THE INFLECTIONAL MORPHOLOGY
OF THE VERB IN MODERN GREEK KOINE
A VARIATIONIST APPROACH

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ABSTRACT


This study is concerned with the description, or, 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 (Chomskyan) 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: [\(\pm\) Passive], Aspect: [\(\pm\) Perfective], Tense: [\(\pm\) Past], Number: [\(\pm\) Plural], and Person: \{1\}, \{2\}, \{3\}.

2. Two major morphologically relevant lexical classes or conjugations are recognized in the Greek verb: \{ST\}, i.e. verbs whose stem ends in a vowel that interacts with following vowels, e.g. $\text{ayap} + \text{is} \rightarrow \text{ayapis} (= \text{you love});$ \{ST'\}, i.e. verbs whose stem ends in a consonant, e.g. $\text{pay} + \text{is} (= \text{you stop}),$ or in a vowel not interacting with following vowels, e.g. $\text{isx} + \text{is} (= \text{you are valid}).$ Apart from the above differences each lexical class employs partly different inflectional formatives, e.g.

\[
\begin{align*}
\text{[Pass, -Perf, +Past, -Pl, 1, -K]} & \{\text{ST}\} : \ e + \text{pav} + a \ (= \text{I was stopping}) \\
\{\text{ST'}\} : \ \text{ayap} + a + y + a \ (= \text{I was loving})
\end{align*}
\]

3. $\text{SP}_1, \ldots, \text{SP}_{12}$ refer to the twelve abstract places in the structure of the verb in MGK where formatives alternate.

4. $\text{F}_1, \ldots, \text{F}_{12}$ refer to twelve sets of formatives corresponding to the structural places referred to above.
5. \( T_1, \ldots T_6 \) 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. \( T_1, \ldots T_{1v} \) 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.

\[
\{+ K\} : \text{pav} \begin{bmatrix} o \end{bmatrix} \text{me} \begin{bmatrix} n \end{bmatrix}, \text{where all formatives co-occurring}
\{ - K \} : \begin{bmatrix} [o] \end{bmatrix} \begin{bmatrix} [\emptyset] \end{bmatrix},
\]

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.

\[
\{- \text{Pass, +Perf, +Past, -Pl, 3, ST, } \emptyset, -K\} : \frac{1}{6} + \frac{2}{\text{pap}} + \frac{4}{s} + \frac{6}{e} (= \text{he stopped})
\]

8. An asterisk (*) precedes ungrammatical forms, e.g. *ekso instead of the correct exo (= I have).
9. MGK: Modern Greek Koine

10. AG: Ancient Greek

11. \( \emptyset \): zero realization

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

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

14. Slants // contain phonological segments, e.g. /s/, /f/, /pavo/. 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], {l}, etc. (ii) a number of alternative elements belonging to the same stylistic level of co-occurrence, e.g. [- K]: ayajo\(\left(\frac{6}{\text{u}}\right)\)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.

\[ \text{paf} \left( \begin{array}{c}
\epsilon \\
\text{(e)}
\end{array} \right) \left( \begin{array}{c}
\emptyset \\
\text{t}
\end{array} \right) \left( \begin{array}{c}
\emptyset \\
\text{ik}
\end{array} \right) \left( \begin{array}{c}
i \\
\text{e}
\end{array} \right) \]

summarizing the alternants \( \text{epafelo} \{ + K \} \)

and \( \text{pafike} \{ - K \} \), 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. \( \text{euro} \left( \begin{array}{c}
\emptyset \\
\text{a}
\end{array} \right) \text{s} \).

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

18. Angled brackets \( \langle \rangle \) abbreviate two statements, one in which a number of discontinuous elements appear and another in which such elements do not appear, i.e. \( \langle B \rangle C \langle D \rangle E \) is a collapsed version of \( ABCDE \) and \( ACE \).

19. Three-cornered brackets \( \langle \rangle \) contain the output of a variable rule: \(+\text{Pass},-\text{Perf}\) \( \rightarrow \langle a \rangle /\text{un} \) — e.g. \( \text{pavamun(a)} \);
or features of the environment of a rule whose presence causes the rule to apply variably:

\[
\begin{align*}
[-\text{voiced}] & \rightarrow [-\text{continuant}] / (-\text{coronal} +\text{anterior}) \quad s \\
[+\text{continuant}] & \\
\end{align*}
\]

e.g. \( fs \rightarrow [f] \) s , but: \( xs \rightarrow [ks] \); 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 \( \langle \text{UND} \rangle \) as follows: the rule applies more often if the lexeme involved is \( [-\text{learned}] \) than if it is \( [+\text{learned}] \).

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

\( i \rightarrow j/ C - V \)

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

\[
\begin{align*}
\begin{bmatrix}
C \\
+\text{anterior} \\
+\text{coronal} \\
\sim \langle \text{+strident} \rangle \\
\end{bmatrix} & \rightarrow 2 \\
\begin{bmatrix}
C \\
+\text{anterior} \\
+\text{coronal} \\
+\text{continuant} \\
\sim \langle \text{-strident} \rangle \\
\end{bmatrix} & \\
\end{align*}
\]

does not apply in the case of a \( [+\text{strident}] \) consonant followed by a \( [-\text{strident}] \) consonant.
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concern!
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 perceived 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 linguistic 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 show that 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
lavalier 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 ἱλαζο the alphabetical symbols are to be seen as informal abbreviations of such segments or bundles of features; for instance, p stands for the segment:
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

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

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:

\[
\begin{align*}
\{1\}: & \text{ pàvome} \\
\{2\}: & \text{ pàvose} \\
\{3\}: & \text{ pàvate}
\end{align*}
\]

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

\[
\begin{align*}
\{+\text{Pass, -Perf, -Past, -Pl}\} & \rightarrow \begin{bmatrix}
o \\
\text{STEM} \\
e
\end{bmatrix} / \begin{bmatrix}
\{1\} \\
\{-1\}
\end{bmatrix}
\end{align*}
\]

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:

\[
\begin{align*}
+ & \text{syllabic} \\
- & \text{consonantal} \\
+ & \text{sonorant} \\
- & \text{high} \\
- & \text{low}
\end{align*}
\]

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

\[
\begin{align*}
+ & \text{Pass, Perf, Past, Pl, al} \rightarrow + \text{sonorant} \\
- & \text{high} \\
- & \text{low}
\end{align*}
\]

where the Greek letter alpha notation accounts for the fact that the
grammatical feature \( [1] \) and the phonological feature \( \text{back} \) 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. **Syllability**

Sounds are distinguished according to whether they do or do not serve as "syllabic peaks". Vowels, ı, e, a, o and u, are [+ syllabic], though, in the context between a consonant and a vowel, front vowels sometimes become [- syllabic], e.g. yeoryia remains unchanged when it means "agriculture" but often changes to yjoryia 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 ياة َسِيُسُي ( = you will fall ) was produced, instead of the fuller alternative ِي َسِيُسِسٌ, by a friend of mine when his toddler son approached the top of the stairs. The feature of "syllabic" 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 \( \text{-} \) 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
[\( ^\dagger \) 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 \( \text{o} \) in the English word "bed" (p.300). i.e. it is the mid front position. [\( ^\dagger \) 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, ı 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 ı 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 $[^+ \text{back}]$ 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 $[^+ \text{back}]$ 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 $[^+ \text{front}]$ vowels ($i, e$) are $[^{-}\text{back}]$ whereas our $[^{-}\text{front}]$ segments ($a, o, u$) are $[^+ \text{back}]$. 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**

$[^+ \text{back}]$ 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 ə and u are [+ back], and i, ɛ 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 n (the latter appearing in NGK 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 Ɂ, 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
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 [± 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 acoustically 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, y 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.
<table>
<thead>
<tr>
<th>Syllabic</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
<th>10.</th>
<th>11.</th>
<th>12.</th>
<th>13.</th>
<th>14.</th>
<th>15.</th>
<th>16.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voiced</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Gradual</td>
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<td>Release</td>
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</table>

<table>
<thead>
<tr>
<th>b</th>
<th>t</th>
<th>k</th>
<th>g</th>
<th>p</th>
<th>f</th>
<th>s</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>j</td>
<td>l</td>
<td>r</td>
<td>j</td>
<td>l</td>
<td>j</td>
<td>e</td>
<td>a</td>
</tr>
</tbody>
</table>
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 ə 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**: \{\text{Passive}\}
- **Aspect**: \{\text{Perfective}\}
- **Tense**: \{\text{Past}\}
- **Number**: \{\text{Plural}\}
- **Person**: \{1, 2, 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.

2.3. \{\text{Passive}\} \{\text{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.

\begin{align*}
\text{PAVO} (= \text{I stop}) & \quad \text{AGAPAO} (= \text{I love}) \\
\{- \text{Perf}, - \text{Past}, - \text{Pl}, 1\} \{\text{Pass}\} & \quad \text{pivō} \quad \text{ayapō} \\
\{+ \text{Pass}\} & \quad \text{pivōmē} \quad \text{ayapīmē}
\end{align*}
depending on which of the two syntactic frames below such verbs appear in.

(1) \[
\begin{bmatrix}
N \\
+ \text{Nominative}
\end{bmatrix} + \begin{bmatrix}
Vb \\
- \text{Passive}
\end{bmatrix} + \begin{bmatrix}
N \\
- \text{Nominative}
\end{bmatrix}
\]

(2) \[
\begin{bmatrix}
N \\
+ \text{Nominative}
\end{bmatrix} + \begin{bmatrix}
Vb \\
+ \text{Passive}
\end{bmatrix} + \text{prep} + \begin{bmatrix}
N \\
- \text{Nominative}
\end{bmatrix}
\]

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

On the other hand, a number of "irregular" transitive verbs, e.g. XIRIZOME (= 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:

\[
(1')\begin{bmatrix}
N \\
+ \text{Nominative}
\end{bmatrix} + \begin{bmatrix}
Vb \\
+ \text{Passive}
\end{bmatrix} + \begin{bmatrix}
N \\
- \text{Nominative}
\end{bmatrix}
\]

Again, a number of intransitive verbs, e.g. KAGOME (= I sit), FOWAME (= I am afraid), KINAME (= 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,

\[
(3)\begin{bmatrix}
N \\
+ \text{Nominative}
\end{bmatrix} + \begin{bmatrix}
Vb \\
+ \text{Passive}
\end{bmatrix}
\]
whereas another group of intransitive verbs, e.g. KRIÔNO (= I feel cold), ROXALIZO (= I snore), TREXO (= I run), KLEO (= I weep), etc., accepting only \{- Pass\} formatives in their structures, participate in the following version of frame (3) above:

\[
\begin{array}{c}
N \\
\text{[+ Nominative]} \\
Vb \\
\text{[- Passive]}
\end{array}
\]

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, XIRIZOME, for instance, will be specified as \{+ Pass\}, i.e. as accepting only \{+ Pass\} formatives, and KRIÔNO as \{- Pass\}, i.e. accepting only \{- Pass\} formatives, whereas regular transitive verbs such as PAVO or AGAPAO 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}]

KAMEVëNO
ANEVëNO
LjëNO
PARAFRONÔ
AKOLUGô
KRIjNO (= I feel cold)
PLISIÀZO (= I approach)
PIGÉNO (= I go)

{+ Passive}

KATÈRXOME (= I descend)
ANÈRXOME (= I ascend)
TÎKOME (= I melt)
TREIjENÔME (= I go mad)
EPOME (= I follow)
ZESTÎNÔME (= I feel hot)
APOMAKRÎNÔME (= I move away)
ÎRXOME (= I come)

2.4. {^Perf} ({{^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.

PÀVO AGAPÅO KÀNO EXO

{- Pass, - Past, - Pl, l}{{- Perf}: pàvo ayapào kâno exo
{+ Perf}: pàpsò ayapisò

Verbs such as KÀNO or EXO 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 oneword 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 \( ^{+} \text{Perf} \) distinctions are neutralized, e.g.

<table>
<thead>
<tr>
<th>Past</th>
<th>PERF</th>
<th>MONOLECTIC</th>
<th>AUXILIARY</th>
<th>INFINITIVE</th>
</tr>
</thead>
</table>
|\(-\) | \(-\) Perf | \( \text{d} \text{ivo} \)  
\( (= \text{I stop}) \) | \( \text{d} \text{xo} \) | \( \text{p} \text{apsi} \)  
\( (= \text{I have stopped}) \) |
|\(-\) | \(+\) Perf | \( \text{d} \text{apso} \)  
\( (= \text{I will stop}) \) | \( \text{d} \text{xo} \) | \( \text{p} \text{apsi} \)  
\( (= \text{I have stopped}) \) |
|\(+\) | \(-\) Perf | \( \text{d} \text{pava} \)  
\( (= \text{I was stopping}) \) | \( \text{d} \text{xa} \) | \( \text{p} \text{apsi} \)  
\( (= \text{I had stopped}) \) |
|\(+\) | \(+\) Perf | \( \text{d} \text{papsa} \)  
\( (= \text{I stopped}) \) | \( \text{d} \text{xo} \) | \( \text{p} \text{af} \text{ti} \)  
\( (= \text{I have been stopped}) \) |
|\(-\) | \(-\) Perf | \( \text{d} \text{avome} \)  
\( (= \text{I am stopped}) \) | \( \text{d} \text{xo} \) | \( \text{p} \text{af} \text{ti} \)  
\( (= \text{I have been stopped}) \) |
|\(+\) | \(-\) Perf | \( \text{d} \text{af} \text{to} \)  
\( (= \text{I will be stopped}) \) | \( \text{d} \text{xo} \) | \( \text{p} \text{af} \text{ti} \)  
\( (= \text{I have been stopped}) \) |
|\(-\) | \(+\) Perf | \( \text{d} \text{avomuna} \)  
\( (= \text{I was being stopped}) \) | \( \text{d} \text{xa} \) | \( \text{p} \text{af} \text{ti} \)  
\( (= \text{I had been stopped}) \) |
|\(+\) | \(+\) Perf | \( \text{d} \text{aftika} \)  
\( (= \text{I was stopped}) \) | \( \text{d} \text{xa} \) | \( \text{p} \text{af} \text{ti} \)  
\( (= \text{I had been stopped}) \) |

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, \( [-\text{Perfect}] \) and \( [+\text{Perfect}] \) Aspect (See Comrie, 1976). \( [+\text{Perfect}] \) aspectual distinctions should not be confused with \( [+\text{Perfective}] \) (or, in
an abbreviated form, $\{\mathbf{+ \text{ Perf}}\}$ 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, $\{\mathbf{+ \text{ Perfect}}\}$ 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. $\{\mathbf{+ \text{ Perfect}}\}$, i.e. periphrastic, verb forms are made up, as shown in the examples above, of two verbal elements, an auxiliary and what we will here refer to as an infinitive. The auxiliary behaves inflectionally exactly like the irregular main verb EXO (= I have, I possess) in that the only grammatical contrasts it expresses are those of Tense, Number and Person, whereas $\{\mathbf{+ \text{ Pass}}\}$ and $\{\mathbf{+ \text{ Perf}}\}$ distinctions are neutralized in the direction of the cluster $\{-\text{Pass}, -\text{Perf}\}$.
The infinitive, on the other hand, expresses voice contrasts only:

<table>
<thead>
<tr>
<th>[- Pass]</th>
<th>[+ Pass]</th>
</tr>
</thead>
<tbody>
<tr>
<td>papsi</td>
<td>pafti</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>[- Pass]</th>
<th>[+ Pass]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1] papsi</td>
<td>pafti</td>
</tr>
<tr>
<td>[2] papsis</td>
<td>paftis</td>
</tr>
<tr>
<td>[3] papsi</td>
<td>pafti</td>
</tr>
</tbody>
</table>

and are subject to the same sandhi processes: pāv[ɔ]i → pāf[ɔ]i → pā[ps]i, though, as we said above, the infinitive is unrelated to all other grammatical contrasts apart from that between the Voice
values. \([- \text{Pass}] \) and \([+ \text{Pass}] \).

What we are suggesting here, therefore, is that \([+ \text{Perfective}]\) aspectual distinctions are expressed in the structure of monolectic \([- \text{Perfect}]\) but not of periphrastic \([+ \text{Perfect}]\) 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, \([+ \text{Past}]\) and \([- \text{Past}]\), corresponding to the traditional labels, respectively, "Past" and "Present"/"Future".

<table>
<thead>
<tr>
<th></th>
<th>([- \text{Past}])</th>
<th>([+ \text{Past}])</th>
</tr>
</thead>
<tbody>
<tr>
<td>([- \text{Pass}])</td>
<td>([- \text{Perf}]) pávo</td>
<td>épava</td>
</tr>
<tr>
<td></td>
<td>([+ \text{Perf}]) pápsa</td>
<td></td>
</tr>
<tr>
<td>([+ \text{Pass}])</td>
<td>([- \text{Perf}]) pavome</td>
<td>pavómuna</td>
</tr>
<tr>
<td></td>
<td>([+ \text{Perf}]) páfto</td>
<td>páfтика</td>
</tr>
</tbody>
</table>

A distinction should be made at this point between Tense, a grammatical category, and time reference, in that \([+ \text{Past}]\) does not necessarily refer to "past time" neither does \([- \text{Past}]\) necessarily refer to "present time". For instance, ŉiyamo! (= we departed), a \([+ \text{Past}, - \text{Pass}, + \text{Perf}, + \text{Pl}, 1]\) 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 1lei ... ke 1pea esi ...

(= ... 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 ([+ Future]) distinctions are expressed not inflectionally but syntactically, i.e. in the presence or absence of the particle 5a (= going to, will) preceded, to form the negative, by the particle 6en before [- Past] verb forms, whereas modal ([+ Hypothetical]) distinctions are expressed in the presence or absence of (6en) 5a (= "would (not)") before [+ Past] verb forms, e.g.

[- Future]: (6en) 5avo (= I (do not) stop)

[+ Future]: (6en) 5a 5avo (= I will (not) be stopping)

[- Hypothetical]: (6en) 1napo (= he stopped/did not stop)

[+ Hypothetical]: (6en) 5a 1napo (= he must/can't have stopped)
The presence or absence before a verb form of the particles na or as plus, in the negative, the particle mi(n):

\[
\begin{align*}
\{ \text{na} \} & \quad (\text{min}) \ p\text{ipsis} \ (= \text{in order that you may (not) stop}) \\
\{ \text{as} \} & \quad \text{reflects distinctions related to the category of Mood}^5, \ i.e.
\end{align*}
\]

respectively \{+ Subjunctive\} and \{- Subjunctive\}. As is clear from the above, such considerations as \{\text{+ Future}\}, \{\text{+ Hypothetical}\} and \{\text{+ Subjunctive}\} are not expressed inflectionally but only syntactically, by the presence or absence of particles (den) na or \{\text{na as}\} (min) 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

<table>
<thead>
<tr>
<th>[- Future]/[- Subjunctive]</th>
<th>[+ Future]</th>
<th>[+ Subjunctive]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[- Past, + Perf]</td>
<td>-</td>
<td>na p\text{ipsis} (= you will stop)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>na p\text{ipsis} (= so that you may stop)</td>
</tr>
<tr>
<td>[- Past, - Perf]</td>
<td>p\text{avis} (= you stop)</td>
<td>ga p\text{avis} (= you will be stopping)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ga p\text{avis} (= so that you may be stopping)</td>
</tr>
</tbody>
</table>
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.: δεν δρήσις καλίτερα θα περάσουμε!

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

that the \{- Past, + Perf, + Pass, - Pl, 2\} verb form δρήσις is not preceded by "obligatory" θα, though it is preceded by δεν. 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 \[\text{+Plural}\], while Person, has the contrastive values \[\text{-1}, \text{+2}, \text{-3}\].

In the analysis below we will normally use the symbols \{1, 2, 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:

\[
\begin{align*}
\{1\}: \ & \text{pavõmun(a)} \\
\{+ \text{Pass}, - \text{Perf}, + \text{Past}, - \text{Pl}\} \{2\}: \ & \text{pavõsun(a)} \\
\{3\}: \ & \text{pavõtan(a)}
\end{align*}
\]

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:

\[
\begin{bmatrix}
- \text{back} \\
- \text{high} \\
\alpha \text{ low}
\end{bmatrix}
\]

co-varies with the Person value [-\alpha 3], i.e. the features [\text{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. 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. ΠΑΔΟ (= I stop) or a vowel, e.g. ΑΓΑΠΑΩ (= I love), and also according to whether a stem-final vowel participates in sandhi interactions with following vowel inflectional formatives, e.g. ΑΓΑΠΑΩ, or not, e.g. ΑΠΟΚΛΙΩ (= I exclude). We will employ the symbol \( \text{ST}_\beta \) 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 \( \text{ST}_\nu \) 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 \( \text{ST}_{\nu 1} \) e.g. ΑΓΑΠΑΩ, or \( \text{ST}_{\nu 2} \), e.g. ΚΔΙΥΡΓΩ: diμiυρgьo \( \rightarrow \) diμiυρgь (= 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, \( \{+ \text{Past}\} \) or \( \text{ST}_\nu/\text{ST}_\beta \); 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, 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):

\[
\begin{array}{c}
K \\
\hline \\
D
\end{array}
\]
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 accounting, 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 İKY's standard reply to its scholars to acknowledge receipt of their letters. 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).
ΑΠΑΝΤΗΣΗ ΣΕ ΕΠΙΣΤΟΛΗ ΥΠΟΤΡΟΦΟΥ ΕΞΩΤΕΡΙΚΟΥ

'Αθήνα 4-11-1973

Κύριο Περ. Κτάλτα
'Αγγλία

'Εχομε την τιμή να σας γνωστοποιήσουμε ότι η 'Υπηρεσία παρέλαβε την επιστολή σας της 30-10-78, που χαρακτηρίστηκε με τον άριθμο 12449 (τόν άριθμο αυτό πρέπει να αναφέρετε, αν τυχόν επανέλθετε στο ίδιο θέμα).

'Η παραπέρα διαδικασία αναφορικά με το περιεχόμενο της επιστολής σας σημειώνεται παράκατω με τον άριθμο: 3.

1. 'Η 'Υπηρεσία την έλαβε υπόψη της.
2. Θα γίνει η 'υπηρεσιακή ένεργεια που προβλέπεται.
3. Θα γνωστοποιηθεί στον άρμοδιο Ειδικό.
4. Θα είσαχθεί στο Διοικητικό Συμβούλιο.

Με τιμή

Ο ΓΕΝΙΚΟΣ ΔΙΕΥΘΥΝΤΗΣ

Κ. ΜΠΑΡΜΠΗΣ
If, however, diglossia is approached within the context of a linguistically biased sociolinguistics, or "Sociolinguistics Proper" of Trudgill, or "Secular Linguistics" 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 K 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 I 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?

Miranbel, 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).
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?

<table>
<thead>
<tr>
<th></th>
<th>K</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure</td>
<td>98.3</td>
<td>94.5</td>
</tr>
<tr>
<td>Predominantly</td>
<td>90.5</td>
<td>82.2</td>
</tr>
</tbody>
</table>
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 Hrambel: 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, 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 variable rules the status of categorical rules. For instance, given that in our
data the variable rule that accounts for the following sandhi interactions: $fe \rightarrow ps$, $so \rightarrow st$, $xg \rightarrow xt$, $fo \rightarrow ft$, 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. $ks$ always changes to $ps$), whereas a K type of grammar might not recognize the existence of the rule at all (e.g. $ks$ never changes).

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

(i) $\{+ \text{Pass}, + \text{Perf}, + \text{Past}, + \text{Pl}, 1\} : \left[ e \right]_{(e)}^{c} + paf + \emptyset + \left[ \emptyset \right]^{i} + \left[ i_{1k} \right]^{a} + m + c + \left[ \emptyset \right]^{n}$

summarizing the verb forms $epaf9imen$ and $(e)paf9ikame$ ($fe$ 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 $\{+ \text{Pass}, + \text{Perf}, + \text{Past}, + \text{Pl}, 1, ST_{f}, PAVO\}$ the following phonological segments appear categorically, i.e. always:

$... + paf + \emptyset + ... + ... + n + c + ...$

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

$$\left[ \begin{array}{c} e \\ (e) \end{array} \right] + \ldots + \ldots + \left[ \begin{array}{c} \emptyset \\ ik \end{array} \right] + \left[ \begin{array}{c} i \\ a \end{array} \right] + \ldots + \ldots + \left[ \begin{array}{c} n \\ \emptyset \end{array} \right]$$

and so do those at the bottom of the square brackets

$$(e) + paf + \emptyset + i + m + e + n$$

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

$$\left[ \begin{array}{c} e \\ (e) \end{array} \right] ;$$

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)

\[\{- \text{Pass, - Perf, - Past, + Pl, 1, ST}_{\phi}, \text{PAVO}\}:\]

\[\text{pav} + \left[ \begin{array}{c} \text{o} \\ \{\text{u}\} \end{array} \right] + m + e + \left[ \begin{array}{c} \text{n} \\ \emptyset \end{array} \right]\]

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 epiefimen, epaftikame or paffikame appear next to the forms pavomen, pavome or pavume. 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 extension 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 \{+ 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 PAVO:

<table>
<thead>
<tr>
<th></th>
<th>{+ K}</th>
<th>{- K}</th>
</tr>
</thead>
<tbody>
<tr>
<td>{- Pl}</td>
<td>{1} (+ K)</td>
<td>pávo</td>
</tr>
<tr>
<td></td>
<td>{- K}</td>
<td></td>
</tr>
<tr>
<td>{+ Pl}</td>
<td>{2} (+ K)</td>
<td>pávete</td>
</tr>
<tr>
<td></td>
<td>{- K}</td>
<td></td>
</tr>
<tr>
<td>{3}</td>
<td>(+ K)</td>
<td>pávun [(\emptyset)]</td>
</tr>
<tr>
<td></td>
<td>(- K)</td>
<td></td>
</tr>
</tbody>
</table>
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 navome (the latter cluster having a more frequent [- K] alternative: pāvumē); also the [+ Pass, - Perf, - Past, - Pl, 1] and [- Pass, - Perf, - Past, + Pl, 2] clusters are both represented by navete; again, Tense distinctions are neutralized in [+ Past, - Perf, + Pl, 1, - K] navomaste, and [+ Pass, - Perf, + Pl, 2, - K] navosaste; the clusters [- Pass, - Perf, + Past, + K, + Pl, 1] and [- Pass, - Perf, + Past, + K, + Pl, 3] have the same phonological shape, navon; Aspect distinctions are neutralized in the [- Pass, + Past, - Pl, 1] form skana (= 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 *epafgimen* (= we were stopped) are ordered as follows:

\[ [+ \text{Pass}, + \text{Perf}, + \text{Past}, + \text{Pl}, 1, \text{ST}_p, - K] \]

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.

\[ [1]: \text{epaf géin} \quad (= \text{I was stopped}) \]
\[ [2]: \text{epaf géis} \quad (= \text{you were stopped}) \]
\[ [3]: \text{epaf géi} \quad (= \text{he was stopped}) \]

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 \{ [+ \text{Pass}, + \text{Perf}, + \text{Past}, - \text{Pl}, + K] \} paradigm of the (lexically defined as \{ \text{ST}_p \}) verb \text{PÁVO}, whereas the cluster \{- \text{Pass}, - \text{Perf}, - \text{Past}\} refers to the
paradigm of the verb forms of PAVO 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 Kurtyłowicz, 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 _CONSOLE or _CONSOLE following the stem of _CONSOLE is not structurally inconceivable, since they do appear in the structure of some verbs compounded with a preposition _CONSOLE
e.g.

PROSEXO (= I notice)

<table>
<thead>
<tr>
<th>[+ Perf, - Past, - Pl, 1]</th>
<th>[- Pass]</th>
<th>[+ Pass]</th>
</tr>
</thead>
<tbody>
<tr>
<td>proséxso</td>
<td>prosékso</td>
<td>proséx̆o</td>
</tr>
</tbody>
</table>

Thus, forms such as *ekso papsi or *exo pavi 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:

<table>
<thead>
<tr>
<th>[- Pass]</th>
<th>[+ Pass]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[- Past]</td>
<td>[- Past]</td>
</tr>
<tr>
<td>exo xaméno</td>
<td>ime xaménos</td>
</tr>
<tr>
<td>[+ Past]</td>
<td>[+ Past]</td>
</tr>
<tr>
<td>ixa xaméno</td>
<td>imun xaménos</td>
</tr>
</tbody>
</table>

where the first element is the auxiliary EXO orIME (= 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 θα 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:

θα οράπσο (= I will write)
θα συ οράπσο (= I will write to you)

while the latter is part of the verb form:

εόραπσα (= I wrote)
συ εόραπσα (= 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∅ 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.
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:
   \[ K \text{ version only; the numbering of the two points below is in the form } K/D \text{ version } \]
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. $m + e$ and not $me$, $[\emptyset_{ik}] + [i\,a]$ and not $[i_{ika}]$ or $i + [\emptyset_{ka}]$, see Ch.III.
CHAPTER II

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

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 inflectional 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 (DC₁) 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.
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.

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 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. 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

<table>
<thead>
<tr>
<th>BASE</th>
<th>THEMATIC VOWEL</th>
<th>PERSONAL ENDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>{-Pass,-Perf,-Past,+Pl,1}; yap</td>
<td>ū</td>
<td>me (= we love)</td>
</tr>
<tr>
<td>{-Pass,-Perf,-Past,+Pl,3}; yap</td>
<td>ø</td>
<td>ùn(e) (= they love)</td>
</tr>
</tbody>
</table>

where the vowel ū is a "thematic vowel" in the first form but part of the personal ending in the second, though, grammatically speaking, ū does not function differently in the two forms, the only contrasts between them being related to Person: {1} is expressed by ū + e while {3} by ū + (e).
where \( i \) in \( \text{kūnisa} \) and \( j \) in \( \text{kunjese} \) are classified separately (with the completely unnecessary side-effect of having two stems, \( \text{kun-} \) and \( \text{kuni-} \) instead of one, \( \text{kun-} \)), though in our analysis they are shown to be the "same" phonetically conditioned element: \( i \rightarrow j/C - V; \) a in \( \text{kuño} \) and s in \( \text{kúnisa} \) are classified together, though our analysis shows that s contrasts only with o in the context X (i) stem — , e.g.

\[
\begin{align*}
\{-\text{Pass}\}; \text{kun} + i + s + o & \quad (= \text{I will move}) \\
\{+\text{Pass}\}; \text{kun} + i + o + \delta & \quad (= \text{I will be moved}) \\
\{-\text{Pass}\}; \text{pap} + s + o & \quad (= \text{I will stop}) \\
\{+\text{Pass}\}; \text{paf} + o + \delta & \quad (= \text{I will be stopped})
\end{align*}
\]

while a contrasts with i in the context of verbs such as \( \text{AGAPÃO} \) and \( \text{KUNAO} \) but not \( \text{PÃO} \):

\[
\begin{align*}
\{-\text{Pass}, -\text{Past}, -\text{Pl}, 1\} & \{\text{-Pass}\}; \text{kun} + i + s + o & \quad (= \text{I move}) & \text{pap} + o \\
\{+\text{Pass}\}; \text{kun} + i + s + o & \quad (= \text{I will move}) & \text{pap} + s + o
\end{align*}
\]
<table>
<thead>
<tr>
<th>Stem</th>
<th>Aspect Marker</th>
<th>Thematic Vowel</th>
<th>Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>{-Pass,-Perf,+Past,+Pl,1}: ayapā</td>
<td>y</td>
<td>a</td>
<td>me (=we loved)</td>
</tr>
<tr>
<td>{-Pass,-Perf,+Past,+Pl,1}: ayap</td>
<td>us</td>
<td>a</td>
<td>me (=we loved)</td>
</tr>
<tr>
<td>{-Pass,+Perf,+Past,+Pl,1}: ayapī</td>
<td>s</td>
<td>a</td>
<td>me (=we loved)</td>
</tr>
<tr>
<td>{+Pass,+Perf,+Past,+Pl,1}: ayapī</td>
<td>ēīk</td>
<td>a</td>
<td>me (=we were loved)</td>
</tr>
<tr>
<td>{+Pass,+Perf,-Past,+Pl,1}: ayapī</td>
<td>ē</td>
<td>u</td>
<td>me (=we will be loved)</td>
</tr>
</tbody>
</table>

where a and ī 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-, ayapī-) instead of one (ayap-); y, us, ē, ē, and ēīk are classified together for reasons of economy, though it is obvious that ē is thus duplicated unduly, while y and us do not contrast minimally with s and ē. Compare our classification into two successive sets, F₄ (ē, ē) and F₅ (y, us, ēīk) in Ch.III, 5 and 6.

