of spending seven drachmas to buy a cheese pie, she says!)
cf. pínaya

As regards the former of the two problems mentioned above, i.e. the paradigmatic pull exercised on $\{STv_2\}$ verbs by $\{STv_1\}$ verbs, the differentiation of three $\{STv_2\}$ subgroups introduced in rule (i) above to account for the distribution of F_3 formatives is relevant here too: indeed, the appearance of F_5 y in the structure of $\{STv_2\}$ verbs is by no means blocked as suggested in rule 12. Rather, it alternates quite freely with us in the structure of $\{STv_{2c}\}$ verbs, e.g.

2/22/5 P.D. milayes poli liyotero, poli pjo xamila

(= you spoke much less, much more softly)

cf. milúses

2/13/15 J.L. milúsan me ... me mia tetja ... θrasitita

(= they talked with .... with such cheek)

cf. milayan

1/73/12 V.L. θa tis to zitúsa fortiká

(= I would have asked her pressingly)

cf. zitaya

2/17/13 P.D. káθe tóso pái ke káni eksetásis, kj epidí pónaye tóra

(= every so often she has medical check-ups, and as she has been in pain recently...)

cf. ponúse

The appearance of y in the structure of {STv_{2b}} verbs is not favoured (though it could be employed as a joke) e.g.

1/31/14 E.C. pánta ti sinpaθúsa

(= I have always liked her)

cf. uneducated sinpáθaya

1/21/1 R. eksiyúse aftós pós tó paθe

(= he was explaining how he suffered [the burns])

cf. uneducated (e)ksiyaye

1/23/14 R. afti parakoloθúse parástasi

(= she was attending the performance)

cf. uneducated parakolúθaye

2/16/26 J.L. ðen ayripnúses enandíon tu pirazmú

(you were not vigilant against temptation)

cf. ayrípnayes

Finally, y is least likely to appear in the structure of $\{STv_{2a}\}$ verbs:

2/11/4 J.L. ðen borúse ... na vri mja lixnía

(= he couldn't find a bulb)

cf. uneducated bóraye

1/94/8 V.L. pu to katálaves óti enoúse eséna

(= how do you know he meant you?)

cf. *enóaye

All in all, of the ten originally $\{STv_2\}$ verb forms in our data eight appear with F_3 us and two with y.

Rule (i) above will be revised now to capture the regularities discussed:

Rule 61

$$\{-\text{Pass}, -\text{Perf}, +\text{Past}, -\text{K}\} \longrightarrow \begin{bmatrix} \begin{Bmatrix} y \\ us \end{Bmatrix} \\ \\ \left\langle \begin{matrix} y \\ us \end{matrix} \right\rangle \end{bmatrix} / \text{STEM} \text{ ——} \begin{bmatrix} \{\text{STv}_1\} \\ \\ \left\langle \{\text{STv}_2\} \right\rangle \end{bmatrix} \quad \begin{matrix} \text{(a)} \\ \\ \text{(b)} \end{matrix}$$

where $\left\langle \{\text{STv}_2\} \right\rangle$: $1 \geq p\left\langle \{\text{STv}_{2c}\} \right\rangle > p\left\langle \{\text{STv}_{2b}\} \right\rangle > p\left\langle \{\text{STv}_{2a}\} \right\rangle \geq 0$

The rule reads that in the presence of the cluster {- Pass, - Perf, + Past, - K} either F_5 us or y may be suffixed to the stem of {STv} verbs; but whereas $\{\text{STv}_1\}$ verbs seem to accept either freely, at least as far as our data is concerned, (section(a)), i.e. y and us seem to be in "free" variation in the structure of $\{\text{STv}_1\}$ verbs, the same is not the case as regards $\{\text{STv}_2\}$ verbs where the frequency levels of y and us vary according to which of the three $\{\text{STv}_2\}$ subgroups a particular verb belongs to: as indicated by the analysis of the expression $\left\langle \{\text{STv}_2\} \right\rangle$ at the bottom of the rule, $\{\text{STv}_{2c}\}$ verbs appear to favour y more than $\{\text{STv}_{2b}\}$ verbs do, whereas $\{\text{STv}_{2a}\}$ verbs are the least likely to accept y in their structures. Note that $\{\text{STv}_{2c}\}$ verbs favour y more than us whereas the reverse is the case for $\{\text{STv}_{2b}\}$ verbs, and, as far as $\{\text{STv}_{2a}\}$ verbs are concerned, us appears almost categorically (i.e. to the exclusion of y, unless the speaker is

joking). However, as is expressed, rule 61 captures the interesting fact that the appearance of y (characteristic of $\{STv_1\}$ verbs) in the structure of $\{STv_2\}$ verbs causes the sub-classification of the group into three subgroups according to how likely y is to appear in the structure of verbs which belong to each of the three subgroups. It is precisely the above dynamic aspect of the behaviour of y that is captured by its ordering above us in the three-cornered brackets in the output, combined with the indication, at the bottom of the rule, that the variable application of the rule is determined by the relative effect of the three subgroups, $\{STv_{2c}\}$, $\{STv_{2b}\}$ and $\{STv_{2a}\}$, in that order of weight. This being the case, rule 61 is related to rule 60 (see 3. above) in that they both reflect the restructuring effect of STv - UP, i.e. the tendency for the restructuring of $\{STv_2\}$ verbs in the direction of $\{STv_1\}$ verbs or the unifying tendency for all $\{STv\}$ verbs to behave in the same way, which in fact causes the further, "short-term", differentiation of $\{STv_2\}$ verbs into three subgroups according to the readiness of each to join the $\{STv_1\}$ group.

5. VARIATION IN SP_6

5.1. The F_6 formatives o and u alternate in a number of environments

in the presence of the feature {- K} .

5.1.1. In the presence of the cluster {- Pass, - Past, + Pl, 1, - K} either F_6 o or u appears (see rules 17, 18a" and 18b"' in Ch.IV, 3.6.2.). Rule (i) below covers the area of overlap of the rules mentioned above.

$$\text{(i) } \{-\text{Pass}, -\text{Past}, +\text{Pl}, 1, -\text{K}\} \longrightarrow \begin{bmatrix} \text{V} \\ \\ +\text{back} \end{bmatrix} / \text{ STEM (s)} \text{ ——}$$

Rule (i) states that the cluster {- Pass, - Past, + Pl, 1, - K} is assigned a [+back] vowel (o or u) in the context following the string STEM (s), e.g. pávome, pávume, pápsome, pápsume. In Ch.III, 2.5.1.b. we also mentioned that u appears much more often than o in the context STEM (s) —— . Indeed, in our data we have found only one o out of 229 cases that meet the structural description of rule (i), i.e. one o as opposed to 228 u, or a frequency level for o of 0.004. o occurs in the speech of a student quoting at the time, for the benefit of her friends, a University lecturer who, during an informal conversation with a group of (variously shocked, amused or appreciative) students, is extolling the experience of sex:

1/26/9ff E.C. a, ma yja staθíte káti na <u>kseka</u>θa<u>rí</u>some ... eyó
ðe miló me apírus.
(= ah, wait a moment, we must <u>clarify</u> something ...
I do not converse with inexperienced people)

cf. <u>kseka</u>θa<u>rí</u>sume

To account for the difference in frequency levels between the two formatives we will revise rule (i) above as follows:

$$\text{(ii)}\ \{\text{-Pass,-Past,+Pl,1,-K}\} \longrightarrow \begin{bmatrix} \text{V} \\ \text{+back} \\ \langle \text{[high]} \rangle \end{bmatrix} \ /\ \text{STEM}\ \ (\text{s}) \text{ ——}$$

where $\langle$ [high] $\rangle$: $\quad 1 \geqslant p\langle$ [+high] $\rangle > p\langle$ [-high] $\rangle \geqslant 0$

5.1.2. In the presence of the cluster {+ Pass, - Perf, + Pl, - K} (see Ch.IV, 3.6.1., rules 14, 15b and 15c) either F_6 <u>o</u> or <u>u</u> appear. Rule (iii) below is a collapsed version of the rules mentioned above as regards the cluster of values in question:

$$\text{(iii.)}\ \ \{\text{+Pass,-Perf,+Pl,-K}\} \longrightarrow \begin{bmatrix} \text{V} \\ \text{+back} \end{bmatrix} \ /\ \text{STEM} \text{ ——}$$

The rule specifies that, in the presence of the cluster {+ Pass, - Perf, + Pl, - K}, a [+back] vowel (i.e. <u>o</u> or <u>u</u>) appears in the context after the stem.

As we mentioned in Ch.III, 7.4.5.b., o appears more frequently than u. In our data, o occurs 24 times and u 3 times, out of a total of 27 cases in which the structural description of (iii) above was met. We will therefore revise (iii) above to include a specification of the difference in frequency levels between the two formatives:

(iv) $\{+Pass, -Perf, +Pl, -K\} \longrightarrow \begin{bmatrix} V \\ +back \\ \langle [\ high\ ] \rangle \end{bmatrix}$ / STEM ——

where $\langle [\ high\ ] \rangle$: $1 \geqslant {}_{p}\langle [\ -high\ ] \rangle > {}_{p}\langle [\ +high\ ] \rangle \geqslant 0$

It will be noticed that both rule (ii) (in 5.1.1. above) and (iv) in fact account for the alternation of the same F_6 formatives, namely, o and u, but, whereas in the presence of the cluster {- Pass, - Past, + Pl, 1, - K} (rule (ii)), u appears more frequently than o, the reverse is the case in the presence of the cluster {+ Pass, - Perf, + Pl, - K}. Table Nine below summarizes the above remarks:

Table Nine: Relative frequency levels of F_6 formatives o and u in the presence of two clusters of grammatical and stylistic values.

{-Pass,-Past,+Pl,1,-K}	o < u
{+Pass,-Perf,+Pl,-K}	o > u

Diachronically speaking, o is the earlier F_6 formative[19], and u is at present replacing it (see Babiniotis, 1972a, p.189) or, in different terms, o has undergone raising in the presence of the two clusters of values shown in Table Nine. (In fact, the change from o to u is only possible in the presence of the feature {- K}, otherwise, i.e. in the presence of the feature {+ K}, only o is possible). And whereas in the case of the cluster {- Pass, - Past, + Pl, 1, - K} the change is almost complete (i.e. pávume is the rule and pávome the exception) it has only just reached the cluster {+ Pass, - Perf, + Pl, - K}. (i.e. pavómaste, pavósaste, pávonte, pavómastan, pavósastan, pávontan, pavóntane, pavóntusan, are the rule and the alternative forms with u next to the stem pav- are the exception). In fact, it seems that within the latter section of the inflectional system, namely, {+ Pass, - Perf, + Pl, - K}, the more particular cluster {+ Pass, - Perf, - Past, +Pl, 3, - K} should be isolated as especially favourable to the appearance of u : out of 13 verb forms realizing the above cluster in our data 3 have F_6 o and the rest u:

1/24/10 P.D. káθe forá pu béni gol filjúnte

(= every time the ball goes into the goal they [i.e. footballers] kiss each other)

cf. filjónte

2/10/5 M.L. de kséro ... pós tus ekviázune ... i télos pánton mirízunte polí.

(= I don't know how they blackmail them ... or anyway many get to know about it)

cf. mirízonte.

However the small number of examples in our data does not provide conclusive evidence in support of our suggestion at this stage.

If, on the basis of additional data, a diachronic interpretation of the alternation between o and u were accepted (i.e. that u is replacing o more often in certain sections of the verb system than in others), rules (ii) and (iv) above could be revised to account for the categorical appearance of only the "earlier" formative o.

$$\text{(v)}\quad \{+\text{Pl},-\text{K},\ \{\{-\text{Pass},-\text{Past},1\}\ \{+\text{Pass},-\text{Perf}\}\}\} \rightarrow \begin{bmatrix} \text{V} \\ +\text{back} \\ -\text{high} \end{bmatrix} \ /\ \text{STEM}\ (\text{s}) \text{ ——}$$

Subsequently, a variable rule, intrinsically ordered after (v), would change o to u, the change being favoured more by one cluster of values than by another:

$$\text{(vi)}\quad \begin{bmatrix} \text{V} \\ +\text{back} \\ -\text{high} \end{bmatrix} \rightarrow \langle [+\text{high}] \rangle \ /\ \{+\text{Pl},-\text{K}, \langle \{-\text{Pass},-\text{Past},1\}\ \{+\text{Pass},-\text{Perf}\} \rangle\}$$

where the ordering of the two clusters in the three-angled brackets in the environment of the rule is significant, in that the one at the top of the brackets favours the application of the rule much more than the one at the bottom.

$$1 \geqslant p\langle\{\text{-Pass, -Past, 1}\}\rangle > p\langle\{\text{+Pass, -Perf}\}\rangle \geqslant 0$$

To avoid the morphophonemic process (i.e. the morphologically and not phonologically conditioned change of one segment to another) of rule (vi) above we could collapse rules (ii) and (iv) into a variable rule:

Rule 62

$$\{\text{+Pl, -K}\} \longrightarrow \left[\begin{array}{c} \text{V} \\ \pm\text{back} \\ \left\langle \begin{array}{c}[\text{+high}] \\ [\text{-high}]\end{array}\right\rangle \end{array}\right] / \text{STEM (s)} \_\_ / \left\langle \begin{array}{l}\{\text{-Pass, -Past, 1}\} \\ \{\text{+Pass, -Perf}\}\end{array}\right\rangle$$

where $1 \geqslant p\langle\{\text{-Pass, -Past, 1}\}\rangle > p\langle\{\text{+Pass, -Perf}\}\rangle \geqslant 0$

The rule reads that in the presence of the cluster {+ Pl, - K} an F_6 formative of the phonological form $\left[\begin{array}{c}\text{V}\\ \text{+back}\end{array}\right]$ and either [+high] (u), or [-high] (o) appears. The ordering of the features [+high] and [-high] in the three-cornered brackets in the output is significant in that the probability of application

of the rule is calculated in terms of the feature at the top of the three-angled brackets, i.e. 100% application of the rule corresponds to 100% appearance of the $\begin{bmatrix} V \\ +back \\ +high \end{bmatrix}$ formative (u) (and, consequently, 0% appearance of the $\begin{bmatrix} V \\ +back \\ -high \end{bmatrix}$ formative (o)) whereas 0% application of the rule corresponds to 0% u and consequently 100% o. The arrangement of the features [+high] and [-high] in the three-cornered brackets is not arbitrary; indeed, it reflects the diachronic change involved here: o, the "original" F_6 formative, is replaced by u. The replacement of o by u is not uniform: as indicated by the ordering of the two clusters in the three-cornered brackets in the environment, o is more likely to be replaced by u in the presence of the cluster {- Pass, - Past, 1} e.g. pávume, pápsume (rather than, respectively, pávome, pápsome), and less likely in the presence of the cluster {+ Pass, - Perf}, e.g. pavómaste, pavósaste, pávonte (rather than pavúmaste, pavúsaste, pávunte).

5.2. In the presence of the cluster {+ Pass, - Perf, - Past, + Pl, 2, - K} three alternative configurations of inflectional formatives may follow the stem, i.e.

$\underline{\overset{2}{pav} + \overset{6}{e} + \overset{8}{s} + \overset{9}{\theta} + \overset{10}{e}}$ (changing, more often than not, to páveste)

$\underline{\overset{2}{pav} + \overset{6}{o} + \overset{8}{s} + \overset{9}{ast} + \overset{10}{e}}$ or $\underline{\overset{2}{pav} + \overset{6}{u} + \overset{8}{s} + \overset{9}{ast} + \overset{10}{e}}$ (see Table One and

section 5.1. above). As is clear from the examples above, the three alternative forms have, apart from the stem, two formatives in common, F_8 s and F_{10} e, and contrast in two structural places, SP_6, where either F_6 e or o or u appears, and SP_9, where either F_8 θ or ast appears, so that only three combinations of the five formatives are allowed by the grammar, F_6 e and F_8 θ on the one hand and F_6 o or u and F_6 ast on the other. The fact is captured by rules 14, 15c and 16 (Ch.IV,3.6.1.), accounting for the appearance of F_6 formatives, respectively, u, o and e in the presence of, among others, the cluster of values under consideration. Also, rule 28e (Ch.IV,3.9.) accounts for the appearance of the F_9 formatives ast and θ.