<table>
<thead>
<tr>
<th>Warburton, 1970</th>
<th>Root</th>
<th>Verb-</th>
<th>Aspect</th>
<th>Thematic</th>
<th>Person</th>
<th>q</th>
</tr>
</thead>
<tbody>
<tr>
<td>{+Pass,+Perf,-Past,+Pl,1}: apefθ</td>
<td>in</td>
<td>ē</td>
<td>u</td>
<td>m</td>
<td>o</td>
<td></td>
</tr>
</tbody>
</table>

(= we will address ourselves)

{+Pass,+Perf,+Past,+Pl,1}: apefθ | in | ēīk | a | m | e |

(= we addressed ourselves)
where (p.152) the contrast between ə and əi is, to say the least, unnecessary, since either ə (əpefəinə) or əik (əpefəinəika) appear in structure, but never əi on its own. Compare our analysis where ə 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 əi 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 ə in the [ + Pass, + Perf, - Past ] paradigm:

<table>
<thead>
<tr>
<th>Warburton, 1973</th>
<th>STEM</th>
<th>TV</th>
<th>PERSON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pav</td>
<td>ə</td>
<td>m</td>
</tr>
<tr>
<td>{ +Pass, -Perf, +Past, -Pl, -K }</td>
<td>pav</td>
<td>ə</td>
<td>s</td>
</tr>
<tr>
<td>{3}</td>
<td>pav</td>
<td>ə</td>
<td>t</td>
</tr>
</tbody>
</table>

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 $\delta$ik 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, a 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 + δ (= 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}:
<table>
<thead>
<tr>
<th>Language</th>
<th>Base</th>
<th>Thematic Vowel</th>
<th>Personal Endings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xâno</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>{1}</td>
<td>xan</td>
<td>φ</td>
<td>o</td>
</tr>
<tr>
<td>{-P1}</td>
<td>xan</td>
<td>i</td>
<td>s</td>
</tr>
<tr>
<td>{2}</td>
<td>xan</td>
<td>φ</td>
<td>i</td>
</tr>
<tr>
<td>{3}</td>
<td>xan</td>
<td>o</td>
<td>me</td>
</tr>
<tr>
<td>{+P1}</td>
<td>xan</td>
<td>e</td>
<td>te</td>
</tr>
<tr>
<td>{2}</td>
<td>xan</td>
<td>φ</td>
<td>un(e)</td>
</tr>
<tr>
<td>{3}</td>
<td>xan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agapão</td>
<td></td>
<td>(o/a)</td>
<td></td>
</tr>
<tr>
<td>{1}</td>
<td>ayap</td>
<td>φ</td>
<td>o</td>
</tr>
<tr>
<td>{-P1}</td>
<td>ayap</td>
<td>a</td>
<td>s</td>
</tr>
<tr>
<td>{2}</td>
<td>ayap</td>
<td>a</td>
<td>φ</td>
</tr>
<tr>
<td>{3}</td>
<td>ayap</td>
<td>u</td>
<td>me</td>
</tr>
<tr>
<td>{+P1}</td>
<td>ayap</td>
<td>a</td>
<td>te</td>
</tr>
<tr>
<td>{2}</td>
<td>ayap</td>
<td>φ</td>
<td>un(e)</td>
</tr>
<tr>
<td>{3}</td>
<td>ayap</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boró</td>
<td></td>
<td>(o/i)</td>
<td></td>
</tr>
<tr>
<td>{1}</td>
<td>bor</td>
<td>φ</td>
<td>o</td>
</tr>
<tr>
<td>{-P1}</td>
<td>bor</td>
<td>i</td>
<td>s</td>
</tr>
<tr>
<td>{2}</td>
<td>bor</td>
<td>φ</td>
<td>i</td>
</tr>
<tr>
<td>{3}</td>
<td>bor</td>
<td>u</td>
<td>me</td>
</tr>
<tr>
<td>{+P1}</td>
<td>bor</td>
<td>i</td>
<td>te</td>
</tr>
<tr>
<td>{2}</td>
<td>bor</td>
<td>φ</td>
<td>un(e)</td>
</tr>
<tr>
<td>{3}</td>
<td>bor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 (\textit{yan} - (= I lose), \textit{ayap} - (= I love) and \textit{bor} - (= I can)),
- a thematic vowel (\textit{o/i} for \textit{yan} -, \textit{o/a} for \textit{ayap} - and \textit{o/i} for \textit{bor} -)
- and a set of personal endings: -\textit{o}, -\textit{s}, -\textit{i} (but \textit{\emptyset} for \textit{ayap}), -\textit{me}, -\textit{te} and -\textit{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 \textit{u} or unstressed \textit{o}, appears in \{1\} and \{+ Pl, 3\}_A^{forms} and a front unrounded vowel, either a stressed \textit{a} or an unstressed \textit{o}, appears elsewhere, except for \{-Pl,2\}_A^{forms}, where \textit{a}, 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. \textit{x\text{"a}nume}, \textit{ayap\text{"a}o}, \textit{ayap\text{"a}i} and \textit{ayap\text{"a}me}, have been ignored, though they are much more common than their respective alternants.
included in the paradigms: xanome, ayapō, ayapā and ayapume. 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, xano 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 ē 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 ē should be considered as a thematic vowel in xān + ē + s and an ending in xān + ē + i. Surely it could be part of the ending in the former verb form too: xān + ē + s. 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 ayapate but not before -me in avapume. Actually, avapume exists and is much commoner than avapume 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 explicitly 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] forms, because, as Hamp states, again explicitly, if unstressed u in yra'fun(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:

<table>
<thead>
<tr>
<th>VERB MORPHEME</th>
<th>ASPECT</th>
<th>VOICE</th>
<th>PERSON</th>
<th>NUMBER</th>
<th>TENSE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Perfective Active</td>
<td>1st Person Singular Present</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yraf</td>
<td>s</td>
<td>o</td>
<td>(Perfective Active)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


"The phonological realization of Imperfective Active is, therefore, zero. But what does the zero in /yraf-ø-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 *vrafo* in a number of derivational stages, Warburton remarks:

"the form */vrafɔ/* has the root */yraf/* and the suffix */ɔ/* 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, *vrafo* (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 *yrafome*, *yrapso*, and *vraftɔ*, 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 *vriifo* is "longer" than either [- Pass, + Perf] *vrapso* or [+ Pass, + Perf] *vrafto*. 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 *vrapso* and *vrafto* 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 *vrafto* is in fact underlying *vrafo* (p. 211) which would appear to answer our last question above satisfactorily, i.e. [+ Pass] *vrafo* is longer than [- Pass] *vrapso*, 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."

---

<table>
<thead>
<tr>
<th>[- Passive]</th>
<th>[+ Passive]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[- Perf]</td>
<td>[+ Perf]</td>
</tr>
<tr>
<td>[- Past]</td>
<td>[+ Past]</td>
</tr>
<tr>
<td><em>vrisko</em> (= I find)</td>
<td><em>vrilo → vro</em></td>
</tr>
<tr>
<td><em>bëno</em> (= I enter)</td>
<td><em>bio → bò</em></td>
</tr>
</tbody>
</table>
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 ] vr rf i o → vr af o → v r af o as opposed to the "unmarkedness" of [ - Pass ] vr He o 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:
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 \( L\ddot{E}GO \) (= 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, \( L\ddot{E}GO \) 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 \( L\ddot{E}GO \) 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 IÉGO of the regular[STv.] verb AGAPÁO, e.g.

[- Pass, - Perf, - Pl, 1]

[- Past]  [+ Past]
ayap + ã + o  ayap + a + y + a
lêy + o  è + ley + a
or
lê + o  è + le + y + a

i.e. due to the superficial similarity of [- Pass, - Perf, + Past, - K} ayap + a + y + a and è + ley + a, the stem-final y of déleya is reinterpreted as being "the same" separate segment as y of ayapaya. Since y does not appear in [- Past] ayapao, the form lêyo sometimes, but not always, especially not when it is compounded with a prefix, e.g. prolêyo (= I foretell), drops y: lêo. 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 ayapao:

ayapao or ayapó  lêo
ayapdis → ayapís  lês
ayapái or ayapa  lei
ayapáume → ayapáme  lême
ayapíete → ayapíte  lête
ayapáun(o) → ayapán(o)  lê'n(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 \([- P1,\{+ \text{Pass}, + \text{Perf}\}]\) paradigm:

<table>
<thead>
<tr>
<th>THEMATIC VOWEL:</th>
<th>([- \text{Pass}])</th>
<th>([- \text{Past}])</th>
<th>([+ \text{Pass}, + \text{Perf}])</th>
<th>([+ \text{Past}])</th>
</tr>
</thead>
<tbody>
<tr>
<td>([- P1])</td>
<td>([1])</td>
<td>o (e.g. pavo)</td>
<td>a (e.g. epava)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>([2])</td>
<td>i (e.g. pavis)</td>
<td>e (e.g. epaves)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>([3])</td>
<td>i (e.g. pavi)</td>
<td>e (e.g. epavo)</td>
<td></td>
</tr>
</tbody>
</table>

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 ə, 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

<table>
<thead>
<tr>
<th></th>
<th>o</th>
<th>a</th>
<th>e</th>
<th>i</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>strong</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lower</td>
<td>-</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>stronger</td>
<td></td>
<td>-</td>
<td>+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In other words, [+ Past] as opposed to [- Past], and [1] as opposed to [2] and [3] are "marked" in the [- Pl,[- Pass, + Perf{] 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 o [+ 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):

\[
\begin{array}{c|c}
\text{[-Past]} & \text{[+Past]} \\
0 & a \\
is & es \\
i & e \\
\end{array}
\]

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) [+ Pass] → θ / \[ [+ Perf] \]

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

(ii) θ → e / [+ 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) \( \theta \rightarrow i / + \left[ \begin{array}{c} \emptyset \\ [+ \text{Perfective}] \end{array} \right] \)

(iv) \( \theta \rightarrow k / + \left[ \begin{array}{c} \emptyset i \\ [+ \text{Perf}] \end{array} \right] + [+ \text{Past}] \)

(v) \( \theta \rightarrow a / \left[ \begin{array}{c} \text{st} \\ 1\text{st} + \text{Plural} \end{array} \right] + \left[ \begin{array}{c} \text{st} \\ 2\text{nd} + \text{Plural} \end{array} \right] + \text{Past} \)

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):
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]."

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

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:

\[
\begin{bmatrix}
2 \\
+ \text{Plural} \\
\{ \text{[- Passive]} \} \\
\{ \text{[+ Perfective]} \} \\
\text{[+ Passive]} \\
\end{bmatrix}
\]

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 \([+ \text{affix } \text{[+ 3rd person]}]\) as \( t \), though \( t \) never appears in \([+ \text{Pl, 3}]\) forms of the \([- \text{Pass}]\) and the \([+ \text{Pass, + Perf}]\) paradigms, e.g. \( \text{pavun}, \text{pipsun}, \text{pavan}, \text{papsan}, \text{partun}, \text{partikan}; \) also on p. 212 we read that one of the significant differences "between present and past in imperfective passive is ... the generalization of \(/\text{aste}/ \) in the first two persons of the plural ...", whereas a few pages later rule 21, reproduced above as (v), informs us that \( \text{aste} \) appears in \([+ \text{Pl, 1}]\) forms irrespective of Tense, e.g. \( \text{pavōmaste}, \) and in \([+ \text{Pl, 2}]\) forms it appears only if followed by the feature past (sic), e.g. \([+ \text{Past}] \text{pavōmaste}, \) as opposed to
[- Past] pāveste. As a matter of fact, pāvosaste too appears irrespective of Tense in our corpus, in alternation in the [- Past] paradigm with pāveste.

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.

\[
\begin{align*}
pāv + o + m + e \\
pāv + e + s + e \\
pāv + e + t + e
\end{align*}
\]

Secondly, constituents that were correctly isolated but subsequently assigned, for insufficient reasons, to the same formative, e.g.

\[
\begin{align*}
\theta + i + k \text{ going to } /\theta i/ \text{ for non past and } /\theta ik/ \text{ for past} \quad (p.220).
\end{align*}
\]

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

\[
\begin{align*}
pavomun(a) \\
pavosun(a) \\
pavotan(e) \\
pavomastan or pavomaste \\
pavasastan or pavacaste \\
pavontan(e) or pavontusan or pāvontan
\end{align*}
\]
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) \[ + \text{consonantal} \] 
\[ - \text{vocalic} \] 
\[ + \text{anterior} \] 
\[ + \text{coronal} \] 
\[ + \text{continuant} \] 
\[ - \text{voice} \] 
\[ \alpha \text{strident} \]

\[ \{ + \text{Perfective} \} \rightarrow \{ - \alpha \text{passive} \} \]

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

\{ + \text{Perf}, - \text{Past}, - \text{Pl}, 1 \}\{ - \text{Pass} \}: \text{pap} + s + o
\{ + \text{Pass} \}: \text{paf} + \theta + o \rightarrow \text{pafto}

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):

\[
(xi) \quad V \rightarrow [\alpha \text{ strong}] / [\alpha \text{ 1st person}]
\]

\[
\beta \text{ lower} \]

\[
\beta \text{ Past}
\]

does something similar, i.e. "it seems to be attributing morphological status" to the features \([\alpha \text{ strong}] \) (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. 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 fashion. 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.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+Pass,+Perf,+Past,+Pl,1]</td>
<td>ayap</td>
<td>i</td>
<td>ø</td>
<td>k</td>
<td>a</td>
<td>me</td>
<td>(=we were loved)</td>
</tr>
<tr>
<td>[+Pass,-Perf,-Past,-Pl,1]</td>
<td>ayap</td>
<td>j</td>
<td>o</td>
<td>m</td>
<td>un(a)</td>
<td>(=I was loved)</td>
<td></td>
</tr>
<tr>
<td>[-Pass,-Perf,-Past,-Pl,1]</td>
<td>ayap</td>
<td>a</td>
<td>a</td>
<td>o</td>
<td>(=I love)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[-Pass,+Perf,+Past,-Pl,1]</td>
<td>ayap</td>
<td>i</td>
<td>s</td>
<td>o</td>
<td>(=I will love)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 ayapio is in column 5, while i in ayapiso and ayapï0ïka 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:

\[
\begin{align*}
\text{a} : & \{ - \text{Pass}, - \text{Perf} \} \text{ e.g. ayapao, ayapaya} \\
\text{i} : & \{ + \text{Pass}, - \text{Perf} \} \text{ e.g. ayapijame, ayapijomun(a)} \\
& \quad \text{(note that } i \rightarrow j / c - v) \\
& [+ \text{Perf}] \quad \text{ e.g. ayapiso, ayapij6} \\
\end{align*}
\]

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 ayapao is an exponent of the cluster \{ - \text{Pass}, - \text{Perf}, - \text{Past} \} (rule 8, p.275) while in ayapijikame it is an exponent of the cluster \{ + \text{Past}, + \text{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 fixed 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 fixed 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 fixed 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

<table>
<thead>
<tr>
<th>[+Pass, -Perf, -Past]</th>
<th>-Pl</th>
<th>+Pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1] pav o m e (pavome)</td>
<td>(2) pav e s e (pavese)</td>
<td>(3) pav e t e (pavete)</td>
</tr>
<tr>
<td>[1] pav o m ast e (pavomaste)</td>
<td>(2) pav o s ast e (pavosaste)</td>
<td>(3) pav o n t e (pavonte)</td>
</tr>
</tbody>
</table>

we notice that we can readily identify, say, pavome or pavese 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 pav-,
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\} \(\text{pavome, pavomaste}\) or \(+\text{Pl}\) \(\text{pavomaste, pavosaste, pavonte}\); the presence of e in the context of the stem indicates the presence of the cluster \(-\text{Pl}, -1\) \(\text{pavese, pavete}\); 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 \(-\text{Pl}\), for in the presence of the value \(+\text{Pl}\) e is separated from m or s by ast; n is a \(+\text{Pl}, 3\)
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 untenable.

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 Matthews, morpholexical) rules; thus, the cluster, say, \{+ \text{Pass}, - \text{Perf}, - \text{Past}, + \text{Pl}, 1, \text{PAVO}\} and \{+ \text{Pass}, - \text{Perf}, - \text{Past}, + \text{Pl}, 1, \text{PAVO}\} are attributed the phonological shapes, respectively, \text{Pavome} and \text{Pavomaste}. 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, \text{Pavome} and \text{Pavomaste} differ only with respect to the presence or absence of the segment \text{ast} corresponding to the alternation between the values, respectively, \{+ \text{Pl}\} and \{- \text{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 \textit{go} and \textit{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 "morphosyntactic" properties and phonological segments not directly but
indirectly, through a process of derivation; cf. Matthews, p.263:

"the form \( \text{yrapso} \) ... is the only realization of \( \text{GRAFOP}^{\text{FIN,F,Pr,Pr,A,1,sg}} \) ...
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 specific (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 specific (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 through 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 *ayapiGika* (= I was loved)
and *epava* (= I was stopping) on the basis of Matthews' derivation
process would look as follows:
<table>
<thead>
<tr>
<th>PRIMARY STEM(S₁)</th>
<th>SECONDARY STEM(S²)</th>
<th>TERTIARY STEM(S³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROOT(R)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGAPIΩ</td>
<td>ayap</td>
<td>i</td>
</tr>
<tr>
<td>[+Pass, +Perf, +Past, -Pl, 1]</td>
<td>[+Perf]</td>
<td>[+Pass, +Perf]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ik</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a</td>
</tr>
<tr>
<td>PAVO</td>
<td>épav</td>
<td></td>
</tr>
<tr>
<td>[-Pass, -Perf, +Past, -Pl, 1]</td>
<td>[-Perf]</td>
<td>[+Past, -Pl, 1]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a</td>
</tr>
</tbody>
</table>

According to the above stem-oriented schema, pavo- (I ignore the augment here) is grammatically "the same" as ayap-, avapi-, avapiθ-, and avapi9ik- on the level of, respectively, the Root, Primary Stem, Secondary Stem and Tertiary Stem. In the case of épava the Root is rewritten as S₁, and S² as S³ when all other relevant rules accounting for S₁ and S³ suffixes have applied (see rules 4 and 7 on, respectively, pp.279 and 277), whereas S₁ is rewritten as S² in the presence of the feature {- Perf} (rule 6, p.278). As for final a, it is suffixed to S³ 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. avapiθ- or avapiθik- and epav-, whereas at the same time a single segment is treated as something different at various stages of the derivation, e.g. pay- standing as R, S₁, S², and S³. Furthermore, the representation of the values {- Pass} and {- Perf} in the phonological structure of epava is not clear at all. The latter "conditions" the rewriting of S¹ as S² as we said above, while the former is presumably involved in the "elsewhere" environment "triggering off" the rewriting of R as S¹ and of S² as S³. 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 a to S³.

What I suggest here, therefore, with respect to Matthews' formulation is that, viewing the relationship between grammatical values and phonological form as indirect, necessitates (or, possibly, derives from?) the setting up of a mechanism that accounts for such relationships as viewed, i.e. as indirect. In the case of Matthews, 1967, this mechanism takes the form of a derivational process based on the organizational unit of the stem: 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, \( [+K] \) 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 successive morphemes and successive 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 MCK.

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 fixed 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 \( \mathcal{K} \) distinctions has been ignored in the literature.
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. \(SP_1, \ldots, SP_{12}\)) in each of which a small set of contrastive formatives (i.e. \(F_1, \ldots, F_{12}\)) 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 \(\{^+\text{Pass}, ^+\text{Perf}, ^+\text{Past}, ^+\text{Pl}, 1, 2, 3\}\), lexical \(\{ST_0, STv_1, STv_2\}\) and stylistic \(\{^+K\}\) values which a particular verb form realizes (see Ch.1);

(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. *pifso* and *paföö*, where the segments s and Θ 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 s and Θ 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. 2 and 0 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:

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<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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</thead>
<tbody>
<tr>
<td>{-Pass,-Perf,-Past,-Pl,1,-K}</td>
<td>ayap</td>
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<td>{-Pass,+Perf,-Past,+Pl,2,-K}</td>
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<td>{+Pass,+Perf,+Past,+Pl,3,-K}</td>
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<td>n(e)</td>
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</table>

When necessary, superscripts over segments of a verb form will refer to the structural places occupied in the construction of the word, e.g. \( \frac{\text{2}}{6} \text{yra} \frac{\text{1}}{} \text{i} \) (= he is writing), \( \frac{\text{1}}{8} \text{pe} \frac{\text{2}}{6} \text{e} \frac{\text{4}}{6} \text{s} \) (= 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; contrarilywise, 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, Table One, in the pocket in the back cover.

2. SP 1

The first structural place accommodates $F_1$ formative traditionally known as augmenta: the vowel $\varepsilon$, or, for a small number of verbs, $\iota$ (i.e. the alternation $\varepsilon$/$\iota$ is not grammatically or stylistically significant - only lexically significant in that certain lexemes specify $\iota$ rather than $\varepsilon$: 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. $\epsilon$napsa (= I stopped), $\epsilon$napses (= you stopped), $\epsilon$napse (= 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. $\epsilon$api$\theta$imen (= we were stopped), $\epsilon$api$\theta$ite (= you were stopped), $\epsilon$api$\theta$ican (= they were stopped);
(c) "optionally", in the case of [+ Past, -K] verb forms with three or more syllables, e.g. (e)pàsame (= we stopped), (e)pàspate (= 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. \textit{SP}_2

The second structural place comprises \textit{F}_2 formatives i.e. stems (but see 4 below for stems composed of \textit{F}_2 + \textit{F}_3 formatives). \textit{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 allow the expression of grammatical contrasts in \textit{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 \textit{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 \textit{v},\textit{r}, and \textit{f} in the paradigm of the verb PÀVO before, respectively, a vowel, \textit{s} or \textit{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 KATAGRAFO (= I record) the stem katayraf- is composed of the root yraf preceded by the derivational (or lexical) prefix kata-, while in the case of GR&O (= I write) the stem yraf- is the same as the root yraf-. In the case of the lexemes KAPNIZO (= I smoke), VASIZO (= I base) and KANONIZO (= I arrange) the respective roots kapp-, 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 DIMIURGO (= 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]: $\text{ayap} \overset{2}{\overset{3}{\overset{6}{\overset{6}{\overset{6}{\overset{6}{0}}}}}} (= \text{I love})$

{- Pass, + Perf, - Past, - Pl, 1}: $\text{ayap} \overset{2}{\overset{3}{\overset{4}{\overset{6}{\overset{6}{0}}}}}$ (= I will love)

[+ Pass, - Perf, - Past, - Pl, 1, - K]: $\text{ayap} \overset{2}{\overset{3}{\overset{6}{\overset{8}{\overset{8}{10}}}}}$

(= I am loved)

[+ Pass, - Perf, - Past, - Pl, 1, + K]: $\text{ayap} \overset{2}{\overset{3}{\overset{6}{\overset{8}{\overset{8}{10}}}}}$

(= I am loved)

[+ Pass, + Perf, - Past, - Pl, 1]: $\text{ayap} \overset{2}{\overset{3}{\overset{4}{\overset{6}{\overset{6}{0}}}}}$ (= 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 PAVO and AGAPAO, where, in all the possible combinations of the values of Voice, Aspect and Tense, the column marked SP3 is always empty in the case of PAVO while in AGAPAO it is always full. Note that i → j/C → V.
We will refer to verbs in whose stem structure $F_3$ vowels never appear as $\{ST_\beta\}$ verbs (e.g. PAVO) and to verbs in whose stem structure such vowels do appear as $\{STv\}$ verbs. Stem of $\{STv\}$ verbs are made up of $F_2 + F_3$ formatives, e.g. $\frac{2}{6}$ ayap $\bar{a}$ o, where the stem is ayap-$\bar{a}$-$o$. Stems of $\{ST_\beta\}$ verbs are made up of $F_2$ formatives alone, e.g. $\frac{2}{6}$ pav $\bar{a}$. STEM refers to either $\{ST_\beta\}$ or $\{STv\}$ verbs; thus, if we say that the $F_4$ formative $a$ is affixed to the stem we mean that it is affixed to $F_2$ formatives in the case of $\{ST_\beta\}$ 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, AGAP\text{\textordmasculine}O and DIMITUR\text{\textordmasculine}O.
5. **SP₄**

The fourth structural place accommodates the F₄ formatives s and θ 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 θ rather than θ₁ or θ + 1 see discussion in Ch.IV 3.5.2.

6. **SP₅**

In the fifth structural place appear the F₅ formatives χ, us and ik (see list of examples in 1 above and Table One). Of them, either χ or us 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, STv₁], e.g. ayāp a ya or ayāp us a, whereas in the same morphological context but in the presence of the cluster of values [- Pass, - Perf, + Past, - k, STv₂] only us appears, e.g. dimūry us a; yet again, in the case of the verbs KEO (= I burn), KLEO (= I weep) and FTEO (= I am to blame) only χ appears, e.g. 2 2 5 6 6 1 2 5 6 1 2 5 6. The formative χ seems to be phonetically motivated, a point that will be discussed in Ch.IV,3.5.2. The formative ik appears in the structure of both ST₁ and STvverbs 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 \([+\text{Past}, -\text{K}]\) 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 (F5) 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 \([+\text{Pass}, -\text{Perf}, -\text{Past}, -\text{K}]\) paradigm of AGAPÅO is analyzed in a number of studies.

Warburton, 1970, p.142-146

ayapi é m e
ayapi é s e
ayapi é t e
ayapi o mast e
ayapi é st e
ayapi o nt e
or: ayapi o int e

b. Koutsoudas, 1962, p.41

ayap jé me
ayap jé se
ayap jé to
ayap jé maste
ayap jé ste
ayap jé nde

c. Babiniotis, 1972a, p.59

ayapi é me
ayapi é se
ayapi é te
ayapi é maste
ayapi é ste
ayapi é nde
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 marveling 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):

- $-o$, $-is$, $-i$, $-omen$, $-ome$, $-ume$, $-ete$, $-ite$, $-un$, $-unc$
- $-a$, $-es$, $-as$, $-e$, $-amen$, $-ame$, $-ate$, $-an$, $-ane$, $-on$
- $-in$, $-imen$, $-isan$; $-eme$, $-ese$, $-ome\theta a$, $-omaste$, $-umaste$, $-es\theta e$, $-este$, $-osaste$, $-usaste$, $-onte$, $-unte$
- $-omin$, $-omun$, $-omuna$, $-eso$, $-osun$, $-osuna$, $-eto$, $-otan$
- $-otane$, $-omastan$, $-umastan$, $-osastan$, $-usastan$, $-ontan$
- $-untan$, $-ontane$, $-untane$, $-ontusan$, $-untusan$

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.

<table>
<thead>
<tr>
<th>[-Pass, - Perf]</th>
<th>[-Pass, + Perf]</th>
<th>[+Pass, + Perf]</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="table.png" alt="Table" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.
though there are also certain alternative terminations which do not differ with respect to \( ^+ K \) distinctions, e.g.

\[
\{ + \text{Pass}, + \text{Perf}, + \text{Past}, + \text{Pl}, 1 \} \\
\{ + K \}: \ e + \text{paf} + \theta + \text{imen} \\
\{ - K \}: \ (e)+ \text{paf} + t + \text{iuk} + \text{ame}
\]

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, \{ - \text{Pl}, 1 \}, \{ - \text{Pl}, 2 \}, \{ - \text{Pl}, 3 \}, \{ + \text{Pl}, 1 \}, \{ + \text{Pl}, 2 \} and \{ + \text{Pl}, 3 \}.

Termination subsets are further subdivided according to \( ^+ K \) distinctions: \( ^+ K \) termination subsets are marked as \( T_1 \ldots T_6 \).
### TABLE TWO
Terminations of the verb paradigm in MGE

<table>
<thead>
<tr>
<th>(K)</th>
<th>(K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-o</td>
<td>-o</td>
</tr>
<tr>
<td>-is</td>
<td>-is</td>
</tr>
<tr>
<td>-i</td>
<td>-i</td>
</tr>
<tr>
<td>-cme</td>
<td>-cme/-ume*</td>
</tr>
<tr>
<td>-ete/-ite†</td>
<td>-ete/-ite†</td>
</tr>
<tr>
<td>-un</td>
<td>-un/-une</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>(K)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>-es</td>
<td>-es</td>
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<td>-e</td>
<td>-e</td>
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<tr>
<td>-ate</td>
<td>-ate</td>
</tr>
<tr>
<td>-an</td>
<td>-an/-ane</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>(K)</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>-as</td>
<td>-es</td>
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<td>-e</td>
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<tr>
<td>-ate</td>
<td>-ate</td>
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<tr>
<td>-an</td>
<td>-an/-ane</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(K)</th>
<th>(K)</th>
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</thead>
<tbody>
<tr>
<td>-in</td>
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<tr>
<td>-is</td>
<td>-i</td>
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<td>-imen</td>
<td>-imen</td>
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<tr>
<td>-ite</td>
<td>-ite</td>
</tr>
<tr>
<td>-isan</td>
<td>-isan</td>
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</table>

<table>
<thead>
<tr>
<th>(K)</th>
<th>(K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-cme</td>
<td>-cme/-eme</td>
</tr>
<tr>
<td>-esc</td>
<td>-esc</td>
</tr>
<tr>
<td>-ete</td>
<td>-ete</td>
</tr>
<tr>
<td>-cme/a</td>
<td>-cme/a</td>
</tr>
<tr>
<td>-ese</td>
<td>-ese</td>
</tr>
<tr>
<td>-ante</td>
<td>-ante</td>
</tr>
<tr>
<td>-on/ -ume</td>
<td>-on/ -ume</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(K)</th>
<th>(K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-omin</td>
<td>-omin/-cmauna</td>
</tr>
<tr>
<td>-eso</td>
<td>-osun/-osuna</td>
</tr>
<tr>
<td>-eto</td>
<td>-otan/-otane</td>
</tr>
<tr>
<td>-cme/a</td>
<td>-cme/a</td>
</tr>
<tr>
<td>-eso</td>
<td>-eso</td>
</tr>
<tr>
<td>-ante</td>
<td>-ante</td>
</tr>
</tbody>
</table>

* -eme appears in -Pass and -ume in both -Pass and +Pass verb forms.
† -ite appears only in +Pass verb forms. For problems related to the stipulation of the particular shape of T₁ and T₂ with respect to the value (+Pass) and also of T₄, see Ch. III. 3. 5. 2.
and \([- K]\) subsets as \(T_1 \ldots T_{iv}\). (We will ignore, for the time being, the fact that subsets that differ only with respect to \([\pm K]\) 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 \([\pm K]\) distinctions:

<table>
<thead>
<tr>
<th>([- \text{Past}])</th>
<th>([- \text{Past}])</th>
<th>([+ \text{Perf}])</th>
<th>([+ \text{K}])</th>
<th>([- \text{K}])</th>
</tr>
</thead>
<tbody>
<tr>
<td>([- \text{Past}])</td>
<td>([- \text{Pass}])</td>
<td>([- \text{Perf}])</td>
<td>([- \text{K}])</td>
<td>([+ \text{K}])</td>
</tr>
<tr>
<td>([+ \text{Past}])</td>
<td>([- \text{Pass}])</td>
<td>([- \text{Perf}])</td>
<td>([+ \text{K}])</td>
<td>([- \text{K}])</td>
</tr>
<tr>
<td>([+ \text{Past}])</td>
<td>([- \text{Pass}])</td>
<td>([- \text{Perf}])</td>
<td>([+ \text{K}])</td>
<td>([- \text{K}])</td>
</tr>
<tr>
<td>([+ \text{Pass, + Perf}])</td>
<td>([- \text{Pass}])</td>
<td>([- \text{Perf}])</td>
<td>([+ \text{K}])</td>
<td>([- \text{K}])</td>
</tr>
<tr>
<td>([+ \text{Pass, - Perf}])</td>
<td>([- \text{Past}])</td>
<td>([- \text{Perf}])</td>
<td>([+ \text{K}])</td>
<td>([- \text{K}])</td>
</tr>
</tbody>
</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. VC
3. VCV
4. VCVc
5. VCCVcV
6. VCCCVC
7. VCCVcVC
8. VCCVCVcV
9. VCCVCVC
10. VCCVCC
11. VCCVCCVC
Table Three below summarizes the distribution of the eleven types of terminations in two divisions of the verb system, namely, \([+ \text{Pass}, - \text{Perf}]\) and "elsewhere" i.e. \([- \text{Pass}]\) and/or \([+ \text{Perf}]\) (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 \([+ \text{Pass}, - \text{Perf}, - \text{Pl}, 1]\) box it is further shown to be a \([- \text{Past}]\) formative and to have two shapes, \([-\text{ome}]\) in the case of \([-K, \text{STv}_1]\) verb forms, e.g. ayapjome, and \([-\text{ome}]\) elsewhere, e.g.

\[
\begin{align*}
\{\text{ST}_p\} : & \text{ pavome} \\
\{+\text{Pass}, -\text{Perf}, -\text{Past}, -\text{Pl}, 1\} : & \{\text{STv}_1, +K\} : \text{ ayapa}^\text{ome} \rightarrow \text{ayapome} \\
& \{\text{STv}_2\} : \text{ dimiury}^{\text{ome}} \rightarrow \text{dimiuryume}
\end{align*}
\]

On the basis of Table Three and preceding discussion a fairly straightforward rule system could be devised. For instance, the cluster \([+ \text{Pass}, - \text{Perf}, - \text{Past}, - \text{Pl}, 1]\) (see paragraph above) would be rewritten as VCV. Further rules would specify VCV as

\[
\begin{bmatrix}
V \\
-\text{high}
\end{bmatrix}
\]

Subsequently, the termination-initial vowel would be

\[
\begin{bmatrix}
-\text{low}
\end{bmatrix}
\]
### Table Three
The distribution of the eleven termination types in the verb paradigm

<table>
<thead>
<tr>
<th>(+Pass, -Perf)</th>
<th>&quot;elsewhere&quot; (i.e. (+Pass, +Perf) )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(1)</strong></td>
<td></td>
</tr>
<tr>
<td>VC</td>
<td></td>
</tr>
<tr>
<td>one</td>
<td>(+Past, STV, +K)</td>
</tr>
<tr>
<td>(-Past, STV)</td>
<td></td>
</tr>
<tr>
<td>one</td>
<td>(+Past, STV, -K)</td>
</tr>
<tr>
<td>VC</td>
<td></td>
</tr>
<tr>
<td>omen</td>
<td>(+Past, -K)</td>
</tr>
<tr>
<td>omen</td>
<td>(+Past, +K)</td>
</tr>
<tr>
<td>VCCV</td>
<td>(+Past, -K)</td>
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<tr>
<td>ona</td>
<td>(+Past, +K)</td>
</tr>
<tr>
<td><strong>(2)</strong></td>
<td></td>
</tr>
<tr>
<td>VC</td>
<td></td>
</tr>
<tr>
<td>ese</td>
<td>(+Past)</td>
</tr>
<tr>
<td>ese</td>
<td>(+Past, +K)</td>
</tr>
<tr>
<td>VCC</td>
<td>(+Past, -K)</td>
</tr>
<tr>
<td>omen</td>
<td>(+Past, +K)</td>
</tr>
<tr>
<td>VCCV</td>
<td>(+Past, -K)</td>
</tr>
<tr>
<td>ona</td>
<td>(+Past, +K)</td>
</tr>
<tr>
<td><strong>(3)</strong></td>
<td></td>
</tr>
<tr>
<td>VCCV</td>
<td></td>
</tr>
<tr>
<td>one</td>
<td>(+K)</td>
</tr>
<tr>
<td>one</td>
<td>(+Past, -K)</td>
</tr>
<tr>
<td>VC</td>
<td></td>
</tr>
<tr>
<td>omen</td>
<td>(+Past, -K)</td>
</tr>
<tr>
<td>ona</td>
<td>(+Past, +K)</td>
</tr>
<tr>
<td>VC</td>
<td></td>
</tr>
<tr>
<td>omen</td>
<td>(+Past, -K)</td>
</tr>
<tr>
<td>VCC</td>
<td></td>
</tr>
<tr>
<td>omen</td>
<td>(+Past, +K)</td>
</tr>
<tr>
<td>VCCV</td>
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</tr>
<tr>
<td>ona</td>
<td>(+Past, +K)</td>
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<td><strong>(+1)</strong></td>
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</tr>
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<td>VC</td>
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</tr>
<tr>
<td>ese</td>
<td>(-Past)</td>
</tr>
<tr>
<td>ese</td>
<td>(+Past, +K)</td>
</tr>
<tr>
<td>VCC</td>
<td></td>
</tr>
<tr>
<td>ate</td>
<td>(-Past)</td>
</tr>
<tr>
<td>ate</td>
<td>(+Past, +K)</td>
</tr>
<tr>
<td>VC</td>
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</tr>
<tr>
<td>omen</td>
<td>(+Past, -K)</td>
</tr>
<tr>
<td>ona</td>
<td>(+Past, +K)</td>
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<td>VC</td>
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</tr>
<tr>
<td>ona</td>
<td>(+Past, -K)</td>
</tr>
<tr>
<td>VCC</td>
<td></td>
</tr>
<tr>
<td>omen</td>
<td>(+Past, +K)</td>
</tr>
<tr>
<td>VCCV</td>
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<td>omen</td>
<td>(+Past, +K)</td>
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<td><strong>(+3)</strong></td>
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<tr>
<td>VC</td>
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</tr>
<tr>
<td>one</td>
<td>(-Past, -K)</td>
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<tr>
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<td>one</td>
<td>(+Past, -K)</td>
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<tr>
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<td>VCCV</td>
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</tr>
<tr>
<td>ona</td>
<td>(+Past, -K)</td>
</tr>
<tr>
<td><strong>ontusan</strong></td>
<td></td>
</tr>
<tr>
<td>&quot;ontusan&quot;</td>
<td>(+Past, -K)</td>
</tr>
</tbody>
</table>

Notes:
- "elsewhere" indicates the distribution of termination types in the verb paradigm.
- The table categorizes verbs based on their termination types.
- The symbols (+Past, -Perf) and (+Pass, +Perf) represent different verb forms.
- The table includes examples of verbs with various termination types and their corresponding "elsewhere" distributions.
determined as [+front] in the presence of the cluster [-K, STv₁], e.g. ayapjëme, or as [+back] in the presence of the value [-STv₁], e.g. pavome, diniurjëme → diniurjume.

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.

<table>
<thead>
<tr>
<th>TYPE 4</th>
<th>TYPE 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+Pass, -Perf, +Past, -Pl, -K]</td>
<td>[1] pavōmun</td>
</tr>
<tr>
<td>[2] pavōsūn</td>
<td>pavōsuna</td>
</tr>
<tr>
<td>[3] pavōtān</td>
<td>pavōtāne</td>
</tr>
</tbody>
</table>

The same may be said about termination types 7 (VCCVC) and 8 (VCCVCV) in {+Pass, -Perf, +Past, +Pl, 3, -K} forms, e.g. pavontān, pavōntāne, and about types 2 (VC) and 3 (VCV) in

{[-Pass], + Pl, 3} forms, e.g.
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, - l] 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.
types involved, e.g.

<table>
<thead>
<tr>
<th>[+]Pass, -Perf, +Past, -K</th>
<th>[-PL]</th>
<th>[+PL]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[2] pavósun/-ósuna</td>
<td>-úmaste/-úmastan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-úsaste/-úsastan</td>
</tr>
</tbody>
</table>
|                          |                   | [3] pavontan/-óntane/
|                          |                   | -óntusan/-óntusan |

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.

<table>
<thead>
<tr>
<th>-Past</th>
<th>+ Past</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-PL]</td>
<td></td>
</tr>
<tr>
<td>[1] pavome</td>
<td>epavómin</td>
</tr>
<tr>
<td>[2] pavase</td>
<td>epaveso</td>
</tr>
<tr>
<td>[3] pavete</td>
<td>epaveto</td>
</tr>
<tr>
<td>[+PL]</td>
<td></td>
</tr>
<tr>
<td>[1] pavomega</td>
<td>epavómea</td>
</tr>
<tr>
<td>[2] pavaseo</td>
<td>epaveséo</td>
</tr>
<tr>
<td>[3] pavante</td>
<td>epavonto</td>
</tr>
</tbody>
</table>

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 $SP_7$, $SP_8$):

<table>
<thead>
<tr>
<th></th>
<th>$SP_7$</th>
<th>$SP_8$</th>
</tr>
</thead>
<tbody>
<tr>
<td>+P1</td>
<td>[1]</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>[2]</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>[3]</td>
<td>t</td>
</tr>
<tr>
<td>-P1</td>
<td>[1]</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>[2]</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>[3]</td>
<td>n</td>
</tr>
</tbody>
</table>

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, [+ P1, 1] and [- P1, 2] forms:

<table>
<thead>
<tr>
<th></th>
<th>[-Pass]</th>
<th>[+Pass, +Perf]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[-Perf]</td>
<td>[+Perf]</td>
</tr>
<tr>
<td>-Past</td>
<td>[-P1,2]</td>
<td>[-K]</td>
</tr>
<tr>
<td></td>
<td>pavis</td>
<td>pafsias</td>
</tr>
<tr>
<td></td>
<td>papsis</td>
<td>pafsias</td>
</tr>
<tr>
<td>+Past</td>
<td>[-P1,2]</td>
<td>+K</td>
</tr>
<tr>
<td></td>
<td>epaves</td>
<td>epafsas</td>
</tr>
<tr>
<td></td>
<td>epapsas</td>
<td>paftikes</td>
</tr>
<tr>
<td></td>
<td>[P1,1]</td>
<td>+K</td>
</tr>
<tr>
<td></td>
<td>pavomen</td>
<td>epafsamen</td>
</tr>
<tr>
<td></td>
<td>papsome</td>
<td>papsame</td>
</tr>
</tbody>
</table>
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 e9 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. 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 individual formatives contain some measure of redundancy. Thus, in 5 above, $ik$ was defined as appearing in the presence of the cluster $\{+ \text{Pass}, + \text{Perf}, + \text{Past}, - K\}$ in the context $STEM + 9$. From the discussion in 4 above, however, we know that $9$ is suffixed to the stem in the presence of the values $\{+ \text{Pass}, + \text{Perf}\}$. Consequently, it is redundant to specify for $ik$ both that it always follows $9$ in $\{+ \text{Past}, - K\}$ forms and that it
appears in the presence of the cluster \{+ \text{Pass}, + \text{Perf}\}, i.e. given a specification of the context STEM + 9 — we only need to add that, for \textit{ικ} to appear, the cluster \{+ \text{Past}, - \text{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 \textit{θ} and \textit{ικ}, 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

<table>
<thead>
<tr>
<th>{+ \text{Pass}, - \text{Perf}, + \text{Past}, - \text{K}, - \text{Pl}}</th>
<th>{1}</th>
<th>\text{pav} + \overset{o}{v} + m + u + n + (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>{2}</td>
<td>\text{pav} + \overset{i}{v} + s + u + n + (a)</td>
<td></td>
</tr>
<tr>
<td>{3}</td>
<td>\text{pav} + \overset{a}{v} + t + a + n + (e)</td>
<td></td>
</tr>
</tbody>
</table>

the vowels flanking the formative \textit{n} are either \textit{u} ... (a) or \textit{a} ... (e) in the presence of the clusters, respectively, \{+ \text{Pass}, - \text{Perf}, + \text{Past}, - \text{Pl}, - 3, - \text{K}\} and \{+ \text{Pass}, - \text{Perf}, + \text{Past}, - \text{Pl}, 3, - \text{K}\}, i.e. both \textit{u} and \textit{a} on the one hand, and both \textit{a} and \textit{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 + \( \{^m_g\} + --- \) in the presence of the cluster \( \{+ \text{Pass}, - \text{Perf}, + \text{Past}, - \text{P1}, - 3, - K\} \), whereas \( a \) appears "optionally" in the context STEM + o + \( \{^m_g\} + u + n + --- \). 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 \( @ \) appear in SP\(_4\) (rather than in the context STEM (*) in the presence of the clusters, respectively, \( \{- \text{Pass}, + \text{Perf}\} \) and \( \{+ \text{Pass}, + \text{Perf}\} \), whereas \( \text{ik} \) 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 \(T_5, T_6, T_{i\text{ii}}, T_{i\text{iv}}\) (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, \(T_{i\text{ii}}, T_6, T_5\) to the structure of the most complex subset, \(T_{i\text{iv}}\).

7.4.1. If the terminations of \(T_{i\text{iv}}\) 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).
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:

<table>
<thead>
<tr>
<th></th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+] Pl</td>
<td>o</td>
<td>u</td>
<td>m</td>
<td>ast</td>
<td>a</td>
<td>n</td>
<td>( \emptyset )</td>
</tr>
<tr>
<td>[+] Pl</td>
<td>o</td>
<td>u</td>
<td>s</td>
<td>ast</td>
<td>a</td>
<td>n</td>
<td>( \emptyset )</td>
</tr>
<tr>
<td>[+] Pl</td>
<td>o</td>
<td>u</td>
<td>n</td>
<td>t</td>
<td>us</td>
<td>a</td>
<td>n</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Pl</td>
<td>o</td>
<td>m</td>
<td>u</td>
<td>n</td>
<td>(a)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Pl</td>
<td>o</td>
<td>s</td>
<td>u</td>
<td>n</td>
<td>(a)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Pl</td>
<td>o</td>
<td>t</td>
<td>a</td>
<td>n</td>
<td>(e)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
b. In SP₆, 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 SP₇ the formative n appears in the [+ Pl, 3] terminations, i.e. in the context STEM + [ V_{back}] —— t.

d. In SP₈ the formatives m, n, and t appear in the presence of the features, respectively, {1}, {2} and {3} in the context STEM + [ V_{back}] + (n) —— .

e. The complex segments ast and us of SP₉ appear, the former "obligatorily" and the latter "optionally", in the contexts, respectively, {m₃} —— 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 SP₁₂ in ways described in h. below.

f. The formatives u, a and e appearing in SP₁₀ are all [+high] vowels; the [+high] vowel (u) appears in {- Pl, - 3} terminations in the context {m₃} —— n (a) # and the [+high] vowels (a, e) elsewhere; of the latter, the [+low] vowel (a)
appears in the presence of the values \(+\text{Pl}\) and/or \(\{3\}\) in the context \(\text{ast} \quad \{(n) + (\text{us})\} \quad n (e)\) while the \([-\text{low}]\) vowel \(e\) appears in \(+\text{Pl}, -3\) forms in the context \(\text{ast} \quad \#\) (i.e. after \(\text{ast}\) either \(e\) occurs or \(a + n(e)\)).

\(g.\) In the eleventh structural place the formative \(n\) appears in the context \(\begin{bmatrix} V \\ -\text{front} \\ \alpha \text{high} \\ -\alpha \text{low} \end{bmatrix} \quad (V) \#\) (i.e. after \(u\) or \(a\) but not after \(e\)) and in the presence of the cluster \(+\text{Pass, - Perf, + Past, - K}\) (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 \(e\) \(\begin{bmatrix} -\text{back} \\ -\text{high} \\ \alpha \text{low} \end{bmatrix}\) appear in the context \(\text{STEM} + V + C + (C) + \begin{bmatrix} V \\ -\text{front} \\ \alpha \text{high} \\ -\alpha \text{low} \end{bmatrix}\) + \(n\) \# (and, in conditions influencing their "optional" appearance discussed in Ch.V,8. below).

The precise value ("plus" or "minus") for the feature \([-\text{low}]\) of the vocalic segment under consideration is the same as that of the feature \([\text{high}]\) and opposite to that of the feature \([-\text{low}]\) 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 "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 pavomastane, pavomastane, pavontusane, 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}.

\[
\begin{array}{|c|c|c|c|c|c|c|c|}
\hline
\text{T_{iii}:[+ Pass, - Perf, - Past, - K]} & 6 & 7 & 8 & 9 & 10 & 11 & 12 \\
\hline
\{-P1\} & \{1\} & {-STV}_1 & o & m & e & & \\
& & \{+STV}_1 & e & m & e & & \\
\{2\} & e & s & e & & & & \\
\{3\} & o & t & e & & & & \\
\{+P1\} & \{1\} & u & m & ast & e & & \\
& \{2\} & u & s & ast & e & & \\
& & e & s & e & & & \\
& \{3\} & o & u & n & t & e & \\
\hline
\end{array}
\]
More specifically, the following observations can be made:

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

<table>
<thead>
<tr>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>o</td>
<td>n</td>
<td>m</td>
<td>ast</td>
<td>e</td>
</tr>
<tr>
<td>u</td>
<td>s</td>
<td>t</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 [-a front] in relation to the value of the grammatical feature {-a Plural} (i.e. o with {-Pl} and o or u with {+Pl} forms) with the following two exceptions: firstly, in {-Pl, l, -K} terminations e is limited to $\{STv\}$ verbs, e.g. {+Pass, -Perf, -Past, -Pl, l, STv, -K} : ayapjëme, dimiuryjëme, whereas o appears in $\{STø\}$ and (in alternation with e) in $\{STv_2\}$ verbs, e.g.
secondly, e alternates with o or u in \{+ Pl, 2\} terminations, corresponding to the alternation of, respectively, ə and ast in SP₉ (see e. below).

e. In SP₉ two segments appear, ast, with precisely the same distribution as in T₄ (see 7.4.1.e. above) and ə in the context e + s = e # / \{+ Pl, 2, - K\}. (In the presence of the value [- K] ə normally, but not always, changes to t after s: regressive manner dissimilation.)

f. Finally, SP₁₀ is occupied by e in all the verb forms of the paradigm under consideration (\{+ Pass, - Perf, - Past, - K\}).

7.4.3. As T₅ and T₆ 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\}. 
T₅ : {+Pass, -Perf, -Past, +Kj}
T₆ : {+Pass, -Perf, +Past, +Kj}

<table>
<thead>
<tr>
<th></th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-P1]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[1]</td>
<td></td>
<td>o</td>
<td>m</td>
<td>e</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>[2]</td>
<td></td>
<td>e</td>
<td>s</td>
<td>e</td>
<td></td>
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<tr>
<td>[3]</td>
<td></td>
<td>e</td>
<td>t</td>
<td>e</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>[+P1]</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[1]</td>
<td>o</td>
<td>m</td>
<td>e</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[2]</td>
<td>e</td>
<td>s</td>
<td>a</td>
<td>e</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[3]</td>
<td>o</td>
<td>n</td>
<td>t</td>
<td>e</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With respect to the above arrangement we observe the following:

a. The ten terminations comprising T₅ and T₆ are combinations of the following thirteen segments appearing in SP₆ to SP₁₁

<table>
<thead>
<tr>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>e</td>
<td>n</td>
<td>m</td>
<td>eθ</td>
<td>i</td>
<td>n</td>
</tr>
<tr>
<td>o</td>
<td></td>
<td>s</td>
<td>t.</td>
<td>e</td>
<td>a</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>θ</td>
<td></td>
<td>o</td>
</tr>
</tbody>
</table>
b. $SP_6$ is occupied, irrespective of tense, by $[-\text{high}]$ vowels ($e, o$), which can be further differentiated as $[+\text{-front}] (e)$ in $\{2\}$ and $[-\text{Pl}, 3]$ forms, and as $[-\text{-front}] (o)$ elsewhere (i.e. $\{1\}$ and $[+\text{Pl}, 3]$ 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 $[+\text{Pl}, -3]$ forms; more specifically, the formative $a$ appears in $[+\text{Pl}, 1]$ verb forms and the segment $\theta$ in $[+\text{Pl}, 2]$ (the latter being distributed, it will be recalled, as in $T_{iii}$; see 7.4.2.e. above).

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

f. Finally, $SP_{11}$ is occupied by the formative $n$ in the context $i$ — $\#$ $[+\text{Past}, -\text{Pl}, 1, +K]$. 
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 SP₆ to SP₈ has been defined, quite unequivocally, I think, in terms of morphological context, as follows:

<table>
<thead>
<tr>
<th>SP₆</th>
<th>SP₇</th>
<th>SP₈</th>
</tr>
</thead>
<tbody>
<tr>
<td>e</td>
<td>n</td>
<td>m</td>
</tr>
<tr>
<td>o</td>
<td>s</td>
<td>n</td>
</tr>
<tr>
<td>u</td>
<td>t</td>
<td>t</td>
</tr>
</tbody>
</table>

However, to the right of SP₈ (\(\{\text{s} \over \text{t}\}\)) 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, T₅ and T₆ could be analyzed on internal grounds as follows:

<table>
<thead>
<tr>
<th>T₅ : {+Pass,-Perf,-Past,+K}</th>
<th>T₆ : {+Pass,-Perf,+Past,+K}</th>
</tr>
</thead>
<tbody>
<tr>
<td>o    m     e</td>
<td>o    m     in</td>
</tr>
<tr>
<td>e    s     e</td>
<td>e    s     o</td>
</tr>
<tr>
<td>m    e₀a    e₀e</td>
<td>m    e₀a   e₀e</td>
</tr>
<tr>
<td>n    t     e</td>
<td>o    n     t</td>
</tr>
</tbody>
</table>
i.e. there seems to be no reason why (i) in should be further segmented into i and n; (ii) eGα into eG and a; and (iii) Ge into e and e.

With respect to (i) it may be argued that the segmentation of in becomes necessary when T₆ omin ([+ K]) is contrasted with Tiv omn ([− K]), e.g.

\[\begin{align*}
\{+ K\} : & \text{ epavomin} \\
\{- K\} : & \text{ (e)pavomun.}
\end{align*}\]

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\[\frac{[+\text{high}]}{V}\] n #.

With respect to (ii) and (iii) above, we note that, though the segmentation of eGα and Ge seems to be unjustifiable on internal grounds in the case of T₆, justification is provided by T₅, where e appears in final position throughout the paradigm apart from the context eG− # in which a appears. As a matter of fact, instead of eG + a (endorsed in this study) or eGα (just rejected above) it might be argued that we should recognize e + e + a, i.e.

we should need, for the case of T₅ and T₆, to divide SP₉ into two, say, SP₉a, where e appears for {+ Pl, 1} in the context m— , e.g. pavomeGα, and SP₉b, where G appears for {+ Pl, − 3} in the
context $[\text{m}^+\text{e}]$ — $[\underline{\text{n}}^+\underline{\text{e}}]$ e.g. pavōme$\underline{\text{e}}$, pāve$\underline{\text{s}}$. As for the \{-K\} groups (T$_{iii}$, T$_{iv}$), the segments as$t$ and $u$s could be "shown" to comply with the pattern followed by $e\theta$ and $\theta$:

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9a</th>
<th>9b</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>pav + $\text{t}$ + m + e + $\theta$ + a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pav + e + s + $\theta$ + e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pav + $\text{t}$ + m + a + st + e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pav + $\text{t}$ + n + t + u + s + a + n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

\[
\begin{array}{c|c|c|c}
SP_{9a} & SP_{9b} & SP_{9c} \\
\hline
e & s & \theta \\
a & & \\
u & & \\
\end{array}
\]

where $\theta$ becomes $t$ after $s$ (as$\theta$ $\rightarrow$ 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:
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, $[+ K]$ pavōme$\theta$a and $[- K]$ pavōmaste to regional (and as such not included in this study) pavōmes$\theta$a $<$ post-classical pavōmes$\theta$a. The difference between the three forms could be best accounted for as follows:

\[
\begin{array}{c|cccc|cc}
& 6 & 7 & 8 & 9a & 9b & 9c & 10 \\
\hline
[+ K] & o & m & c & \theta & a & \\
[- K] (regional) & o & m & a & s & \theta & e & \\
(+ K) (regional) & o & m & e & s & \theta & a & \\
\end{array}
\]

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

Notice that $SP_{9c}$ is always occupied by $\theta$; $SP_{9b}$ by $s$ in the $[- K]$
terminations, both \{ +\, regional \} and \{ -\, regional \}, and remains empty in the \{ +\, K \} termination; and that \text{SP}_9\text{a} and \text{SP}_{10} are occupied by \{ -\, back \} vowels which are further specified as \{ +\, low \} or \{ -\, low \} so that if there is a \{ +\, low \} vowel in \text{SP}_9\text{a} the one in \text{SP}_{10} is \{ -\, low \} and vice versa.

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

\[
\begin{align*}
\text{SP}_9\text{a} & : 10 \\
\{ +\, low \} & : \{ -\, low \}
\end{align*}
\]

in the \{ +\, K \} (pavõmæga) and \{ -\, K, +\, regional \} (pavõmesga) forms the converse is the case:

\[
\begin{align*}
\text{SP}_9\text{a} & : 10 \\
\{ -\, low \} & : \{ +\, low \}
\end{align*}
\]

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 (\text{T}_5, \text{T}_6, \text{T}_{\text{iii}}\text{ and } \text{T}_{\text{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:

\[
\{ + \text{Pass}, - \text{Perf}\}
\]

<table>
<thead>
<tr>
<th></th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>e</td>
<td>n</td>
<td>m</td>
<td>a</td>
<td>s</td>
<td>t</td>
<td>e</td>
<td>n</td>
</tr>
<tr>
<td>o</td>
<td>s</td>
<td>0</td>
<td>e</td>
<td>u</td>
<td>s</td>
<td>a</td>
<td>e</td>
</tr>
<tr>
<td>u</td>
<td>t</td>
<td>a</td>
<td>e</td>
<td>θ</td>
<td>o</td>
<td>a</td>
<td>u</td>
</tr>
</tbody>
</table>

b. SP6 accommodates the formatives e, o and u (i.e. 
\[
\{ [ +\text{back} ] \} \text{vowels) appearing in the general context}
\]

STEM — C +/ \( \{ + \text{Pass}, - \text{Perf}\} \); more specifically, their distribution in terms of Tense, Number, Person and CL distinctions is as follows (see also Tables One and Two):
<table>
<thead>
<tr>
<th>[-Past]</th>
<th>[+Past]</th>
<th>[-Past]</th>
<th>[+Past]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-P1]</td>
<td>[+P1]</td>
<td>[-P1]</td>
<td>[+P1]</td>
</tr>
<tr>
<td>[1]</td>
<td>[2]</td>
<td>[1]</td>
<td>[2]</td>
</tr>
<tr>
<td>[-]</td>
<td>[-]</td>
<td>[-]</td>
<td>[-]</td>
</tr>
<tr>
<td>[low]</td>
<td>[high]</td>
<td>[back]</td>
<td>ORTHO-GRAPHIC SYMBOL</td>
</tr>
<tr>
<td>o</td>
<td>e*</td>
<td>e</td>
<td>o&gt;u</td>
</tr>
<tr>
<td>[low]</td>
<td>[-]</td>
<td>[-]</td>
<td>[-]</td>
</tr>
<tr>
<td>[high]</td>
<td>[-]</td>
<td>[-]</td>
<td>[-]</td>
</tr>
<tr>
<td>[back]</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>ORTHO-GRAPHIC SYMBOL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o</td>
<td>e</td>
<td>e</td>
<td>o</td>
</tr>
</tbody>
</table>

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

* in $[\text{Sty}_i]$ verb forms only

** in context $\text{STEM} + \_\_ + C + \text{ast}$

*** in context $\text{STEM} + \_\_ + C + \theta$

According to the above schema the three $F_6$ formatives are distributed as follows:
The formative \( o \) (\([^{+}\text{back}}_{-\text{high}}\)) appears in the presence of the clusters of values

(i) \([^{+}\text{Pass}, -\text{Perf}, +\text{Past}, -\text{K}]\) e.g. pavṓnuna, pavṓsuna, etc.

(ii) \([^{+}\text{Pass}, -\text{Perf}, 1, \{^{+}\text{Pl}\}]\) i.e. in \([^{+}\text{Pass}, -\text{Perf}, 1]\)

verb forms with the exception of \([^{-}\text{Past}, \text{STv}_{1}, -\text{K}]\) forms, e.g.

<table>
<thead>
<tr>
<th>[-Pl]</th>
<th>[+K]</th>
<th>pavome</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+Pl]</td>
<td>[-K]</td>
<td>pavomaste</td>
</tr>
<tr>
<td></td>
<td>[+K]</td>
<td>pavomegāa</td>
</tr>
</tbody>
</table>

(iii) \([^{+}\text{Pass}, -\text{Perf}, -\text{Past}, 1]\) in the context STEM + — + C + ast e.g. pavṓsaste (\([-\text{Past}]\)), pavṓsastan (\([^{+}\text{Past}]\))

(iv) \([^{+}\text{Pass}, -\text{Perf}, +\text{Pl}, 3]\) e.g. pavṓnte (\([-\text{Past}]\)), epavṓnto (\([^{+}\text{Past}, +\text{K}]\)), pavṓntusan (\([^{+}\text{Past}, -\text{K}]\)).
u alternates with o in the structure of \{+ Pass, - Perf, + Pl, -K\} verb forms (in other words a [+back] vocalic F₆ formative is variously \[(+high)\] in the case of such forms) e.g.

<table>
<thead>
<tr>
<th></th>
<th>{-Past}</th>
<th>{+Past}</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+Pass, -Perf, +Pl, -K]</td>
<td>{1} ayapj[^u]maste</td>
<td>ayapj[^u]mastan</td>
</tr>
<tr>
<td></td>
<td>{2} ayapj[^u]saste</td>
<td>ayapj[^u]sastan</td>
</tr>
<tr>
<td></td>
<td>{3} ayapj[^u]nte</td>
<td>ayapj[^u]utan</td>
</tr>
</tbody>
</table>

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

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

(1) \{+Pass, -Perf, -Pl, -1, \{+K\}\}

<table>
<thead>
<tr>
<th></th>
<th>{-Past}</th>
<th>{+Past}</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+Pass, -Perf, -Pl]</td>
<td>{2} pavēs</td>
<td>pavēte</td>
</tr>
<tr>
<td></td>
<td>{3} pavōsuna</td>
<td>pavōtane</td>
</tr>
<tr>
<td></td>
<td>{+K} epavēso</td>
<td>epavēto</td>
</tr>
</tbody>
</table>

(2) \{+Pass, -Perf, +Pl, 2, \{-Past\}\} in the context STEM —s + ə, e.g.

<table>
<thead>
<tr>
<th></th>
<th>{-Past}</th>
<th>{+Past}</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+Pass, -Perf, +Pl, 2]</td>
<td>{-K} pavōsaste</td>
<td>pavōsastan</td>
</tr>
<tr>
<td></td>
<td>pavōsaste ← pavēste</td>
<td></td>
</tr>
<tr>
<td></td>
<td>{+K} epavēsoe</td>
<td>epavēsoe</td>
</tr>
</tbody>
</table>
(iii) \{ + Pass, - Perf, - Past, - Pl, l, STv, -K \} e.g. ayapjéme, dimiuryjéme.

c. SP₇ is occupied by the formative n appearing in the context
STEM + [ V +\text{back} ] → t / \{ + Pass, - Perf, + Pl, 3 \}

d. SP₈ 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, SP₈ is occupied in the context
STEM + V + (n) → / \{ + Pass, - Perf, αl, β2 \} by

\[
\begin{array}{c}
+ \text{anterior} \\
α \text{ nasal} \\
α \text{ voiced} \\
-α \text{ coronal} \\
β \text{ continuant} \\
β \text{ strident}
\end{array}
\]

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.
<table>
<thead>
<tr>
<th></th>
<th>[+ Pass, - Perf]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[+1, -2]</td>
</tr>
<tr>
<td>anterior</td>
<td>+</td>
</tr>
<tr>
<td>nasal</td>
<td>+</td>
</tr>
<tr>
<td>voiced</td>
<td>+</td>
</tr>
<tr>
<td>coronal</td>
<td>-</td>
</tr>
<tr>
<td>continuant</td>
<td>-</td>
</tr>
<tr>
<td>strident</td>
<td>-</td>
</tr>
<tr>
<td>ORTHOGRAPHIC SYMBOL</td>
<td>m</td>
</tr>
</tbody>
</table>

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

e. SP 9 is occupied by the formatives \(\text{ast}, \text{eə}, \emptyset\) and \(\text{us}\) appearing in the general context \(\text{STEM} + V + (n) + C \rightarrow / \{+ \text{Pass}, - \text{Perf}, + \text{Pl}\}\). More specifically, \(\text{ast}\) appears in the context

\[
\text{STEM} + \{u\} + \{s\} \rightarrow [a] + [\#_{n}] / \{+ \text{Pass}, - \text{Perf}, + \text{Pl}, -3, -K\};
\]

\(\emptyset\) in the context

\[
\text{STEM} + c + n \rightarrow a\# / \{+ \text{Pass}, - \text{Perf}, + \text{Pl}, 1, +K\};
\]

\(\emptyset\) in the context

\[
\text{STEM} + e + s \rightarrow e \# / \{+ \text{Pass}, - \text{Perf}, + \text{Pl}, 2, ({-}\text{Past})\};
\]

and \(\text{us}\) "optionally" in the context

\[
\text{STEM} + \{o\} + n + t \rightarrow a + n\# / \{+ \text{Pass}, - \text{Perf}, + \text{Past}, + \text{Pl}, 3, -K\}.
\]
In tabular form, the exponentence relations holding between the above four segments and grammatical features are as follows:

<table>
<thead>
<tr>
<th></th>
<th>[-K]</th>
<th>[+K]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+Pass, -Perf, +Pl]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Past]</td>
<td>{1}</td>
<td>ast</td>
</tr>
<tr>
<td></td>
<td>{2}</td>
<td>θ</td>
</tr>
<tr>
<td></td>
<td>{3}</td>
<td></td>
</tr>
<tr>
<td>[+Past]</td>
<td>{1}</td>
<td>ast</td>
</tr>
<tr>
<td></td>
<td>{2}</td>
<td>θ</td>
</tr>
<tr>
<td></td>
<td>{3}</td>
<td>us</td>
</tr>
</tbody>
</table>

Remember that, often, st in the presence of the value [+K], e.g. [+Pass, -Perf, -Past, +Pl, 2, -K]: pavesqe → pavesste.