It will be recalled that in Ch.IV, 2.2. a convention was introduced according to which the inflectional morpholexical rules of this study are ordered intrinsically, i.e. the application of one provides the necessary environment for the application of other rules. This being the case, if rule 16 applies (i.e. if F_6 e appears) in the presence of the cluster {+ Pass, - Perf, - Past, + Pl, 2, - K },section (e") of rule 28 will be activated (i.e. F_9 θ will appear) later on in the derivation, whereas if rules 14 or 15c apply (i.e. if F_6 o or u appear) then section (e') of rule 28 will be activated (i.e. only F_9 ast may follow).

This formulation, we said, was meant to be in the interests of economy, i.e. no descriptive claim was made concerning the conditioning of, say, F_9 formatives by F_6 formatives or vice versa. On the contrary, it was explicitly asserted that, though co-occurrence restrictions between formatives existed, they could not be associated with some of the co-occurring formatives more closely than with the others (see critique in Ch. II,3. above of an application of the Praguean theory of markedness in the description of the inflectional paradigm of the verb in MGK in Warburton, 1973). Consequently, we only need concern ourselves in this section with the alternative application of rules 14, 15c and 16 accounting for the appearance of the F_6 formatives, respectively, u (pavùsaste), o (pavósaste) or e (påveste). Rule (i) below is a collapsed version of those sections of rules 14, 15c, and 16 which are of relevance here:

(i) $\{+ \text{Pass}, - \text{Perf}, - \text{Past}, + \text{Pl}, 2, - \text{K}\} \longrightarrow \begin{Bmatrix} e \\ o \\ u \end{Bmatrix} / \text{STEM} \text{ ——}$

It will be remembered that in section 5.1. in this chapter we dealt with the alternation of F_6 formatives o and u in, among others, the cluster of values under consideration. As a result, we can here reduce the contrast between u, o and e to a binary one, namely,

that between F_6 e on the one hand and o or u on the other. The formulation might be enhanced if we recast rule (i) above in terms of distinctive features so that the three formatives, all of them of the common specification $\begin{bmatrix} V \\ -low \end{bmatrix}$, are further distinguished as either [+back] (o or u) or $\begin{bmatrix} -back \\ -high \end{bmatrix}$ (e).

(ii) $\{+Pass,-Perf,-Past,+Pl,2,-K\} \rightarrow \begin{bmatrix} V \\ -low \\ \left\{\begin{bmatrix} +back \end{bmatrix}\right. \\ \left.\begin{bmatrix} -back \\ -high \end{bmatrix}\right\} \end{bmatrix}$ / STEM ——

As it stands, rule (ii) treats F_6 formatives, e on the one hand, and o or u on the other, as free variants in the presence of the cluster of values under consideration. Our data would appear to support the above viewpoint, though the small number of attested {+ Pass, - Perf, - Past, + Pl, 2, - K} verb forms in our conversations (two with F_6 e and two with F_6 o) cannot be regarded as conclusive evidence. In diachronic terms, however, the picture is somewhat different. Indeed, if we compare the verb forms realizing the more general cluster {+ Pass, - Perf, + Pl, 2}

		{- Past}	{+ Past}
{+Pass,-Perf,+Pl,2}	{+K}	2 6 8 9 10 pav e s θ e	1 2 6 8 9 10 e pav e s θ e
	{-K}	2 6 8 9 10 pav e s θ e → páveste 2 6 8 9 10 pav {o, u} s ast e	1 2 6 8 9 10 (e) pav o s ast e 1 2 6 8 9 10 11 (e) pav {o, u} s ast a n

we will notice that the distribution of F_6 e on the one hand and o or u on the other is sensitive to the contrastive values {± K}and {± Past} : in the presence of the value {+ K} only F_6 e is possible, in the presence of the cluster {- K, + Past} F_6 o or u (but not e) may appear,and, finally, in the presence of the cluster {- K, - Past} all three formatives alternate. Given that the features {+ K} and {- K}are characteristic of, respectively, the conservative and innovating tendencies in the language, we realize now that F_6 e is the "earlier" formative associated with the cluster {+ Pass, - Perf, + Pl, 2} . The tendency to substitute the more "recent" formatives o or u for e emerges in (and is confined to) the presence of the value {- K} i.e. it is alien to the {+ K} side of the verb system. And, whereas in the presence of the value {- Past} the change is still in progress (i.e. either e or o/u may appear), in the presence of the value {+ Past} it is already completed (i.e. e never appears). In a visually more helpful way the distribution of F_6 e, o and u is as follows:

{+Pass,-Perf,+Pl,2}		
{+ K}	{-K}	
	{- Past}	{+ Past}
e	$\{^{e}_{o/u}\}$	o/u

To put it in a nutshell, then, the substitution of F_6 o or u for o, is favoured by the feature {- K}; also, it is favoured by the feature {+ Past}, in whose presence it has reached completion, in contrast to the feature {- Past}, in whose presence it is still in progress.

To give formal expression to the above regularities, we will transform "optional" rule (ii) above into a variable rule whose input is the cluster {+ Pass, - Perf, + Pl, 2} and whose variable output is conditioned by the contrastive values {± K} and {± Past} as follows:

Rule 63

$$\{+\text{Pass},-\text{Perf},+\text{Pl},2\} \longrightarrow \begin{bmatrix} V \\ -\text{low} \\ \langle [+\text{back}] \; [-\text{back}] \rangle \\ -\text{high} \end{bmatrix} \; / \; \text{STEM} \; \underline{\quad} \; / \; \left\langle \begin{matrix} \{K\} \\ \{\text{Past}\} \end{matrix} \right\rangle$$

where $\langle \{K\} \rangle$: $1 \geqslant p\langle \{-K\} \rangle > p\langle \{+K\} \rangle = 0$

$\langle \{\text{Past}\} \rangle$: $1 = p\langle \{+\text{Past}\} \rangle > p\langle \{-\text{Past}\} \rangle \geqslant 0$

Rule 63 reads that in the presence of the cluster {+ Pass, - Perf, + Pl, 2} a [-low] vowel, either [+back] (o or u) or

$\begin{bmatrix} \text{-back} \\ \text{-high} \end{bmatrix}$ (e), is suffixed to the stem. The arrangement of the features [+back] and $\begin{bmatrix} \text{-back} \\ \text{-high} \end{bmatrix}$ from top to bottom in the three-cornered brackets in the output is related to the frequency of application of the variable rule ranging from 1 (100% [+back] and, consequently, 0% $\begin{bmatrix} \text{-back} \\ \text{-high} \end{bmatrix}$) to 0 (0% [+back] and, consequently, 100% $\begin{bmatrix} \text{-back} \\ \text{-high} \end{bmatrix}$). Note that the precise ordering of the features in the three-cornered brackets: first [+back] followed by $\begin{bmatrix} \text{-back} \\ \text{-high} \end{bmatrix}$, is not arbitrary but reflects the direction of the change accounted for by the rule: F_6 e, the "earlier" formative, is replaced by F_3 o or u, and not vice versa. The frequency of application of the rule is affected by two variable linguistic constraints in the environment, ⟨{K}⟩ and ⟨{Past}⟩. ⟨{K}⟩ has the values {- K} which, as indicated at the bottom of the rule, favours the application of the rule (i.e. the appearance of o or u rather than e):

$$1 \geqslant p\langle\{-\,K\}\rangle$$

and {+ K}, which blocks the application of the rule (i.e. it only allows the appearance of e):

$$p\langle\{+\,K\}\rangle = 0$$

The variable constraint ⟨{Past}⟩, on the other hand, has the variants {+ Past}, which causes the rule to apply categorically

(i.e. allows only the appearance of <u>o</u> or <u>u</u> but never <u>e</u>)

$$1 = p\langle\{+ \text{Past}\}\rangle$$

and {- Past} , which favours the application of the rule though it does not cause it to apply categorically (i.e. either <u>e</u> or <u>o/u</u> may appear).

The order of the two variable linguistic constraints in the three-cornered brackets in the environment of the rule reflects their relative weight: the output of the rule is first subjected to the variable constraint at the top of the brackets, i.e. $\langle\{K\}\rangle$, and, subsequently, to the constraint at the bottom of the brackets, i.e. $\langle\{\text{Past}\}\rangle$. Thus, if the feature {+ K} is present, which, as we said above, blocks the application of the rule, the precise value of the second constraint $\langle\{\text{Past}\}\rangle$ is irrelevant (i.e. only F_6 <u>e</u> is possible, irrespective of $\{\pm \text{ Past}\}$ distinctions); whereas if the value {- K} , favourable to the application of the rule, is present, the frequency level of application is further conditioned by the precise value of the second in importance variable constraint (i.e. <u>o</u> or <u>u</u>, but never <u>e</u>, in the presence of the value {+ Past} , otherwise, that is, in the presence of the value {- Past}, any of the three formatives is possible).

It might be interesting at this point to see how the regularities captured by rule 63 could be expressed in terms of implicational scaling. In Table Ten below, the appearance of only F_6 o or u in the presence of the cluster {+ Pass, - Perf, + Pl, 2} is marked as 1, the appearance of F_6 e only is marked as 0, and the appearance of either o/u or e is marked as X:

Table Ten: Implication scaling of the appearance in the presence of the cluster {+ Pass, - Perf, + Pl, 2} of F_6 formatives o, u or e as conditioned by {± Past} and {± K} distinctions.

1: o/u

0: e

X: o/u or e

Lects	{+ Pass, - Perf, + Pl, 2}		
	{- Past}	{+ Past}	
1	0	0	{+K}
2	0	X	{-K}
3	0	1	
4	X	1	
5	1	1	

In Table Ten is mapped the replacement of F_6 e by F_6 o/u in an implicational series involving five successive stages or "lects". To begin with (lect 1), only e (i.e. never o or u) appears. This, historically earliest, stage is preserved in MGK in the presence of the feature {+ K} . At a later stage (lect 2), under the influence of the "innovating" feature {- K} , the more recent vowels o/u begin to alternate with e in the presence of the feature {+ Past} only, until, finally (lect 3), they replace it completely. Subsequently (lect 4), o/u begin to alternate with e in the presence of the feature {- Past} too, and eventually (lect 5), they replace e there too.

6. VARIATION IN SP_9

In Ch.IV,3.9., section (d) of rule 28 reproduced below as rule (i), states that, in the presence of the cluster {+ Pass, - Perf, + Past, + Pl, 3, - K} , the F_9 formative us appears "optionally":

(i) {+Pass,-Perf,+Past,+Pl,3,-K} → ⟨us⟩/ + n + t ——

or, in a more economical version, since the string + n + t + only appears and always appears in the presence of the cluster {+ Pass, - Perf, + Pl, 3 }:

Rule 64

{+ Past, - K} → ⟨us⟩/ + n + t ——

If the rule applies, we get forms such as the one underlined in the example below:

2/9/5 J.L. tóte pu ta xalásame mas <u>xriazóntusan</u>

(= when we spent it we <u>had to</u>)

cf. <u>xriazóntan(e)</u>

Notice that in the example above, F_{12} <u>e</u> does not appear in the presence of F_9 <u>us</u>, so that the stem is never followed by more than three syllables (see rule 36 in Ch.IV, 3.12. and section 8 in this chapter). If the rule does not apply when its input conditions are met (which is never the case in our data), SP_9 remains empty (in which case F_{12} <u>e</u> may or may not appear): <u>xriazóntan(e)</u>, <u>sinenoúntan(e)</u>, <u>endjaferóntan(e)</u>. In spite of the fact that all {+ Pass, - Perf, + Past, + Pl, 3, - K} forms of regular verbs appearing in the data contain F_9 <u>us</u> in their structure, the small number of such forms in our data on the one hand and our intuitions on the other do not allow, I think, the appearance of the segment in question to be accounted for by a categorical rule. Further analysis of unmonitored speech, and a study based on relevant tests and questionnaires could clarify the issue. At present we will assume the equal degree of acceptability of alternant forms with or without F_9 <u>us</u> : <u>xriazóntusan</u>, <u>xriazóntan(e)</u>,

and we will tentatively suggest, for not even that is conclusively supported by the evidence, that us appears more often than not. To express the above assumption in rule 64 above, we will assign it a probability p(R64) equal to or smaller than 1 but always greater than 0 (i.e. tending towards 100% appearance of F_9 us in the appropriate environment):

$$1 \geq p(R64) > 0$$

7. VARIATION IN SP_{10}

In the presence of the cluster {+ Pass, - Perf, + Past, + Pl, - 3, - K} certain alternative verb forms may appear, e.g.

{1} : pav 2 o 6 m 8 ast 9 e 10 or pav 2 o 6 m 8 ast 9 a 10 n 11

{2} : pav 2 o 6 s 8 ast 9 e 10 or pav 2 o 6 s 8 ast 9 a 10 n 11

It will be realized that the difference between the two {1} and {2} variants consists (a) in the alternation of F_{10} formatives a or e, coinciding with (b) the appearance or non-appearance of F_{11} n.

The alternation of the two F_{10} formatives is dealt with in

Ch.IV, 3.10, by rules 29 and 30e whose relevant parts are reproduced below, in a collapsed form, as rule (i)

(i) {+ Pass, - Perf, + Past, + Pl, - 3, - K} ⟶ $\begin{Bmatrix} e \\ a \end{Bmatrix}$ / $\begin{Bmatrix} m \\ s \end{Bmatrix}$ + ast —

The appearance of F_{11} n is treated by rule 33 in Ch.IV, 3.11. above, whose relevant section is reproduced below as rule (ii)

(ii) {+ Pass, - Perf, + Past, + Pl, - 3, - K} ⟶ n / ast + a —

Since rule (ii) applies categorically to suffix F_{11} n to the string ast + a only (i.e. not to asl + e) it follows that, to account for the variability in the forms at the beginning of this section, it will be sufficient to concentrate on the alternation of F_{10} e and a (rule (i)). Again, as we have stressed before, passim, the dependence of rule (ii) on the output of rule (i) is a matter of expediency and does not alter the fact that all formatives co-occurring in a single verb form are interdependent, i.e. A "conditions" B as much as B "conditions" A.

Rule (i) above treats F_{10} a or e as "free variants", i.e. it is neutral as regards possible differences between the two formatives in terms of statistical levels and/or an "earlier"/ "later" distinction. The evidence from our data does not

disconfirm the view of a and e as free variants, though, due to small observed numbers, it does not confirm it conclusively either (e and a occur twice each) e.g.

1/17/5 E.C. tuláxisto, léi, ðe yinósastan ayórja na íme ke ísixi

(= at least, she says, couldn't you have been born boys so that I had peace of mind!)

cf. yinósaste

2/9/6 M.L. óxi, ðe ta xriazómaste ótan ta xalásame, ta

xalásame yjiatí íxe ipotimiθí to ðolário

(= no, we didn't have to spend it when we did, we spent it because the dollar had been devalued)

cf. xriazómastan

Seen in the wider context of the {+ Pass, - Perf} section of the verb system, however, the alternation between F_{10} a and e in the structure of {+ Pass, - Perf, + Past, + Pl, - 3, - K} verb forms appears to be the result of diverse analogical pulls. To begin with, F_{10} e tends to be associated with the feature {- Past}, the only exception being (see Table One) the {+ Pass, - Perf, - Past, + Pl, 1, + K} forms, e.g. pavómeθa.

As for the F_{10} formative a, it tends to be associated with the feature {+ Past} but much less closely than e is with {- Past}.

In fact, F_{10} a only appears in {+ Pass, - Perf, + Past, + Pl, 1, +K} forms, e.g. epavómeθa, the remaining five combinations of values of Person and Number being shared, in SP_{10}, by an additional three F_{10} formatives: i, o and e i.e. a total of four F_{10} formatives appear in the {+ Pass, - Perf, + Past, + K} paradigm, a being one of them. Even in the case of the cluster {+ Past, - K} as can be seen from the following extract from Table One, F_{10} a is categorically present only in {3} verb forms (irrespective of Number), it is categorically absent in {- Pl, 3} forms and it alternates with e in {+ Pl, -3} verb forms.