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 + \{\mathbb{m}\} \rightarrow n / [+Pass, -Perf, +Past, +Pl, \{1\}] and are further defined as [+front] or [-front] in relation to the clusters, respectively, \{1, α K\} and \{2, -K\}, e.g.

\{1, +K\} : epavdmin
\{+Pass, -Perf, +Past, -Pl\} \{1, -K\} : (e)pavdmun(a)
\{2, -K\} : (e)pavósun(a)
(ii) The [+low] vowel (a) appears in the context

\[
\text{STEM} + \left[ \begin{array}{c}
V \\
+\text{back}
\end{array} \right] + \left[ \begin{array}{c}
\text{ast}
\end{array} \right] - \left[ \begin{array}{c}
\emptyset
\end{array} \right] + \text{Past, Perf, } \left[ \begin{array}{c}
+\text{Pl}, 1, -K
\end{array} \right]
\]

\text{e.g.}

\[
\begin{cases}
\{-\text{Past}, +\text{Pl}, 1, +K\} : \text{pavomasta} \\
\{+\text{Past}, +\text{Pl}, 1, +K\} : \text{epavomasta} \\
\{+\text{Past}, +\text{Pl}, 1, -K\} : \text{pavomastan} \\
\{+\text{Past}, +\text{Pl}, 3, -K\} : \text{pavostan(e)} \\
\{+\text{Past}, +\text{Pl}, 3, -K\} : \text{pavontusan}
\end{cases}
\]

(iii) The [+high, -low] vowels (e, o) appear in final position and are further differentiated as [+front] (e) in the context

\[
\text{STEM} + V + (n) + C + \left[ \begin{array}{c}
\emptyset \\
\text{(ast)}
\end{array} \right] - \# / \{+\text{Pass, Perf, } \left[ \begin{array}{c}
+\text{Past}
\end{array} \right], \{-\text{Past}\}\}
\]

\text{e.g. } \{+\text{Pass, Perf, -Past}\} : \text{pavome, pavesa, pavesa, pavesa} \\
\text{(but pavomeza) pavospaste/pavesa, pavesa} \\
\{+\text{Pass, Perf, +Past}\} : \text{pavomaste, pavospaste/pavesa}

and as \([ -\text{front} ] (\circ)\) in the context

\[
\text{STEM} + \left[ \begin{array}{c}
\circ + n + t \\
\end{array} \right] + \# / \{ +\text{Pass}, -\text{Perf}, +\text{Past}, \{ -\text{Pl}, -1 \} \}, +K \\
\{ +\text{Pl}, 2 \} : \text{epáveso} \\
\{ -\text{Pl}, 3 \} : \text{epáveto} \\
\{ +\text{Pl}, 3 \} : \text{epávonto}
\]

e.g. \{ +\text{Pass}, -\text{Perf}, +\text{Past}, +K \}

\text{SP}_{11} \text{ is occupied by the formative } \underline{n}, \text{ which appears in the environment}

\[
\left[ \begin{array}{c}
i \\
[u] \\
[a] \\
\end{array} \right] \longrightarrow \left[ \begin{array}{c}
\emptyset \\
[a] \\
\phi \\
\end{array} \right] + / \{ +\text{Pass}, -\text{Perf}, +\text{Past}, \{ -\text{Pl}, 1, +K \} \}, \{ -K \}
\]

e.g. \{ +K, -Pl, 1 \} : \text{epavómin}

\{ +\text{Pass}, -\text{Perf}, +\text{Past} \} \{ -K \} : \text{pavómun(a), pavósun(a)}

\text{pavótan(e), pavósastan, pavóbastan, pavóntusan/óntan(e)}

\text{h. Finally, } \text{SP}_{12} \text{ is occupied by a } \left[ \begin{array}{c}
-\text{back} \\
\underline{a} \\
\text{low} \\
\end{array} \right] \text{ segment } (\underline{a}, \circ)

\text{which appears "optionally" in the context}

\[
\text{STEM} + V + (n) + C + \left[ \begin{array}{c}
V \\
\underline{a} \\
\text{high} \\
\text{low} \\
\end{array} \right] + n + \# / \{ +\text{Pass}, -\text{Perf}, +\text{Past}, -K \}
\]

(i.e. when there are not more than two vowels in the string following the stem) and whose specification for the feature \([ \text{low} ]\) co-varies over "+" or "-" with that of the feature \([ \text{high} ]\) and is opposite to that of the feature \([ \text{low} ]\) of the vowel preceding \(\underline{n}\), e.g.
{+Pass, -Perf, +Past, -K} : pavŏmun(a), pavŏsun(a), pavŏtan(e), pavŏntan(e)

The F₁₂ vowels may appear only if there are not more than two vowels in the string following the stem, e.g. pavŏmun(a), pavŏsun(a), pavŏtan(e), pavŏntan(e), but pavŏmastan, pavŏsastan, pavŏntusan.

In other words, the F₉ formatives a₉ and us never co-occur with F₁₂ 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 T₁, T₂, T₃, T₄, T₁ and T₁₁ 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 T₁ and T₁₁ (see Table Two above) are of the following general structure:
(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:

<table>
<thead>
<tr>
<th></th>
<th>T₁ ( {- Past} )</th>
<th>T₁₁ ( {+ Past} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>{- Pass}, - K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>{- P₁}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[1]</td>
<td>o</td>
<td>a</td>
</tr>
<tr>
<td>[2]</td>
<td>i</td>
<td>e</td>
</tr>
<tr>
<td>[3]</td>
<td>i</td>
<td>e</td>
</tr>
<tr>
<td>[- P₁]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[1]</td>
<td>u &gt; o*</td>
<td>a</td>
</tr>
<tr>
<td>[2]</td>
<td>e / i**</td>
<td>a</td>
</tr>
<tr>
<td>[3]</td>
<td>u</td>
<td>a</td>
</tr>
</tbody>
</table>

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

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

The above schema indicates that the termination-initial vowel for T₁₁ ( {+ Past} ) is [ -back ], and either [ -low ] in {- P₁, -l} terminations or [ +low ] "elsewhere (i.e. in {l} and {+ P₁} terminations), e.g. épapa, épapse, épapse, papse, papse, papse, épapsan, papsean; in T₁ ( {- 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] (pâvia, pâvi), [+ Pass, + Pl, 2] (pâmite), {+ Pl, 3} (pâvun(e)) and, more often than not, in {+ Pl, 1} terminations (in {- Pass, - Past, + Pl, 1, - K} forms the [+high +back] vowel alternates with a (much less frequently occurring) [-high +back] vowel, e.g. pâvume pâvome, pîpsûme pîpsome, whereas in {+ Pass, + Perf, - Past, + Pl, 1, - K} terminations only the former ([+high +back]) is possible, e.g. pâmite, ayâpišme); finally, the vowel appearing in {- Pl, 1} and {- Pass, + Pl, 2} terminations is [-high] e.g. pâvo, pâvete. 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:

<table>
<thead>
<tr>
<th></th>
<th>{- Pass}</th>
<th>- K</th>
<th>{ + Perf}</th>
</tr>
</thead>
<tbody>
<tr>
<td>{- Pl}</td>
<td>[-1]</td>
<td></td>
<td>[2]</td>
</tr>
<tr>
<td>{1}</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>{2}</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>{3}</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>[+ Pl]</td>
<td>[-1]</td>
<td></td>
<td>[2]</td>
</tr>
<tr>
<td>{1}</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>{2}</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>{3}</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Orthographic Symbol</th>
<th>o</th>
<th>a</th>
<th>i</th>
<th>e</th>
<th>i</th>
<th>o</th>
<th>a</th>
<th>e</th>
<th>i</th>
<th>a</th>
<th>u</th>
<th>a</th>
</tr>
</thead>
</table>
c. In the second structural place [ + anter ] consonants (s, m, t, n) appearing in [2] and [ + Pl] terminations of both T₁ and T₁₁, are further defined as [ + nasal ] in [ + Pl, -2] terminations, e.g. pavume, pāvun(e), and as [ -nasal -voiced ] in [-α Pl, 2] terminations, e.g. pāvis, pāvete; also, as [ -coron ] in {1} terminations, e.g. pāvume, and as [ +coron ] "elsewhere", e.g. pāvis, pāvete, pāvun(e); finally, the [ -nasal -voiced +continuant ] consonant is defined as [ +strident ] (s), e.g. pāvis. The following schema summarizes our observations concerning the consonants in (ii):

<table>
<thead>
<tr>
<th></th>
<th>{ + Perf }</th>
<th>-K</th>
<th>[-Pl, 2]</th>
<th>{1}</th>
<th>{2}</th>
<th>{3}</th>
</tr>
</thead>
<tbody>
<tr>
<td>[anterior]</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[nasal]</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>[voiced]</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>[continuant]</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[coronal]</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[strident]</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORTHOGRAPHIC SYMBOL</td>
<td>s</td>
<td>m</td>
<td>t</td>
<td>n</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

d. Finally, the third structural place is occupied by the formative e which appears categorically in [ + Pl, - 3] and "optionally" in
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, \(T_1\) and \(T_{11}\) already analyzed above. \(T_1\) \(\{[-\text{Pass}], -\text{Past}, +K\}\) and \(T_3\) \(\{ -\text{Pass}, +\text{Perf}, +\text{Past}, +K\}\) are of the following general shape:

<table>
<thead>
<tr>
<th></th>
<th>(i)</th>
<th>(ii)</th>
<th>(iii)</th>
<th>(iv)</th>
</tr>
</thead>
<tbody>
<tr>
<td>([-\text{Pl}])</td>
<td>[1]</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[2]</td>
<td>V</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[3]</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>([+\text{Pl}])</td>
<td>[1]</td>
<td>V</td>
<td>m</td>
<td>e</td>
</tr>
<tr>
<td></td>
<td>[2]</td>
<td>V</td>
<td>t</td>
<td>e</td>
</tr>
<tr>
<td></td>
<td>[3]</td>
<td>V</td>
<td>n</td>
<td></td>
</tr>
</tbody>
</table>

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

a. As shown in the schema above, \(T_1\) and \(T_3\) differ from \(T_1\) and \(T_{11}\) in two respects: firstly, the vowel \(e\) of \(\text{(iii)}\) appears "optionally"
in the \ [+ Pl, 3 \] terminations of \( T_1 \) \([- K \] \) \( e.g. \) pavun(e), and \( T_{ii} \) \( e.g. \) pavon(e), but is always absent in the equivalent terminations of \( T_1 \) \([- K \] \) \( e.g. \) pavan, 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 \( T_3 \), \( e.g. \) pavomen, épafšamen, but not in \( T_i \) or \( T_{ii} \), \( e.g. \) pāvume, pápsune, paftime, pávame, pápsame, paftikame.

The suffixation of ("optionally" appearing) \( e \) to final \( n \) in \ [+ Pl, 3, - K \] terminations, \( e.g. \) pavun(e), and the fact that final \( n \) never appears in \[ + Pl, 1, - K \] forms, \( e.g. \) pāvume, are not unrelated phenomena. For one thing, they correspond to similar phenomena in other sections of the grammar, \( e.g. \) pōso(n) xronō(n) ise? (= How many years (= how old) are you?); ton vinekōn(e) (= of the women); ton(e) vlepis? (= 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 \{ [+ Pass], - K \} \( e.g. \) [Perf] 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 \( T_1 \) and \( T_{11} \) terminations in only two respects: firstly, in the \( \{- \text{Past, } + \text{Pl, } 1, + K\} \) terminations \( {o} \), and never \( u \), appears, e.g. \( \text{pavomen, pa'somen, pa'somen} \), though it will be recalled (see 7.5.1. b. above) that in the \( T_1 \) equivalent termination \( u \) is the rule with \( o \) occurring only occasionally; secondly, in the \( \{+ \text{Past, } - \text{Pl, } 2, + K\} \) termination \( a \) appears, e.g. \( \text{epafsas} \), and not \( e \), as is the case with the \( \{- K\} \) equivalent termination, e.g. \( \text{epapsses} \). Contrast the scheme in 7.5.1.b. above to the one below:

<table>
<thead>
<tr>
<th>([{- \text{Pass}}])</th>
<th>([- \text{Past}, +K} )</th>
<th>([{- \text{Pass, +Perf, +Past, +K}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( T_1 )</td>
<td>( T_3 )</td>
<td></td>
</tr>
<tr>
<td>(- \text{Pl})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>{1} (- \text{Past, } +K)</td>
<td>( o )</td>
<td>( a )</td>
</tr>
<tr>
<td>{2} (- \text{Past, } +K)</td>
<td>( i )</td>
<td>( a )</td>
</tr>
<tr>
<td>{3} (- \text{Past, } +K)</td>
<td>( i )</td>
<td>( e )</td>
</tr>
<tr>
<td>(+ \text{Pl})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>{1} (- \text{Past, } +K)</td>
<td>( o )</td>
<td>( a )</td>
</tr>
<tr>
<td>{2} (- \text{Past, } +K)</td>
<td>( e/i^* )</td>
<td>( a )</td>
</tr>
<tr>
<td>{3} (- \text{Past, } +K)</td>
<td>( u )</td>
<td>( a )</td>
</tr>
</tbody>
</table>

\( ^* \) \( i \) appears only in \( \{+ \text{Pass}\} \) forms
Recast in distinctive feature terms the scheme above concerning the termination-initial vowels of subsets $T_1$ ({$-\text{Past}$}) and $T_3$ ({$+\text{Past}$}) is as follows:

<table>
<thead>
<tr>
<th>{{+ Perf}}, $+ \mathbf{K}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$-\text{Pl}$</td>
</tr>
<tr>
<td>$\mathbf{1}$</td>
</tr>
<tr>
<td>{Past}</td>
</tr>
<tr>
<td>low</td>
</tr>
<tr>
<td>[high]</td>
</tr>
<tr>
<td>[front]</td>
</tr>
<tr>
<td>[back]</td>
</tr>
<tr>
<td>ORTHOGRAPHIC SYMBOL</td>
</tr>
</tbody>
</table>

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 $T_1$ 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]):

<table>
<thead>
<tr>
<th></th>
<th>(i)</th>
<th>(ii)</th>
<th>(iii)</th>
<th>(iv)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+ Pl]</td>
<td>{1}</td>
<td>V</td>
<td>m</td>
<td>e</td>
</tr>
<tr>
<td></td>
<td>{2}</td>
<td>V</td>
<td>t</td>
<td>e</td>
</tr>
<tr>
<td></td>
<td>{3}</td>
<td>V</td>
<td></td>
<td>n</td>
</tr>
</tbody>
</table>

The above classification is better suited to account for the distribution of final n in T₁ and T₃ but is at variance with the T₁ and T₁₁ terminations since it obscures the regular pattern of occurrence, throughout the [+ Pl] paradigm, of the vowel e:

<table>
<thead>
<tr>
<th></th>
<th>(i)</th>
<th>(ii)</th>
<th>(iii)</th>
<th>(iv)</th>
<th>(v)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+ Pl]</td>
<td>{1}</td>
<td>V</td>
<td>m</td>
<td>e</td>
<td>n</td>
</tr>
<tr>
<td></td>
<td>{2}</td>
<td>V</td>
<td>t</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td></td>
<td>{3}</td>
<td>V</td>
<td></td>
<td>n</td>
<td>(e)</td>
</tr>
</tbody>
</table>

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) \( \# / \{ \alpha K, \alpha 1, -2, +Pl \} \) — 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

\[
\begin{bmatrix}
m \\
[t_i] \\
[n']
\end{bmatrix}
\# / \begin{bmatrix}
(n) \\
[0] \\
[\emptyset]
\end{bmatrix}
\]

include the cluster of values whose presence causes \( e \) to appear "optionally", e.g. \( \{+K, 1\} : \text{pavomen}, \{ -K, 1\} : \text{pavum}, \{ 2\} : \text{paveto}, \{+K, 3\} : \text{pavun}, \{ -K, 3\} : \text{pavun(e)} \). 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. \( \{-\text{Pass}\} \) and/or \( \{+\text{Perf}\} \) and in the \( \{+\text{Pass}, -\text{Perf}\} \) 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 \( T_1 \) and \( T_{1i} \) are shown:
or on internal grounds, following the argument in 7.5.2. above, which is the classification on which the discussion below is based:

(Note that, if the alternative formulation discussed in Ch.IV, 3.5.2. concerning the recognition of an $T_4$ segment $Q_1$ rather than $Q$ were accepted, $T_4$ would appear with the first structural place empty,
e.g. $e + \text{paf} + \theta i + n$ instead of $e + \text{paf} + \theta + \text{in}$.

The termination subsets under consideration differ in their phonological shape from other termination subsets outside the $\{+ \text{Pass}, - \text{Perf}\}$ section of the verb system in the following respects only: Firstly, they have a final $n$ in $\{- \text{Pl}, 1\}$ terminations ($-\text{on}, -\text{in}$); on the basis of the classification in the schema above, $n$ can be specified as appearing in association with the values $\{1\}$ in the context $V -- \#$. Secondly, in column (i), a, characteristic of the other $\{+ \text{Past}\}$ subsets, $T_3$ and $T_{11}$, never in fact appears in $T_2$ and $T_4$; instead $i$ appears throughout $T_4$ (but see Ch.IV,3.5.2.) while in $T_2$ the vowels appearing are $[\text{high}]$, further specified as $[+\text{back}]$ ($o$) in $\{1\}$ and $[+ \text{Pl}, 3]$ terminations and as $[-\text{back}]$ ($o$) "elsewhere" ($\{2\}$, $\{- \text{Pl}, 3\}$). 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 $\{[+\text{Pass}]$, $-\text{K}\}$ subsets is the $\{- \text{Pl}, 3\}$ termination of $T_2$, o. It is perhaps because $T_2$ and $T_4$ are so "uneconomical" (by being so different) that no version of them appears in the $\{- \text{K}\}$ verb system (not that the latter is particularly inclined to economy, of course); instead, $T_{11}$ (most
closely resembling $T_3$, i.e. they both have termination initial $a$ in most terminations as a "clear" exponent of the value $\{+ \text{Past}\}$ 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: $\{-\text{Pass}, -\text{Perf}, +\text{Past}\}$, $\{-\text{Pass}, +\text{Perf}, +\text{Past}\}$ and $\{+\text{Pass}, +\text{Perf}, +\text{Past}\}$ 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 $T_{11}$, though they are still distinguished through the contrast of other elements in structure, e.g.

<table>
<thead>
<tr>
<th></th>
<th>${-K}$</th>
<th>${+K}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>${-\text{Pass}, -\text{Perf}, +\text{Past}}$</td>
<td>ēpava</td>
<td>ēpavon</td>
</tr>
<tr>
<td>${-\text{Pass}, +\text{Perf}, +\text{Past}}$</td>
<td>ēpapsa</td>
<td>ēpafra</td>
</tr>
<tr>
<td>${+\text{Pass}, +\text{Perf}, +\text{Past}}$</td>
<td>paradika</td>
<td>epafθin</td>
</tr>
</tbody>
</table>

The third point to be made concerning the differences between $T_2$ and $T_4$ on the one hand and other $\{-\text{Pass}\}$ and/or $\{+\text{Perf}\}$ 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 \((-isan)\) 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 VCVC, namely, \(-usi(n)\), \(-osi(n)\), e.g.

\[
\begin{align*}
\{-\text{Pass, } -\text{Perf, } -\text{Past}\}: & \quad p.getBoundingClientRect()\text{avu}(n), p.getBoundingClientRect()\text{avosi}(n) \\
\{-\text{Pass, } +\text{Perf, } -\text{Past}\}: & \quad p.getBoundingClientRect()\text{avosi}(n) \\
\{+\text{Pass, } +\text{Perf, } \text{Past}\}: & \quad p.getBoundingClientRect()\text{avosi}(n)
\end{align*}
\]

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\} \{+Perf\} forms are simultaneously \{+Subjunctive\}, but \{-Perf\} forms are \{+Subjunctive\}, hence the exclusive presence of \(o\) in the \{+Perf\} forms \(p\text{avosi}(n)\) and \(p\text{avosi}(n)\). 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/ff R.: ke mja stiym skivi ke ton filii
(and all of a sudden he leans forward and kisses him)

E.C.: lipon? lipon?
(and then? and then?)

V.L.: meta?
(afterwards?)

R.: e, afta, tipot allo
(e, that's all, nothing else)

V.L.: meta apesir:isan?
(did they retire afterwards?)

E.C.: etsi, ta paesi eksaptonte
(well, there you are, passions do tend to flare up!)

3/19/5 S.K.: i skili edegoisan
(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 T₄ only, e.g. epafθisan.

c. In column (iii) a set of [ high , back ] vowels appear, further specified as [ low ] (e) in [+ Pl, - 3] terminations, e.g. epavomen, epafθimen, epavete, epafθite, (i.e. the same as in the [- Pass] and/or [ + Perf ] subsets) and as [ low ] (a) in the [+ Pl, 3] termination of T₄ only, e.g. epafθisan.

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:

<table>
<thead>
<tr>
<th>(i)</th>
<th>(ii)</th>
<th>(iii)</th>
<th>(iv)</th>
<th>(v)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>m</td>
<td>e</td>
<td>n</td>
<td>c</td>
</tr>
<tr>
<td>e</td>
<td>s</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>t</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>u</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

7.6. In the schema in 7.4.5.a. above the analysis yielded a seven-place grid for the accommodation of formatives whose combinations 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):

<table>
<thead>
<tr>
<th></th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>e</td>
<td>n</td>
<td>m</td>
<td>a</td>
<td>s</td>
<td>t</td>
<td>i</td>
</tr>
<tr>
<td></td>
<td>o</td>
<td></td>
<td>s</td>
<td>θ</td>
<td>e</td>
<td></td>
<td>a</td>
</tr>
<tr>
<td>u</td>
<td></td>
<td>t</td>
<td>us</td>
<td>a</td>
<td></td>
<td>eθ</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>b</td>
<td>(i)</td>
<td>(ii)</td>
<td>(iii)</td>
<td>(iv)</td>
<td>(v)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td></td>
<td>m</td>
<td></td>
<td>e</td>
<td>n</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td></td>
<td>s</td>
<td></td>
<td>a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td></td>
<td>t</td>
<td></td>
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<tr>
<td>u</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tbody>
</table>

Column 6 corresponds to (i) since they both contain termination-initial vowels, i.e. formatives appearing in the morphological context \( STEM + (\{ y \ us \} \theta + (\overline{i}k)s) \). 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 ܩ which appears in the context \( \text{STEM} + [ \overset{\text{V}}{\text{stem}} + \text{back}] \) — e.g. ܐܒܘܒܬܐ, has no equivalent outside the \(+\text{Pass}, -\text{Perf}\) section of the verb system in that terminations of the form \( \text{VntX} \) are exclusively \( \{+\text{Pass}, -\text{Perf}, +\text{Pl}, 3\}^3 \) (see 7.4.5.c. above).

Column 8 corresponds to (ii) in that in both schemata the consonants ܢ, ܨ and ܩ appear with partly overlapping distribution, i.e. they appear in, respectively, \( \{1\}, \{2\} \), and \( \{3\} \) verb forms in the context \( \text{V} + (n) \rightarrow X / \{+\text{Pass}, -\text{Perf}\} \) (see 7.4.5.d. above) whereas, in the context \( \text{V} \rightarrow X / \{+\text{Pass}\} \), ܢ appears in \( \{+\text{Pl}, 1\} \) terminations, ܨ in \( \{-\text{Pl}, 2\} \) as well as in \( \{+\text{Pass}, +\text{Perf}, +\text{Past}, +\text{Pl}, 3, +\text{K}\} \) terminations, and ܩ in \( \{+\text{Pl}, 2\} \) terminations (see 7.5.1.c., 7.5.2.b., and 7.5.3.b. above).

Column 9, containing the segments ܐܬ, ܓ, ܘܫ and ܗܘ has no equivalent outside the \(+\text{Pass}, -\text{Perf}\) 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 \( \text{C} \rightarrow (n(V))\# \) and are exponents of various (clusters of) grammatical values as described
in 7.4.5.2., 7.5.1.a., 7.5.2.a., d., and 7.5.3.e. 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.f., 7.5.1.c., 7.5.2.a., b., d., and 7.5.3.a.

Column 12 corresponds to (v) since they both contain [ -back high ] 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., and 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$_7$, ..., SP$_{12}$ for the last seven structural places, and F$_6$, F$_7$, ..., F$_{12}$ for the corresponding sets of elements appearing in them:

<table>
<thead>
<tr>
<th>SP$_6$</th>
<th>SP$_7$</th>
<th>SP$_8$</th>
<th>SP$_9$</th>
<th>SP$_{10}$</th>
<th>SP$_{11}$</th>
<th>SP$_{12}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>F$_6$</td>
<td>F$_7$</td>
<td>F$_8$</td>
<td>F$_9$</td>
<td>F$_{10}$</td>
<td>F$_{11}$</td>
<td>F$_{12}$</td>
</tr>
<tr>
<td>i</td>
<td>e</td>
<td>m</td>
<td>e0</td>
<td>i</td>
<td>n</td>
<td>e</td>
</tr>
<tr>
<td>e</td>
<td>s</td>
<td>t</td>
<td>0</td>
<td>c</td>
<td>e</td>
<td>a</td>
</tr>
<tr>
<td>a</td>
<td>t</td>
<td>a</td>
<td>ast</td>
<td>a</td>
<td>o</td>
<td>u</td>
</tr>
<tr>
<td>o</td>
<td>us</td>
<td>us</td>
<td>us</td>
<td>o</td>
<td></td>
<td></td>
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<tr>
<td>u</td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>
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 $pav + o + m + e$ the $F_6$ formative $o$ will be selected by the rule system in the presence of the cluster $[+ \text{Pass}, - \text{Perf}, 1, ST_a]$ and suffixed to the stem. Subsequently, $m$ will be selected from the $F_8$ set in the presence of the cluster $[+ \text{Pass}, - \text{Perf}, 1]$ and suffixed to the string $pav + o$. Finally, the $F_{11}$ formative $e$ will complete the derivation in the presence of the cluster $[+ \text{Pass}, - \text{Perf}, - \text{Past}, - \text{Pl}]$. 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 viewpoint. We ignored the established termination types, we recognized a seven-place grid in the structure of the segments to the right of SP5 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 SP1 to SP5, 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 F5.
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:

<table>
<thead>
<tr>
<th>Termination Type</th>
<th>Subsegments</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>2a</td>
<td>6, 8</td>
<td>[\frac{2}{6}, \frac{8}{8}]</td>
</tr>
<tr>
<td>2b</td>
<td>6, 11</td>
<td>[\frac{2}{6}, \frac{11}{11}]</td>
</tr>
<tr>
<td>3a</td>
<td>6, 8, 10</td>
<td>[\frac{3}{6}, \frac{8}{8}, \frac{10}{10}]</td>
</tr>
<tr>
<td>3b</td>
<td>6, 11, 12</td>
<td>[\frac{3}{6}, \frac{11}{11}, \frac{12}{12}]</td>
</tr>
<tr>
<td>5a</td>
<td>6, 8, 10, 11, 12</td>
<td>[\frac{5}{6}, \frac{8}{8}, \frac{10}{10}, \frac{11}{11}, \frac{12}{12}]</td>
</tr>
<tr>
<td>5b</td>
<td>6, 8, 9, 10</td>
<td>[\frac{5}{6}, \frac{8}{8}, \frac{9}{9}, \frac{10}{10}]</td>
</tr>
<tr>
<td>6a</td>
<td>6, 8, 9, 10</td>
<td>[\frac{6}{6}, \frac{8}{8}, \frac{9}{9}, \frac{10}{10}]</td>
</tr>
<tr>
<td>6b</td>
<td>6, 7, 8, 10</td>
<td>[\frac{6}{6}, \frac{7}{7}, \frac{8}{8}, \frac{10}{10}]</td>
</tr>
</tbody>
</table>

The relevance of the distinction in terms of exponent of grammatical features by termination types is shown on the table.

c. Much more importantly, the major flaw of the description
<table>
<thead>
<tr>
<th>TERMINATION TYPES</th>
<th>STRUCTURAL PLACES</th>
<th>CLASSES OF CUMULATIVE VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>V o m c v n</td>
<td>(-Past, +Pl, 1, +K)</td>
</tr>
<tr>
<td></td>
<td>a m e n</td>
<td>(-Past, +Perf, +Past, +Pl, 1, +K)</td>
</tr>
<tr>
<td></td>
<td>l m e n</td>
<td>(-Past, +Perf, +Past, +Pl, 1, +K)</td>
</tr>
<tr>
<td></td>
<td>1 m a n</td>
<td>(-Pass, +Perf, +Past, +Pl, 3, +K)</td>
</tr>
<tr>
<td></td>
<td>o m u n</td>
<td>(-Pass, +Perf, +Past, +Pl, 1, +K)</td>
</tr>
<tr>
<td></td>
<td>o s u n</td>
<td>(-Pass, +Perf, +Past, +Pl, 2, +K)</td>
</tr>
<tr>
<td></td>
<td>o t a n</td>
<td>(-Pass, +Perf, +Past, +Pl, 3, +K)</td>
</tr>
<tr>
<td>5</td>
<td>V o v C C v a</td>
<td>(-Pass, -Perf, +Pl, 1, +K)</td>
</tr>
<tr>
<td></td>
<td>o s u n a</td>
<td>(-Pass, -Perf, +Past, +Pl, 1, -K)</td>
</tr>
<tr>
<td></td>
<td>o t a n e</td>
<td>(-Pass, -Perf, +Past, +Pl, 2, -K)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-Pass, -Perf, +Past, +Pl, 3, -K)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-Pass, -Perf, +Past, +Pl, 3, +K)</td>
</tr>
<tr>
<td>6</td>
<td>V e C c C v a</td>
<td>(-Pass, -Perf, +Pl, 2, +Past, +K)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>V o c t a n</td>
<td>(-Pass, -Perf, +Past, +Pl, 3, +K)</td>
</tr>
<tr>
<td></td>
<td>o u n t a n</td>
<td>(-Pass, -Perf, +Past, +Pl, 3, -K)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>V o c t a n e</td>
<td>(-Pass, -Perf, +Past, +Pl, 3, -K)</td>
</tr>
<tr>
<td></td>
<td>o u n t a n e</td>
<td>(-Pass, -Perf, +Past, +Pl, 3, -K)</td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>V o c t u s a n</td>
<td>(-Pass, -Perf, +Past, +Pl, 3, +K)</td>
</tr>
<tr>
<td></td>
<td>o u n t u s a n</td>
<td>(-Pass, -Perf, +Past, +Pl, 3, -K)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>V o m a s t a c</td>
<td>(-Pass, -Perf, +Pl, 1, +K)</td>
</tr>
<tr>
<td></td>
<td>m a s t a c</td>
<td>(-Pass, -Perf, +Pl, 1, +K)</td>
</tr>
<tr>
<td></td>
<td>s a s t a c</td>
<td>(-Pass, -Perf, +Pl, 2, +K)</td>
</tr>
<tr>
<td></td>
<td>s a s t a c</td>
<td>(-Pass, -Perf, +Pl, 2, -K)</td>
</tr>
<tr>
<td>11</td>
<td>V o m a s t a n</td>
<td>(-Pass, -Perf, +Past, +Pl, 1, +K)</td>
</tr>
<tr>
<td></td>
<td>m a s t a n</td>
<td>(-Pass, -Perf, +Past, +Pl, 1, +K)</td>
</tr>
<tr>
<td></td>
<td>s a s t a n</td>
<td>(-Pass, -Perf, +Past, +Pl, 2, -K)</td>
</tr>
<tr>
<td></td>
<td>s a s t a n</td>
<td>(-Pass, -Perf, +Past, +Pl, 2, +K)</td>
</tr>
</tbody>
</table>
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 SP₇ and SP₈, but different from the cluster in 6a (s9), a { + Pass, - Perf, + Pl, 2, { + Past } } formative, distributed over SP₈ and SP₉; we can also establish that the segment t of the cluster nt and s of s9 are related to one another as their classification in SP₈ 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 (s9) is not "the same" as that of 10 and 11 (st) (though if their precise phonological shapes are considered they are identical, 0 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 \(a\) (ast).

d. According to Table Four the distribution of termination types in the two major subdivisions of the verb system, namely, \([+\text{Pass}, -\text{Perf}]\) and "elsewhere" \((-\text{Pass}\) and/or \([+\text{Perf}]\)) is as follows:

<table>
<thead>
<tr>
<th>TT</th>
<th>6</th>
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<th>9</th>
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<th>11</th>
<th>12</th>
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<tbody>
<tr>
<td>5a</td>
<td>V</td>
<td>C</td>
<td>V</td>
<td>C</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5b</td>
<td>V</td>
<td>C</td>
<td>V</td>
<td>C</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6a</td>
<td>V</td>
<td>C</td>
<td>C</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6b</td>
<td>V</td>
<td>C</td>
<td>C</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>V</td>
<td>C</td>
<td>C</td>
<td>V</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>V</td>
<td>C</td>
<td>C</td>
<td>V</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>V</td>
<td>C</td>
<td>C</td>
<td>V</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>V</td>
<td>C</td>
<td>V</td>
<td>C</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>V</td>
<td>C</td>
<td>V</td>
<td>C</td>
<td>V</td>
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</tr>
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</table>

\([-\text{Pass}]\) \([+\text{Perf}]\)

<table>
<thead>
<tr>
<th>TT</th>
<th>1</th>
<th>2a</th>
<th>2b</th>
<th>3b</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a</td>
<td>V</td>
<td>C</td>
<td></td>
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<tr>
<td>2b</td>
<td>V</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3b</td>
<td>V</td>
<td>C</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

either section

<table>
<thead>
<tr>
<th>TT</th>
<th>3a</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>3a</td>
<td>V</td>
<td>C</td>
</tr>
<tr>
<td>4</td>
<td>V</td>
<td>C</td>
</tr>
</tbody>
</table>

\(e.g.\) pavomura, pavome za, pavesse, padonte, pavontan, pavontan, pavontusan, pavomaste, pavomastan, pavoc, pavi, epava, epave, pavis, epaves, pavun, epavan, epafolin, pavune, padpsane, pawume, pawome, pavese, pavote, pawomen, epafgisan, pavomun, epavomin
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, + Pass, − Perf, + Past, − Pl, l, − K \} (= pavomuna)

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, l \} of the input, or 5a (VCVCV) to match the cluster \{ + Pass, − Perf, + Past, − Pl, − K \}; subsequently, redundancy rules would rewrite VCVC as

\[
\begin{bmatrix}
  V \\
  +\text{back}
\end{bmatrix}
\begin{bmatrix}
  C \\
  +\text{anter}
\end{bmatrix}
\begin{bmatrix}
  V \\
  \alpha \text{ high}
\end{bmatrix}
\begin{bmatrix}
  C \\
  +\text{nasal}
\end{bmatrix}
; \\
\begin{bmatrix}
  C \\
  +\text{anter}
\end{bmatrix}
\begin{bmatrix}
  +\text{coron}
\end{bmatrix}
\]

then, the first consonant from the left would be further specified as [ +nasal ] in the presence of the grammatical value \{ l \} 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 \{ l \} 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:
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 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, unlike the strings appearing in SP to SP, a hierarchical relationship between termination types and their fully specified constituent parts. Consequently, we will
I have to reject the above, third, formulation 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\textsubscript{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 MCK. 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.

<table>
<thead>
<tr>
<th>SP₁</th>
<th>SP₂</th>
<th>SP₃</th>
<th>SP₄</th>
<th>SP₅</th>
<th>SP₆</th>
<th>SP₇</th>
<th>SP₈</th>
<th>SP₉</th>
<th>SP₁₀</th>
<th>SP₁₁</th>
<th>SP₁₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>F₁</td>
<td>F₂</td>
<td>F₃</td>
<td>F₄</td>
<td>F₅</td>
<td>F₆</td>
<td>F₇</td>
<td>F₈</td>
<td>F₉</td>
<td>F₁₀</td>
<td>F₁₁</td>
<td>F₁₂</td>
</tr>
</tbody>
</table>

| e   | [ST_φ] | a    | s    | y    | i    | n    | m    | eθ   | i    | n    | e    |
| i   | [STᵥ₁] | eθ   | us   | e    | s    | θ    | e    | a    |     |     |     |
| i   | [STᵥ₂] | i    | ik   | e    | t    | ast  | a    |     | us   | o    |     |
|     |        | o    |      |      |      |      |      |      |      |      |     |
|     |        | 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, PAVO] form pav + o + m + ast + e.

2. [STc] and [STv] are adaptations from respectively, STc and STv proposed by Babinotis, 1972a. Babinotis distinguishes between STc (PAVO) 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 AGAPÂO, e.g. APOKLÎO (= I exclude) which cannot be accommodated under either of Babiniotis' labels. When we say that APOKLÎO follows the paradigm of PÂVÎO we mean in fact that its stem-final vowel, unlike the F₃ vowels of AGAPÂO, does not participate in sandhi interactions with following vowels

\[
\begin{array}{c}
\text{pav} \\
\text{apokli} \\
\text{ayapa} \\
\end{array}
\begin{array}{c}
\frac{2}{6} \\
\frac{2}{6} \\
\frac{2}{6} \\
\end{array}
\begin{array}{c}
8 \\
8 \\
3 \\
\end{array}
\begin{array}{c}
i \\
i \\
\vdash \\
\end{array}
\begin{array}{c}
s \\
s \\
\text{ayapas} \\
\end{array}
\]

Also, we want to show that the stem-final consonant of PÂVÎO and the stem-final vowels of AGAPÂO and DIMIURGO are different in that only the latter are morphologically motivated. An interesting point made by Babiniotis (p.180) concerning F₃ i in [+ Pass, - Peri, - 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 F₅ rather than F₄). 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 above 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 -san 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. pavonto, epavonto, is "the same" as the nasal of (iv) appearing again in \{+ Pl, 3\} but other than \{+ Pass, - Perf\} terminations, e.g. pavun, epavan, as a result
of the following diachronic process discussed in Adams, 1972, passim, and especially p.151ff: ont $\rightarrow$ ōnt $\rightarrow$ ōn $\rightarrow$ ūn $\rightarrow$ un, and ont $\rightarrow$ ant $\rightarrow$ 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 $\rightarrow$ t, and the latter in final position or in the context before an "optional" vowel: $\rightarrow$ (V) #. Indeed, the final n of [+ Pl, 3] forms such as πavun or epavan has more "in common", positionally speaking, with the final n of [1] terminations such as epavómin, pavomen, epavomen, páfomen, epáfisamen, páfomén, and epáfomén, 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
- pavontan/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.

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<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>pav</td>
<td>an</td>
<td>n</td>
<td>(e)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pav</td>
<td>o</td>
<td>n</td>
<td>t</td>
<td>a</td>
<td>n</td>
<td>(e)</td>
</tr>
<tr>
<td>pav</td>
<td>o</td>
<td>m</td>
<td>u</td>
<td>n</td>
<td>(a)</td>
<td></td>
</tr>
</tbody>
</table>
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 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 ENTOPIZO (=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)dopízso. 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 distinctions 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-, Stv₁, + Pass, + Perf, + Past, + Pl, 1, - K \}, we want to relate it, through a system of explicit rules, to the phonological representation ayapiɡikame.

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 \([+ V, pav-, - \text{Pass}, - \text{Perf}, - \text{Past}, - \text{Pl, l}]\) would be associated with the phonological word \(p\text{iva}\) by an affixation rule as follows:

\[
\phi \rightarrow \text{o /} \quad \rightarrow \quad \#
\]

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:

\[
\begin{align*}
+ \text{affix}  \\
- \text{Past}  \\
1
\end{align*}
\rightarrow o
\]

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
"Describe 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 \( \varnothing \) 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 \textit{pavo} on the basis of Warburton's model (see rules above) can be replaced by a single rule in ours, namely,
\[ [-\text{Pass}, -\text{Perf}, -\text{Past}, -\text{Pl}, 1] \rightarrow o / \text{STEM} \rightarrow \# \]
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 \textit{ayap + i + \# + 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 \textit{i} appears between the stem and \textit{\# + ik + a + m + e} , \textit{\#} between \textit{ayap + i} and \textit{ik + a + m + e} \textit{ik} between \textit{ayap + i + \#} and \textit{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 $\theta$ and $ik$ in the $\{ + \text{Pass}, + \text{Perf}, + \text{Past}, \text{STV}_1, - K \}$ paradigm (see Table One) we would need two simultaneous rules such as the following:

\[
\text{(i)} \quad [ + \text{Pass}, + \text{Perf}] \rightarrow \theta / X i]_{\text{STEM}} \rightarrow ik + \begin{cases} e(s) \\ a + ( \{ \{m\} + e \} ) \\ n + (e) \end{cases} \#
\]

\[
\text{(ii)} \quad [ + \text{Pass}, + \text{Perf}, + \text{Past}, - K] \rightarrow ik / X i]_{\text{STEM}} + \theta - \begin{cases} e(s) \\ a + ( \{ \{m\} + e \} ) \end{cases} \\
\]

\[
\text{e.g. ayap} + i + \theta + ik + a, \ ayap + i + \theta + ik + es, \ ayap + i + \theta + ik + e, \\
\text{ayap} + i + \theta + ik + a + m + e, \text{ etc.}
\]

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) \{+ \text{Pass}, + \text{Perf}\} \rightarrow \emptyset / \text{STEM} ---

(iv) \{+ \text{Pass}, + \text{Perf}, + \text{Past}, + \text{K}\} \rightarrow \text{ik} / \text{STEM} + \emptyset ---

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 (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) \{+ \text{Past}, + \text{K}\} \rightarrow \text{ik} / \text{STEM} + \emptyset ---

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 inflectional 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" 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 (S₁) ayap + i (p.279); to it would be suffixed θ in the presence of the cluster [+ Pass, + Perf] to form the Secondary Stem (S₂) ayap + i + θ (p.278); the derivation of the Tertiary Stem (S₃) 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 ayapθika would be derived by rule 10 (p.270) (modified
(vi) \{ \text{Verb, } +\text{Past, } -\text{Pl, } l \} \quad S^3 + a

which reads that if a grammatical word carries, among others, the subset \{ +\text{Past, } -\text{Pl, } l \} in its set of grammatical values, a is suffixed to the Tertiary Stem, e.g. \text{ayap } + i + 0 + ik.

However, exactly the same rule completes the \{-\text{Pass, } -\text{Perf, } +\text{Past, } -\text{Pl, } l \} verb form \text{e } + \text{pay } + a, where a is in fact suffixed directly to the Root pay. In Matthews' rule system this apparent discrepancy is resolved by rewriting in \{-\text{Pass, } -\text{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. For instance, Matthews' rule 10 above could be given the following shape to cover the generation of final a (see Table One):

\[(\mathrm{vii}) \{ \{- \mathrm{Pass}, \{[-K]\}\}, \{+\mathrm{Perf}\} \}, \mathrm{+Past}, -\mathrm{Pl}, 1 \rightarrow \mathrm{a} /\mathrm{STEM} + \left( \begin{array}{c} \mathrm{ys} \\ \emptyset + \mathrm{ik} \end{array} \right) \]  

The rule accounts for final a in the following forms:
<table>
<thead>
<tr>
<th></th>
<th>{-Pass,-Pl,1}</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>{-Pass}</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>{-Perf}</td>
<td>{-K}</td>
<td>[STv₁] ayap + a + y + a</td>
<td>ayap + i + us + a → ayapusa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[STv₂] dimiury + e + us + a → dimiuryusa</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[ST₁⁺] e + pav + a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>{-K}</td>
<td></td>
<td>[STv₁] ayap + i + s + a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[ST₁⁺] e + ayap + i + sa → iydpisa</td>
<td></td>
</tr>
<tr>
<td>[+K]</td>
<td></td>
<td>(e) + dimiury + i + s + a</td>
<td></td>
</tr>
<tr>
<td>{-K}</td>
<td></td>
<td>[ST₁⁺] e + dimiury + i + s + a</td>
<td></td>
</tr>
<tr>
<td>[+K]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[+Perf]</td>
<td>{-K}</td>
<td>[ST₁⁺] e + pap + s + a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[ST₁⁺] e + paf + s + a</td>
<td></td>
</tr>
<tr>
<td>[+K]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[+Pass]</td>
<td>{-K}</td>
<td>[STv₁] ayap + i + θ + ik + a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[STv₂] (e) + dimiury + i + θ + ik + a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[ST₁⁺] (e) + paf + t + ik + a</td>
<td></td>
</tr>
</tbody>
</table>
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 synchronous "processes" (see Matthews, 1972, p.127 et passim), according to which a "basic" form changes into a different form in a certain morphological (and not phonological) context. For instance in Warburton, 1970, p.128, rule 22 changes "basic" a of ayap + a-
into \( \ddot{i} \) before \( s \) or \( \theta \), e.g.

\[
\begin{align*}
\{- \text{Pass}, & - \text{Perf}, - \text{Past}, - \text{Pl, l}\}: \text{ayap} + \ddot{i} + o \\
\{- \text{Pass}, & + \text{Perf}, - \text{Past}, - \text{Pl, l}\}: \text{ayap} + i + s + o \\
\{+ \text{Pass}, & + \text{Perf}, - \text{Past}, - \text{Pl, l}\}: \text{ayap} + i + \theta + \delta
\end{align*}
\]

However, since it can only be arbitrarily determined that \( a \) changes to \( \dot{i} \) 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 \([V_{\text{back}}]\) which would subsequently in the derivation be fully specified as \([+\text{low}](a)\) or \([+\text{high}](i)\) 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 AKūo (= I hear) (see "irregular formations" 4.3.4. below) and the F₄ formative Ƨ, it is postulated by Warburton that the stem-final position is occupied by "basic" glide h, which changes to "dental non-nasal" before another consonant:

\[ \text{akuh}^{[\text{g}]} \rightarrow \text{akus}^{[\text{g}]} \]

In different terms, it is postulated by Warburton that h changes to 部副 before a consonant in roughly the same way that "overt" stem-final v changes to f in the same environment in the "regular" verb paradigm:

\[
\begin{align*}
[-\text{Perf}]: & \quad \text{pavo} \\
[+\text{Perf}]: & \quad \text{pav}^{[\text{g}]} \rightarrow \text{paf}^{[\text{g}]} 
\end{align*}
\]

the essential difference being that v appears overtly while 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 部副 in AKūo, akusgō is the product of change of one element into another, need we postulate a reconstructed, "basic" h: AKūho, never appearing overtly. If, on the other hand, we realize that we do not 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 t 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. ayapiso, ayapitō, in the case of the "irregular" verb AKūO the formatives s and t belong to adjacent sets and co-occur in [+ Pass, + Perf] forms, while in [- Pass, + Perf] forms only s is possible, e.g. 2 4 6 2 3 4 6 akus s o, ayap i s o, in [+ Pass, + Perf] forms both s and t appear in that order: aku s t o 6 but ayap i s o t.

From the synchronic point of view the fact that such a co-occurrence is limited to AKūO and a few more verbs only, can be seen, for all practical purposes, as accidental: akusetō could just as easily be the rule and ayapisō the exception. Also, both *aku'étō and *ayapisō 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 : ayapjeme.

(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. F6 i in "underlying" ayap a i s (elided in overt ayap a'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 DIMIURGO (= 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 AGAPE, e.g.

"overt" ayap $+ \hat{a} + o$ or "overt" ayap $+ ə$

"underlying" DIMIURY $+ \hat{ə} + o$ $\rightarrow$ "overt" DIMIURY $+ ə$

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 DIMIURGO, 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 extension 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\} \rightarrow \langle a \rangle / \text{un} \# \text{e.g. pavámu}(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) \[
\begin{array}{c}
\text{C} \\
-\text{voiced} \\
\text{+continuant}
\end{array}
\rightarrow \left\langle -\text{continuant} \right\rangle / \left\langle -\text{coronal} \right\rangle \text{ e.g. yrapso but pífso or pâpso}
\]

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) \[
\begin{array}{c}
\text{C} \\
-\text{voice} \\
\text{+continuant}
\end{array}
\rightarrow \left\langle -\text{continuant} \right\rangle / \quad \text{e.g. yrafs-o yrapso}
\]

and a variable one:

(xi) \[
\begin{array}{c}
\text{C} \\
-\text{voice} \\
\text{+continuant} \\
-\text{coronal} \\
\text{+ anterior}
\end{array}
\rightarrow \left\langle -\text{continuant} \right\rangle / \quad \text{e.g. páfso or pâpso}
\]

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 INFECTIONAL MORPHOLEXICAL 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 (F₁)

The augment ø (or i, for such verbs as GLO (= I want) and KERO (= 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":

\[(i) \{+ \text{Past}\} \rightarrow e / # \rightarrow \text{STEM} / \langle - K \rangle\]

The rule reads that e appears categorically before the stem of \{+ \text{Past}\} verb forms unless the feature \{- K\} is also present in their complex symbol, in which case e appears "optionally".

\[\text{e.g.} \{+ \text{Pass}, + \text{Perf}, + \text{Past}, + \text{Pl}, + \text{l}\} \{+ K\} \begin{bmatrix} e \\ \{e\} \end{bmatrix} + \text{pav} + 0 + \begin{bmatrix} \beta \\ \{\text{ik}\} \end{bmatrix} + \begin{bmatrix} 1 \\ \text{m} \end{bmatrix} + e \begin{bmatrix} n \\ \beta \end{bmatrix}\]

(where the stress is on the antepenult and \(F_4\) 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 + \text{avp[isa} \rightarrow \text{ivp[isa}\]

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*,

\[\text{e.g.} \{- \text{Past}\} : \text{pav} + 0 , \{+ \text{Past}\} : e + \text{pav} + a\]

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:

<table>
<thead>
<tr>
<th>{-Pass,+Perf,+Past,-Pl,1}</th>
<th>{+K}</th>
<th>i</th>
<th>yapisa  (= I loved)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-K</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>{+K}</td>
<td>i</td>
<td></td>
<td>lpisa (= I hoped)</td>
</tr>
<tr>
<td>-K</td>
<td>e</td>
<td></td>
<td></td>
</tr>
<tr>
<td>{+K}</td>
<td>o</td>
<td></td>
<td>ktira (= I pity)</td>
</tr>
<tr>
<td>-K</td>
<td>i</td>
<td></td>
<td></td>
</tr>
<tr>
<td>{+K}</td>
<td>l</td>
<td>c</td>
<td>( = I came)</td>
</tr>
<tr>
<td>-K</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>{+K}</td>
<td>ixa</td>
<td></td>
<td>( = I had)</td>
</tr>
</tbody>
</table>

It will be noticed that in the above examples the "temporal" augment is categorical in the case of ixa and \( i \{1 \} a \) irrespective of \{± K\} distinctions.

We can therefore extend tentative rule (i) above to account for the categorical appearance of e before the stems \( e x - \) and \( e \{1 \} 0 - \)
The explanation introduced above to account for the "temporal" augment is based, up to a certain point, on historical considerations: \( \varepsilon \) 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: \( \varepsilon + ay\dot{\alpha}pon \rightarrow iy\dot{a}pon \). 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 \{\pm K\} distinctions:

\[
\begin{array}{c|c}
\text{[- Pass, - Perf, - Pl, 1]} & \text{[+ Past]} \\
\hline
\text{aerizo (= I air)} & \text{aeriza} \\
\text{epiplono (= I furnish)} & \text{epiplona} \\
\text{orimazo (= I mature)} & \text{orimaza} \\
\text{iketevo (= I supplicate)} & \text{iketeva}
\end{array}
\]

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 AERIZO, EPIPLONO, ORIMAZO, etc.

3.1.4. In the case of most of the verbs compounded with derivational prefixes (or "genuine" prepositions) 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 PROSFERO (= I offer), whose stem is made up of the preposition pros plus the verbal root fer, the augment appears as follows:

\[ \begin{align*}
  & \{- \text{Pass, - Past, - Pl, 1}\} \\
  & \{+ K\} : \quad \text{pros} + \text{e} + \text{fer} + a \\
  & \{- K\} : \quad (e) + \text{pros} + \text{fer} + a
\end{align*} \]

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. antifræse (he reacted) and not \*e + antifræse \*intifræse.

We will therefore revise the first part of tentative rule (i) above so that now it can specify an augment before a verbal root which may be preceded by zero or more derivational prefixes:

\[ / \# \text{PREF}_0 \quad \text{ROOT} \quad / \langle \{- K\} \rangle \]

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:

\[(iii) \#(C X)_{PREF} + [\text{ROOT}]_{[-K]} \rightarrow \{1, 2, 4\}\]

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. 
\{+ Past, + Perf, + Past, + Pl, 1, -K\} : paf\text{id}kame rather than epaf\text{id}kame. 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:

\[(iv) \{+ Past\} \rightarrow e /\#--- c_o V c_o V c_o\]

\text{e.g. sp\text{id}sa.}
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.: afto to mía pirá kenúrjes teníes ....
   epíra ájò 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 PERNO (= I buy) the augment appears in the second only.

2/16/26 Y.L.: těknon mu, imártises (= my son, you have sinned)
where a "temporal" augment appears in the {- Pass, + Perf, + Past,
- Pl, 2} form of AMARTANO (= 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.

\[
\begin{align*}
\text{tu ipe} & \rightarrow \text{tu pe} (= \text{he told him}) \\
\text{pu èpese} & \rightarrow \text{pu pese} (= \text{that fell}) \\
\text{ta èfera} & \rightarrow \text{ta fera} (= \text{I brought them})
\end{align*}
\]

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 \(\text{dis} + \text{arestV}\) of the lexeme \(\text{DISARESTU} (= \text{I displease})\):

\[
\begin{align*}
\{+K\}: & \text{dis + (e) + arest + i + s + a} \rightarrow \text{disarestisa} \\
\{-K\}: & (e) + \text{dis + arest + i + s + a} \rightarrow \text{edisarestisa}
\end{align*}
\]

or the number of augments appearing, as in the stem \(\text{amfi + svitV}\) of the lexeme \(\text{AMFIZVITU} (= \text{I doubt})\) where either one or two augments may appear:
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. *para iπja (= I drank too much)
  
  *ksana iρθα (= 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)parāpja (= I drank too much) or, paraipja

  (e)ksanairθα (= I came again) or, ksanairθα

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
3.1.8. Verbs such as \( \text{GALO} (= \text{I want}) \) and \( \text{KSERO} (= \text{I know}) \) 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 \( \text{GALO} \) and \( \text{KSERO} \) 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 \([ +\text{front}] \). A subsequent rule would then assign it full specification by adding to it the feature \([ +\text{high}] \) in the case of \( \text{GALO} \) and \( \text{KSERO} \) and \([ -\text{high}] \) elsewhere:

\[
(V) \quad [ +\text{front} ] \rightarrow \begin{cases} [ +\text{high} ] & \# \rightarrow \{ \text{GAL} \} \\ [ -\text{high} ] & \end{cases}
\]

3.1.9. We can now summarize rules (i) to (v) as follows:

**Rule 1**

\[
\#[ \text{C X]_{PREP} + [ \text{ROOT} \{-K\} ] } \rightarrow \begin{pmatrix} 1 & 2 & 4 \\ 1 & 2 & 3 \end{pmatrix}
\]

e.g. \(-K\) : \( \text{pros} + \text{fer} + a \rightarrow \text{prosfer} + a \rightarrow (o)\text{prosfer} + a \) (= I offered)
Rule 2

\[ \{\text{+Past}\} \rightarrow \left[ \begin{array}{l} V \\ \text{+front} \end{array} \right] \left/ \left\{ \begin{array}{l} \text{PREF}_o \rightarrow \text{ROOT} \langle \text{+K} \rangle \\ \text{ex} \\ \text{ex}^{(1)}_a \\ \# \rightarrow c_o v_o v_c \end{array} \right\} \right\} \]

\text{e.g.}

(a) \[ \{\text{+K}\} \left[ e \right] + \text{pa} \left[ f \right] + s + a + m + e + \left[ n \right] \left/ \left[ \beta \right] \rightarrow \right. \]
\[ = \text{we stopped} \]

(b) \[ \{\text{+K}\} \left[ e \right] + \text{krati} + s + a \rightarrow \left[ \text{epikratisa} \right] \rightarrow \left[ \text{epikratisa} \right] \left( = \text{I dominated} \right) \]

(c) \[ \{\text{+K}\} \left[ e \right] + \text{ayapi} + s + a \rightarrow \left[ \text{iyapisa} \right] \rightarrow \left[ \text{iyapisa} \right] \left( = \text{I loved} \right) \]

(b) \[ e + \text{ex} + a \rightarrow i\text{x}a \left( = \text{I had} \right) \]
\[ e + e^{(1)}_a + a \rightarrow \langle \text{x}a \rangle \left( = \text{I came} \right) \]

(c) \[ \text{pap} + s + a \rightarrow e + \text{pap} + s + a \rightarrow \text{pap} + s + a \left( = \text{I stopped} \right) \]

Rule 3

\[ \{\text{+front}\} \rightarrow \left[ \begin{array}{l} \text{+high} \\ \text{-high} \end{array} \right] \left/ \left\{ \langle \text{ikser-} \rangle \right\} \right\} \]

\text{e.g.} \text{i\text{g}es, i\text{ksera}, but e\text{papsa}.}
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 + â + o

[+ Pass, + Perf, - Past, + Pl, 2, - K]: ayap + i + ò + û + 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 {STg} in that (a) F_3 formatives appear in the stem structure of the former only:

[-Pass, -Perf, -Past, -Pl, 1] {STg} : pâv + o

{STv} : ayap + â + o
(b) the F₅ formatives y and us appear in the case of [STv] verbs only:

[-Pass, -Perf, +Past, -Pl, 1, -K]  \{ST₅\} : े + pav + a

{STv} : ayap + a + y + a or ayap + us + a

and (c) F₆ e follows the stem of [+ Pass, - Perf, - Past, - Pl, 1, STv, - K] forms only:

{+Pass, -Perf, -Past, -Pl, 1}  \{ST₆\} : pav + o + m + e

{-K STv} : ayap + e + t + e → ayapome

The presence of F₃ a is characteristic of [STv₁] verbs (e.g. AGAPIA) whereas the presence of e is characteristic of verbs such as DIMIURGO (i.e. [STv₂] verbs (but see 3.3. below for a more detailed description of F₃ formatives)), e.g.

{-Pass, -Perf, -Past, +Pl, 2}  \{STv₁\} : ayap + a + e + t + e → ayapats

{STv₂} : dimitiury + e + ete → dimitiuryte

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\}
vlēp + o (= I see)  dā + ṭ
pērm + o (= I take)  par + o
piyēn + o (= I go)  pā + o
3.2.4. With respect to stylistic, \{\pm K\}, distinctions, certain stems may occur only in the presence of the value \(+ K\) or only of \(- K\), e.g.

\(-K\) : \text{ksør} + o (= I know) as opposed to \(+ K\) \text{ynoriz} + o
\(-K\) : \text{førn} + o (= I bring) as opposed to \(+ K\) \text{fær} + 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 \{ST\} verbs is of the form \text{PREFIX} + \text{ROOT} + F_3 while that of \{ST\} verbs is of the form \text{PREFIX} + \text{ROOT} + \text{SUFFIX} 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 \(\{ST\}\) from \(\{ST\}\) verbs, i.e. they appear in stem-final position in the case of the former (e.g. \{ST\}: \text{avap} + o, \{ST\}: \text{dimiury} + o \rightarrow \text{dimiury}'\) but not of the latter (e.g. \{ST\}: \text{paw} + o) so that the stems of the three verbs could be represented as \text{avap}\(\_\), \text{dimiury}\(\_\) and \text{paw}\(\_\) 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 AGAPÃO go, the F₃ 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 F₃ vowels a and i in the structure of such {STV} verbs as AGAPÃO (for DIMIURGO see next section):

(i) {-Pass,-Perf,STV} ➞ a / X ➞ STEM e.g. ayap + a + o

(ii) [+Pass,-Perf,+K,STV] ➞ a / X ➞ STEM e.g. iyap + a + o + n ➞ iyapon

(iii) [+Perf,STV₁] ➞ i / X ➞ STEM e.g. ayap + i + s + o

(iv) [+Pass,-Perf,-K,STV] ➞ i / X ➞ STEM e.g. ayap + i + e + m + e ➞ ayapjémé
3.3.2. A sizeable group of verbs following the paradigm of DIMIURGO (= I create) behave like AGAPÆO in as far as the distribution of overt F₃ i is concerned, e.g. dîmiûry + i + s + o, dîmiûry + i + e + o, dîmiûry + i + e + m + e → dîmiûryjîme. Elsewhere, however, that is, when i is not present overtly, DIMIURGO appears to be a special case: to begin with, it does not behave like an [ST{v} verb, in that neither a nor any other F₃ vowel overtly appears in its {- Pass, - Perf} forms. Compare, for instance, the overt {- Pass, - Perf, - Past} forms of the two lexemes below:

[-Pl,1]: ayapæo dîmiûryô
[-Pass,-Perf,-Past] [-Pl,2]: ayapîs dîmiûryîs
{+Pl,2]: ayapîte dîmiûryîte

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 [ST{v}] verbs is influenced by the sandhi phenomena taking place between F₃ and adjacent F₆ vowels.

On the other hand, DIMIURGO cannot be assumed to be an [ST{o}] verb in that it differs from PÂVO 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.
DIMIURGO has been dealt with in the literature (Hamp, 1961; Koutsoudas, 1962; Babiniotis, 1972a) in the same way as AGAPAO, 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 AGAPAO or to DIMIURGO and as different from comparable elements of PAVO. 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 ε in the structure of DIMIURGO, but the only justification given for doing so is that DIMIURGO is "different" from AGAPAO (p.128). Clearly, the fact that the two verbs are different is not enough to justify the recognition of an "underlying" ε suffixed to the stem of verbs such as DIMIURGO.
The solution we have adopted here to deal with the multitude of formal innovations in the paradigm of DIMIURGÒ is, to a certain extent, a historically motivated one: the "underlying" representations of verb forms in the paradigm of DIMIURGÒ coincide with earlier attested verb forms with F3 e; in different terms, we postulate the "existence" of F3 e in the "underlying" representations of DIMIURGÒ 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 PAVO and AGAPÁO, and stress-pattern that is the same as that of contracted verb forms in AGAPÁO, are still present in MGK. More precisely, we postulate that "underlying" F3 e in the paradigm of DIMIURGÒ in MGK interacts with adjacent F6 vowels to produce single vowels which are different from those resulting from the interaction between e and F6 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.:

\[
\begin{align*}
\{-\text{Pass, - Perf, - Past}\} \\
\{-\text{P1,1}\} \text{ayap + } \text{e} + \text{o} & \rightarrow \text{ayapo}, \quad \text{dimiury + } \text{e} + \text{o} \rightarrow \text{dimiury's} \\
\{-\text{P1,2}\} \text{ayap + } \text{i} + \text{s} & \rightarrow \text{ayapas}, \quad \text{dimiury + } \text{i} + \text{s} \rightarrow \text{dimiury's} \\
\{+\text{P1,2}\} \text{ayap + e + t + e} & \rightarrow \text{ayapate}, \quad \text{dimiury + e + t + e} \rightarrow \text{dimiuryite}
\end{align*}
\]
The historical solution introduced above greatly enhances the economy of the grammar in that the considerable number of formal differences between AGAPAO and DIMIURGO can be reduced to a single contrast, namely, that between F3 a and e respectively.

However, the postulation of "underlying" F3 e in the paradigm of DIMIURGO 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. ðimiury + e + o → ðimiuryø
(b) e + o → u e.g. edimiury + e + o + n → edimiuryun
(c) e + e → i e.g. ðimiury + e + e + t + e → ðimiuryite
(d) e + i → i e.g. ðimiury + e + i + s → ðimiuryis
(e) e + u → u e.g. ðimiury + e + u + n → ðimiuryun

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 (e), 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 AGAPAO, while ə never does in DIIMITIURGÔ: the former is the most dominant vowel in the language, whereas the latter is 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 {STv2} verbs (DIIMITIURGÔ) 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 ayapio, ayapis, ayapii, etc. on the one hand and diimiuryô, diimiuryis, diimiuryi, 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 DIMIURGO are categorical throughout the paradigm so that in fact $F_3$ e never appears overtly (unlike AGAPAIO, where some sandhi rules are variable in the presence of the value [-K], e.g. ayapao or ayapö, ayapai or ayapé, ayapâume → ayapîme or ayapîme, 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 ayapâo and ayapö, also both ayapai and ayapî are used in actual conversation (albeit at different frequency levels) so that the interactions $a + o \rightarrow o$ and $a + i \rightarrow a$ 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" DIMIURGÖ derives from Ancient Greek DIMIURYΣ, 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 $e + o \# \rightarrow o\#$ because "overt" DIMIURGÖ is "the same", in
terms of relative number of syllables and stress pattern, as ayapão, the latter obviously deriving from "overt" ayapão through the "living" sandhi interaction a + o# → o#.