{+Pass,-Perf,+Past,-K}

{- Pl}	{1}	pavóm $\underline{10}$ u n(a)
	{2}	pavós $\underline{10}$ u n(a)
	{3}	pavót $\underline{10}$ a n(e)
{+ Pl}	{1}	pavómast $\underline{10}$ e pavómast $\underline{10}$ a n
	{2}	pavósast $\underline{10}$ e pavósast $\underline{10}$ a n
	{3}	pavónt $\underline{10}$ a n(e) pavóntus $\underline{10}$ a n

What is in evidence here, therefore, is a tendency towards greater regularity in SP_{10} of {+ Pass, - Perf, + Past, - K} verb forms compared with equivalent {+ Pass, - Perf, + Past, + K} forms: F_{10} a occupies SP_{10} in four forms (in the two {3} forms categorically, and in the two {+ Pl, - 3} forms in alternation with e). Also F_{10} a as a {+ Past} formative contrasts with {- Past} F_{10} e. From that point of view, it will be realized, the alternation between F_{10} a and e in the structure of {+ Pass, - Perf, + Past, + Pl, - 3, - K} verb forms treated by rule (i) above is not "free": indeed, the appearance of F_{10} e neutralizes {± Past} distinctions in the forms under consideration (i.e. it renders them, given the rare appearance of the augment, indistinguishable from their {- Past} counterparts, e.g.

{+ Pass, - Perf, ± Past, + Pl, - K} {{1}: pavómaste / {2}: pavósaste}

unlike the appearance of F_{10} a which maintains {± Past} distinctions

		{± Past}	{+ Past}
{+ Pass, - Perf, + Pl, - K}	{1}	pavómaste 10	pavómastan 10
	{2}	pavósaste 10	pavósastan 10

It does not seem out of place, therefore, to revise rule (i) above so that the two formatives in its output are distinguished on an "earlier/later" basis:

Rule 65

$$\{+Pass,-Perf,+Past,+Pl,-3,-K\} \longrightarrow \begin{pmatrix} a \\ e \end{pmatrix} / \begin{Bmatrix} m \\ s \end{Bmatrix} \quad + ast \text{ ——}$$

The formative at the top of the three-cornered brackets is the "later"formative, in contrast to the one at the bottom which is the "earlier". Here too, it will be realized, providing in the rule information concerning the exact frequency (or probability) levels of the two formatives does not improve upon the regularities already captured. In other words, the important fact, as we see it, is that F_{10} a is more "regular" and, perhaps for this reason, "spreading", unlike F_{10} e which, perhaps due to its "irregular" character, is "retreating". Their relative frequency levels may vary in time and geographic and social space but that does not change the general pattern captured by rule 65.

8. VARIATION IN SP_{12}

Rule 36 in Ch.IV, 3.12 above reproduced below as (i) states that $\begin{bmatrix} -back \\ -high \end{bmatrix}$ vowels (i.e. e or a) appear "optionally" in word-final position following n in the presence of the value {- K} on condition that the stem is not already followed by more than

two syllables (configurations of inflectional formatives cannot add up to more than three syllables in MGK):

(i) $\{-K\} \longrightarrow \left\langle \begin{bmatrix} V \\ -back \\ -high \end{bmatrix} \right\rangle$ / # STEM + $C_o V_o^1 C_o$ Vn —— #

e.g. pȧvun(e), pȧvan(e), pȧpsun(e), pȧpsan(e), paftún(e), paftȧkan(e), pavȯmun(a), pavȯsun(a), pavȯtan(e), pavȯntan(e).

As it stands, rule (i) above does not really break the confines of "optional" rules of traditional generative grammar in any important way. Indeed, it conceals the following facts:

a. As indicated in our data, an "optional" word-final vowel appears more often than not. More precisely, the rule applied 184 times out of the 262 cases that its input conditions were met, i.e. at a frequency level of 0.7.

b. The frequency level of the application of the rule is affected by the phonological environment following the word-boundary. Before pause or in utterance final position the application of the rule is favoured most, if a consonant follows it is favoured less and if a vowel follows least. Table Eleven below shows the observable frequencies found in the data. For each environment the number of times the rule has applied is given over the total number of times that it could have applied. The same number is given in parenthesis

as a percentage.

TABLE ELEVEN: The effect of following phonological environment on frequency level of "optional" final vowel.

—{# / ##}	—## C	—## V	TOTAL
47/54 (0.87)	101/143 (0.71)	36/65 (0.55)	184/262 (0.7)

Table Eleven supports the view of the vowels in question as "euphonic". Indeed, it appears that what is reflected in the table is the tendency of the {- K} level of the language to change strings of the form CVn into the more "acceptable" form CVnV e.g. pȧvun → pȧvune. In other parts of the grammar the same effect is achieved through the elision of final n e.g. pȧvomen → pȧvome (see Ch.III, 7.5.2.a.).

To incorporate the facts of Table Eleven in our grammar we will revise rule (i) above so that now it contains the variable environmental constraint ⟨EUP⟩ (a mnemonic for the "euphonic" character of the output of the rule), which comprises the set of constraints ⟨EUP - 1⟩ i.e. —{# / ##}, ⟨EUP - 2⟩ i.e. — ## C, and ⟨EUP - 3⟩ i.e. —## V.

Rule 66

$$\{-K\} \longrightarrow \left\langle \begin{bmatrix} V \\ -back \\ -high \end{bmatrix} \right\rangle \;/\; \# \text{ STEM} + C_o\, V_o^1\, C_o\, Vn \longrightarrow \# \langle EUP \rangle$$

where $\langle EUP \rangle$: $1 \geqslant p\langle EUP-1 \rangle > p\langle EUP-2 \rangle > p\langle EUP-3 \rangle \geqslant 0$

Due to the "euphonic" nature of its output, rule 66 above is morphophonemic, and applies after all morpholexical rules have applied.

9. VARIATION IN THE STRESS PATTERN

Sections (d) and (e) of rule 38 in Ch.IV. 4.2.9. above repeated below as rule 38', sections (d) and (e):

Rule 38'

$$V \longrightarrow \begin{bmatrix} V \\ +stress \end{bmatrix} / \begin{cases} \# \langle XVY \rangle_{STEM} \; C_o - C_o\, V\, n\, \# \;/\; \{+Pass, +Pl, 3, -K\} & \text{(d)} \\ - C_o\, V\, C_o\, V\, C_o\, \# \;/\; \{+Past\} & \text{(e)} \end{cases}$$

read that in the presence of the feature {+ Past} the stress normally falls on the antepenult (section (e)), e.g.

$$\{-Pass, -Perf, +Past\} \begin{cases} \{-Pl, 1\} : \text{épava} \\ \{+Pl, 2\} : \text{pávate} \end{cases}$$

though this is not always the case[20] with verb forms realizing the cluster {+ Past, + Pl, 3, - K}. Indeed, in the presence of the above cluster, disyllabic {+ Past} verb forms (i.e. {+ Past} forms with a monosyllabic stem and a monosyllabic termination, and as such having neither a "euphonic" final vowel or an augment) ending in n are always stressed on the penult, e.g.

{-Pass,+Past,+Pl,3,-K} { {-Perf}: pávan but épavan, pávane
                       { {+Perf}: pápsan but épapsan, pápsane

whereas verb forms with more than two syllables are sometimes stressed on the penult (i.e. by section (d)) e.g. epávan, epavóntan, and sometimes on the antepenult (i.e. by section (e)) e.g. épavan, pávontan. In other words, section (d) applies variably in the presence of the variable constraint ⟨XVY⟩, that is, when there is at least a third syllable from the end of the verb form, X and Y standing for any string within a single verb form or even for zero segments. As shown by the brace convention, sections (d) and (e) are conjunctively ordered, i.e. in the case of verb forms satisfying the input conditions of both sections, i.e. {+ Past, + Pl, 3, - K} forms with more than two syllables, such as nomizan, kopanisan, epavontan, paftikan, etc., first, variable section (d) is tried for application: if it applies, the stress

falls on the penult, nomízan, kopanísan, pavóntan, paftíkan; if it does not, section (e) applies to stress the antepenult: nómizan, kopánisan, pávontan, páftikan. Furthermore, section (d) applies categorically in the case of disyllabic {+ Past, + Pl} forms, in which case section (e) is blocked from applying.

As it stands, rule 38' suggests that section (d) is less general than section (e), hence the former applies before the latter. The above view is corroborated by our data up to a point, due, yet again, to the small number of tokens, where section (d) appears to apply less often than section (e) in the case of {+ Past, + Pl, 3, - K} verb forms ending in -n, with more than two syllables, (but, as we said above, categorically in the case of disyllabic forms), e.g.

1/7/15 R. ... sa ná leyes ... pós ton léyan aftón pu leyó ...

sa ná leyes lubjé.

(= it's as if you said ... what did they call the man who was called ... it's as if you said Lubjé)

cf. éleyan, léyane

2/19/20ff T. a, ti ðeftéra arxízete ðjayonismús, e?

(= ah, on Monday exams are starting, aren't they?)

P.D. símera (= today)

J.L. ke yrápsan eglézika? (= and they took English)

cf. éyrapsan, yrápsane

2/3/13 J.L. tin óra pu évyene ap to estiatório tis dīni dío xastúkja! ... na fantastís oti stamatísane t aftokínita ke nómizan oti éyine trakárizma

(= as he was coming out of the restaurant he gave her two slaps on the face! ... just imagine, cars stopped and people thought there had been a crash)

cf. nomízan, nomízane.

The above fact can be grasped by assigning section (d) of rule 38' (when it is variable, i.e. when it is activated by a word form with three or more syllables) a probability p (R 38'd) as follows:

$$1 > p(R\ 38'd) \geqslant 0$$

i.e. the probability of application of section (d) of rule 38' is smaller than 1 and greater than or equal to 0. Since, given the appropriate input conditions, if variable section (d) applies, section (e) does not, and vice versa, it follows that in fact both sections are variable in the case of {+ Past, + Pl, 3, - K} forms with more than three syllables. However, the brace convention allows us to arrange them in "bleeding"order (first the more particular section (d) followed by the more general section (e), the latter applying in cases not already treated by the former), and hence treat as variable only the one that applies first. In

other words, it is only because of the particular conventions we use that variability appears to be a property of section (d) and not of section (e) in the case of forms satisfying the input conditions of both section (d) and (e). The point cannot be stressed often enough, for, as we have repeatedly said, in the literature it often escapes attention that, however sensitive to the facts a particular descriptive apparatus appears to be, it still creates patterns that are not a property of the linguistic facts under description and are adopted only for the sake of expediency.

10. VARIABLE SANDHI INTERACTION BETWEEN CONSONANTS

Sandhi rule 44 in Ch.IV, 5.2.5. above, repeated below as rule (i), accounts for the interaction of adjacent [+continuant] consonants:

(i)

$$\begin{bmatrix} C \\ -\text{voiced} \\ +\text{cont} \end{bmatrix} \rightarrow [-\text{cont}] \Big/ \begin{cases} \begin{bmatrix} -\text{coronal} \\ +\text{anter} \end{bmatrix} \\ \begin{bmatrix} C \\ -\text{voiced} \\ +\text{cont} \end{bmatrix} \end{cases} \begin{cases} \begin{bmatrix} C \\ -\text{voiced} \\ +\text{cont} \\ +\text{coron} \\ +\text{anter} \\ +\text{strident} \end{bmatrix} & \text{(a)} \\ \begin{bmatrix} -\text{strident} \end{bmatrix} & \text{(b)} \end{cases}$$

According to rule (i), given two adjacent voiceless fricatives, a process of dissimilation with respect to the feature [+continuant]

changes one of them to plosive as follows: (a) given a [+strident] (s) second segment, the first segment changes to plosive categorically, xs → ks, e.g. sfíxso → sfíkso, unless it is [-coronal, +anterior] (f), in which case it changes "optionally", fs → {f, p} s, e.g. páfso → pá{f, p} so

(b) if the second segment is [-strident] (θ), then it becomes a plosive, irrespective of the specification for stridency of the first segment: {s, f, x} θ → {s, f, x} {θ, t} e.g. xriasθó → xrias{θ, t} ó, pafθó → paf{θ, t} ó, pexθó → pex{θ, t} ó.

What rule (i) above fails to state is how the dissimilation process in question is affected by various constraints.

(a) To begin with, the application of the rule is affected by {± K} distinctions in the following way:
The cluster fs never changes to ps in the presence of the feature {+ K} but changes "optionally" otherwise (i.e. in the presence of the feature {- K}) e.g.

{+ K} : páfso

{- K} : pá{f, p} so

whereas, in the case of the cluster xs, {± K} distinctions are irrelevant, since, as we said above, xs always changes to ks.

(b) The above statement will have to be revised to take account of the following lexemes: GRÁFO (= I write), ANTIGRÁFO (= I copy) PERIGRÁFO (= I describe) etc. (all of them having stems of the general structure (PREFIX) GRÁFO) in that in their case fs always changes to ps irrespective of {± K} distinctions: yrápso, antiyrápso, periyrápso, etc. Another irregularity of the above verbs consists in blocking the appearance of F_4 θ in the presence of the feature {+ K} and in allowing it "optionally" otherwise (i.e. in the presence of the feature {- K}), though in the latter case θ always changes to t after f:

1/25/3 E.C. éla léye, efkería, θa katayrafís
(= go on, speak, it's an opportunity, you'll be recorded)
cf. *katayraftís

1/12/15 R. yia na yrafti mjá musikí yja ikosiéksi trayúdja.....
(= for music for 26 songs to be composed ...)
cf. yrafí

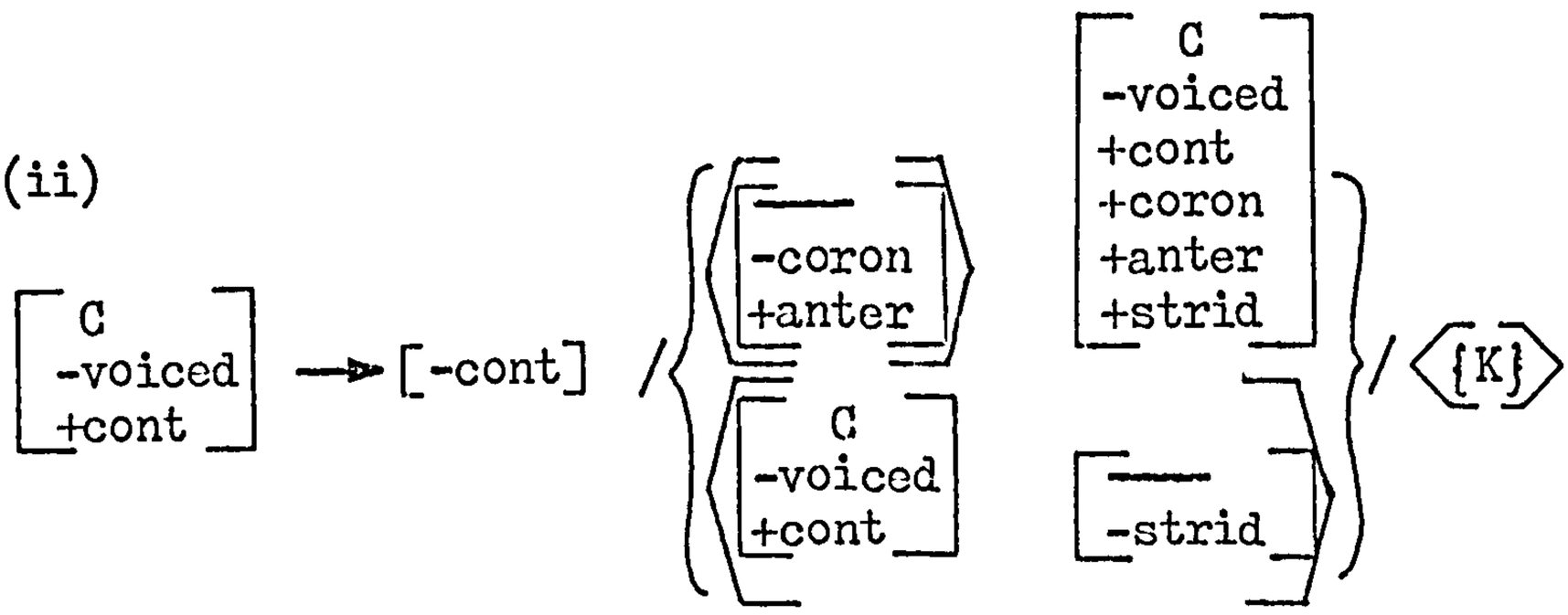
The effect on the dissimilation rule in question of the above group of verbs can be accounted for by introducing the following condition:[21]

CONDITION: Apply rule (i) categorically in the case of the (PREFIX) GRÁFO group of verbs.

It should not escape our attention, however, that the effect of the (PREFIX) GRÁFO verbs on the dissimilation rule in question is not as ad hoc as the above condition might suggest. Given the fact that these verbs have been in the language since ancient times, and also that (at least in our days of widespread literacy) they are very common, it seems reasonable to suggest that they have facilitated the spread of the dissimilation rule under consideration outside their own paradigms. In terms of implicational scaling, they provide, historically speaking, the first environment for the dissimilation rule to apply categorically in the case of the cluster fs, whereas, even in MGK, other lexemes allow the rule to apply on fs variably in the presence of the feature {- K} and block its application in the presence of the feature {+ K} (see examples below).

To go back to point (a) above, the effect of {$\pm$ K} distinctions on the dissimilation process in question can be grasped if rule (i) above is revised as follows:

(ii)



where ⟨{K}⟩ : $1 \geq p\ \langle\{-K\}\rangle > p\ \langle\{+K\}\rangle = 0$

CONDITION: Apply rule categorically in the case of the (PREFIX)GRÁFO group of verbs.

The variable constraint ⟨{K}⟩ does not affect the application of the rule when the latter applies categorically, i.e. in section (a) xs always changes to ks, whereas, when its input conditions for variable application are met, it is favoured by the presence of the variant {- K} but blocked by {+ K} .

The condition at the bottom of the rule defines that the rule applies categorically in the case of such verbs as GRÁFO, PERIGRÁFO ANTIGRÁFO, etc.

As it stands, rule (ii) accounts for our data fairly accurately. Indeed, of the forty-three cases that satisfy the input conditions of its variable section (section (a)), the rule applies thirty-eight

times and does not apply five times, i.e.it applies 38/43 x 100 = 0.88. e.g.

1/29/12 V.L. e, na, yoítefses álon próta apóména

(= there you are, you have charmed somebody else before me)

cf. yoítepses

1/20/7 R. éprepe fisioloyiká na ítan étsi ... áma tú xane skotósi ... étsi káti trayikó na xe simvísti zoí tu, ke teliká íxe kápsi to xéri tu

(=normally he should have looked like that ... if somebody had killed his ... if something as tragic as that had occurred in his life, and eventually he had simply burnt his hand)

cf. káfsi

2/2/26 J.L. ... tóra éxi ekselixθí

(= now [my dislike for you] has developed)

cf. ekselixtí

2/25/14 M.L. ... borí na mas xriastí mjá vdomáda

(= we may need it for a week)

cf. xriasθí

It may be recalled from the discussion of the variable augment rule 59 (see 2.2 above) that the augment rarely appears in the presence of {- K} inflectional formatives, sometimes appears in the presence of neutral (N) and "quasi-neutral" (Q-N) formatives, and always

appears in the presence of {+ K} formatives; furthermore, that verbs compounded with "genuine" prepositions (see note 6 in Ch.IV, 3.1.4.) and, generally, verbs which may be regarded as { + learned }, favour the appearance of the augment. The data suggests that exactly the same constraints operate here with respect to the dissimilation rule in question, only in the opposite direction: the same constraints that favour the appearance of the augment inhibit the application of the dissimilation rule. Indeed, in the examples from the data, whenever rule (i) does not apply (given that its input conditions are met, of course), the lexeme concerned is always { + learned } and the inflectional formatives present are {+ K} , N, or Q-N (but not {- K}); thus, of the following verb forms from the data, all of which have a { + learned } stem, yoítefses has a Q-N F_6 formative, e, and apoláfsis, ekselixθí and yefsθí have neutral (N) inflectional formatives, whereas ipeðéxθi has a {+ K} F_6 formative i; of course, more often than not, in the case of { + learned } stems followed by N and/or Q-N formatives, the rule does apply, e.g. ékapse, kápsi, pápso, xriastís, ðiefkrinistún, pextí, xriastí, eroteftó, skeftó, apoðixtí, anixtí, whereas in the case of {+ K} formatives it never applies: ipeðéxθi; finally, in the presence of { - learned } stems and/or {- K} formatives, the rule always applies.

1/79/1 V.L. psárepses, where {-learned} stem PSARÉVO (= I fish) is combined with {- K} F_6 e, as opposed to iliefsas, i.e. {+learned} ALIÉVO plus {+ K} F_6 a.

2/13/9 J.L. dulépso, i.e. {-learned} DULÉVO (= I work) plus N F_6 o, as opposed to eryasθó of the {+learned} lexeme ERGÁZOME.

3/3/4 S.M. ipodéxtike, ({- K}), as opposed to ipedéxθi ({+ K}) the lexeme involved in both variants being {+learned} IPODÉXOME (= I receive)

A more precise picture of the effect on the variable application of rule (i) above of the two variable constraints in question is reflected in Table Twelve below containing the observed frequencies contributed by each of the variants of the two variable constraints in our conversations .

TABLE TWELVE: Observed frequencies contributed by the variants of two variable constraints to the tendency for one of two adjacent voiceless fricatives to become plosive.

VARIABLE CONSTRAINT ⟨INFF⟩	⟨{-K}⟩	⟨Q-N⟩	⟨N⟩	⟨{+K}⟩
	16/16 (1.)	4/4 (1.)	22/26 (0.84)	0/1 (0.0)
VARIABLE CONSTRAINT ⟨LND⟩	⟨{-learned}⟩		⟨{+learned}⟩	
	10/10 (1.)		33/37 (0.89)	

The relative order of the above variants in terms of probabilities contributed to the application of the rule is as follows:

$\langle \text{INFF} \rangle$: $1 \geqslant p\langle \{-K\} \rangle > p\langle Q\text{-}N \rangle > p\langle N \rangle > p\langle \{+K\} \rangle \geqslant 0$

$\langle \text{LND} \rangle$: $1 \geqslant p\langle \{-\text{learned}\} \rangle > p\langle \{+\text{learned}\} \rangle \geqslant 0$

Another interesting point concerning the variable application of rule (i) above is that it applies on clusters made up of voiceless fricatives not only at the juncture between stem and F_4 formatives but also in stem-medial position, only at different frequency levels. Table Thirteen below presents the observed frequencies for rule (i) above in the two morphological contexts under consideration:

TABLE THIRTEEN: Observed frequencies of the tendency for one of two adjacent voiceless fricatives to become plosive in two morphological environments

At juncture between stem and F_4 formatives	In stem-medial position
$\frac{43}{47}$ (0.91)	$\frac{14}{30}$ (0.47)

As is clear from the above table, rule (i) above is much more likely to apply on clusters of voiceless fricative consonants at the juncture between stem and F_4 formatives (s or θ) than in stem-medial position. Although the latter morphological environment is, strictly speaking, outside the scope of this study, and although we have not traced the application of rule (i) outside the verb, it might be of some tentative value if we introduced a third variable constraint, the morphological context ⟨MC⟩ in which rule (i) applies, which has two variants, ⟨STEM - F⟩, denoting the juncture between stem and F_4 formatives, and ⟨STEM - M⟩ denoting stem-medial position for the consonant clusters treated by the variable sections of rule (i) above. The relative order of the two variants in terms of weight is, as suggested by Table Thirteen, as follows:

$$\langle MC \rangle: \quad 1 \geq p\langle STEM - F \rangle > p\langle STEM - M \rangle \geq 0$$

Before we cite examples from the data concerning the variable application of rule (i) on consonant clusters in stem-medial position it would be interesting to note that the rule applies on stem-medial consonant clusters: (a) categorically, in the case of {-learned} stems; thus ftjáno (= I do, I make) (as opposed to {+learned} kataskevázo) never appears in the form fθjáno, e.g.

1/64/18 E.C. esí siníθos <u>ftjáxnis</u> ti fasaría

(= it's you who as a rule cause trouble)

(b) optionally, in the case of {+learned} stems, e.g.

1/48/16 S. <u>efxaristó</u> (= thanks) cf. ?<u>efkaristó</u>

1/63/9 E.C. eyó mjá forá θa su <u>efxiθó</u> sti yjortí su

(= I, for one, will give you my best wishes on your birthday)

cf. ? <u>efkiθó</u>

2/11/6 J.L. aftó pu les <u>isxíi</u>

(= what you're saying is valid)

cf. ? <u>iskíi</u>

2/3/27 J.I. mi nomízis oti epidí bíkes sti zoí mu íse ke se θésí na ti <u>ðjefθínis</u>

(don't assume that because you've entered my life you are in a position to <u>run</u> it!)

cf. ? <u>ðjeftínis</u>

On the basis of the above discussion, the frequency levels for rule (i) contributed by the variant ⟨STEM - M⟩ (see Table Thirteen above) are presented in the following table in relation to the variants of the variable ⟨LND⟩ present:

TABLE FOURTEEN: Observed frequencies for the change of one of two adjacent voiceless fricatives in stem-medial position to plosive in relation to { ± learned } distinctions in the stem.

{ -learned }	{ +learned }
$\frac{8}{8}$	$\frac{39}{59}$
(1.0)	(0.56)

To account for the above facts we will revise rule (i) above so that its variable application depends, not on the constraint ⟨{K}⟩ (i.e. on {± K} distinctions represented in the complex symbol of the verb even "before" the application of the morpho-lexical rules) but on the inflectional formatives present (variable constraint ⟨INFF⟩, comprising the variants {+ K}, ⟨N⟩, ⟨Q-N⟩, and {- K}), on { ± learned } distinctions characteristic of the verbal stem (variable constraint ⟨LND⟩), and on the position, in the structure of the verb form, of the consonant cluster meeting the input conditions of rule (i) (Variable constraint ⟨MC⟩, i.e. morphological context, comprising the variants ⟨STEM - F⟩, i.e. juncture between stem and F_4 formatives, and ⟨STEM - M⟩ i.e. stem-medial position).

Rule 67

$$\begin{bmatrix} C \\ -\text{voiced} \\ +\text{cont} \end{bmatrix} \rightarrow [-\text{cont}] \Big/ \left\{ \left\langle \begin{bmatrix} \\ -\text{coron} \\ +\text{anter} \end{bmatrix} \begin{bmatrix} C \\ -\text{voiced} \\ +\text{cont} \\ +\text{coron} \\ +\text{anter} \\ +\text{strident} \end{bmatrix} \right\rangle \left\langle \begin{bmatrix} C \\ -\text{voiced} \\ +\text{cont} \end{bmatrix} \begin{bmatrix} \\ -\text{strident} \end{bmatrix} \right\rangle \right\} \Big/ \langle \text{INFF} \rangle, \langle \text{LND} \rangle, \langle \text{MC} \rangle \qquad \text{(a)}$$

(b)

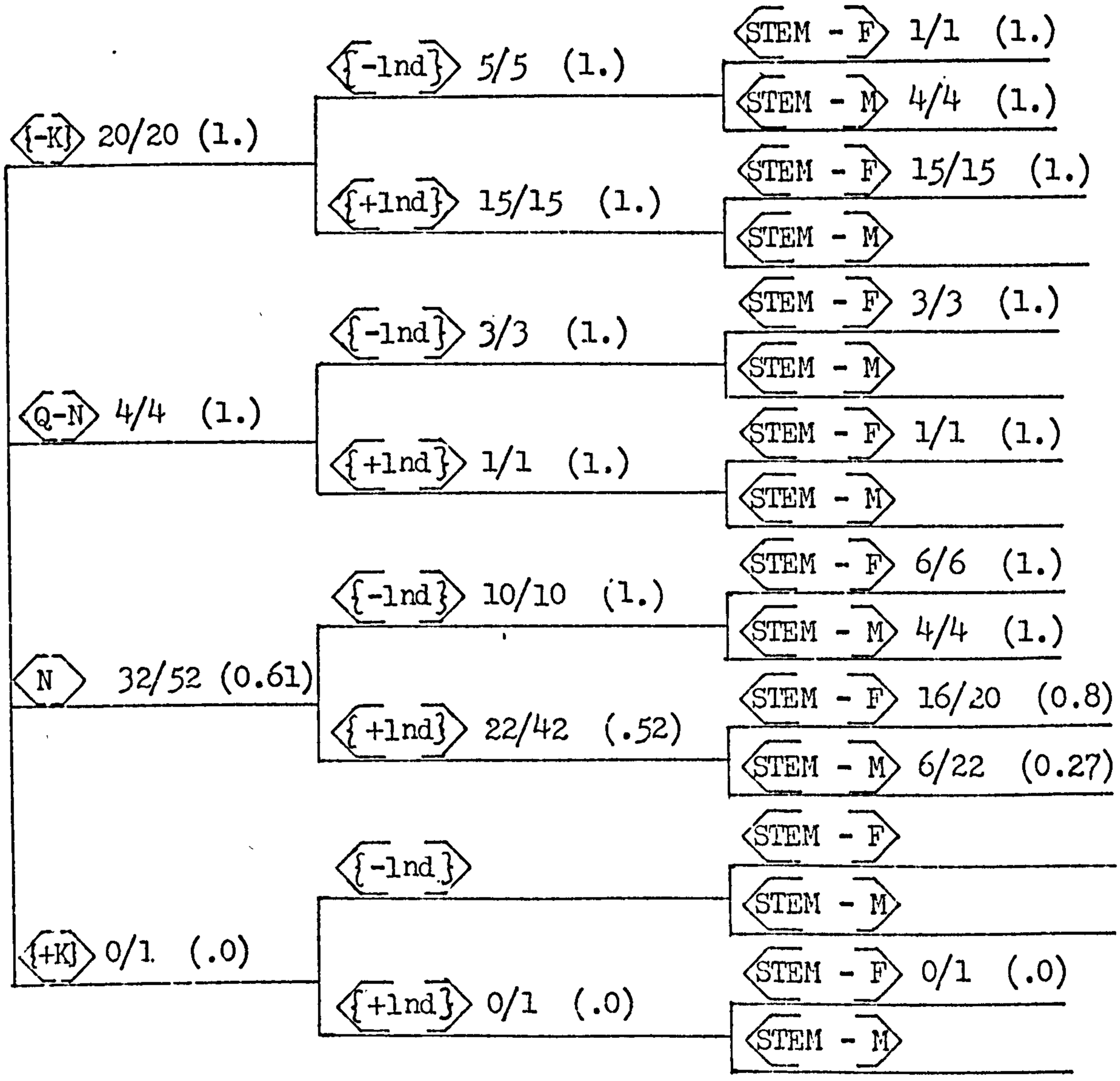
where $\langle \text{INFF} \rangle$: $1 \geqslant p\langle \{-K\} \rangle > p\langle Q\text{-}N \rangle > p\langle N \rangle > p\langle \{+K\} \rangle \geqslant 0$

$\langle \text{LND} \rangle$: $1 \geqslant p\langle \{-\text{learned}\} \rangle > p\langle \{+\text{learned}\} \rangle \geqslant 0$

$\langle \text{MC} \rangle$: $1 \geqslant p\langle \text{STEM - F} \rangle > p\langle \text{STEM - M} \rangle \geqslant 0$

CONDITION: Apply the rule categorically in the case of the (PREFIX) GRÅFO group of verbs.

For the establishment of possible weight relations between constraints across families the following horizontal tree arrangement will be of help:



Notwithstanding a number of empty or sparsely populated cells we can observe that the frequencies tend to decrease as we move from top to bottom within each family. Notice that the sequences of categorical cells are the result of the two "knockout" constraints (i.e. constraints whose presence causes a variable rule to become categorical), namely, {- K} , and {-1nd} .