We can now revise tentative rules (i) and (ii) above to account for F3_e of {STV2} verbs:

(v) [-Pass, -Perf] ———— a / X ———— ]STEM / [ {STV1} 

{STV2} : dimiuryéo → dimiuryé

e.g. STV1 : ayapão

(vi) [+Pass, -Perf, +K] ———— a / X ———— ]STEM / [ {STV1} 

{STV2} : dimiuryéome → dimiuryéme

e.g. {STV1} : ayapáoome → ayapóme

{STV2} : dimiuryéome → dimiuryéme

Note that, as it stands, tentative rule (iv) (also (iii) above) is valid both for {STV1} and {STV2} verbs, i.e. in the presence of the cluster [+Pass, -Perf, -K] the F3 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 {STV2} verbs tend to follow the paradigm of {STV1} 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 \(\varepsilon\) (the latter, in fact, can have \(\varepsilon\) 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 
\(F_3\ \varepsilon\) only (i.e. never \(\dot{i}\)) in the presence of the cluster \(+ Pass, 
- Perf\) and irrespective of \{\(+ K\)\} distinctions. Subsequently, 
\(\varepsilon\) 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 \(F_3\ \dot{i}\). The 
rule that would thus desyllabify front vowels in the context 
\(C - V\) would be valid outside the verb too, e.g. ye\(\sigma\)rgios —> 
yj\(\dot{\iota}\)ryos (= George), tu pedi\(\nu\) —> tu pedji (= of the child).

3.3.3. A number of \{STV\} verbs, e.g. KRATAO (= I hold), PATANO 
(= I step), follow in the presence of the value \(- Perf\) either 
the \(+ K\) paradigm of DIMIURGO or the \(- K\) paradigm of AGAPAO, e.g.

\[
\begin{align*}
\{+K\} & \left[ \begin{array}{c}
\varepsilon \\
\end{array} \right] + \text{krat} + \left[ \begin{array}{c}
\varepsilon \\
\end{array} \right] + \left[ \begin{array}{c}
\dot{i} \\
\end{array} \right] + \text{on} \rightarrow \text{ekratun} \\
\{-K\} & \left[ \begin{array}{c}
\varepsilon \\
\end{array} \right] \rightarrow \text{(e)krataya}
\end{align*}
\]

We can account for KRATAO and PATANO by adding two more parts to 
tentative rule \((v)\) above:
The rule reads that in the presence of the cluster \{-Pass, -Perf\} F₃ e or a appear with the values, respectively, \{+K\} and \{-K\} in stem-final position in the case of \{STv₃\} verbs, i.e. KRATAO, PATAO, etc.

Also, tentative rule (vi) above will have to be extended to account for the appearance of F₃ e in \{STv₃\} verbs in the presence of the cluster \{+Pass, -Perf, +K\}:

\[
(viii) \{+Pass, -Perf, +K\} \rightarrow [e] / X \quad \text{STEM} / [\{STv₁\}, \{STv₂\}, \{STv₃\}]
\]

e.g. \{STv₁\} : ayapome → ayapome

\{STv₂\} : dimiuryome → dimiuryume

\{STv₃\} : kratome → kratume

3.3.4. A number of verbs deviate from the above rules in various ways. For instance, the verbs FORAO (= I wear), PONAO (= I ache), VARAO (= I hit), BORO (= I can), KALO (= I invite), etc., have F₃ e with the value \{+Perf\}, e.g. for + e + s + o, pon + e + s + o,
etc. Again, the verbs STENOXORAO (= I sadden) and SINTXORAO (= I forgive) have either {+ K} or {- K} in [+ Perf] forms, e.g. stenoxor +[1/3]+ s + o, while {- Perf} forms follow the paradigm of KRATAO (see 3.3.3. above). Also the verbs SKAO (= I shut up), XALAO (= I destroy), PINAO (= I am hungry), CELAO (= I laugh), etc., have F3 irrespective of Aspect, e.g. {- Perf} pin +1 + o, [+ Perf] pin +1 + s + o. Finally, other verbs have no {+ K} forms (e.g. BORO); or do not tolerate the appearance of certain inflectional formatives in their structure and thus fail to maintain certain grammatical distinctions (for instance, BORO has no {+ Pass} forms); or behave as [STv] verbs (i.e. have F3 vowels) in only parts of their paradigms, e.g. GILAO is [STv] only in the presence of the value {- Perf} : [1 + Perf] : GIL + o, [+ Perf] : GIL + 1 + 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 F3 vowels (or other "deviant" elements) appearing in their structures.

3.3.5. Below are summarized the rules discussed in 3.3.
Rule 4
\[ \{ \text{Pass, Perf} \} \rightarrow [a, e] / x \rightarrow [\text{STEM}] / \left[ \begin{array}{c} \{ \text{STV}_1 \} \\ \{ \text{STV}_3, -K \} \\ \{ \text{STV}_2 \} \\ \{ \text{STV}_3, +K \} \end{array} \right] \] (a)

(b) e.g. (a) \{ \text{STV}_1 \} : ayap + a + o, ayap + a + y + a
\{ \text{STV}_3 -K \} : krat + a + o, (e) + krat + a + y + a

(b) \{ \text{STV}_2 \} : dimumuri + e + o \rightarrow dimumuryo
\{ \text{STV}_3 +K \} : krat + e + o \rightarrow kratume

Rule 5
\[ \{ \text{Pass, Perf} \} \rightarrow [a, e] / x \rightarrow [\text{STEM}] / \left[ \begin{array}{c} \{ \text{STV}_1, +K \} \\ \{ \text{STV}_2 \} \\ \{ \text{STV}_3, +K \} \end{array} \right] \] (a)

(b) e.g. (a) \{ \text{STV}_1, +K \} : ayap + a + o + m + e \rightarrow ayapome

(b) \{ \text{STV}_2 \} : dimumuri + e + o + m + e \rightarrow dimumuryume
\{ \text{STV}_3, +K \} : krat + e + o + m + e \rightarrow kratume
Rule 6

\{+\text{Pass}, -\text{Perf}, \text{STv}, -\text{K}\} \rightarrow \text{i / X} \rightarrow \text{STEM}

e.g. \{\text{STv}, -\text{K}\}: \text{ayap} + \text{i} + \text{e} + \text{m} + \text{e} \rightarrow \text{ayapjéme}
\quad \ddimury + \text{i} + \text{e} + \text{m} + \text{e} \rightarrow \ddimuryjéme
\quad \text{krat} + \text{i} + \text{e} + \text{m} + \text{e} \rightarrow \text{kratjéme}

As the rules are unordered, either rule 5b or rule 6 may apply on \{+\text{Pass}, -\text{Perf}, \text{STv}_2, -\text{K}\} forms to produce, respectively,
\ddimury + \text{e} + \text{o} + \text{m} + \text{e} \rightarrow \ddimuryjéme \quad \text{or} \quad \ddimury + \text{i} + \text{e} + \text{m} + \text{e} \rightarrow \ddimuryjéme \quad \text{(but see 3.3.6. below)}.

Rule 7

\{+\text{Perf}, \text{STv}\} \rightarrow \text{i / X} \rightarrow \text{STEM}

e.g. \text{ayap} + \text{i} + \text{s} + \text{e}, \text{ayap} + \text{i} + \text{e} + \delta
\quad \ddimury + \text{i} + \text{s} + \text{o}, \ddimury + \text{i} + \text{e} + \delta
\quad \text{krat} + \text{i} + \text{s} + \text{o}, \text{krat} + \text{i} + \text{e} + \delta

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 F3 formatives are [-back] vowels, i.e. an \{\text{STv}\} verb always has a [-back] vowel in stem-final position:
Rule 8

\[
\{ \text{ST}_v \} \rightarrow V \quad / \quad X \rightarrow \text{STEM}
\]

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

\[
\left[ \begin{array}{c}
+\text{low} \\
-\text{low} \\
-\text{high}
\end{array} \right] \rightarrow V \quad / \quad X \rightarrow \text{STEM} \quad \left[ \begin{array}{c}
+\text{low} \\
-\text{low} \\
-\text{high}
\end{array} \right]
\]

(a')

\[
\left[ \begin{array}{c}
-\text{back} \\
+\text{high}
\end{array} \right] \rightarrow V \quad / \quad X \rightarrow \text{STEM} \quad \left[ \begin{array}{c}
+\text{high}
\end{array} \right]
\]

(a'')

Rule 10

\[
\left[ \begin{array}{c}
V \\
-\text{back}
\end{array} \right] \rightarrow \left[ +\text{high} \right] \quad / \quad X \rightarrow \text{STEM} \quad / \quad \left\{ \text{STv} , \quad -\text{K} , \quad +\text{Pass} , \quad -\text{Perf} \right\}
\]

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 \(+\text{Pass, }-\text{Perf, STv}_2, -\text{K}\) 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 \(+\text{Pass, }-\text{Perf, STv}_2, -\text{K}\) 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 (F₄)

3.4.1. The F₄ formatives appearing in the "regular" paradigm of both \(\text{ST}_p\) and \(\text{STv}\) verbs can be accounted for by the following rules:

(i) \([-\text{Pass, }+\text{Perf}] \rightarrow s/\text{STEM} \quad \text{e.g. } \text{papso, ayapiso}\)

(ii) \([+\text{Pass, }+\text{Perf}] \rightarrow \theta/\text{STEM} \quad \text{e.g. } \text{pafẹọ, ayapịọ} \)
the two rules can be collapsed into a single rule as follows:

$$(iii) \{+\text{Perf}\} \rightarrow [s] / \text{STEM} \rightarrow [\text{- Pass}]$$

$$(\text{+ Pass})$$

3.4.2. In the presence of the value $[-K]$ ə changes, more often than not, to твер in the context after a voiceless fricative, whereas elsewhere only ə is possible irrespective of $[+K]$ distinctions. Since the alternation between ə and твер is phonetically motivated, we do not need to include твер in the set of $F_4$ formatives: after the specification of ə by morpholexical rule (iii) above a morphophonemic rule (see rule 56b in 5 below) will apply variably to change ə to твер in the context after a voiceless fricative (progressive manner dissimilation), e.g.

\[
\text{rəf} + ə + ə \quad \text{or} \quad \text{rəf} + твер + ə
\]

\[
\text{ayəp} + ɪ + ə + ə
\]

A different way to account for the alternation between $F_4$ ə and твер would be to introduce a partly specified consonantal segment with the features \([-\text{voice}, +\text{anterior}, +\text{coronal}]\) in \([+\text{Pass}, +\text{Perf}]\) forms; subsequently, the segment would be fully specified either as ə (\([-\text{continuant}, -\text{strident}]\)) or as твер (\([-\text{continuant}]\)) after a voiceless fricative, and as ə elsewhere. However, the above solution would prevent certain morphophonemic generalizations
(see 5.2. below) which are possible only if a fully specified segment (9) rather than an incompletely specified one is the output of the morpholexical rules. For instance, when 9 is suffixed to the stem plek- (= to knit), stem-final k is assimilated to 9 with respect to the feature [ +continuant ]: plex9-. Subsequently, progressive manner dissimilation (characteristic of the value [-K]) changes 9 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 9 and not as t, since both k9 and kt are acceptable clusters (e.g. skelipto (= I squeeze), ektipono (= 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 x9 unaccounted for, unless it was treated as an exception. Such a solution would be contrary to the facts, however, as x9 is a perfectly acceptable cluster in MGK:

plek96→plex96→plex9[t]6 (= I will be knitted)

3.4.3. An alternative, less redundant (compared to rule (iii) above), way to account for the F4 formatives s and 9 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 ]:

(iv) \{+Perf\} \arrow [C
+anter
+coron
-voice
+cont] / STEM

Subsequently, the output of (iv) above would be fully specified either as \{+strident\} (a) or \{- strident\} (b) in the presence of the values, respectively, \{- Pass\} and \{+ Pass\}:

(v) \[
\begin{bmatrix}
C
coron
-voice
+cont
\end{bmatrix}
\arrow
\begin{cases}
(+str) / (-\text{Pass}) \\
(-\text{str}) / (+\text{Pass})
\end{cases}
\]

or, in a more economical form:

(vi) \[
\begin{bmatrix}
C
+ant
coron
-voice
\end{bmatrix}
\arrow
\begin{bmatrix}
-\alpha \text{ str}
\end{bmatrix}
/ \{\alpha \text{ Pass}\}
\]

where the variables -\(\alpha\) and \(\alpha\) 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 \(F_4\) \(\alpha\) and \(\alpha^2\):

Rule 11

\{+Perf, -\alpha \text{ Pass}\} \arrow [C
+anter
+coron
-voice
+cont
\alpha \text{ strident}] / STEM
3.5. The fifth set of formatives (F₅)

3.5.1. The F₅ 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. avap + 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 AGAPÃO (STV₁) whereas us appears in the paradigm of both AGAPÃO (STV₁) and DIMIURGO (STV₂):

(iii) [-Pass, -Perf, +Past, -K] \rightarrow \left[ \begin{array}{c} \{y\} \\ \{us\} \end{array} \right] / STEM \rightarrow \left[ \begin{array}{c} \{STV₁\} \\ \{STV₂\} \end{array} \right] (a)

\text{e.g. } \{STV₁\}: \text{ayap} + a + \{y\} + s \rightarrow \{ayapaya\}

\{STV₂\}: (e) + dimiury + e + us + a \rightarrow (e)dimiuryusa

We could now summarize tentative rules (ii) and (iii) above as rule 12 below:

Rule 12

\{+Past, -K\} \rightarrow \left\{ \left[ \begin{array}{c} \{y\} \\ \{us\} \end{array} \right] / STEM \right\} \rightarrow \left\{ \left[ \begin{array}{c} \{STV₁\} \\ \{STV₂\} \end{array} \right] \right\} (a', a'')

\{ik / + e\} (b)

3.5.2. The recognition of the two successive segments F₄ e and F₅ ik 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
as well as of the stress pattern, the \{+ Pass, + Perf, - Past\}
paradigm of all regular verbs,

\[
\begin{align*}
\text{ayapi0} & \text{o} \\
\text{ayapi0} & \text{is} \\
\text{ayapi0} & \text{i} \\
\text{ayapi0} & \text{i} \text{te} \\
\text{ayapi0} & \text{un} \text{(e)}
\end{align*}
\]

is similar to the \{- Pass, - Perf, - Past\} paradigm of \{STv\} verbs
and almost identical to that of \{STv\} verbs (apart from the
\{+Pl, 1, +K\} forms).

\[
\begin{align*}
\text{[STv1]} & \\
\text{ayapö} \text{ (or ayapio)} & \\
\text{ayapas} & \\
\text{ayapa} \text{ (or ayapa1)} & \\
\text{ayapi0} & \text{me} \text[n] \text{ø} \\
\text{ayapa} & \text{te} \\
\text{ayapi0} & \text{un} \text{(e)}
\end{align*}
\]

\[
\begin{align*}
\text{[STv2]} & \\
\text{dimiuryö} & \\
\text{dimiury is} & \\
\text{dimiury1} & \\
\text{dimiury uno} \text[n] \text{ø} & \\
\text{dimiury1 te} & \\
\text{dimiury uno} \text{(e)}
\end{align*}
\]

Since the particular overt shape of the \{- Pass, - Perf, - Past, STv\}
paradigm of AGAPAO and DIMIURGO above is the result of sandhi
interaction between \(\text{F}_2\) \(\text{a}\) (for AGAPAO) or \(\text{e}\) (for DIMIURGO) and adjacent
F₆ 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 0 a vowel never appearing overtly interacts with adjacent F₆ vowels to produce the observable surface realizations.

\[
\text{ayapi}_0 \hat{0} \rightarrow \text{ayapi}_0' \\
\text{ayapi}_i \hat{0} \rightarrow \text{ayapi}_i' \\
\text{ayapi}_i \hat{1} \rightarrow \text{ayapi}_i \\
\text{etc.}
\]

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 \( ñ \) on the grounds that \( ñ \) also appears overtly in [+ Past] forms:

\[
\begin{align*}
\{- \text{Past}\} & \quad \text{ayapi}_i ñ \rightarrow \text{ayapi}_i' \\
\{+ \text{Past}\} & \quad \text{ayapi}_i ñk
\end{align*}
\]

Furthermore, Warburton suggests that \( ñ \) should be regarded as independent both from the feature [+ Pass] and the suffix \( ñ \), 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:

\[
\begin{align*}
\text{VRIŠKO} & \quad (= \text{I find}), \quad \text{vri}_i \rightarrow \text{vri}_0, \quad \text{vri}_i \\
\text{BENO} & \quad (= \text{I enter}), \quad \text{bi}_i \rightarrow \text{bi}_0, \quad \text{bi}_i \\
\text{VGENO} & \quad (= \text{I go out}), \quad \text{vy}_i \rightarrow \text{vy}_0, \quad \text{vy}_i
\end{align*}
\]
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 \( q \), would be retained unchanged, i.e. we would not need to postulate \( s \) and \( q \) 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 \( F_5 \): \( \begin{align*}
\text{ayap } i & \in F_4, \quad \text{ayap } i & \in F_5.
\end{align*} \)

Secondly, Tsitsopoulos, 1972, p. 46, proposes "underlying" \( e \), which becomes \( i \) before a consonant, e.g.

\begin{align*}
\text{ayapi} & \rightarrow \text{ayapi} \\
\text{ayapi} & \rightarrow \text{ayapi} \\
\end{align*}

in just the same way that \( e \) in \( \text{dimiury}e \) becomes \( i \) before a consonant (in the \( [+\text{Perf}] \) paradigm):

\begin{align*}
\text{dimiury} & \rightarrow \text{dimiury} \\
\text{dimiury} & \rightarrow \text{dimiury} \\
\end{align*}

Thirdly, there is historical support for the postulation of a "long" (or, perhaps, \([+\text{tense}]\)) 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:

\[
iyap + i + \theta + i + n
\]

\[
iyap + i + \theta + i + s
\]

\[
iyap + i + \theta + i
\]

\[
iyap + i + \theta + i + n + e + n
\]

\[
iyap + i + \theta + i + t + e
\]

\[
iyap + i + \theta + i + s + a + n
\]

Whereas in the analysis adopted so far in this study \( i \) following \( \theta \) is classified as an \( F_6 \) formative:

\[
\frac{2}{iyap} + \frac{3}{i} + \frac{4}{\theta} + \frac{6}{i} + \frac{11}{n}
\]

If one of the above three solutions were adopted, \( i \) (\( a \) or \( \omega \)) 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 \( \omega \) both in SP\(_{4a}\) and in SP\(_6\), \[
\frac{2}{iyap} + \frac{3}{i} + \frac{4}{\theta} + \frac{6}{i} + \frac{11}{n}\longrightarrow iyap\omega i\epsilon
\]
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 \( \text{VRIXKO}, \text{BE\'NO} \) and \( \text{VGA\'NO} \), which provide, after all, the
evidence for the postulation of a separate segment \( i \), i.e. \( \theta + i \), is excluded for reasons explained below.

(vii) \( \{ + \text{Pass}, + \text{Perf} \} \rightarrow i / + \theta \)

whereas, part (b) of rule 12 above accounting for the suffixation of \( ik \) to \( \theta \) in the \( \{ + \text{Past}, - K \} \) paradigm would have to be revised now to suffix \( k \) to \( \theta + i \) instead.

(viii) \( \{ + \text{Past}, - K \} \rightarrow K / + \theta + i \)

Also, rule 21 (see 3.6.2. below), to the extent that it accounts for \( F_6 \) \( i \) in the \( \{ + \text{Pass}, + \text{Perf}, + \text{Past}, + K \} \) 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 \( \theta \), it should be made clear that the change \( CIV \rightarrow CV \), e.g. \( \text{ayapi\thetao} \rightarrow \text{ayapi\theta} \), is completely alien to NCK where, either no change occurs, e.g. \( i\thetarii \) (= I establish) \( i\thetariis \), \( i\thetarii \), etc., or, often in the presence of the feature \( - K \), \( i \) is desyllabified, e.g. \( \text{ayapi\thetae} \rightarrow \text{ayapi\theta\theta} \) (rule 39 below). See also Tsitsopulos, 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, ə, 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. Tsitsopoulo, 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 ə, the most attractive of the three, given the near identity of the [+Pass, +Perf, -Past] and [-Pass, -Perf, -Past, STv₂] paradigms (see examples at the beginning of this section): In other words, if the same vowel, ə, is postulated both for the [-Pass, -Perf, -Past, STv₂] 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, \} forms:

\[
\begin{align*}
\{+\text{Pass, + Perf, - Past}\} & \quad \{+K\} \quad \text{ayapi}\theta e \left[ o \mid \emptyset \right] \quad \text{me} \left[ n \right] \quad \rightarrow \quad \text{ayapi}\theta e \left[ o \mid u \right] \quad \text{me} \left[ n \right] \\
\{-K\} & \\
\{+\text{Pass, + Perf, - Past}\} & \quad \{+K\} \quad \text{dimiuryi}\theta e \left[ o \mid \emptyset \right] \quad \text{me} \left[ n \right] \quad \rightarrow \quad \text{dimiuryi}\theta e \left[ o \mid \emptyset \right] \quad \text{me} \left[ n \right] \\
\{-K\} & \\
\{+\text{Pass, + Perf, - Past}\} & \{-K\} \quad \text{STV}_2 \quad \text{forms} \end{align*}
\]

As is clear from the examples above, in the case of \{+ Pass, + Perf, - Past, + K\} forms \( e + o \rightarrow o \), whereas in \{+ Pass, + Perf, - Past, - K\} forms \( e + [o] \rightarrow u \). As for \{- Pass, - Perf, - Past, STV_2 \} forms, the outcome is \( u \) whether \( e \) interacts with following \( o \) or \( u \), and irrespective of \{+ K\} distinctions: \( e + [o] \rightarrow u \).

It should also be noted that the postulation by Warburton of \( i \) as a separate segment from \( o \) (\( o + i \) rather than \( o i \)), 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 \text{VRISKO, BENO} and \text{VGENO} on the one hand and the\{+ Pass, + Perf, - Past\} forms of the regular paradigm on the other.
4(a) vrio $\rightarrow$ vro  (b) ayapielo $\rightarrow$ ayapielo
vriis $\rightarrow$ vris  ayapielis $\rightarrow$ ayapielis
vrii $\rightarrow$ vris  ayapieli $\rightarrow$ ayapieli
vriume $\rightarrow$ vrume  ayapielume $\rightarrow$ ayapielume
vriete $\rightarrow$ vrite  ayapielete $\rightarrow$ ayapielte
vriun(e) $\rightarrow$ vrution(e) ayapielun(e) $\rightarrow$ ayapielun(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 (na (= to) or Ga (= 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 F6 e rather than i in the [+ Pl, 2] forms.

5(a) ná vro  (b) ayapiso
ná vris  ayapisis
ná vri  ayapisí
ná vrume  ayapisume
ná vrete  ayapisete
ná vrun  ayapisun

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 VRISO, BENO and VGANO and
nothing more is gained by the postulation of a vowel ɪ 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 (ə + ɪk) 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 ʏ and ʊ.

To begin with, it can be argued that the appearance of ʏ in the structure of {STv} verbs seems to be phonetically motivated, i.e. it appears (at a historically later period in the language) as an "intrusive" syllable marker: VV→VyV, e.g.
as an alternative, in the limited case of \([-\text{Pass}, -\text{Perf}, +\text{Past}\)}
forms, to the historically earlier way of resolving hiatus by
sandhi interaction of adjacent vowels: \(VV \rightarrow V\), e.g.

\[
\begin{array}{ccc}
\begin{array}{c}
2 \\
\text{ayæp}
\end{array} & \begin{array}{c}
6 8 \\
\text{a e s}
\end{array} & \rightarrow & \begin{array}{c}
2 \\
\text{ayæp}
\end{array} & \begin{array}{c}
5 6 8 \\
y e s
\end{array}
\end{array}
\]

The phonetically motivated appearance of \(y\) is also extended
in MGK to such originally \(\{ST\_y\}\) verbs as AKÛO (= I hear),
KEO (= I burn), KLÆO (= I weep) and PTEO (= I am to blame). These
verbs have stem-final vowels (and not consonants as most \(\{ST\_y\}\) verbs
have) which originally did not interact with adjacent \(F_6\) vowels, e.g.
aku + o, aku + i + s, aku + i, aku + o + n + 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 \(\{-\text{Pass}, -\text{Past}, -\text{K}\}\) forms they interact with adjacent vowels
(if the latter are not word-final) e.g.
aku'o, akus, akui, akume, 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:
\{-\text{Pass},-\text{Perf},+\text{Past},-K\} \quad \text{ek} + y + a \quad \text{(from \{-\text{Past}\} ke + o)}
\text{ak} + y + a \quad \text{(from \{-\text{Past}\} ak + o)}
\text{ef} + y + a \quad \text{(from \{-\text{Past}\} ft + o)}

\{+\text{Pass},-\text{Perf},-K\} \quad \text{ke} + y + \text{ome}, \quad \text{ke} + y + \text{c} + m + u + n + (a)
\text{kle} + y + o + m + e, \quad \text{kle} + y + \text{c} + m + u + n + (a)
\text{ak} + y + o + m + e, \quad \text{ak} + y + \text{c} + m + u + n + (a)

(PTEO has no \{+ \text{Pass}\} forms)

However, adopting a clearly phonetic interpretation of $y$-epentheses:

(ix) $\emptyset \rightarrow y / V \rightarrow V$

would be misleading since $y$-epentheses is strictly limited to certain areas of the verb paradigm as we have shown above. Elsewhere, cases of hiatus are resolved by sandhi interaction ($ayapis \rightarrow ayapis$) or no interaction at all ($ayapao$, $akuo$).

It is also interesting to note that $y$ does not appear in the structure of the sizeable group of verbs following the paradigm of DIMIURGO, (\{STv$_2$\}), the explanation being that, in diachronic terms, $F_3$ 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 DIMIURGO because the environment \( V \rightarrow V \) is never available in overt representations (i.e. all "overt" forms are contracted forms).

Compare

\(-\text{Pass}, -\text{Perf}, +\text{Past}, -\text{Pl}, 1]: \text{ayapae} \rightarrow \text{ayapaye}\\
\text{akue} \rightarrow \text{akuye}\\
\text{edimúryee} \rightarrow \text{edimúryi}

But even if we adopted a morphophonological solution for the appearance of \( y \):

\((x)\) \( \emptyset \rightarrow y / V \rightarrow V / \{ -\text{Perf}, -K, \}

\{ -\text{Pass}, +\text{Past} \{ \text{STV}_1 \} \}

\{ -\text{Pass}, \text{VG}_1 \}

where \{ \text{STV}_1 \} \text{AGPHAO} and \{ \text{VG}_1 \}(i.e. \text{Verb Group 1}) \text{AKOU, KEHO, KLEO, etc.},

we run into the additional complication of accounting for cases where \( y \) is not a historically "later" \(-K\) element epenthesized in the context \( V \leftarrow V \) : indeed, in the case of such verbs as \( \text{TRD}_0(G)0 \) (= I eat) and \( \text{LE}_0(G)0 \) (= 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 TR0(כ)0 after the stem fa-):

\[
\begin{align*}
{}^{(+K)} & \text{tro} \begin{bmatrix} y \end{bmatrix} o, \quad \text{lo} \begin{bmatrix} y \end{bmatrix} o

{}^{(-K)} & \begin{bmatrix} \phi \end{bmatrix} o
\end{align*}
\]

\[
\begin{align*}
{}^{(+K)} & \text{fa} \begin{bmatrix} y \end{bmatrix} o

{}^{(-K)} & \begin{bmatrix} \phi \end{bmatrix} o
\end{align*}
\]

Elsewhere in the structure of the above verbs and also of verbs of the form PREF + IEGO, y is categorically present as a stem-final consonant:

\[
\begin{align*}
{}^{(+Pass, -Perf)} & \text{tro} + o + m + e, \quad \text{lo} + o + m + e

{}^{(+Pass, +Perf)} & \text{fayon-} \text{ derives from underlying fay + on + o + l,}
\end{align*}
\]

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" [STV₁] paradigm (AGAP40). As for its function in the [VQ₁] verbs, it could be accounted for by a "minor" rule of the form of (x) above (from which the symbol [STV₁] would be omitted), while in
TR₆(G)O and Lý(G)O its status would be explained by a rule such as the following morphophonological one:

\[(x) \quad y \rightarrow \emptyset \quad / \quad V \rightarrow V \quad \{ -\text{Pass}, -\text{Past}, -K, \text{VG}_2 \}\]

where \{VG₂\} : TR₆(G)O, Lý(G)O.

(Rule (x) could easily be conflated with (the revised form of) rule (x)).

3.5.3. The problem with the third F₄ formative, us, is that it never appears in the structure of \{ST₄\} verbs, though that is structurally possible, e.g.

\{ST₄\}

ayap * us + ə + m + e

\{ST₄\}

*(e) + pav + ən + a + m + e

instead of the correct

(e) + pav + 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):
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 (ayahunu → ayapusa; the stress pattern of the paradigm seems to have been fixed on the basis of the plural)" e.g. ayapusame.

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 \{STv\} paradigm is structurally possible; secondly, no justification is provided why the assumed "spread" of the \{- Pass, + Perf\} formative \(a\) 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. \* ayap + \(a + s + a\) instead of the correct ayap + \(a + y + a\) or ayap + \(u + s + a\), or \* ayap + \(a + s + a\) for greater differentiation from the \{+ Perf\} form ayap + \(i + s + a\); lastly, no explanation is offered why the stress pattern of the paradigm ayapusa, ayapuses, 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:

\[
\begin{align*}
\star ayapusa \\
\star ayapuses \\
\star ayapuse \\
ayapusesame \\
ayapusate \\
ayapusan(e)
\end{align*}
\]

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
F₃ a (for AGAP₆O) or e (for DIMIURG₆) and F₆ vowels in

Our hypothesis is, in fact, corroborated by the superficially
deviant stress patterns (paroxytonic stress in the case of
monosyllabic terminations in spite of the value [+ Past]
being present, e.g. ayapusa) 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 + a + us + a stressed on the antepenult undergoes sandhi
change a + u → u (the stress moves on to the surviving vowel)
and becomes ayapusa in the same way that "overt" uncontracted
ayap + a + o and ayapa alternate, respectively, with overt contracted
ayapo and ayapa.

Another point to be made with respect to the opacity of us
concerns the fact that the stipulated sandhi interaction
between F₃ a and F₆ u in the case of AGAP₆O yields u in violation
of the HoD principle (see 5.3.2.) (whereas in the case of
DIMIURG₆ the elision of F₃ a before F₆ 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 $a + u$ yield "optionally" either $a$ or, less often, $u$:

$$\{ \text{-Pass, -Perf, -Past, +Pl, 1} \} \; \text{ayap} + a + u + m + e \rightarrow \text{ayap}^u_a \text{mes}$$

$$\{ \text{-Pass, -Perf, -Past, +Pl, 3} \} \; \text{ayap} + a + u + n + (e) \rightarrow \text{ayap}^u_a \text{nes} (e)$$

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 $\{ ST_{y} \}$ and $\{ ST_{v} \}$ forms (e.g. $\text{pavute, pavun(e)}$, and $\text{dimiyute, dimiyun(e)}$)

in the case of forms where $us$ is present no such explanation is available. Moreover, HoD is violated categorically, i.e. $a + u$ always yields $u$.

Finally, notice that $us$ appears "optionally" as an $F_g$ formative in the limited case of $\{ + \text{Pass, -Perf, + Past, -K} \}$ forms and as "arbitrarily" or "opaquely" as it does in $\{ \text{-Pass, -Perf, + Past, -K} \}$ forms:

$$\{ + \text{Pass, -Perf, + Past, -K} \} \; (e) + \text{pav} + o + n + t + us + a + n \; \text{or}$$

$$\{ (e) + \text{pav} + o + n + t + a + n + (e)$$

3.6. The sixth set of formatives ($F_g$)

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 $[+\text{Pass}, -\text{Perf}]$, column $SF_6$.