11. VARIABLE SANDHI INTERACTION BETWEEN NASALS AND FOLLOWING STOPS

Rules 45 and 46 (see Ch.IV, 5.2.5.) reproduced below as, respectively, rules 45' and 46':

Rule 45'

$$\begin{bmatrix} C \\ -\text{voiced} \\ -\text{cont} \end{bmatrix} \longrightarrow [\ +\text{voiced}\ ] \ / \begin{bmatrix} C \\ +\text{nasal} \end{bmatrix} \text{——}$$

e.g. pávonte → pávonde

Rule 46'

$$\begin{bmatrix} C \\ +\text{nasal} \end{bmatrix} \longrightarrow \langle \emptyset \rangle \ / \text{——} \begin{bmatrix} C \\ -\text{contin} \\ +\text{voiced} \end{bmatrix}$$

e.g. pávonde → pávo(n)de

account for the sandhi interaction between F_7 n and F_8 t in {+ Pass, - Perf, + Pl, 3} forms (see examples above). In our data, variable rule 46' applies on twenty out of twenty-two cases meeting its input conditions:

1/21/10ff R. ... ton épjase étsi ke ton fílise
(= he got hold of him like this and kissed him)

V. metá apesírθisan?
(= did they retire afterwards?)

E. étsi, ta páθi ekspáptode
(= that's that, passions do flare up!)
[where ekspáptonte → ekspáptonde → ekspáptode]

1/35/13 R. tis lέi, na s'eksomoloyί'so, tis lέi, kseroyό, afίende i amartίes su kj aftά

(= he [my father] says to her [my grandmother], let me hear your confession, he says, I don't know, your sins have been forgiven, and things.

[where afίente → afίende]

As we noted above with respect to the two cases where rule 46' has not applied, although nt normally goes to d in rapid speech, n is retrievable if the speaker wishes to be emphatic, mock-pompous, teasing and the like. Remember too, (Ch.IV, 5.2.4. n.20) that the two rules under consideration, along with the stylistic constraints to the application of rule 46' just mentioned, are not limited to the resolution of the interaction of F_7 n and following F_8 t, but apply outside the inflectional formatives of the verb and also across word boundaries, and involve not only nt but also mp and ŋk (all three clusters complying to a rule stating that a nasal and a following plosive are homorganic). The following two examples from the data demonstrate the stylistic effect of arresting the "routine" application of rule 46' in the case of stem-medial nasal clusters.

K. ti les kale tsim:burόpule!

(= what are you talking about, Tsim:buropulos, dear!)

The utterance was produced by a girl to tease a friend. The teasing is multilevelled in that, (a) she uses her friend's surname

in addressing him, in breach of the sociolinguistic rule defining that she should use his first name instead (i.e. the surname combined with singular verb forms is used in addressing a non-solidary person either of equal status, e.g. pupil to pupil, or of inferior status, e.g. teacher to pupil; (see Daltas, 1972,p.50); (b) her friend's name is Tsipurópulos<tsipúra (=turbot) + suffix -opulos[22], and not Tsi(m)burópulos<tsi(m)búri (=tick, also somebody who you cannot easily get rid of) + opulos. In other words, she uses his surname not only in order to convey an impression of mock-pomposity and, possibly, mock-bossiness, but also because his surname is "funny"; as if that was not enough, she makes use of the substitution possibilities between p and b in his surname to extract even more "fun" out if it: tsipúra→tsibúri; to crown it all, she actually reverses the application of rule 46', in that, although b in tsibúri does not derive from "underlying" mb, she goes from b to mb, nay, to m:b: Tsipurópule→tsiburópule→tsimburópule tsim:burópule, i.e. she not only retrieves the nasal which rule 46' normally deletes before a voiced plosive, but she lengthens it so that everybody present may enjoy the joke.

2/2/1¼ff M.L. [examining a pile of essays written by the students in one of my English classes]

ðe mu les, ólo yinékes éxis sti dáksi su?

(= I say, there are only women in your class, aren't there?)

T. [leafing through another pile]

edo pé́ra í́ne ó́lo <u>á́ndres</u>

(= over here it's only men)

J.L. [at first mock-pious/biblical and all of a sudden rather crude]

ksexorí́ste ta pró́vata á́po ta erí́fia ... a re alá́ θa

petaxtí́ kanas <u>á́ndras</u> varvá́tos, vre si, ke θa su

dí́kso eyó.

(= separate the sheep from the goats!.... but there will jump up a virile man, just you wait, and I'll show you what's what)

In M.L.'s utterance, we observe the normal application of rules 45' and 46' at word boundaries: <u>stin tá́ksi su</u> → <u>stin dá́ksi su</u> → <u>sti dá́ksi su</u>. Notice the "nice", learned cluster <u>ndr</u> in <u>á́ndres</u> produced by T., a girl of twenty-two, M.L.'s latest girl friend, who, either by nature or because she is visiting my house for the first time, speaks rarely, in a gentle voice, and always in response to the inexhaustible output of teasing, crudeness, political commentary, etc., of the two brothers, M.L. and J.L., both of them old friends of mine. In contrast, the "vernacular" or "demotic" <u>ndr</u> in <u>á́ndras</u> produced by J.L. is in keeping with the crudeness of the second part of his utterance. The non-application of rule 46' above, i.e. <u>á́ndras</u> and not <u>á́dras</u>, succeeds, along with the appropriate

intonation and harshness of voice quality, to convey the impression of rudeness, especially since all this is happening in abrupt contrast to the "biblical" beginning of J.L.'s utterance.

It should be noted that in recordings of natural speech it is not always easy to decide whether a nasal appears before a plosive or not. In the two extracts above, where, for the purposes of emphasis, the nasal is clearly pronounced, i.e. m:b and nd, there is no problem. In the examples, however, of {+ Pass, - Perf, + Pl, 3} verb forms earlier on in this section, the possibility can be entertained that some traces of the nasal are in fact present: ^{n}d rather than d (or nd). Knowles' word of caution (1978) concerning the possibility that "the listener may well identify segments from information in the environment" (p.82) and that "we may have anticipated the results in the way we transcribe and interpret the variables" (p.90) is of relevance here. We could, therefore, argue that the application of rule 46' should be seen as resulting either in the total elision of a nasal before a voiced plosive: nd → d, or in its reduction to a degree that it is not perceived by native speakers as an independent segment: nd → ^{n}d.

Now, in cases where the application of rule 46' is normal and therefore expected, its non-application has considerable stylistic weight in that it adds emphasis to a joke, etc.

By non-application of rule 46' we mean the clear presence of the nasal before the plosive, clear enough, that is, to perform an emphatic function. This does not mean, of course, that, given the possibility for the appearance of one of the clusters nd, mb or ŋg in a "funny" utterance, the nasal is categorically present to add emphasis to the joke. It could be used, along with the appropriate kind of intonation, quality of voice, facial expression, gestures and the like to "dress" the joke, in fact the joke could well be simply the presence of the nasal, but it is not necessarily used: the jocular impression could be conveyed by lexical means only, for instance.

It should be appreciated that what we are talking about here is not whether in a particular utterance we can hear a nasal before a voiced plosive clearly enough to jot it down in our transcription as one more case of non-application of rule 46', for there are bound to be cases that the evidence (at least, as provided by the human ear) is inconclusive; rather, we are interested in the more general pattern provided by both the clear and the inconclusive

cases: in normal, unemphatic speech the nasal tends to be reduced or is completely elided before a voiced plosive, and the more rapid the tempo the less likely it is for even traces of the nasal to be present; contrarywise the probability of apperance of the nasal before a voiced plosive increases to the extent that, in a particular utterance, some stylistic (jocular) effect is sought, even though the effect can be achieved by other means.

The point just made can serve as evidence against the particular probabilistic model suggested by Sankoff and Cedergren, 1974, and adopted by Labov, where meticulous counting of tokens is somewhat narrowly regarded as all important: once you get your observed frequencies right it is child's play to state the corresponding probabilities, the latter assumed to be part of a speaker's competence. The problem is that when it comes to certain phonetic variables we can only "count" if we artificially divide the phonetic continuum into discrete units, some (or all) of which we cannot hear unambiguously anyway in the context of unmonitored speech. In fact, even in the case of morphological units, counting is far from self-evident as the discussion in chapters II and III has, I hope, amply demonstrated, at least as far as the MGK verb goes. In terms of Knowles again "until we have identified the variables properly, we have no computible units on which to base

our calculations", (op.cit. p.82)

In contrast, counting (of clear cases only) is assigned a modest, yet useful function in our study, namely, it helps identify the dynamics in a certain area of variation. Thus, with respect to rule 46' above we will assign the rule a probability of application p (R 46') as follows:

$$1 \geqslant p\ (R\ 46') > 0$$

i.e. The rule applies more often than not. As we have repeatedly mentioned above in regard to several variable rules which tend towards categorical application or non-application, the breaking of norms (in the case of rule 46' above, failure to apply) is often employed for its stylistic effect though "the same" effect may be achieved by a variety of other means.

12. VARIABLE SANDHI INTERACTION BETWEEN VOWELS

Rules 49, 50 and 51 in Ch.IV, 5.3.3. above, deal with the sandhi phenomena (not covered by HoD; see Ch.IV,5.3.2.) between F_3 a of $\{STv_1\}$ verbs (AGAPÁO) and adjacent F_6 vowels. The reader's attention was drawn to the fact that all three rules applied optionally in the presence of the value {- K} and categorically otherwise (i.e. in the case of {+ K} verb forms). The implementation

of the variable constraint⟨{K}⟩ comprising the variants {+ K} and {- K} in the case of the above three rules will render them in more elegant and economical form as we shall show presently, and, more importantly, it will account for the facts more adequately.

12.1. Rule 49 will take now the following shape

Rule 49'

$$i \longrightarrow \langle \emptyset \rangle / \; a \text{ —— } \# \; / \; \{ STv, \langle \{K\} \rangle \}$$

CONDITION: Apply the rule instead of HoD.

The rule reads that word final i preceded by a in the case of {STv} verbs (e.g. {- Pass, - Perf, - Past, - Pl, 3, STv_1} ayapàì) is elided "optionally", the particular frequency levels determined by the variant present ({+ K} or {- K}) of the variable constraint⟨{K}⟩. The rule applies instead of, rather than simply before, HoD to ensure that forms such as ayapàì do in fact appear overtly. In other words, since HoD applies categorically (a + i ⟶ a) we must have a variable rule to deal with ayapàì ⟶ ayapà(i). Of course, that could be achieved by attaching a condition such as the following to HoD:

Apply optionally in the case of the cluster {-Pass, -Perf, -Past, -Pl,3, STv_1, ⟨K⟩}

though little would be gained by it, and some measure of elegance, it might be suggested, would be lost in the process. To go back to the constraint ⟨{K}⟩ and the way its variants affect the application of rule 49', we have already said in connection with rule 49 above that i is always deleted if the value {+ K} is present, otherwise it is deleted "optionally". In our data, of the thirty-one cases meeting the structural description of rule 49'. not one is in fact treated by it (in other words, it is always ayapai and never ayapa appearing in the data, i.e. the observed frequency of the rule is 0.0). Given the small number of tokens in the data, we will take account of our intuitions and specify the effect of the variants {+ K} and {- K} on the frequency levels of the rule in more general terms as follows:

$$1 \geqslant p\langle\{+K\}\rangle > p\langle\{-K\}\rangle \geqslant 0$$

In the above form rule 49' accounts adequately not only for the facts in our conversations where the feature {- K} contributes zero frequency of application:

1/33/14 R. ... ke ksekinái pu les ke su:lέi ... ti rotái i mitéra mu, pu θa páte mamá?

(= ... and she sets off, you know, and she tells you ... my mother asks her, where are you going, mummy?)

but also for, say, the following opening lines from a poem by O.Elytis, put to music by M.Theodorakis a few years ago, and still popular with many Greeks:

i púlja pu 'xi eftá pedjá
mesa stus uranús perná
kápote líyo stamatá
sto ftoxikó mu ke kitá

(= Pulja [i.e. the Pleiades] who has seven children
crosses the skies
sometimes stops a bit
at my house and looks in)

where i has been deleted from the {- K} forms perná (= she passes), stamatá (= she stops) and kitá (= she looks in)(as opposed to {+ K} respectively, diérxete, staθmévi and vlépi) so that they can rhyme with pedjá (= children) in the first line.

12.2. Rule 50 in Ch.IV, 3.5.3. above, will be reshaped now, on the basis of the preceding discussion, as rule 50'.

Rule 50'

$$a \rightarrow \begin{bmatrix} \langle \emptyset \rangle \\ \emptyset \end{bmatrix} / \longrightarrow o \begin{bmatrix} \# \\ [+segm] \end{bmatrix} / \{ STv, \begin{bmatrix} \langle \{K\} \rangle \\ \{+K\} \end{bmatrix} \} \quad \begin{matrix} (a) \\ (b) \end{matrix}$$

CONDITION: Apply the rule instead of HoD.

Section (a) of the rule reads that a is deleted optionally before word-final o in the case of {STv} verbs, the likelihood of deletion being affected by the particular variant present of the variable constraint ⟨{K}⟩, i.e. {+ K} or {- K} ,

e.g. ayapáo → {ayapao / ayapó}

Section (b) reads that a preceding o is deleted categorically if, in the presence of the value {+ K} , o is followed by a phonological segment rather than a word-boundary, i.e. if it is word-medial,

e.g. ayapáomen → ayapómen.

With respect to the variable section of rule 50' above (section (a)) our data contains twenty-six verb forms that meet its structural description, though the deletion of a has taken place in only two of them; in other words the rule has applied $\frac{2}{26}$ x 100 = 0.07 times, e.g.

1/26/9ff E.C. eyó ðe miláo me ápirus ... me apírus nomízo θa ípe

(= I do not converse with inexperienced [ápirus] people ... with apírus, I think, he must have said.

V.L. kalá ne (= that's right, yes)

E.C. eyó ðe miló me apírus

(= I do not converse with inexperienced people)

1/42/8 V.L. mu édose éna lulúdi zuzunoidés pántos. kítakse se <u>roto</u>,
éxi mamúnja í den éxi
(= she has given me an insecty [insect-ridden] flower. Have a look, <u>I am asking you</u>, has it got insects or hasn't it?)

The frequency 0.07 mentioned above is contributed by the variant {- K} for there are no {+ K} forms among the twenty-six cases in the data. Since the value {+ K} causes the rule to apply categorically (though, as we have often said, even categorical rules are sometimes broken for the sake of stylistic effect, hypercorrection, etc.), the following relation holds between the two variants of the variable ⟨{K}⟩ with respect to frequency of application of rule 50'a:

$$1 \geqslant p\langle\{+K\}\rangle > p\langle\{-K\}\rangle \geqslant 0$$

12.3. Finally, rule 51 will be revised as follows:

<u>Rule 51'</u> $a \rightarrow \langle\emptyset\rangle / - u / \{ STv, \langle\{K\}\rangle \}$

<u>CONDITION</u>: Apply the rule before HoD.

The rule reads that, in the case of {STv} verbs, and depending on the variant ({+ K} or {- K}) present of the variable constraint ⟨{K}⟩, F_3 <u>a</u> is optionally deleted in the context before <u>u</u>, e.g. <u>ayápaume</u> →

ayapúme, ayapáun(e) → ayapún(e). Since the ("optional") deletion of a before u is in breach of HoD where a + u → a, the condition attached to rule 51' defines that the rule is ordered before HoD; rule 51' may, but does not necessarily, apply (since it is "optional") on such "underlying" forms as ayapáume and ayapáun(e); if it does, the result is, as we said above, respectively, ayapúme and ayapún(e); if it does not, HoD applies now on "untreated" ayapáume and ayapáun(e) to yield, respectively, ayapáme and ayapáne. In our data, out of sixteen cases where the input conditions of rule 51' are met, only one case is in fact treated by it, i.e. out of sixteen $\{STv_1\}$ verb forms where F_3 a precedes F_6 u only one exhibits deletion of a, e.g.

2/10/3 M.L. .. ta pérnun ftinά as púme ke metά ta metapulún aftί.

(= they buy them cheaply, you know, and then they resell them).

cf. $\{STv_1, -K\}$ metapulún to $\{STv_2, \pm K\}$ metapolún

or $\{STv_1, -K\}$ ksanapulán(e) (see following examples)

It may be suggested that the presence of the "learned" ($\{\pm K\}$) prefix meta- as opposed to $\{-K\}$ ksana- favours the application of rule 51' which reflects Ancient Greek regularities, e.g. metapuláun → metapulún rather than of the more "recent" HoD,

often uncharacteristic of the value {- K} e.g. metapuláun → metapulán. However, the verb root employed, pula- , is clearly {- K} and, as such, more recent, compared to pole- deriving from AG. The conservative effect of derivational prefixes (or "genuine" prepositions; see Ch.IV, 3.1.4.) such as meta- on the activation of rules reflecting AG regularities rather than more recent rules, has been noted above in this chapter with respect to the "optional " appearance of the augment (section 2.2.2.) and the sandhi interaction between adjacent consonants (section 10). It should be noted that metapulún is an interesting case of breached co-occurrence expectations: the topic (buying and selling) often requires "learned" forms such as metapolún, whereas the situation (informal conversation) and the demoticist linguistic ideology of the speaker demand their due too, which, in this case is the root pula- i.e. metapulún. Other alternatives that might have appeared under the circumstances would be metapolúne ("euphonic" final vowel) and metapulán(e) (rule 51' rather than HoD), combined with "optional" appearance of "euphonic" final e, though the appearance of either of the "consistent" forms {± K} metapolún or {- K} ksanapuláne would hardly be out of order.

The remaining fifteen verb forms in the data have been treated by HoD rather than rule 51', i.e. in them u is deleted and not adjacent a, e.g.

2/10/10 M.L. pándos tóte pu 'xame pái mazí me kino to fílo tu jáni na pári to úxer, to tí <u>pulán</u>e re pedjá

(= as a matter of fact, when I went with that friend of Jani's [who wanted] to buy the UHER, the things they sell, my friends!)

The observed frequency of rule 51' then, is $\frac{1}{16}$ x 100 = 0.06 which can be seen as contributed by the variant {- K} of the variable constraint ⟨{K}⟩ since <u>metapula-</u> can be regarded as a {- K} stem. In general terms, the relative effect of the two variants on the frequency of application of the rule is as follows:

$$1 \geqslant p\langle\{+\,K\}\rangle > p\langle\{-\,K\}\rangle \geqslant 0$$

12.4. It will be noticed that the relative effect of the variants {+ K} and {- K} of the variable constraint ⟨{K}⟩ on the frequency of application of all three rules discussed above is the same:

$$1 \geqslant p\langle\{+K\}\rangle > p\langle\{-K\}\rangle \geqslant 0$$

though the observed frequencies contributed by the variant {- K} differ from rule to rule as follows:

Rule 49': 0.0

Rule 50': 0.07

Rule 51': 0.06

Although there are no {+ K} forms in the data, the frequency contributed by the variant {+ K} can be assumed to be almost 1.0, almost, that is, in order to be able to account for the "creative" or (mock) hypercorrective breach, in further data, of the expected categorical application of the three rules above in the presence of the value {+ K}.

13. VARIATION ASSOCIATED WITH {± K} DISTINCTIONS

So far in this study we have assumed that the relation between the values {± K} and alternations in phonological form can be studied in precisely the same way as that involving "purely" grammatical distinctions such as {± Perf} or {± Past}. The above assumption has been necessary in that it has enabled us to organize the welter of inflections in explicit ways.

However, in this chapter we have had to look upon {± K} distinctions as variable constraints affecting the application of a number of rules on the synchronic dimension (a rule applies more often in the presence of one of the two contrastive values) and/or on the diachronic dimension (of two alternative forms, one, characteristic of one of the two contrastive values, tends to replace the other in successive environments). We have also observed that the

probability of application of certain rules is affected by the particular inflectional formatives present, i.e. according to whether the latter are perceived as unambiguously {+ K} or {- K}, or appear irrespective of $\{\pm K\}$ distinctions, or, finally, can easily be confused with formatives neutral with respect to $\{\pm K\}$ distinctions. In other words, the two contrastive values are set apart by the dynamic patterns of "more-less" and/or "ealier-later" with which they are associated as stylistic rather than purely grammatical in nature.

Furthermore, attitudes of native speakers towards forms characteristic of either {+ K} or {- K} are strong, though,as far as I know, nobody ever declares a preference for, or ideological allegiance to, say, {+ Perf} as opposed to {- Perf} forms. Also, the particular "earlier-later" tug-of-war between the two stylistic values is of special interest: the evolution of Greek through the centuries necessitates the recognition of {+ K} and {- K} forms as, respectively, "earlier" and "later". As, however, {+ K} forms have been introduced into the language over the past hundred and fifty years mainly through state intervention (i.e. via formal education, the language of administration, etc.) the relationship is reversed, and {+ K} forms are now to be regarded, in the short

diachronic run, as "later" than {- K} forms. In contexts where the use of {+ K} forms has been the norm for a long time (e.g. administration, education, etc.) the recent decision of the state to allow the use of {- K} forms (see Ch.1, 4.) results in yet another change of relative position on the temporal dimension for the two contrastive values.

With respect to language acquisition, too, children acquire the bulk of their {+ K} stock later in life, through formal education, exposure to the mass-media, growing acquaintance with the written language, etc.

It seems, therefore, that {$\pm$ K} distinctions must be treated in our rule system somewhat differently from Tense, Aspect or Person distinctions.

To begin with, as is clear from the analysis throughout this study, in the situational context under investigation, namely "informal conversation between young educated Athenian peers", {- K} forms are normal whereas {+ K} forms occur only rarely, mostly for stylistic effect, though sometimes they are lexically conditioned (i.e. certain lexical items in common use take only

{+ K} formatives). In terms of "more-less" relations, therefore {- K} is the heavier of the two values in the above situational context:

INFORMAL CONVERSATIONS: $1 \geqslant p\{-K\} > p\{+K\} \geqslant 0$

This being the case, and bearing in mind our earlier observations concerning the fact that, synchronically speaking, {+ K} forms are "later" than {- K} forms, we may assume that the feature {- K} but not {+ K} appears in the complex symbol of the verb before the application of the inflectional rules along with the relevant grammatical and conjugational values. Under normal circumstances, then, those sections of the categorical rules in Ch.IV will be activated that have the feature {- K} in their input.

For the sake of stylistic effect, however, a speaker may decide to refer to the meanings associated with the feature {+ K} (for instance, formality or pomposity, depending on his attitude to {+ K} forms) quite independently from the particular subject of conversation at the time. To account for such a decision we will postulate one last variable rule in our system (which, however, will

be valid outside the verb too):

Rule 68 $\{-K\} \longrightarrow \langle \{+K\} \rangle$

its probability of application p(R 68) varying with the situational context.

The above rule will act, in DeCamp's terms (1971),

"like a master switch which one can throw and thus control a whole series of subordinate switches" (p.31): when it has applied, the sections of the rules in Ch.IV and V in whose input is included the feature {+ K} will be activated.

It is also reasonable to assume that individual speakers will be differentiated according to which (sections of) rules with the feature {+ K} in their input they have access to: people who have studied Greek for years may have in their possession a great number of such rules, some applying only very rarely; other people of rather limited education may have access to only a few, rather more frequently applying, rules. The establishment of such implications concerning rules characteristic of the feature {+ K} will necessitate, as is obvious, appropriate empirical research.

Finally, in our data, rule 68 above does not remain switched on for long: after it has caused the appearance of a few {+ K} elements in part of a word, a whole word or perhaps a short phrase, it switches off again. Sometimes, too, its temporary activation is so designed as to cause a deliberate breach of co-occurrence patterns for the sake of powerful stylistic effect. Though deliberate, however, the breach is not haphazard: only such normally incongruent forms are combined as can be decoded by the hearer readily.

14. SUMMARY

In this chapter we analyzed the variable rules introduced in Ch.IV in terms of features of the linguistic and stylistic context bearing upon their probability of application. The analysis was based on the observed frequencies for the rules obtaining in our recorded data. The situational context, i.e. "informal conversations between young educated Athenian peers", was held constant (apart from a few examples of the speech of uneducated people). Not only relations of "more-less", but also, to the extent that they are synchronically relevant, of "earlier-later" were captured in the

rules. The analysis was based on the variable rule theory, though, when appropriate, the "wave" model was implemented as well.

NOTES TO CHAPTER V

1. The distinction between competence and performance as made by Chomsky is far from unambiguous. See, for instance, the devastating argument in O'Donnell (forthcoming) in support of the claim that the distinction has been used by many a generativist to justify the exclusion of the evidence of everyday language from the writing of grammars. See also Ch.III, 7.3.n.5 above.

2. For the three-cornered bracket notation see Ch.IV, 2.6.

3. Fasold, 1978, claims that the "strong geometric ordering of constraints" hypothesis should be maintained as a competence principle. As a possible "fall-back" position he proposes a weaker hypothesis according to which constraints are ordered in terms of relative weight but the heaviest does not necessarily outweigh the contributions of all others below it in the hierarchy. Since no principled way of "falling back" is proposed (other than, presumably, the requirements of the data) it appears more reasonable to treat the weaker hypothesis as the "unmarked" one and have

recourse to the stronger hypothesis whenever the data suggests the need for doing so.

4. Kay seems to suggest that cases of dependence characteristically involve social constraints on the one hand and linguistic on the other. Variationists such as Labov, D. Sankoff, Cedergren, etc., however, make no distinction as to the types of constraints that may be dependent on one another. Thus in Cedergren & Sankoff, 1974, we read that

> " ... in investigating the relationship between the different components of the linguistic environment, or between the linguistic and the sociolinguistic environments, as factors influencing the application of a rule, we will not know a-priori whether or not they act independently; rather, we will assume independence, and then see how well the resultant models fit the data" (p.339).

For a case of dependence between linguistic constraints, see 2.1. below.

5. Although Bickerton's arguments have had a welcome sobering effect on the zeal of some proponents of probabilistic models of variable rule analysis (see also Bickerton, 1973 on the uses and abuses of statistics in G. Sankoff, 1974, and Cedergren and D. Sankoff, 1974) it should be noted that, like a good polemicist,

he chooses to forget his own arguments when it comes to weaknesses in what he regards as a superior model, i.e. the "wave" model.

Thus, after the thought experiment just mentioned in the main text above, he concludes:

> "Now, while behaviour may be DETERMINED by social factors, it must, if it is mental behaviour, be MEDIATED by some kind of recognisable mental process. It will not do for the linguist to claim he is under no obligation to show HOW rules function as long as they DO function ... Labov's results are as IF the processes I have just described somehow actually took place, and if those results came about in any other way, the onus is on him to show the means". (p.461) [Emphasis original]

Later on in his paper, in discussing the characteristic S-shaped pattern obtaining in cases of linguistic change as captured in scalograms on the basis of the "wave" model (see 1.6. below) he observes:

> "... a rule-change is slow to get under way, shoots forward relatively rapidly to a point near completion, and then takes some time to complete entirely. Why this should be so is far from clear, but figures from Guyanese speakers in variable development-stages show an identical trend." (p.489)

Apparently, since nothing more is said on the subject, he in his turn feels no obligation to show how this pattern appears as long as it does appear. Neither is he interested in the "mental processes" that result in a coin's tendency to produce heads as many times as tails in a large number of tosses; or in the mental

processes that make a driver who hasn't had an accident for, say, ten years, mend his evil ways and try to contribute his due to the national average of car crashes. The point is that we do not know why certain events are random (i.e. probabilistically distributed) and the onus cannot possibly be on Labov alone to find out.

6. In Bost's satirical writings mock-hypercorrection involving the breaking of co-occurrence expectations related to $\{\pm K\}$ distinctions on all linguistic levels (spelling, lexis, inflectional and derivational morphology,. syntax and meaning) has been elevated to a literary genre of unique appeal.

7. But see Bailey, 1973, p.74, for a tentative suggestion that all the environments of a rule become variable before the oldest (i.e. the heaviest) becomes categorical.

8. See, however, DeCamp, 1973, where it is suggested that a speaker "is considerably more inconsistent on some variables than on others", and that "he is especially inconsistent on precisely those variables which are located close to the speaker's own cutting point on the scale". (p.145)

9. DeCamp's postulate (1971) that

> "implicational analysis ... belongs to the unreal world of theoretical models, artificial universes invented by theoreticians, like the universe of geometry, which contains perfect circles, squares, triangles, and other figures not found in the real world" (p.34)

should be read with caution. Indeed, we can study the properties of circles, squares, triangles, etc., without reference to the real world, but implicational scales have no properties other than those found (or assumed to obtain) in real language. Furthermore, we can construct a circle in the real world approximating an ideal circle, but we cannot construct an implicational scale in real language: we can simply (attempt to) show that one obtains in a particular complex of linguistic forms. In other words, geometrical figures are autonomous abstract constructs, whereas implicational scales are models of a particular type of events (not only linguistic, see DeCamp, 1971, p.32, n.1) in the outside world.

10. The distinction refers to the fact that a hierarchy of weight between environments containing members of a number of families of constraints necessarily implies (at least partially) strong geometric ordering between constraints across families.

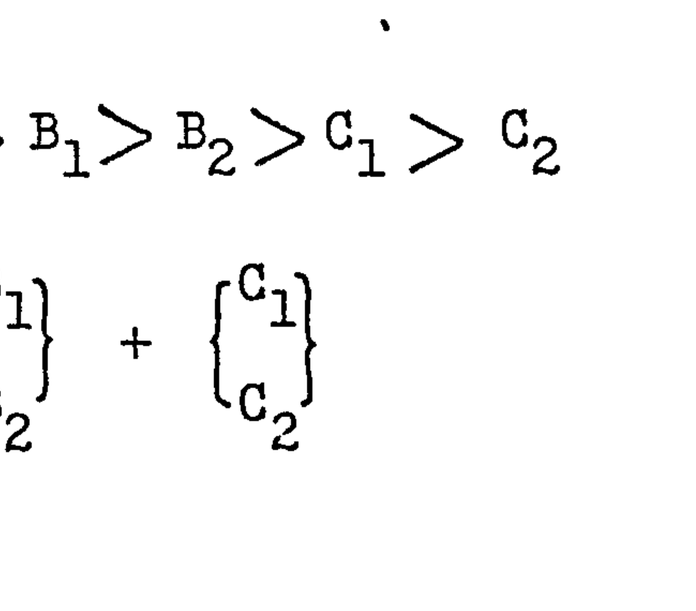
Thus, if the probability of a rule applying decreases with the following hierarchy of environments in an additive model:

$$A_1 + B_1 + C_1 >$$
$$A_1 + B_1 + C_2 >$$
$$A_1 + B_2 + C_1 >$$
$$A_1 + B_2 + C_2 >$$
$$A_2 + B_1 + C_1 >$$
$$A_2 + B_1 + C_2 >$$
$$A_2 + B_2 + C_1 >$$
$$A_2 + B_2 + C_2$$

then $A_1 > A_2 > B_1 > B_2 > C_1 > C_2$

and $\begin{Bmatrix} A_1 \\ A_2 \end{Bmatrix} > \begin{Bmatrix} B_1 \\ B_2 \end{Bmatrix} + \begin{Bmatrix} C_1 \\ C_2 \end{Bmatrix}$

The above relations are captured in the familiar horizontal tree diagram (Fasold, 1972, 1978; Wolfram, 1974):



where frequencies decrease as we move from top to bottom.

11. G. Sankoff distinguishes between two methods of defining socially meaningful categories, "etic" and "emic":

> "With the variable 'age', for example, one could ... proceed by cutting the sample into regular age categories: 0-9, 10-19, ... , 90-99 ('etic' procedure); or one could find out how the people themselves define various age groups; e.g. 'infants' might be from 0-2, 'children' from 3-11, 'adolescents' from 12-17, 'young adults' from 18-30, and so on ... The difference between using one or the other kind of non-linguistic category can be debated; it is often necessary to use both kinds". (p.45;46).