Rule 13

$\{+\text{Pass}, -\text{Perf}\} \rightarrow [V \{[\text{-back }], \{[\text{-high }], [\text{-low }]\}\} / \text{STEM}$
Rule 14

\[ V_{+\text{back}} \rightarrow [\text{+high}] / \text{STEM} \rightarrow / \{ \text{+Pass, -Perf, +Pl, -K} \} \]

Rule 15

\[ V_{+\text{back}} \rightarrow [\text{-high}] / \text{STEM} \rightarrow / \{ \text{+Pass, -Perf, } \left\{ \begin{array}{l} \{\text{+Past, -K}\} \\ \{\text{+Past}\} \end{array} \right\} \} \]

(b) \left\{ \begin{array}{l} \{\text{+Pl}\} \\ \{\text{+K}\} \end{array} \right\} \}

(c) \{\text{+Pl, \{2, -K\}\}} \}

Rule 16

\[ V_{-\text{low}} \rightarrow [\text{-back}] / \text{STEM} \rightarrow / \{ \text{+Pass, -Perf, } \left\{ \begin{array}{l} \{\text{-Pl, -1}\} \\ \{\text{-Past}\} \end{array} \right\} \} \]

(b) \left\{ \begin{array}{l} \{\text{+Pl, 2}\} \\ \{\text{+K}\} \end{array} \right\} \}

\left\{ \begin{array}{l} \{\text{-Past, -Pl, 1, STV, -K}\} \end{array} \right\} \}

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 SP6.
Rule 17

\[
\{\{-\text{Pass}\}, \text{-Past}\} \rightarrow [V \ \text{-low}] \ / \ \text{STEM}\left(\{^s\}_0\right)
\]

Rule 18

\[
[V \ \text{-low}] \ / \ \text{STEM}\left(\{^s\}_0\right) \rightarrow \{\text{-Past}\}
\]

Rule 19

\[
\{\text{-K}, \{\{-\text{Pass}\}\} \} \rightarrow [V \ \text{-back}] \ / \ \text{STEM}\left(\{^s\}_0\right)\]

Rule 20

\[
\left[ \begin{array}{c}
V \\
- \text{back} \\
- \text{high} \\
+ \text{low} \\
+ \text{low}
\end{array} \right] \rightarrow \left( \begin{array}{c}
- \text{low} \\
+ \text{low} \\
- \text{low} \\
+ \text{low}
\end{array} \right) / \text{STEM} \left( \begin{array}{c}
y \\
\text{us} \\
\text{u} + \text{kg}
\end{array} \right) / \left\{ \begin{array}{c}
- \text{K}, \{ \text{+Perf} \}, \{ \text{+P1} \}, \\
\{ \text{+P1} \}, \{ \text{+P1} \}, \{ \text{+P3} \}, \{ \text{+P1} \}
\end{array} \right\}
\]

(a')

(a'')

Rule 21

\{ a \text{Pass}, a \text{Perf}, + \text{Past}, + \text{K} \} \rightarrow \left[ \begin{array}{c}
V \\
- \text{low}
\end{array} \right] / \text{STEM} \left( \begin{array}{c}
\alpha \\
\text{high}
\end{array} \right) ---

Rule 22

\left[ \begin{array}{c}
V \\
+ \text{high}
\end{array} \right] \rightarrow \left[ + \text{front} \right] / \text{STEM} + \theta \rightarrow / \left\{ + \text{Past}, + \text{K} \right\}

Rule 23

\left[ \begin{array}{c}
V \\
- \text{high}
\end{array} \right] \rightarrow \left[ + \text{back} \right] / \text{STEM} \rightarrow / \left\{ \begin{array}{c}
\{ \text{+P1,3} \}, \{ \text{+P1,3} \}, \\
\{ \text{+P1,3} \}, \{ \text{+P1,3} \}, \{ \text{+P1,3} \}, \{ \text{+P1,3} \}
\end{array} \right\}

(a)

\left[ \begin{array}{c}
- \text{back} \\
+ \text{back}
\end{array} \right] / \text{STEM} \rightarrow / \left\{ \begin{array}{c}
\{ \text{+P1,3} \}, \{ \text{+P1,3} \}, \\
\{ \text{+P1,3} \}, \{ \text{+P1,3} \}, \{ \text{+P1,3} \}, \{ \text{+P1,3} \}
\end{array} \right\}

(b)
3.7. The seventh set of formatives \((F_7)\)

For rule 24 below see Ch.III,7.4.5.c., also Table One, section \([+\text{Pass},-\text{Perf}],\) column \(SP_7\).

**Rule 24**

\[\{+\text{Pass},-\text{Perf},+\text{Pl},3\} \rightarrow n / \text{STEM} + \begin{bmatrix} V \\ +\text{back} \end{bmatrix} \]

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 \([+\text{Pass},\text{Perf}],\) column \(SP_8\).

**Rule 25**

\[\{+\text{Pass},-\text{Perf},\alpha 1, \beta 2\} \rightarrow \begin{bmatrix} C \\ +\text{anter} \\ \alpha \text{ nasal} \\ \alpha \text{ voiced} \\ -\alpha \text{ coron} \\ \beta \text{ cont} \\ \beta \text{ strid} \end{bmatrix} / \text{STEM} + V + (n) \]

3.8.2. For rules 26 and 27 below see Ch.III,7.5.1c/2b/3b., and Table One, sections \([-\text{Pass}]\) and \([+\text{Pass},\text{Perf}],\) column \(SP_8\).
Rule 26

\[ \{\{\text{Pass}\}, \alpha \text{ Pl}, \beta \text{ Pl}\} \rightarrow \begin{bmatrix} C \\ + \text{anter} \\ \beta \text{ nasal} \\ \beta \text{ voiced} \\ -\alpha \text{ cont} \\ -\beta \text{ coron} \\ -\alpha \text{ strid} \end{bmatrix} / \text{STEM} \begin{bmatrix} y \\ \text{us} \\ \text{s} \end{bmatrix}^\text{ik} + V \]

Rule 27

\[ \{\text{Pass}, \text{Perf}, \text{Past}, \text{Pl}, 3, +K\} \rightarrow s / \text{STEM} + \theta + 1 \]

3.9. The ninth set of formatives (F₉)

For rule 28 below see Ch.III,7.4.5.e and Table One, section \{+ Pass, - Perf, + Pl\}, column SP₉.

Rule 28

\[ \{\text{Pass, Perf, Pl}\} \rightarrow \begin{bmatrix} \text{ast} \\ \text{e}\theta \\ \theta \\ \text{us} \\ \text{ast} \\ \theta \end{bmatrix} / \text{STEM} + \begin{bmatrix} V+(n)+C \\ \text{us} \\ \text{a} \end{bmatrix} \rightarrow \begin{bmatrix} \{\text{-K}, \{1\}\} \\ \{1, +K\} \\ \{2, +K\} \\ \{\text{Past,3,-K}\} \\ \{\text{-Past,2,-K}\} \end{bmatrix} \]

(a) (b) (c) (d) (e)
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**

\[ +\text{Pass}, -\text{Perf} \rightarrow V / \text{STEM} + V + (n) + C + \left( \begin{array}{c} e \Theta \\ \ast \text{ast} \end{array} \right) \]

**Rule 30**

\[ V \rightarrow \left[ \begin{array}{c} +\text{high} \\ [\text{hi front}] \\ [-\text{front}] \\ [+\text{low}] \\ [+\text{front}] \\ [-\text{high}] \\ [+\text{back}] \\ [-\text{high}] \\ [-\text{back}] \\ [\beta \text{ low}] \end{array} \right] \]

\[ \text{STEM} + V + (n) + C + \left( \begin{array}{c} e \Theta \\ (n) + t + (\text{us}) \end{array} \right) \rightarrow [+\text{Pass}, -\text{Pl}, \{1, \alpha K\}]_{a} \]

\[ [+\text{Past}] \\ [-\text{Past}] \]

\[ [+\text{Past}] \\ [-\text{Past}] \]

\[ [+\text{Past}, +K, \{-3, -K\}]_{d} \]

\[ [+\text{Past}, +P, -3, -K]_{e} \]
Rule 31

\[ \{\{-\text{Pass}\}\}, +\text{Pl}, -3 \rightarrow e/ + V + \{^m_t\} \]

Rule 32

\[ \{+ \text{Pass}, + \text{Perf}, + \text{Past}, + \text{Pl}, 3, + K\} \rightarrow a/ + i + 3 \]

3.11. The eleventh set of formatives (F_{11})

For rules 33 to 35 see Ch.III, 7.4.5.c, 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

\[ \{+ \text{Pass}, -\text{Perf}, +\text{Past}, \{-\text{Pl}, 1, +K\}\} \rightarrow n/\text{STEM} + V + (n) + C + \left(\text{ast}_{\text{us}}\right) + \begin{bmatrix} V \\ α \text{ high} \\ -α \text{ low} \end{bmatrix} \]

Rule 34

\[ \{\{-\text{Pass}\}\}, +\text{Pl} \rightarrow n/ \begin{bmatrix} + m + e \rightarrow #/[1, +K] \\ \text{STEM} + \left\{ \begin{bmatrix} y \\ s \\ \theta + \left(\text{ik}_{\text{i+s}}\right) \end{bmatrix} \right\} + V \rightarrow / [3] \end{bmatrix} \]
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

$$[-K] \rightarrow \begin{cases} \{V \text{ back}, \text{high} \} / \# \text{STEM} + C_o V_0^1 C_o V_n \# \end{cases}$$

Rule 37

$$\begin{bmatrix} V \\ \text{back} \\ \text{low} \end{bmatrix} \rightarrow \begin{bmatrix} \{V \text{ front, high} \} / + \{\text{Pass, Perf, +Past} \} \end{bmatrix}$$

(a)

$$\begin{bmatrix} V \\ \text{high} \\ \text{low} \end{bmatrix} \rightarrow \begin{bmatrix} \{\text{Pass, Perf, +Past} \} \end{bmatrix}$$

(b)
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" 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.

\[ \text{anero:pos (= man) but anero:pu: (= of the man)} \]

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 : ἀνθρόπος
Genitive : anθρόπu

4.1.2. In Newton's terms, the ancient predictable accentual shift from ἀνθρόπος to anθρόπu is continued by the superficially unpredictable shift from ἀνθρόπος to anθρόπu. Newton further suggests that by recognizing an underlying length feature in the vowels we can retain the "three mora rule" (p.37).

\[(1) \quad V \rightarrow [+\text{stress}] \quad / \quad C_0 \left[ \begin{array}{c} V \\ -\text{stress} \end{array} \right] \quad C_0 \left( \left[ \begin{array}{c} V \\ -\text{long} \\ -\text{stress} \end{array} \right] \right) \quad C_0 \# \]

Furthermore,

"To make the shift from modern [ἀνθρόπος] to [ἀνθρόπu] more intelligible, it is useful to consider the underlying form of [ἀνθρόπu] to be /ἀνθρόπu/, 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):

(i) \( V \rightarrow [\text{+stress}] / \left\{ \begin{array}{c}
\dot{c}_o \left[ \begin{array}{c} V \\
+\text{stress} \end{array} \right] c_o \# \\
\dot{c}_o \left[ \begin{array}{c} V \\
-\text{stress} \end{array} \right] c_o \left[ \begin{array}{c} V \\
-\text{stress} \end{array} \right] c_o \#
\end{array} \right\} \)
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 pavo, pavis, pavi, pavin, and such noun forms as Sing.Gen: angerópu, Pl.Gen: angerópon, Pl.Accus: angerópus.

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. ἀνθροποῦ (instead of the "correct" ἀνθρόπος) or the shift occurs before the wrong suffix, e.g. ἀνθρόπι (instead of the "correct" ἀνθροπί). 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. πάνο, τίπόνο (= I publish), επιστρέφο (= I return)

(iv) If the two final vowels of a noun are unstressed, stress penult before the suffixes -u, -on, and -us.
e.g. ἀνθρόπος, but ἀνθρόπου, ἀνθρόπων, ἀνθρόπες.

(v) Stress antepenult of [+ Past] forms.
e.g. ἐπάνω, πάναμε, πατικάτε, πατόμουνα.

(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, +Pf,1, -K] πατόμαστε, on which
rule (vi) will apply to produce the correct pavomaste.

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 ayapiomaste → ayapjomaste, combined with stress movement in forms such as ayapieme → ayapjeme.

To account for such forms, Newton, 1972a, suggests that desyllabification is independent of stress, and that, first, stress is assigned:

ayapieme → ayapieme
ayapiomuna → ayapiomuna

then i is desyllabified:

ayapieme → ayapjeme
ayapiomuna → ayapjomuna

followed by stress shift:

ayapjeme → ayapjeme
The reverse order of application: first glide formation, then stress; is proposed by Newton for verbs such as TELJÖNO (= I finish) LIJÖNO (= I melt), NJÖ9O (= I feel) etc., e.g.

```
teliona —> teljona —> teljona
telioname —> teljonom —> teljonom
```

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 tamias (= 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 AGAPŁO from that of TELJÖNO, 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):

```
(vii) \[
\begin{array} {c|c|c}
V & \text{-back} & \text{-syllabic} \\
& \langle \text{stress}\rangle & \langle \text{stress}\rangle \\
1 & 2 & 1 & 2
\end{array}
\]
```
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 teljona from "underlying" teljona. In fact, Adams suggests that "the non-syllabic has been restructured into the underlying representation and hence is never stressable" (p.176). Newton, 1972b, 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. teljona (= I was finishing), telia (= full stop), and vrandjasona (= night has fallen), vrandji (= 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 AGAPAO, (b) in verbs such as TELIONO and NIÇGO, (c) in nouns such as vrandji, vrandjiu, and (d) in nouns where no glide formation takes
place, e.g. tamias, tania:

(viii) Reduce unstressed i in the context of another vowel.
E.g. ayapijomaste → ayapijomaste

(ix) Where the above rules produce stem variation between CiV or ViC and CjV or VjC respectively, shift stress from i to its adjacent vowel.
E.g. avapiemeste → ayapijemaste because of
avapiomaste → ayapijomaste.
Also, teliona → teliona because of
telioname → teljona. Rule (viii) then changes avapieme and telionna to avapieme and teljona, and finally rule (v) reapplyes on teljona to yield the correct teljona. 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 \([- \text{Pass}, - \text{Past}]\) forms:

\[
\begin{array}{ll}
\text{\([- \text{Perf}]\)} & \text{\([ + \text{Perf}]\)} \\
\text{pavo} & \text{papso} \\
\text{pavis} & \text{paposis} \\
\text{pavi} & \text{papsi} \\
\text{pavume/pavome(n)} & \text{papsume/pap{f}some(n)} \\
pavete & \text{papsete} \\
pavun(e) & \text{papsum(e)}
\end{array}
\]

and, in combination with rule (vi) ("If the last three vowels in a word are unstressed, stress the antepenult and erase other stresses"), for \([+ \text{Pass}, - \text{Perf}, - \text{Past}]\) forms:

\[
\begin{array}{l}
pavome \\
paveses \\
pavete \\
pavome{a} \rightarrow pavome{a} \\
paveses{e}/pavosaste \rightarrow pavosaste \\
pavonte
\end{array}
\]

but not for the \([+ \text{Pass}, + \text{Perf}, - \text{Past}]\) paradigm (or for anything else):
{+ Pass, + Perf, - Past}  
\[ \text{paf\'to} \]
\[ \text{paf\'tis} \]
\[ \text{paf\'ti} \]
\[ \text{paf\'tume/paf\'tom\'en} \]
\[ \text{paf\'tite} \]
\[ \text{paf\'tun(e)} \]

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 \([- \text{Pass}, - \text{Past}] \)
and \([+ \text{Pass}, - \text{Perf}, - \text{Past}] \) forms only\(^{13}\) (i.e. not in the case of,
among others, \([+ \text{Pass}, + \text{Perf}, - \text{Past}] \) forms)

\[(x) \quad V - \text{[+stress]} / - \text{C}_0 \text{STEM} / \{- \text{Past}, \{- \text{Pass}\}\} \]
\[\text{e.g. } \text{pavo, pipso, pavome.}\]

Secondly, to introduce a new rule according to which \([+\text{Pass}, +\text{Perf}, -\text{Past}] \) verb forms are stressed on the syllable following the stem:

\[(xi) \quad V - \text{[+stress]} / \text{STEM} + \text{C}_0 / \{+ \text{Pass}, + \text{Perf}, - \text{Past}\} \]
\[\text{e.g. } \text{paf\'to, paf\'tis, paf\'ti, etc, ayapi\'d, ayapi\'is, ayapi\'i, etc.}\]

and, thirdly, to keep rule (vi) (recast below in terms of our
conventions as rule (xi)) in order to avoid wrong forms such as
\[^{\dagger}\text{pavomaste, pavosaste.}\]
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: \textit{pafti}, \textit{paftis}
pafi, etc., are derived from "underlying" forms, respectively, pafio, pafias, pafi, 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 epafin, epafias, epafii, and for such [+ Pass, - Perf, +Past, - Pl, l, + K] forms as epavomin. Since all these forms have a final segment CIC¹ (or CIC(C)) in their structure and since they all have in common the value [+ Past] we can account for them on the basis of the following rule:

(xiii) V +stress / CIC¹ # / [+ Past]

which will be extrinsically ordered before rule (v) reproduced below, in terms of our conventions, as rule (xiv):

(xiv) V +stress / C⁰V⁰C⁰ # / [+ 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 CIC¹ 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) to block it from applying in the case of forms such as \textit{epafqin, epafqis, epafqi} and \textit{epavomin}, 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 \textit{epafqin, epafqis, epafqi} or \textit{epavomin}, "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 $C_iC_o^1$ 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 $C_iC_o^1$ are stressed on the penult: \textit{paftis, 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 the "euphonic" vowels are not present, or, which amounts to the same result, whenever there are not more than two syllables following the stem:

<table>
<thead>
<tr>
<th>[+Pass, -Perf, +Past, -K]</th>
<th>[1] pavomun(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-Pl]</td>
<td>[2] pavosun(a)</td>
</tr>
<tr>
<td>[3] pavotan(e)</td>
<td></td>
</tr>
<tr>
<td>[1] pavomaste/pavomastan</td>
<td></td>
</tr>
<tr>
<td>[2] pavosaste/pavosastan</td>
<td></td>
</tr>
<tr>
<td>[3] pavontan(e)/pavontusan/pavontan</td>
<td></td>
</tr>
</tbody>
</table>

In fact, if we set aside for the moment the [+ Pl, 3] alternant pavontan 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: pavontan or pavôntan, 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" F₁₂ 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: pavōmasto/pavōmastan
pavōsaste/pavōsastan, pavontusan, or "optionally", pavomun(a),
pavōsun(a), pavōtan(e), pavontan(a), the final "optional" F₁₂
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, morphophonological 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 [+ Plt 3] form $\text{pavontan}$, whereas the remaining forms with two syllables following the stem strongly resist the application of rule (xiv) $\text{pavosun}$, $\text{pavosun}$, $\text{pavotan}$ (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) \[ V \rightarrow [\text{+stress}] / \text{STEM} \rightarrow [\text{+Pass, -Perf, +Past, -K}, \{\text{-Pl}\}, \{-3\}] \]

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, \text{pavontusan}, \text{pavontane},
\text{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, \text{pavontusan} and \text{pavontane} could easily be treated by
rule (xv): \text{pavontusan}, \text{pavontane}, 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 \text{pavontan}, which is stressed either on the penult (i.e.
according to rule (xv): \text{pavontan}) or on the antepenult (i.e.
according to rule (xiv): \text{pavontan}). The obvious solution would be,
of course, to allow rule (xv) to apply variably in the case of 
{+ Pl, 3} forms:


If the rule applies in the case of {+ Pl, 3} forms we get:
pavôntusan, pavôntane or pavôntan. If it does not, rule (xiv)
is activated to produce: pavôntusan, pavôntane, or pavôntan.
However, pavôntan 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 {+ Past, - Perf, 
+ Past, - K, + Pl, 3} forms such as pavôntan 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: pavôntan, or
or it is not stressed: pavôntan. In the latter case, the other rule
is tried and it either stresses the form: pavôntan, or it does not:
pavôntan. In the latter case, it is the turn of rule (xiv) which
now places the stress on the antepenult categorically: pavôntan. From
a probabilistic point of view, however, the above solution would
be unacceptable because pavôntan 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.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[+Perf]</td>
<td>papsan (but: papsane, epapsan)</td>
</tr>
<tr>
<td>[+Pass]</td>
<td>[-Perf]</td>
<td>pavontan (but: pavontan, pavontane, pavontusan)</td>
</tr>
<tr>
<td></td>
<td>[+Perf]</td>
<td>paftikan (but: paftikan, paftikane)</td>
</tr>
</tbody>
</table>

In all the above forms, rule (xiv) is violated under the paradigmatic pressure of the remaining [+ Pl] forms, e.g.

- pavame
- pavate
- pavan(e)

(or, in the case of pavontan), 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. *epava*, but *pavame*, *nomize*, *dimiuryises*. 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 $F_{12}$ 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. *pavan* or *épavan*, *paftikan* or *paftikan*, *pavontane* or *pavontan*.

Instead, a different accentual pattern, which is independent of the presence or absence of F₁₂ e, is favoured, e.g.

\begin{align*}
\text{pavōmastan} \\
\text{pavōsastan} \\
\text{pavōntan(e)}
\end{align*}

Obviously, the new accentual pattern removes one constraint on the behaviour of F₁₂ e: it is not necessary for F₁₂ 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*, *pavan*, *pavan*.

To account for the [+ Past, + Pl, 3, - K] forms under consideration we will need a variable rule such as the following.

(xvi) \[ V \rightarrow [+\text{stress}] /\#(XVY)_{\text{STEM}}/C_o - C_o V n# / \{+\text{Past}, +\text{Pl}, 3, - K\} \]

The rule reads that [+ Past, + Pl, 3, - K] verb forms are stressed on the penultimate categorically if they have only two syllables, e.g. *pavan*, *pāpsan*, and variably otherwise, e.g. *paftikan*/*paftikan*.

The provision that the forms in question should end in -\text{Ve} blocks the rule from applying in the case of [+ Pl, 3] forms ending in -e: *pavāne, *papsāne. 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 *pavontusan. Rule (xvi) is ordered extrinsically before rule (xiv) above (but see 4.2.5, below). It provides stress for disyllabic forms such as pav'an and pav'asan which cannot be dealt with by rule (xiv). Furthermore, if it applies on such verb forms as paftikan or pavontan the result is paftikan and pavontan. If it does not, rule (xiv) applies to yield: niftikan, pavontan.

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. A different way to deal with the verb forms treated by rule (xvi) would be to modify the relevant variable morphologica rule 36 so that $F_{12}$ vowels appear categorically, e.g.
pavane rather than pavane(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, F₁₂ vowels would be made "optional" by a later rule, e.g. pavóntane → pavóntane(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/pavóntan.

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 TELIONO. Indeed, while F3 is desyllabified categorically in the case of such "regular" {STv} verbs as AGAPAO in the presence of the cluster {+ Pass, - Perf}:

ayapieme → ayapjeme

ayapjomaste → ayapjomaste

in the case of the {STβ} verb TELIONO i is desyllabified "optionally" in [-K] forms but never in [+K] forms, e.g.

\[
\begin{array}{c|c}
{[+K]} & {[-K]} \\
\hline
teliono & teljono \\
\hline
teliosa & (e) teljosa \\
\end{array}
\]

depending on speed of delivery or style as the following examples from the data amply demonstrate:

1/15/16 R.: eino exo tipota na pd, teliosa, ante

(= I have nothing to say, I have finished, that's all)

1/25/2 V.L.: e, pes mu, teliosa.

(= come on, tell me, finish with it)
1/17/7 V.L.: Oriste, teljose i musiki

(= There! The music is over)

1/47/3 E.C.: i jorti mu den teljose xtes

(= my birthday celebrations did not finish yesterday)

1/68/9 P.D.: eyo teljosa. sinexiste peđja

(= I have finished. Carry on, folks)

On the other hand, ı appears in stem-medial position in the case of TELIÔNO, i.e. it does not function grammatically, while in the case of AGAPAO, ı is an F3 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} ayapieme → ayapjeme
{+ K} ayapiome → ayapôme

In other words, there seems to be a convergence of means towards the same objective in the case of the desyllabification of F3 ı of AGAPAO which is not present in the desyllabification of ı in the stem of TELIÔNO. We suggest, therefore, that variable glide formation in the case of TELIÔNO is related to the effect of such considerations as {± 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 LJÔNO (= I melt) (as opposed to its \([+K]\) equivalent TÍKOME), \(i\) is desyllabified categorically, while in the case of MI61TO (= 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 AGAAPÁO, 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 CiV\(\rightarrow\)Cj\(\hat{\upsilon}\) only and not of the form Ci\(\hat{\upsilon}\)\(\rightarrow\)Cj\(\hat{\upsilon}\), e.g. ayapjómaste\(\rightarrow\)ayapjómaste. It will be necessary, therefore, to modify rule (vii) to account for both varieties of glide formation

\[\text{The rule reads that } i \text{ is desyllabified before another vowel. The}\]

\[
\text{(xvii)} \left[\begin{array}{c}
\text{stress} \\
\text{stress}
\end{array}\right] + \left[\begin{array}{c}
V \\
\text{stress}
\end{array}\right] \rightarrow \left[\begin{array}{c}
\text{-syllabic} \\
\text{stress}
\end{array}\right] + \left[\begin{array}{c}
V \\
\text{stress}
\end{array}\right]
\]

\[\begin{array}{c}
1 \\
2 \\
1 \\
2
\end{array}\]
Greek variables \(-\alpha\) and \(\alpha\) 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" [STv] paradigm always results in the form CjV, i.e. the input is always of the form either CjV or GiV.

4.2.7. Rules (i) to (ix) above cannot account for the stress variation of such alternative overt forms as ayapio and ayapo, ayapai and ayapa, ayapana and ayapusa, ayapayos and ayapuses, etc., neither can they account for such contracted forms as dimiuryio, dimiuryvis, dimiuryume, 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.

\[
(xviii) \left[ V \right]_{\text{-\(\alpha\) stress}} + \left[ V \right]_{\text{\(\alpha\) stress}} \rightarrow ([-\text{syllabic}]) \left[ V \right]_{\text{\(+\) stress}}
\]
The rule accounts for the sandhi interaction between two vowels, one of which is stressed, resulting in glide formation: 

ayapieme → ayapijeme, ayapijomaste → ayapijomaste; or the elision of the first vowel: diniuryoe → diniurye, avapaisane → avapisane; or, of the second: ayapais → ayapais, avapame0a → avapame0a; 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: diniurye6ate → diniuryvite, diniuryseome0a → diniuryvime0a. 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), LÊ(C)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.

\[\{+\text{Perf}, +\text{Past}, -\text{Pl}, 1\}\]

<table>
<thead>
<tr>
<th>Verb</th>
<th>Stress Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIGÉNO</td>
<td>(e)piya</td>
</tr>
<tr>
<td>LÊ(C)O</td>
<td>ipa</td>
</tr>
<tr>
<td>ÉRXOME</td>
<td>i{\l}ea</td>
</tr>
<tr>
<td>PÍNO</td>
<td>ipja</td>
</tr>
<tr>
<td>PÉRNO</td>
<td>(e)pira</td>
</tr>
<tr>
<td>VRÍSKO</td>
<td>(e)vrika</td>
</tr>
<tr>
<td>BÉNO</td>
<td>(e)bika</td>
</tr>
<tr>
<td>VGÉNO</td>
<td>(e)vyika</td>
</tr>
</tbody>
</table>
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:

\[(xix) \quad V \rightarrow [+\text{stress}] / \# \quad C_0 \rightarrow C_0 V C_0 \# / [+\text{Perf}, +\text{Past}, \text{IRR}_1]\]

where \{\text{IRR}_1\} stands for such "irregular" verbs as PIGE\(\text{NO}\), PI\(\text{NO}\), 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**

\[
\begin{align*}
- C_0 \cdot \text{STEM} / & \{-\text{Past}, \{-\text{Pass}\}\} \quad \text{(a)} \\
- C_0 I^1 C_0 \# / & \{+\text{Past}\} \quad \text{(b)} \\
V \rightarrow & [+\text{stress}] / \text{STEM} + C_0 \rightarrow / \{+\text{Pass}\} \{ \{-\text{Perf}, +\text{Past}, -\text{K}, \{-\text{Pl}1\}\}, \{+\text{Perf}, -\text{Past}\}\} \quad \text{(c)} \\
\#(X\cdot Y) \cdot \text{STEM} & C_0 \rightarrow C_0 V n\# / \{+\text{Past}, +\text{Pl}3, -\text{K}\} \quad \text{(d)} \\
- C_0 V C_0 V C_0 \# & / \{+\text{Past}\} \quad \text{(e)}
\end{align*}
\]

**Rule 39**

\[
\begin{bmatrix} V \end{bmatrix} \rightarrow \left( \begin{bmatrix} V \end{bmatrix} - \alpha \text{ stress}) + \begin{bmatrix} V \end{bmatrix} + \alpha \text{ stress} \right) (\begin{bmatrix} V \end{bmatrix} - \text{syllabic}) \quad \begin{bmatrix} V \end{bmatrix} + \text{ stress}
\]
Examples. (square brackets indicate the tentative rule in the discussion above corresponding to the rules in this section)

Rule 38: (a) [rule (x)]

[-Pass] \{ [-Perf]: pάvo, pάvis, pάvi, etc. 
[-Past] \{ [+Perf]: pάpso, pάpsis, pάpsi, etc. 
{[+]Pass,[-Perf]} : pάvome,pάvese,pάvete,*pάvomaste,*pάvosesaste

(see rule 40)

(b) [rule (xiii)]

{[+]Pass,+Past,-Pl,+K} \{ [+]Perf} : epάфειn, epάфεis, epάфει
{[-Perf],l} : epάvοmin

(c) [rules (xi), (xv)]

{[+]Pass} \{ [-Perf,+Past,-K] : pάvοm(α)μ(α)ν, pάvος(α)μ(α)ν, pάvο(ν)τ(α)n(α)etc 
{[+]Perf,-Past} : pάftο, pάftis, pάfti, etc.

(d) [rule (xvi)]

{[+]Pass} \{ [+]Perf} : pάvαν, kάγαριζαν
{[-Pass]} \{ [-Perf]} : pάραν, kάγαριζαν
{[+]Perf} : pάvοntαn
{[+]Pass} \{ [+]Perf]} : pάftίkαn
(e) [rule (xiv)]
[-Pass, -Perf, +Past, -K]: épava, épaves, épave, pavane,
Pavate, épavan, Pavane

Rule 39 [rule (xviii)]
{+Pass, -Perf, -Past, +Pl, l, STv, -K}: ayapiomaste → ayapiomaste

Rule 40 [rule (xii)]
pavomaste → pavomaste

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),
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, pafikan,
kopanisan, which satisfy the input conditions of both sections
(d) and (e). First, variable section (d) is activated. If it
applies, the result is pavontan, paftikan, kopanisan, 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 pavontan, paftikan and kopanisan. 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: pivan but épavan/epívan.

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. pavontan, paftikan but *pavontusan. 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): pavontan; or (e): pavontan, and pavontane, pavontusan by section (e): pavontane, pavontusan. 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, STv₁, - K] form such as ayapiomaste.
Rule 38a applies first to put the stress on the last syllable of the stem: ayapjômaste. Subsequently, if rule 39 applies before rule 40, the result is the correct overt form ayapjômaste, whereas if rule 40 is activated before rule 39, we get ayapiômaste which activates rule 39 to yield ayapjômaste.

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 F6 iy is elided after F3 a in ayamis→avânis, the relevant morpholexical rule accounting for the appearance of F6 iy 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. ayapiem→ayapjêne, rule C reapplies teljona→teljona→teljona. 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

\[
\begin{align*}
\text{\{- Past\}} & \quad \text{\{+ Past\}} \\
teljöno & \quad *teljöna \\
teljönis & \quad *teljönes \\
teljöni & \quad *teljöne
\end{align*}
\]

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 antepenult 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 TELIONO functions in a completely different way grammatically and stylistically from the regular paradigm of \{STv\} verbs represented by AGAPAO, 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 teljona).
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.

\[
\begin{align*}
[- \text{Past}]: & \text{ayap\text{'o}} \rightarrow \text{ayap\text{'o}} \\
[+ \text{Past}]: & \text{ayap\text{'usa}} \rightarrow \text{ayap\text{'usa}} \\
[- \text{Past}]: & \text{ayapi\text{'eme}} \rightarrow \text{ayapi\text{'eme}} \\
[+ \text{Past}]: & \text{ayap\text{'omun}} \\
[+ \text{Past}]: & \text{ir\text{'a}}
\end{align*}
\]

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:

\[
\begin{align*}
[- \text{Past}] & \quad [+ \text{Past}] \\
p\text{'avun} & \quad p\text{'avun} \\
p\text{'apsun} & \quad p\text{'apsan}
\end{align*}
\]

(but see Ch. V 2.2.1. on the principle of the maximal differentiation of vowels)
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 NGK.