DeCamp's objection referred to in the main text concerns "etic" social categories; "emic" categories are not considered.

12. See Bickerton, 1971, for another of his striking experiments to assess the reliability of frequencies as guides for the isolation of relevant constraints. In this particular case, the experiment consisted in trying features of the environment that had no apparent connection with the variation between pre-infinitival complementizers fu (or fi) and tu to see whether, even with such features, geometric ordering obtained. With the second feature he tried, namely, pronouns, he was (he thought) successful! His conclusion was that

> "we know as yet far too little about co-occurrence phenomena, and that testers of the variable-rule hypothesis should exercise even more caution in selecting putative constraints" (p.486).

Unfortunately for Bickerton, Fasold, 1975, shows that his analysis is partly wrong.

13. We will place symbols for (families of) variable constraints in three-cornered brackets, though, for the sake of simplicity, we will not change the notation for the values {+ K} and {- K} when they do not appear in rules.

14. Whether variable rule (i) has applied or not becomes evident only after variable rule 2a (see section 2.2. in this chapter) has applied: if, through the application of rule 2a, an augment appears before the (first) prefix of a compound verb, e.g. e + pròs + fer + a (= I offered), then we know that rule (i) has already applied to delete the morpheme boundary between prefix and root; if, on the other hand, rule 2a places the augment between prefix and root, e.g. pros + è + fer + a, then rule (i) has not applied; but in the absence of an augment there is no evidence whether rule (i) has applied or not. For practical purposes, therefore, we have to calculate the probability of application of rule (i) on the basis of the (rather small) proportion of compound {+ Past} verb forms in which the augment appears. However, it should be realized that the rule in question is about the degree of cohesion in the structure of compound stems and as such only incidentally, as it were, related to the augment rule (see 2.2.4. below).

15. A number of additional constraints, for which there are not sufficient frequencies in the data, are discussed in 2.2.5. below.

16. In Ch.IV, 3.3.3. such verbs were labelled $\{STv_3\}$.

17. The weight relation between forms in the output of a variable rule as indicated by their order from top to bottom in three-cornered brackets denotes either the direction of change or simply relative frequency levels if no change is involved. Since at the beginning of a change the "later" form appears, as a rule, less frequently than the "older" form, it follows that the form at the top of the brackets does not always appear more frequently than the one at the bottom. The ambiguity in the notation is avoided by providing information following each variable rule concerning the relative weight of forms irrespective of their position in the brackets. Thus, a hypothetical rule such as the following:

$$A \longrightarrow \left\langle \begin{matrix} B \\ C \end{matrix} \right\rangle / \quad D \longrightarrow$$

where $1 \geqslant C > B \geqslant 0$

would read that B is replacing C but C is still heavier (i.e. appears more frequently) than B.

18. Babiniotis, 1972a, p.181ff.

19. With the exception of the {+ P1, 2} forms: pàveste or pavósaste where o spread under the analogical pull of the rest of the {+ P1} forms: pavómaste / pavósaste / pavónte or pàveste

20. Rule 38 in Ch.IV, 4.2.9. is made up of five sections conjunctively ordered through the brace notation, i.e. first, section (a) is tried for application, then, section (b) and so on. Sections (b), (c), and (d) are each in "bleeding" order in relation to section (e) in that each limits the number of {+ Past} forms on which section (e) may apply. In other words, (e) is the "rule" and (b), (c), and (d), the "exceptions". Here we are only interested in the stage in the derivation when categorical sections (a) to (c) have been tried for application, and (d), the only variable section of the rule, is about to apply.

21. The presence or absence of F_4 $\underline{\theta}$ in the structure of the (PREFIX) GRAFO verbs is determined by the relevant morpholexical rules and need not concern us at this point. For at the stage in the derivation when sandhi rule (i) applies, if F_4 $\underline{\theta}$ is present

it is changed to t after f categorically: yrafθó —▸ yraftó;

if θ is not present rule (i) is not activated: yrafó.

22. I have changed the suffix of the original name in deference to the friend in question and also because the change does not affect the argument here. Notice,

Nom: -ópulos, Voc: -ópule.

BIBLIOGRAPHY

Adams, D. (1972). Historical change and the phonological component of Greek: an inquiry into the history of the Greek verb from classical times to the present. Unpublished Ph.D. thesis. University of Chicago.

Allen, W.S. (1966). "A problem of Greek accentuation." In Bazell, C.E., Catford, J.C., Halliday, M.A.K. and Robins, R.H. (eds.), In memory of J.R. Firth. London: Longman.

Allen, W.S. (1973). Accent and rhythm. Cambridge studies in linguistics 12. London: Cambridge University Press.

Anderson, S.R. (1974). The organization of phonology. New York: Seminar Press.

Andriotis, N. (1967). Etimologiko leksiko tis Kinis Neoellinikis. Thessaloniki.

Anshen, F. (1973). "Some data which do not fit some models." In Bailey, C-J.N. and Shuy, R.W. (eds.), New ways of analyzing variation in English. Washington,D.C.: Georgetown University Press.

Anshen, F. (1975). "Varied objections to various variable rules." In Fasold, R.W. and Shuy, R.W. (eds.), Analyzing variation in language. Washington, D.C.: Georgetown University Press.

Ashworth, D.E. (1973). A generative study of the inflectional morphophonemics of the Shuri dialect of Ryukyuan. Unpublished Ph.D. thesis. Cornell University.

Babiniotis, G. (1972a). To rima tis Ellinikis. Athens: University of Athens.

Babiniotis, G. (1972b). "Kini Nea Elliniki, 'antiglossa' ke diglossia." Platon KΔ'. 47/48. Athens

Babiniotis, G. and Kontos, P. (1967). Sinchroniki grammatiki tis Kinis Neas Ellinikis. Athens.

Bailey, C-J.N. (1972). "The integration of linguistic theory: internal reconstruction and the comparative method in descriptive analysis." In Stockwell, R.P. and Macaulay, R.K.S. (eds.), Linguistic change and generative theory. Indiana University Press.

Bailey, C-J.N. (1973a). Variation and linguistic theory. Arlington, Va.: Center for applied linguistics.

Bailey, C-J.N. (1973b). "Variation resulting from different rule orderings in English phonology." In Bailey, C-J.N. and Shuy, R.W. (eds.), New ways of analyzing variation in English. Washington, D.C.: Georgetown University Press.

Bailey, C-J.N. and Shuy, R.W. (eds.) (1973). New ways of analyzing variation in English. Washington, D.C.: Georgetown University Press.

Berdan, R. (1975). "The necessity of variable rules." In Fasold, R.W. and Shuy, R.W. (eds.), Analyzing variation in language. Washington, D.C.: Georgetown University Press.

Berdan, R. (1977). "Polylectal comprehension and the polylectal grammar." In Fasold, R.W. and Shuy, R.W. (eds.), Studies in language variation. Washington, D.C.: Georgetown University Press.

Bickerton, D. (1971). "Inherent variability and variable rules." Foundations of Language 7.

Bickerton, D. (1972). "The structure of polylectal grammars." In Shuy, R.W. (ed.), Sociolinguistics: current trends and prospects. Georgetown monographs in languages and linguistics 25. Washington, D.C.: Georgetown University Press.

Bickerton, D. (1973). "Quantitative versus dynamic paradigms: the case of Montreal que." In Bailey, C-J.N. and Shuy, R.W. (eds.), New ways of analyzing variation in English. Washington, D.C.: Georgetown University Press.

Bickerton, D. (1975). Dynamics of a Creole system. London: Cambridge University Press.

Bierwisch, M. (1969). "Syntactic features in morphology: general problems of so-called pronominal inflection in German." in To honor Roman Jakobson: essays on the occasion of his seventieth birthday. The Hague: Mouton.

Browning, R. (1969) Medieval and Modern Greek. London: Hutchinson University Library.

Carden, G. (1973). "Dialect variation and abstract syntax." In Shuy, R.W. (ed.), Some new directions in linguistics. Washington, D.C.: Georgetown University Press.

Cedergren, H.J. (1973). "On the nature of variable constraints." In Bailey, C-J.N. and Shuy, R.W. (eds.), New ways of analyzing variation in English. Washington, D.C.: Georgetown University Press.

Cedergren, H.J. and Sankoff, D. (1974). "Variable rules: performance as a statistical reflection of competence." Language 50.2.

Chadzidakis, G.N. (1905). "Peri ton foneinton tis Neoteras Ellinikis." Meseonika ke Nea Ellinika, A'. Athens.

Chomsky, N. (1965). Aspects of the theory of syntax. Cambridge, Mass: MIT Press.

Chomsky, N. and Halle, M. (1968). The sound pattern of English. New York: Harper and Row.

Comrie, B. (1976). Aspect. London: Cambridge University Press.

Daltas, P. (1973). The use of Katharevousa and Dhimotiki in informal personal letters. Unpublished M.A. thesis. University of Leeds.

DeCamp, D. (1971). "Implicational scales and sociolinguistic linearity." Linguistics 73.

DeCamp, D. (1973). "What do implicational scales imply?" In Bailey, C-J.N. and Shuy, R.W. (eds.), New ways of analyzing variation in English. Washington, D.C.: Georgetown University Press.

Detrich, E.D. (1972). Nissart verb morphology: a transformational approach. Unpublished Ph.D. thesis. The Pennsylvania State University.

Dittmar, N. (1976). Sociolinguistics: a critical survey of theory and application. London: Edward Arnold.

Efstathiadis, S. (1974). Tense and aspect in Greek and English. Thessaloniki.

El-Hassan, S.A. (1977). "Educated spoken Arabic in Egypt and the Levant: a critical review of diglossia and related concepts." Archivum Linguisticum 8.2.

Fasold, R.W. (1970). "Two models of socially significant linguistic variation." Language 46.3.

Fasold, R.W. (1972). Tense marking in Black English: a linguistic and social analysis. Arlington, Va.: Center for Applied Linguistics.

Fasold, R.W. (1973). "The concept of 'earlier-later': more or less correct." In Bailey, C-J.N. and Shuy, R.W. (eds.), New ways of analyzing variation in English. Washington, D.C.: Georgetown University Press.

Fasold, R.W. (1975). "The Bailey wave model: a dynamic quantitative paradigm." In Fasold, R.W. and Shuy, R.W. (eds), Analyzing variation in language. Washington, D.C.: Georgetown University Press.

Fasold, R.W. (1978). "Language variation and linguistic competence." In Sankoff, D. (ed.), Linguistic variation: models and methods. New York: Academic Press.

Fasold, R.W. and Shuy, R.W. (eds.) (1975). Analyzing variation in language. Washington, D.C.: Georgetown University Press.

Fasold, R.W. and Shuy, R.W. (eds.) (1977). Studies in language variation. Washington, D.C.: Georgetown University Press.

Ferguson, C.A. (1959). "Diglossia." Word 15.

Fraser, B. (1972). "Optional rules in grammar." In Shuy, R.W. (ed.), Sociolinguistics: current trends and prospects. Georgetown monographs in languages and linguistics 25. Washington, D.C.: Georgetown University Press.

Gertner, M.H. (1973). The morphology of the modern French verb. The Hague: Mouton.

Guy, G.R. (1975). "Use and applications of the Cedergren-Sankoff variable rule program." In Fasold, R.W. and Shuy, R.W. (eds.), Analyzing variation in language. Washington, D.C.: Georgetown University Press.

Guy, G.R. (1977). "A new look at -t, -d deletion." In Fasold, R.W. and Shuy, R.W. (eds.), Studies in language variation. Washington, D.C.: Georgetown University Press.

Haas, W. (1978). "Linguistics 1930-1980." Journal of Linguistics 14.2.

Halle, M. (1962): "Phonology in generative grammar." Word 18.

Hamp, E. (1961). "To rima en ti simerini omilumeni Elliniki glossi." Athina 65. Athens.

Heidelberger Forschungsprojekt "Pidgin-Deutsch" (1978). "The acquisition of German syntax by foreign migrant workers." In Sankoff, D . (ed.), Linguistic variation: models and methods. New York: Academic Press.

Householder, F.W. (1962). "Greek Diglossia." Georgetown University Monograph Series on Language and Linguistics 15. Washington, D.C.: Georgetown University Press.

Householder, F.W. (1964). "Three dreams of Modern Greek phonology." Word 20.

Householder, F.W., Kazazis, K., and Koutsoudas, A. (1964). Reference grammar of literary dhimotiki. IJAL 30, No.2, Part II.

Hyman, L.M. (1970). "How concrete is phonology?" Language 46.1.

Hyman, L.M. (1975). Phonology: theory and analysis. Holt, Rinehart and Winston.

Jacobs, R. and Rosenbaum, P. (1968). English transformational grammar. London: Ginn-Blaisdell.

Jakobson, R. (1937). "On Ancient Greek prosody." In Roman Jakobson: selected writings I. The Hague: Mouton, 1962.

Jakobson, R. (1957). "Shifters, verbal categories, and the Russian verb." In R. Jakobson: Essais de linguistique générale. Editions de minuit, 1963.

Jones, A. Barton, Jr. (1967). "Stress and intonation in Modern Greek." Glotta 44. Göttingen.

Kay, P. (1978). "Variable rules, community grammar, and linguistic change." In Sankoff, D. (ed.), Linguistic variation: models and methods. New York: Academic Press.

Kiparsky, P. (1975). "Abstractness, opacity and global rules." In Koutsoudas, A. (ed.), The application and ordering of grammatical rules. The Hague: Mouton.

Knowles, G.O. (1978). "The nature of phonological variables in Scouse." In Trudgill, P. (ed.), Sociolinguistic patterns in British English. London: Edward Arnold.

Koutsoudas, A. (1962). Verb morphology of Modern Greek. The Hague: Mouton.

Koutsoudas, A. (1964). "The handling of morphophonemic processes in transformational grammars." In Austerlitz, R. (ed.), Papers in memory of George C. Pappageotes. Word 20, no.3, special publication 5.

Koutsoudas, A. (1975). "Unordered rule hypothesis." In Koutsoudas, A. (ed.), The application and ordering of phonological rules. The Hague: Mouton.

Kroch, A. and Small, C. (1978). "Grammatical ideology and its effect on speech." In Sankoff, D. (ed.), Linguistic variation: models and methods. New York: Academic Press.

Kuryłowicz, J. (1968). "The notion of morpho(pho)neme." In Lehmann, W.P. and Malkiel, Y. (eds.), Directions for historical linguistics. University of Texas Press.

Labov, W. (1966). The social stratification of English in New York City. Washington, D.C.: Center for Applied Linguistics.

Labov, W. (1972a). Language in the inner city: studies in the Black English vernacular. The University of Pennsylvania Press, Inc. (Published in the U.K. by Basil Blackwell, Oxford, 1977).

Labov, W. (1972b). Sociolinguistic patterns. The University of Pennsylvania Press, Inc. (Published in the U.K. by Basil Blackwell, Oxford, 1978).

Labov, W. (1972c) "Where do grammars stop?". In Shuy, R. (ed.), Sociolinguistics: current trends and prospects. Georgetown monographs in languages and linguistics 25. Washington, D.C.: Georgetown University Press.

Labov, W. (1972d). "The internal evolution of linguistic rules." In Stockwell, R.P. and Macaulay, R.K.S. (eds.), Linguistic change and generative theory. Indiana University Press.

Lavandera, B.R. (1978). "Where does the sociolinguistic variable stop?" Language in Society 7.2.

Lehmann, W.P. and Malkiel, Y. (1968). Directions for historical linguistics. University of Texas Press.

Lyons, J. (1968). Introduction to theoretical linguistics. London: Cambridge University Press.

Macaulay, R.K.S. (1978). "Variation and consistency in Glaswegian English." In Trudgill, P. (ed.), Sociolinguistic patterns in British English. London: Edward Arnold.

Malikouti-Drachman, A. (1976) "On the stress cycle in Greek." Salzburger Beiträge zur Linguistik 1.

Matthews, P.H. (1967). "The main features of Modern Greek verb inflection." Foundations of Language 3.

Matthews, P.H. (1972). Inflectional morphology. London: Cambridge University Press.

Matthews, P.H. (1974). Morphology. London: Cambridge University Press.

Mickey, K. (1977). Review of W.S. Allen:Accent and Rhythm. (1973). Archivum Linguisticum 8.1.

Mirambel, A. (1937). Les états de langue dans la Grèce actuelle. Conférences de l'Institut de Linguistique de l'Université de Paris 5. Paris.

Mirambel, A. (1959) La langue grecque moderne: description et analyse. Paris: Klincksieck.

Mitchell, T.F. (1975). Principles of Firthian linguistics. London: Longman.

Mitchell, T.F. (1978). "Educated spoken Arabic in Egypt and the Levant, with special reference to participle and tense." Journal of Linguistics 14.

Newton, B. (1972a). Cypriot Greek. The Hague: Mouton.

Newton, B. (1972b). The generative interpretation of dialect. London: Cambridge University Press.

O'Donnell, W.R. "On the status of transformational generative grammars." To appear in Archivum Linguisticum.

Pappageotes, G.C. and Makris, J. (1964). "The language question in modern Greece." In Austerlitz, R. (ed.), Papers in memory of George C. Pappageotes. Word 20, no.3, special publication 5.

Postal, P. (1968). Aspects of phonological theory. New York: Harper and Row.

Pride, J.B. (1971). The social meaning of language. London: Oxford University Press.

Ross, J.R. (1973). "A fake NP squish." In Bailey, C-J. N. and Shuy, R.W. (eds.), New ways of analyzing variation in English. Washington, D.C.: Georgetown University Press.

Rousseau, P. and Sankoff, D. (1978). "Advances in variable rule methodology." In Sankoff, D. (ed.), Linguistic variation: models and methods. New York: Academic Press.

Sankoff, D. (ed.) (1978). Linguistic variation: models and methods. New York: Academic Press.

Sankoff, D. and Laberge, S. (1978a). "Statistical dependence among successive occurrences of a variable in discourse." In Sankoff, D. (ed.), Linguistic variation: models and methods. New York: Academic Press.

Sankoff, D. and Laberge, S. (1978b)."The linguistic market and the statistical explanation of variability." In Sankoff, D. (ed.), Linguistic variation: models and methods. New York: Academic Press.

Sankoff, G. (1973) "Above and beyond phonology in variable rules." In Bailey, C-J.N. and Shuy, R.W. (eds.), New ways of analyzing variation in English. Washington, D.C.: Georgetown University Press.

Sankoff, G. (1974). "A quantitative paradigm for the study of communicative competence." In Bauman,R. and Sherzer, J. (eds.), Explorations in the ethnography of speaking. London: Cambridge University Press.

Schane, S.A. (1972). "Natural rules in phonology." In Stockwell, R.P. and Macaulay, R.K.S. (eds.), Linguistic change and generative theory. Indiana University Press.

Schane, S.A. (1973). Generative phonology. New Jersey: Prentice-Hall,Inc.

Setatos, M. (1969a). Ta etimologika simasiologika zeugi logion ke dimotikon lekseon tis kinis Neoellinikis. Ph.D. thesis. Thessaloniki.

Setatos, M. (1969b). Phonological problems of Modern Greek Koine. Thessaloniki.

Setatcs, M. (1973). "Fenomenologia tis Katharevousas." Epistimoniki epetiris Filosofikis Scholis Panepistimiou Thessalonikis IB'. Thessaloniki.

Shuy, R.W. (ed.) (1972). Sociolinguistics: current trends and prospects. Georgetown monographs in languages and linguistics 25. Washington, D.C.: Georgetown University Press.

Sommerstein, A.H. (1977). Modern phonology. London: Edward Arnold.

Sotiropoulos, D. (1972). Noun morphology of Modern Demotic Greek. The Hague, Mouton.

Stanley, R. (1967). "Redundancy rules in phonology." Language 43.

Triandafilidis, M. (1964). Neoelliniki grammatiki. Thessaloniki: Instituto Neoellinikon Spudon.

Triandafilidis, M. (1976). Neoelliniki grammatiki. Athens: Organismos Ekdoseos Didactikon Vivlion.

Trudgill, P. (1974). The social differentiation of English in Norwich. London: Cambridge University Press.

Trudgill, P. (ed.) (1978). Sociolinguistic patterns in British English. London: Edward Arnold.

Tsitsopoulos, S. (1973). Stress in Modern Greek. Unpublished Ph.D. thesis. University of Illinois at Urbana-Champaign.

Tzartzanos, A.A. (1950). Grammatiki tis Archeas Ellinikis glossis. Athens: Organismos Ekdoseos Scholikon Vivlion.

Tzartzanos, A.A. (1954). Grammatiki tis Neas Ellinikis glossis. Athens: K. Kakoulidis.

Vostantzoglu, T. (1967). Analitikon orthografikon lexikon tis Neoellinikis glossis. Athens.

Warburton, I.P. (1970). On the verb in Modern Greek. Language Science monographs 4. Bloomington: Indiana University.

Warburton, I.P. (1973). "Modern Greek verb conjugation: inflectional morphology in a transformational grammar." Lingua 32.

Warburton, I.P. (1974). Review of B. Newton: The generative interpretation of dialect (1972). Lingua 34.

Warburton, I.P. (1976a). "On the boundaries of morphology and phonology: a case study from Modern Greek." Journal of Linguistics 12.

Warburton, I.P. (1976b). "The function of inflectional paradigms in synchronic and diachronic linguistic descriptions." Phonologica 1976.

Warburton, I.P. (1976c). Review of B. Newton: Cypriot Greek (1972a). Lingua 40.

Warburton, I.P. (1977). Review of G. Babiniotis: To rima tis Ellinikis (1972a). Linguistics 190.

Weinriech, U., Labov, W. and Herzog, M.I. (1968). "Empirical foundations for a theory of language change." In Lehmann, W.P. and Malkiel, Y. (eds.), Directions for historical linguistics. University of Texas Press.

Wolfram, W. (1973). "On what basis variable rules?" In Bailey C-J.N. and Shuy, R.W. (eds.), New ways of analyzing variation in English. Washington, D.C.: Georgetown University Press.

Wolfram, W. (1974). Sociolinguistic aspects of assimilation: Puerto Rican English in New York City. Arlington, Va.: Center for Applied Linguistics.

Wolfram, W. (1975). "Variable constraints and rule relations." In Fasold, R.W. and Shuy, R.W. (eds.), Analyzing variation in language. Washington, D.C.: Georgetown University Press.

Wright, J.R. (1972). Spanish verb morphophonology. Unpublished Ph.D. thesis. Indiana University.

TABLE ONE

THE REGULAR PARADIGM OF THE VERB IN MGK

VALUES OF GRAMMATICAL AND STYLISTIC CATEGORIES INVOLVED IN THE INFLECTIONAL STRUCTURE OF THE VERB IN MGK						STRUCTURE OF STØ VERB PÁVO (= I stop) WHEN ALL INFLECTIONAL RULES HAVE APPLIED												WHEN STRESS AND SANDHI RULES HAVE APPLIED	STRUCTURE OF STv VERB AGAPÁO (= I love) WHEN ALL INFLECTIONAL RULES HAVE APPLIED												WHEN STRESS AND SANDHI RULES HAVE APPLIED
						SP_1	SP_2	SP_3	SP_4	SP_5	SP_6	SP_7	SP_8	SP_9	SP_{10}	SP_{11}	SP_{12}		SP_1	SP_2	SP_3	SP_4	SP_5	SP_6	SP_7	SP_8	SP_9	SP_{10}	SP_{11}	SP_{12}	
		{-Past}	{-Pl}	{1}	{+k} {-k}		pav				o							pávo		aγap	a			o							aγapó aγapáo
				{2}	{+k} {-k}		pav				i		s					pávis		aγap	a			i		s					aγapás
				{3}	{+k} {-k}		pav				i							pávi		aγap	a			i							aγapá aγapái
			{+Pl}	{1}	{+k} {-k}		pav				o u		m		e	n		pávomen {pávome pávume}		aγap	a			o u		m		e	n		aγapómen {aγapúme aγapáme}
				{2}	{+k} {-k}		pav				e		t		e			pávete		aγap	a			e		t		e			aγapáte
	{-Perfective}			{3}	{+k} {-k}		pav				u					n	(e)	pávun pávune		aγap	a			u					n	(e)	aγapún {aγapúne aγapún(e)}
		{+Past}	{-Pl}	{1}	{+k} {-k}	'e	pav				o a					n		épavon épava	e	aγap	a		{γ us}	o a					n		iγápon {aγápaγa aγapúsa}
				{2}	{+k} {-k}	e	pav				e		s					épaves	e	aγap	a		{γ us}	e		s					iγápas {aγápayes aγapúses}
				{3}	{+k} {-k}	e	pav				e							épave	e	aγap	a		{γ us}	e							iγápa {aγápaγe aγapúse}
			{+Pl}	{1}	{+k} {-k}	e (e)	pav				o a		m		e	n		epávomen (e)pávame	e	aγap	a		{γ us}	o a		m		e	n		iγapómen {aγapáγame aγapúsame}
				{2}	{+k} {-k}	e (e)	pav				e a		t		e			epávete (e)pávate	e	aγap	a		{γ us}	e a		t		e			iγapáte {aγapáγate aγapúsate}
{-Passive}				{3}	{+k} {-k}	e (e)	pav				o a					n	(e)	{épavon (e)pávan(e)}	e	aγap	a		{γ us}	o a					n	(e)	iγápon {aγapáγan(e)/aγápaγan aγapúsan(e)}
		{-Past}	{-Pl}	{1}	{+k} {-k}		pav		s		o							pápso		aγap	i	s		o							aγapíso
				{2}	{+k} {-k}		pav		s		i		s					pápsis		aγap	i	s		i		s					aγapísis
				{3}	{+k} {-k}		pav		s		i							pápsi	etc, as in pávso (→ pá{f p}so)											
			{+Pl}	{1}	{+k} {-k}		pav		s		o u		m		e	n		pápsomen {pápsome pápsume}											
				{2}	{+k} {-k}		pav		s		e		t		e			pápsete											
	{+Perfective}			{3}	{+k} {-k}		pav		s		u					n	(e)	pápsun pápsun(e)											
			{-Pl}	{1}	{+k} {-k}	e	pav		s		a							épafsa épapsa	e	aγap	i	s		a							iγápisa aγápisa
				{2}	{+k} {-k}	e	pav		s		a e		s					épafsas épapses	e	aγap	i	s		a e		s					iγápisas aγápises
		{+Past}		{3}	{+k} {-k}	e	pav		s		e							épafse épapse	etc, as in épavsa (→ épa{f p}sa)											
			{+Pl}	{1}	{+k} {-k}	e (e)	pav		s		a		m		e	n		epáfsamen (e)pápsame											
				{2}	{+k} {-k}	e (e)	pav		s		a		t		e			epáfsate (e)pápsate											

		{+Past}		{3}	{+K} {-k}	e	pav		s	e							épafse épapse		etc, as in épavsa (→ épa{f/p}sa)												
				{1}	{+k} {-k}	e (e)	pav		s	a		m		e	n		epáfsamen (e)pápsame														
			{+Pl}	{2}	{+k} {-k}	e (e)	pav		s	a		t		e			epáfsate (e)pápsate														
				{3}	{+k} {-k}	e (e)	pav		s	a					n	(e)	épafsan {épapsan (e)pápsan(e)}														
				{1}	{+k} {-k}		pav			o		m		e			pávome			aγap	a i			o e		m		e			aγapóme aγapjéme
			{-Pl}	{2}	{+k} {-k}		pav			e		s		e			pávese			aγap	a i			e		s		e			aγapáse aγapjése
		{-Past}		{3}	{+k} {-k}		pav			e		t		e			pávete			aγap	a i			e		t		e			aγapáte aγapjéte
				{1}	{+k} {-k}		pav			o u		m	eθ ast	a e			pavómeθa pavómaste pavúmaste			aγap	a i			o u		m	eθ ast	a e			aγapómeθa aγapj{ó/ú}maste
			{+Pl}	{2}	{+k} {-k}		pav			e {o/u}		s	θ ast	e			pávesθe {pavósaste pavúsaste}			aγap	a i			e o u		s	θ ast	e			aγapásθe {aγapjéste aγapjósaste/aγapjúsaste}
	{-Perfective}			{3}	{+k} {-k}		pav			o u	n	t		e			pávonte pávunte			aγap	a i			o u	n	t		e			aγapónte aγapj{ó/ú}nte
				{1}	{+k} {-k}	e (e)	pav			o		m		i u	n	(a)	epavómin (e)pavómun(a)		e	aγap	a i			o		m		i u	n	(a)	iγapómin aγapjómun(a)
			{-Pl}	{2}	{+k} {-k}	e (e)	pav			e o		s		o u	n	(a)	epáveso (e)pavósun(a)		e	aγap	a i			e o		s		o u	n	(a)	iγapáso aγapjósun(a)
		{+Past}		{3}	{+k} {-k}	e (e)	pav			e o		t		o a	n	(e)	epáveto (e)pavótan(e)		e	aγap	a i			e o		t		o a	n	(e)	iγapáto aγapjótan(e)
				{1}	{+k} {-k}	e (e)	pav			o u		m	eθ ast	a [e/a]	[ø/n]		epavómeθa {(e)pavómaste/ (e)pavómastan/	(e)pavúmaste (e)pavúmastan}	e	aγap	a i			o u		m	eθ ast	a [e/a]	[ø/n]		iγapómeθa aγapj{ó/ú}maste/aγapj{ó/ú}mastan
			{+Pl}	{2}	{+k} {-k}	e (e)	pav			e {o/u}		s	θ ast	e [e/a]	[ø/n]		epávesθe {(e)pavósaste/ (e)pavósastan/	(e)pavúsaste (e)pavúsastan}	e	aγap	a i			e {o/u}		s	θ ast	e [e/a]	[ø/n]		iγapásθe aγapj{ó/ú}saste/aγapj{ó/ú}sastan
{+Passive}				{3}	{+k} {-k}	e (e)	pav			o u	n	t	[ø/us]	o a	n	[(e)/ø]	epávonto {(e)páv{o/u}ntan/ (e)pav{ó/u}ntusan	(e)pav{ó/u}ntan(e)}	e	aγap	a i			o u	n	t	[ø/us]	o a	n	[(e)/ø]	iγapónto aγapj{ó/ú}ntan(e)/aγapj{ó/ú}ntusan
				{1}	{+k} {-k}		pav	θ		o							pafθó paftó			aγap	i	θ		o							aγapiθó
			{-Pl}	{2}	{+k} {-k}		pav	θ		i		s					pafθís paftís			aγap	i	θ		i		s					aγapiθís
		{-Past}		{3}	{+k} {-k}		pav	θ		i							pafθí paftí		etc, as in pavθo (→paf{θ/t}ó)												
				{1}	{+k} {-k}		pav	θ		o u		m		e	n		pafθómen paftúme														
			{+Pl}	{2}	{+k} {-k}		pav	θ		i		t		e			pafθíte paftíte														
	{+Perfective}			{3}	{+k} {-k}		pav	θ		u					n	(e)	pafθún paftún(e)														
				{1}	{+k} {-k}	e (e)	pav	θ	ik	i a					n		epáfθin (e)páftika		e	aγap	i	θ	ik	i a					n		iγapíθin aγapíθika
			{-Pl}	{2}	{+k} {-k}	e (e)	pav	θ	ik	i e		s					epáfθis (e)páftikes		e	aγap	i	θ	ik	i e		s					iγapíθis aγapíθikes
		{+Past}		{3}	{+k} {-k}	e (e)	pav	θ	ik	i e							epáfθi (e)páftike		etc, as in [e/(e)] pafθ[ø/ik] [in/a] (→{epafθin/(e)paftika})												
				{1}	{+k} {-k}	e (e)	pav	θ	ik	i a		m		e	n		epáfθimen (e)paftíkame														
			{+Pl}	{2}	{+k} {-k}	e (e)	pav	θ	ik	i a		t		e			epáfθite (e)paftíkate														
				{3}	{+k} {-k}	e (e)	pav	θ	ik	i a		s		a	n	(e)	epáfθisan {(e)páftikan (e)paftíkan(e)}														