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 F6 vowels) which for him indicates the Tense. e.g. ayapis (where in terms of the present study the last a is an F3, and not F6, 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. xano (= I lose)
unless otherwise indicated. Thus, the "allomorph" (€) — a in the {- Pass, - Perf, + Past} paradigm εxana, εxanes, εxane, xaname, 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 εxana, εxanes, and εxane (the "thematic vowel" a does not even appear in the last two forms! (see Ch.II,2 above)) but only one syllable in xaname. 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.

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>3</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST</strong></td>
<td>pon</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td><strong>MORPHOLOGICAL</strong></td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>OPERATION</strong></td>
<td>pon</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>pon</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td><strong>SECOND</strong></td>
<td>pon</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td><strong>MORPHOLOGICAL</strong></td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td><strong>OPERATION</strong></td>
<td>pon</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>pon</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>PHONOLOGICAL</strong></td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>RULE</strong></td>
<td>pon</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>pon</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>pon</td>
<td>1k</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>pon</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>pon</td>
<td>a</td>
<td>y</td>
</tr>
<tr>
<td></td>
<td>pon</td>
<td>a</td>
<td>a</td>
</tr>
</tbody>
</table>
Notice that *poneso* and *poneodo* on the one hand and *ponisa* and *ponaya* 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 ia structural paradigm (or \{+ Pass, - Perf, - Past\} in our terms) are stressed on the penultimate in the case of a disyllabic termination e.g.  

\[
\text{avap} \ 2 3 6 8 10 \text{ e m e}, \quad \text{avap} \ 2 3 6 8 10 \text{ s e}
\]

(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.  

\[
\text{avap} \ 2 3 6 8 9 10 \text{ e, ast e}.
\]

However, Babiniotis' analysis offers no explanation why members of the ia structural paradigm, e.g. *yrafomae*, corresponding, in our terms,
to the same cluster of grammatical values as ib, follows the general rule without exception: yerifome, yerifese, yerifete, yerifomaste, etc. In our treatment, the paroxytonic stress on ayapieme is the result of a process of glide formation and stress movement on "underlying" ayapieme (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, implicitly 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
MCK. 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 SANHI) 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 F₄ consonants (g, ʘ), e.g. pavo → pavo;
(b) nasals and adjacent voiceless plosives, e.g. pavo (n) → pavo(n)de;
(c) F₃ and F₆ vowels, e.g. avapais → avapais; and
(d) augments and stem- (or root-) initial vowel, e.g. avapais → avapais.
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. ayándo → ayándo/ayánd, 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. dimiurvéste → dimiurvéte, 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, dimiurvéso goes to dimiurvé categorically, ayándo goes to ayánd "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 ə.

\[
\begin{align*}
\text{prosýion} + s + o & \rightarrow \text{prosýioso} \\
\text{prosýion} + θ + ı & \rightarrow \text{prosýiosə} \\
\text{kalipt} + s + o & \rightarrow \text{kaliptso} \\
\text{kalipt} + θ + ı & \rightarrow \text{kaliptə} \\
\text{paradóød} + s + o & \rightarrow \text{paradóösə} \\
\text{paradóød} + θ + ı & \rightarrow \text{paradódeoə} \\
\text{ayoraz} + s + o & \rightarrow \text{ayorasə} \\
\text{ayoraz} + θ + ı & \rightarrow \text{ayoraseə}
\end{align*}
\]

(prosýion = I land)  
(kalipt = I cover)  
(paradóød = I hand in)  
(ayoraz = I buy)

Apart from the last example, where z is assimilated to following ə for the feature [ -voiced ] rather than elided, in the remaining examples [+anterior, +coronal ] segments are elided before s or ə, i.e. before other [+anterior, +coronal ] segments.

\[
\begin{align*}
\left[ \begin{array}{c} 
C \\
+\text{anterior} \\
+\text{coronal} \\
1
\end{array} \right] + \\
\left[ \begin{array}{c} 
C \\
+\text{anterior} \\
+\text{coronal} \\
2
\end{array} \right] & \rightarrow 2
\end{align*}
\]

In order to block the rule from applying in the case of əə 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. pavonte → pivo(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) \[
\begin{array}{c}
C \\
+anterior \\
+coronal \\
\langle <\text{strident}\rangle \\
1 \\
\end{array} \rightarrow
\begin{array}{c}
C \\
+anterior \\
+coronal \\
+continuant \\
\langle <\text{strident}\rangle \\
2 \\
\end{array}
\] Angled brackets (see note 12 in this chapter) preceded by tildes 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 \([\text{\_s}] + [\text{\_s}]\) 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 \( \{\theta\} + \{\theta\} \), 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, \( \theta + \theta \rightarrow \theta \) and \( s + s \rightarrow s \), 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 \( s \) or \( \theta \): for instance, in the case of such verbs as MOLIÎNO (= I defile), APEFEÎNONE (= I address), ESEDÂNONE (= I feel), etc., stem-final \( n \) is never deleted before \( F_4 \theta \): molingo', apefingo', eesango'. In fact, the cluster \( n\theta \) occurs quite commonly throughout the language, (i.e. apart from the juncture of verb stems and \( F_4 \) formative \( \theta \)), e.g. engimio (= souvenir), ângeropos (= man), ângos (= flower).

Also, in some verbs \( s \) is deleted after stem-final \( n \) (rather than the other way around as rule (ii) above indicates), e.g. krinso \( \rightarrow \) krino (= I will judge). Still, in the case of verbs such as KRÎNO it will be more appropriate to state in the lexicon via a rule exception feature that \( F_4 \) formative \( s \) 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. ensimo (= stamp), ensomatosis (= incorporation) etc. Note also that F₄ s is deleted after stem-final r (or, to follow the same argument as in the case of KRÌNO 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 FÈRO (= I bring), e.g. [-Pass, +Perf, -Past]: féru; nevertheless, rs appears in the imperative férsu (= behave yourself) and in the noun férsimo (= behaviour). Finally, r is not deleted before θ, e.g. feró. All such cases will be treated as exceptions to rule (ii) above, i.e. in the lexical entries for such lexemes as FÈRO or KRÌNO, 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] $\rightarrow$ [-voiced]/[-voiced]  

* e.g. aniyo$\rightarrow$ anixo ($\rightarrow$ anixo) (ANIGO (= I open))  
  aniyo$\rightarrow$ anixo$\delta$  
  pavso $\rightarrow$ pavso  
  pav$\delta$ $\rightarrow$ pav$\delta$  

Again, [-continuant] segments (other than [+anterior,+coronal]); see rule (ii) above for such segments) become [+continuant] before \(\theta\), i.e. they are assimilated with respect to the feature [+continuant] to a following [+continuant,-strident] consonant.  

(iv) \[
\begin{array}{c}
\begin{bmatrix}
\text{C} \\
\text{-continuant}
\end{bmatrix}
\end{bmatrix}
\rightarrow
\begin{bmatrix}
\text{C} \\
\text{+continuant}
\end{bmatrix}
\]

* e.g. paralipo$\delta$ $\rightarrow$ paralifo$\delta$ (PARALIFO (= I omit))  
  pleko$\delta$ $\rightarrow$ plexo$\delta$ (PLEKO (= 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 \( \left\{ \begin{array}{c} b \\ s \end{array} \right\} \), the output is \( \left\{ \begin{array}{c} k \\ p \\ s \end{array} \right\} \), e.g.

\[
\text{sfigso} \rightarrow \text{sfikso} \quad (\text{SFIGO} (= \text{I squeeze}))
\]

\[
\text{sfigso} \rightarrow \text{sfikso}
\]

Then rule (iv) applies on \( \left\{ \begin{array}{c} k \\ p \\ s \end{array} \right\} \) to yield \( \left\{ \begin{array}{c} x \\ p \end{array} \right\} \), e.g.

\[
\text{sfikso} \rightarrow \text{sfixo}, \quad \text{apopembo} \rightarrow \text{apopemps}
\]

If, on the other hand, (iv) applies first we have

\[
\left\{ \begin{array}{c} b \\ s \end{array} \right\} + s \Rightarrow \left\{ \begin{array}{c} j \\ s \end{array} \right\} + s, \quad \text{e.g.} \quad \text{sfigso} \rightarrow \text{sfixo}, \quad \text{apopembo} \rightarrow \text{apopemps}
\]

Then rule (iii) applies on \( \left\{ \begin{array}{c} j \\ s \end{array} \right\} \) to yield \( \left\{ \begin{array}{c} x \\ p \\ s \end{array} \right\} \), e.g.

\[
\text{sfixo} \rightarrow \text{sfikso}, \quad \text{apopembo} \rightarrow \text{apopemps}
\]

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 ]:

\[
x \rightarrow k /-s \quad \text{e.g.} \quad \text{sfixso} \rightarrow \text{sfikso},
\]

while [ +anterior, -coronal ], i.e. \( f \), changes to \( p \) "optionally":

\[
f \rightarrow \left\{ \begin{array}{c} p \\ x \end{array} \right\} /-s \quad \text{e.g.} \quad \text{pafso} \rightarrow \text{pa}_p^{(f)}.
\]
The above change is characteristic of the feature \{- K\} but is not favoured by the feature \{+ K\} (see Ch. V, 11).

\[(v)\]

\[
\begin{array}{c}
\text{C} \\
\text{-voiced} \\
\text{+continuant}
\end{array} \rightarrow \left[ \begin{array}{c}
\text{continuant} \\
\langle \text{-coronal} \\
\text{+anterior} \rangle
\end{array} \right]
\begin{array}{c}
\text{C} \\
\text{-voiced} \\
\text{+continuant} \\
\text{+coronal} \\
\text{+anterior} \\
\text{+strident}
\end{array}
\]

The rule reads that a voiceless fricative changes to plosive before \(s\) categorically, unless it has the features \[-\text{coronal}, \text{+anterior}\] (i.e. unless it is \(f\)), in which case the change is "optional".

Note that in the case of clusters \(\theta s\) 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. \(\text{[}\theta\text{n}] + s \rightarrow \dot{a}\), while if (v) applies first, e.g. \(\text{[}\theta\text{s}] + s \rightarrow ts\), rule (ii) can still apply: \(ts \rightarrow s\)\text{ 19}.

On the other hand, \(\theta,a\) \([-\text{strident}\] segment, becomes \[-\text{continuant}\] "optionally" in the context after a voiceless fricative:
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:

\[(vii)\]

The rule reads that a voiceless fricative changes to plosive:

a) categorically if it precedes a, unless it also has the features \[-coronal, +anterior\], in which case the change is "optional", e.g. \(sfi\xi so \rightarrow sfi\xi so\), \(pa\underset{f}{so} \rightarrow pa\underset{f}{so}\).

b) "optionally" if it also has the feature \[-strident\] and follows another voiceless fricative, e.g. \(pa\underset{t}{fo} \rightarrow pa\underset{t}{fo}\).
5.2.4. Finally, we want to account for the interaction involving \( F_7 n \) and adjacent \( F_8 t \): \( nt \rightarrow (n)d \). 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., the two consonants coalesce "optionally": \( nd \rightarrow (n)d \).

(viii) \[
\begin{array}{c}
C \\
-\text{voiced} \\
-\text{continuant}
\end{array}
\rightarrow \begin{array}{c}
[ +\text{voiced} ] \\
[ +\text{nasal} ]
\end{array}
\]

e.g. \textit{pivonte} \rightarrow \textit{pivonde}

(ix) \[
\begin{array}{c}
C \\
+\text{nasal}
\end{array}
\rightarrow \emptyset \\
\begin{array}{c}
C \\
-\text{continuant} \\
+\text{voiced}
\end{array}
\]

e.g. \textit{pavonde} \rightarrow \textit{pavo(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:
The rules constitute an unordered set but are intrinsically ordered after morpholexical rule 11 accounting for F4 s and ə (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):
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. \( ayap_{\text{c}} \rightarrow ayap \), and between augments and stem-initial vowels, e.g. \( eayap_{\text{on}} \rightarrow iyap_{\text{on}} \).

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, \( e + i \rightarrow i \) and \( i \) (unstressed) + \( e \).
(we are not told what happens if a stressed \textipa{a} is followed by \textipa{e}). It seems, therefore, that HoD is based primarily on the specification a vowel has for the feature \textipa{front} and only secondarily on the specification for \textipa{high} and \textipa{low}. Indeed, the principle does not apply in the case of adjacent \textipa{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 \textipa{front} vowel dominates a \textipa{front} one irrespective of their relative height or order of occurrence, while, of two \textipa{front} adjacent vowels the first is elided irrespective of relative height: to put it more economically, a \textipa{front} vowel is elided after a \textipa{front} one or before another vowel, irrespective of its specific phonetic value:

\begin{align*}
\text{Rule 47} & \\
\begin{array}{c}
V \\
\text{[front]} \\
\end{array} & \rightarrow \emptyset / \left\{ \\
\begin{array}{c}
V \\
\text{[front]} \\
\end{array} \\
\begin{array}{c}
-V \\
\end{array} \\
\end{align*}

\begin{enumerate}
\item[(a)] \text{\textipa{Ga ime} \rightarrow \textipa{Ga me} (= I will be), to \textipa{fera} \rightarrow \textipa{fera} (= I brought it), ayapiote \rightarrow ayapite, ayapiis \rightarrow ayapis.}
\item[(b)] \text{\textipa{Me \textipa{i}l\textipa{u}s} \rightarrow \textipa{\textipa{i}l\textipa{u}s} (= with everybody), \textipa{\textipa{Me ide} \rightarrow \textipa{ide} (= he saw me).}
\end{enumerate}
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

\[
\begin{bmatrix}
V \\
-\text{front}
\end{bmatrix} + \begin{bmatrix}
V \\
-\text{front}
\end{bmatrix} \rightarrow \begin{bmatrix}
V \\
-\text{front}
\end{bmatrix}
\]

\[
\begin{bmatrix}
[-\alpha \text{ high}] \\
[-\beta \text{ low}]
\end{bmatrix} + \begin{bmatrix}
[\alpha \text{ high}] \\
[\beta \text{ low}]
\end{bmatrix} \rightarrow \begin{bmatrix}
[-\text{high}] \\
[+\text{low}]
\end{bmatrix}
\]

e.g. to akis \rightarrow takis (= you hear it), mu arësi \rightarrow m arësi (= I like it),
icoanis \rightarrow janis (= John), ayapaume \rightarrow ayapame (= 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" keume \rightarrow keme (= we burn) (e + u \rightarrow e instead of u)
under the paradigmatic pull of "regular" ayapaume \rightarrow ayapame.
(ii) vestiges of contractions historically prior to the introduction of HoD into Greek, e.g.

\[
e + c \rightarrow u : \text{dimiuryomen} \rightarrow \text{dimiurydmen}
\]
\[
e + e \rightarrow i : \text{dimiuryete} \rightarrow \text{dimiuryite}
\]
\[
a + o \rightarrow o : \text{ayapomen} \rightarrow \text{ayapomen}
\]
As a result, to account for the overt forms dimiuryumen, dimiuryite and ayapomen, it is necessary to recognize contractions in breach of HoD.\(^2\)

5.3.3. In the case of \{STv\} verbs F3 \(a\) often interacts with adjacent F6 vowels i, e, o and u according to HoD, i.e. \(a + V \rightarrow a\).

\textit{e.g.} ayapais \(\rightarrow\) ayapis, ayapaste \(\rightarrow\) ayapite, ayapaine \(\rightarrow\) ayapine, ayapaine \(\rightarrow\) ayapane.\(^3\)

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 F6 \(i\) following F3 \(a\) is elided "optionally" in the presence of the value \([-K]\) and categorically otherwise:

\textbf{Rule 49}

\[ i \rightarrow \left( \begin{array}{c} \phi \\ \phi \end{array} \right) / a \rightarrow \# / \{ \text{STv}, \begin{array}{c} \{-K\} \\ \{+K\} \end{array} \} \]

\textbf{CONDITION:} Apply the rule instead of HoD.

\textit{e.g.} \{- Pass, - Perf, - Past, - Pl, 3, STv\} \(\begin{array}{c} \{-K\} \\ \{+K\} \end{array}\) ayapai/ ayapd

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, \textit{e.g.} ayapai, do not undergo HoD.
(b) F₃ a appearing before word final F₆ o is elided "optionally" in the presence of the feature {- K} and categorically otherwise, whereas, when F₆ o is followed by a phonological segment (i.e. is not word-final) in the presence of the feature {+ K}, F₃ a is elided categorically:

$$\text{Rule 50}$$

$$a \rightarrow \left[ \begin{array}{c} \emptyset \\ \emptyset \end{array} \right] \quad o \quad \left[ \begin{array}{c} \emptyset \\ \emptyset \end{array} \right] \quad \# \quad \left[ \begin{array}{c} \{-K\} \\ \{+K\} \end{array} \right] \quad \left( \begin{array}{c} a' \\ a'' \end{array} \right)$$

CONDITION: Apply the rule instead of HoD

e.g.

$$\{-\text{Pass}, -\text{Perf}, -\text{Past}, -\text{Pl}, 1, \text{STV}_1\} \{\{-K\}, \{+K\}\} : \text{ayapao} \rightarrow \text{ayapao}$$

$$\{-\text{Pass}, -\text{Perf}, -\text{Past}, +\text{Pl}, 1, \text{STV}_1 +K\} : \text{ayapomen} \rightarrow \text{ayapomen}$$

$$\{-\text{Pass}, -\text{Perf}, +\text{Past}, -\text{Pl}, 1, \text{STV}_1 +K\} : \text{iyapoen} \rightarrow \text{iyapomen}$$

$$\{+\text{Pass}, -\text{Perf}, -\text{Past}, +\text{Pl}, 1, \text{STV}_1 +K\} : \text{ayapomeo} \rightarrow \text{ayapomeo}$$

As in the case of rule 49 above, rule 50 applies instead of HoD, so that, in the case of verb forms such as ayapao, 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, STV₁, -K}
ayapaome are in fact treated by HoD: ayapaome → ayapāme, and not by rule 50b: ayapaome →*ayapome.

(c) F3 a preceding F6 u is elided "optionally" or categorically in the presence of the values, respectively, {-K} or {+K}:

Rule 51:

\[
\begin{align*}
\text{a} & \rightarrow \left[ \begin{array}{c} \phi \\ \phi \end{array} \right] / \quad \text{u} / \quad \{ \text{STv}, \left[ \begin{array}{c} \{-K\} \\ \{+K\} \end{array} \right] \}
\end{align*}
\]

CONDITION: Apply the rule before HoD.

e.g. [-Pass,-Perf,-Past,+Pl] \{1, -K\}: ayapaume → ayapume

\{3\} \{+K\}: ayapaun(e) → ayapun

Rule 51 applies before HoD but in this case HoD is allowed to apply on verb forms such as ayapaume or ayapaun(e) above if they are left untreated by the variable section of rule 51, e.g. ayapaume → ayapāme, ayapaun(e) → ayapān(e).

It seems that the analogical pull of the overt paradigm of such verbs as DIMIURGO or PĀVO causes F6 u to dominate preceding F3 a in the case of AGAPĀO: 24

\[
\begin{align*}
\{-\text{Pass},-\text{Perf},-\text{Past},+\text{Pl},-\text{K}\}\{1\}: \text{dimiuryūme}, \text{pāvume}, \text{ayapume}/\text{ayapāme} \\
\{3\}: \text{dimiuryun(e)}, \text{pāvun(o)}, \text{ayapin(o)}/\text{ayapān(e)}
\end{align*}
\]
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. \(F_3 \stackrel{\square}{\rightleftharpoons}\) is desyllabified in the context \(C-V\) in the structure of \(\text{[STv]}\) verbs (\text{AGAPAO, DIMIURGO}).

Rule 52

\[
\begin{array}{c}
V \\
+\text{sylalabic} \\
+\text{high} \\
+\text{front}
\end{array}
\rightarrow
\begin{array}{c}
\text{[ }-\text{sylalabic} \text{ ]} \\
C \rightarrow V
\end{array}
\]

E.g. \text{ayapše} → \text{ayapjése}, \text{dimiuryjése} → \text{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 \([\text{STv}_1]\) 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 \([\text{STv}_1]\) and \([\text{STv}_2]\) 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 \([\text{STv}_2]\) verbs irrespective of \{\(+K\)\} distinctions.
Various sandhi rules would account for the elision of $F_3 e$ before an $F_6$ vowel, e.g. $\text{dimiuryeo} \rightarrow \text{dimiurye}$, or for the coalescence of the two vowels, e.g. $\text{dimiurydete} \rightarrow \text{dimiurytete}$. The latter solution has the following point to recommend it: under the analogical pull of the $\text{[STv_1]}$ paradigm, $F_3 e$ is desyllabified in the context $C - V$ (just as $F_3 i$ is) e.g. $\text{dimiuryjunte} \rightarrow \text{dimiuryjunte}$, a process quite common outside the verb too: $\text{veóryios} \rightarrow \text{výovyos} (= \text{George})$, $\text{panorea} \rightarrow \text{panójja}$ (a girl's name). If the latter alternative formulation is accepted, rule 52 should take the following, more general form:

Rule 53

$\begin{align*}
\text{[+syllabic]} \\
\text{[+front]}
\end{align*} \rightarrow \begin{align*}
\text{[-syllabic]} \\
\text{[C - V].}
\end{align*}$

However, under the influence of sandhi interactions of AG as transferred to NGK through the written language, $e$ coalesces with following $e$ or $o$ (both of them $[\text{ -high, -low }]$ vowels). The resulting vowel is higher than the two original vowels and has the same specification for the feature $[\text{ back }]$ as the second vowel: $e + o \rightarrow u$, $e + e \rightarrow i$.

Rule 54

$\begin{align*}
\text{[V]} \\
\text{[ -high]} \\
\text{[ -low]} \\
\text{[ -back]}
\end{align*} + \begin{align*}
\text{[V]} \\
\text{[ -high]} \\
\text{[ -low]} \\
\text{[ -back]}
\end{align*} \rightarrow \begin{align*}
\text{[V]} \\
\text{[ +high]} \\
\text{[a back]}
\end{align*}$

CONDITION: Apply in the case of $\text{[STv]}$ verbs before RoD.
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 OMINÀME (= I remember), to which we will refer henceforth as \{STv₄\} verbs, F₃ a is elided before F₆ a or u in [+ Pl] forms in breach of HoD.

Rule 55

\[
\begin{bmatrix}
V \\
+\text{low}
\end{bmatrix} \rightarrow \emptyset / \begin{bmatrix}
V \\
+\text{back}
\end{bmatrix} / \{ \text{STv₄}, + \text{Pl} \}
\]

Rule 55 is extrinsically ordered before the HoD rules

\[\text{e.g. } \text{fova}(\text{[u] maste } \rightarrow \text{fova}(\text{[i] maste}, \text{fova}(\text{[i] nte } \rightarrow \text{fova}(\text{[i] nte})\]

\{STv₄\} verbs follow the paradigm of DMIURGØ (i.e. they behave as \{STv₂\} verbs) in the presence of the value [+ K], e.g. \text{fova}⟨\text{[u] maste } \rightarrow \text{fova}⟨\text{[i] maste}, \text{fova}⟨\text{[i] nte } \rightarrow \text{fova}⟨\text{[i] nte}, \text{etc.}

The significance of the pattern provided by \{STv₄\} 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
The pattern between grammatically equivalent verb forms is the same:

<table>
<thead>
<tr>
<th></th>
<th>[-Pl]</th>
<th>[+Pl]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+K]</td>
<td>ayapáome → ayapóme,</td>
<td>ayapáomeθa → ayapómeθa</td>
</tr>
<tr>
<td>[-K]</td>
<td>ayapieme → ayapjémé,</td>
<td>ayapiómaste → ayapjómaste</td>
</tr>
<tr>
<td>[STv₁, -K]</td>
<td>fováome → fováme,</td>
<td>fováómaste → fováómaste</td>
</tr>
</tbody>
</table>

5.3.7. The verbs AKUO (= I hear), PIEO (= I am to blame), KIO (= I burn), KIO (= I weep) etc. referred to in 3.5.3. above as \{VG₁\} verbs, behave as \{ST₁\} verbs in the presence of the value \{+ K\}, in which case no interaction occurs between stem-final vowels and F₆ vowels, whereas in the presence of the value \{- K\} they behave as \{STv\} verbs in that their stem-final vowels interact with adjacent F₆ vowels, e.g.

<table>
<thead>
<tr>
<th></th>
<th>[-Pass, - Perf, - Past]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[+ K]</td>
</tr>
<tr>
<td>[-Pl]</td>
<td>akuo</td>
</tr>
<tr>
<td>[2]</td>
<td>akus</td>
</tr>
<tr>
<td>[3]</td>
<td>akuí</td>
</tr>
<tr>
<td>[+Pl]</td>
<td>akúomen</td>
</tr>
<tr>
<td>[2]</td>
<td>akúte</td>
</tr>
<tr>
<td>[3]</td>
<td>akúun</td>
</tr>
</tbody>
</table>
In the latter case the analogical pull of the overt paradigm of AGAPÃO causes a restructuring in the above verbs so that their originally stem-final vowels become, in the presence of the value \{-K\}, F₃ formatives:

Rule 56

\[
\begin{array}{c}
V & V \quad x \\
1 & 2 & 3 \\
\end{array}
\]

CONDITION: Apply instead of HoD in the case of \{VG₁\} verbs

The rule applies instead of HoD so that forms such as akio or akii that are left untreated by it do not subsequently undergo HoD (note, however, dialectal akio (akio).

5.3.8. In the case of \{ST₆\} verbs with stem-final i:

APODIKNIO (= I prove), APOKLIO (= I exclude), ISXIO (= I am valid), no sandhi interactions take place between i and F₆ vowels, e.g. apoklio, apokliis, apoklii, apokliume, 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 i in most cases (see 3.1. above on temporal augments).
Rule 57

\[ e + v \times ]_{STEM} \rightarrow i \times ]_{STEM} \]

\[ e + ayāpisa \rightarrow iyāpisa \quad (= \text{I loved}) \]
\[ e + ēlpisa \rightarrow īlpisa \quad (= \text{I hoped}) \]

though a small group of verbs (e.g. IKTIRO (= I pity), ORIMAZO (= I mature)) behave idiosyncratically:

\[ e + īktira \rightarrow īktira \quad (= \text{I pitied}) \]
\[ e + orīmasa \rightarrow orīmasa \quad (= \text{I matured}) \]

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 [STv] 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, F₄ 2 fails to appear (so that, morphologically speaking, aspectual contrasts are neutralized in {-Passive} forms):

[-Pass, +Perf, -Past, -Pl] : ἀξο (= I have), ὠφλο (= I owe), πρέπι (= it is necessary), τρέμο (= I tremble), ξαστέρο (= I know), κάνο (= I do), μετάφερο (= I carry), ἀποσιρὸ (= I recall)

while F₄ 2 (+Pass, +Perf) does not appear in the structure of the verbs ENΓΡΑΦΟ (=I record), ΚΟΒΟ (= I cut), ΚΙΝΩΜΕ (= I become) etc., as in the examples below:

{+Pass, -Past, -Pl, l} [ {-Perf} : enyraφομε, κοβομέ, χινωμέ
{+Perf} : enyraφο, κοβό, χινό

Again, some verbs lack word-medial F₆ vowels. Compare the following forms of irregular ιΜΕ (= I am), from which F₆ 2 is missing, to regular ΠΑΒΟ:

παβόμυνα, παβόςυνα, παβότανα, etc.
ιμύνα, ισύνα, ιτάνα, etc.

6.3. Conjugation alternation

In the regular verb paradigm the distinction between {ST₆} and {STυ} 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 \{ST\} verbs but not in that of \{ST\} verbs (see 3.2.2. above)).

A number of verbs, however, for example, \( \text{ΘΙΛΟ} (= \text{I want}) \), \( \text{ΕΦΧΟΜΕ} (= \text{I wish}) \), \( \text{ΚΑΘΟΜΕ} (= \text{I sit}) \), \( \text{ΙΠΟΣΧΟΜΕ} (= \text{I promise}) \), \( \text{ΔΙΑΜΑΡΤΙΡΟΜΕ} (= \text{I protest}) \) behave as \{ST\} verbs in the presence of certain grammatical values and as \{ST\} verbs in the presence of others:

\[ \{-\text{Past}, -\text{Pl}, 1\} \{\text{-Perf}, \text{ST}\} : \text{ΘΙΛΟ, ΕΦΧΟΜΕ, ΚΑΘΟΜΕ, ΙΠΟΣΧΟΜΕ, ΔΙΑΜΑΡΤΙΡΟΜΕ} \]
\[ \{+\text{Perf}, \text{ST}\} : \text{ΘΙΛΙΣΟ, ΕΦΧΙΘΟ, ΚΑΘΙΣΟ, ΙΠΟΣΧΘΟ, ΔΙΑΜΑΡΤΙΡΙΘΟ} \]

where \( F_3 \) vowels (characteristic of \{ST\} verbs) appear in \{+ Perf\} forms only.

6.4. Stem specificity with respect to stylistic level of co-occurrence (LE)

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 \( \text{ἐπιβετο} \) and \( \text{(e)παβόταν(e)} \))

\[ \{+\text{Pass}, -\text{Perf}, +\text{Past}, -\text{Pl}, 3\} \{+\text{K}\} : \left[ \begin{array}{c} \text{e} \\ \text{pav} \\ \text{t} \\ \text{p} \\ \text{p} \end{array} \right] \]
\[ \{-\text{K}\} : \left[ \begin{array}{c} \text{(e)} \\ \text{pav} \\ \text{t} \\ \text{p} \\ \text{p} \\ \text{p} \end{array} \right] \]
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 PROKIME (= I am about to) in the following extract from the corpus:

2/9/6 M.L. eprokito na ipotimoi
((the dollar) was about to be devaluated)
is ipso facto [+K], i.e. there is no [-K] equivalent:
* (e)prokitan(e).

Again, the stems of the [-K] lexemes NJOGO (= I feel), VGAZO (= I put out) and PJANO (= I touch) would normally co-occur with [-K] formatives only, e.g. [-Pass, -Perf, +Past, -Pl, 1]: enjosa, evvaza, enjana, and not *enjoseon, *evvazon, *enjanon (such forms might, however, as we argued in Ch.I.4, be used for the sake of humour as ad hoc creations).

6.5. Partial or total suppletion
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. MAGǒNO (= I learn), APODIKNIÔ (= I prove), VΡΙΣΚΟ (= I find), LAVΕΝΟ (= I receive), PΑΓΗΝΟ (= I suffer), etc., such derivational suffixes may appear only in the presence of certain (clusters of) grammatical values and not of others, e.g.

\[ \{\text{-Pass, -Past, -Pl, 1}\} \]

\[
\begin{array}{ll}
\text{[-Perf]} & \{\text{+Perf}\} \\
\text{ferno} & \text{fer o} \\
\text{maγενo} & \text{miγ o} \\
\text{apodikniō} & \text{apodik so} \\
\text{vrisko} & \text{vr o} \\
\end{array}
\]

6.5.2. Internal vowel change

In the lexical structure of the following verbs; DΙΝO (= I give), SΟΡΕΝO (= I am silent), AΠΟΔΙΟ (= I render), ΠΛΕΝO (= I wash), ΣΙΜΕΝO (= I mean), DΡΕΦΟΜΕ (= I am ashamed), ΜΕΝO (= I say), ΚΑΤΑΣΤΡΕΦO (= I destroy), etc., certain grammatical contrasts may
be expressed through the alternation of stem-medial vowels, e.g.

\[
\begin{array}{c|c}
\{- \text{Perf}\} & \{+ \text{Perf}\} \\
\hline
\text{dino} & \text{dóso} \\
\text{sopíno} & \text{sorúso} \\
\text{apódino} & \text{apódóso} \\
\text{plénno} & \text{plíno} \\
\text{katastráfome} & \text{katastráfo} \quad \text{etc.}
\end{array}
\]

(where the deletion of \(n\) or \(\bar{a}\) 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), ANGÍZO (= I touch), have stem-final \(z\) in \{- Perf\} forms and a voiceless velar before \(F_4\) s or \(\emptyset\) in \{+ Perf\} forms:

<table>
<thead>
<tr>
<th>[-Past, - Pl, 1]</th>
<th>[+Pass, +Perf]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-Perf]</td>
<td>[+Perf]</td>
</tr>
<tr>
<td>njázo</td>
<td>njákso</td>
</tr>
<tr>
<td>skjázo</td>
<td>skjákso</td>
</tr>
<tr>
<td>pirázo</td>
<td>pirákso</td>
</tr>
<tr>
<td>fonázo</td>
<td>fonákso</td>
</tr>
<tr>
<td>tarázo</td>
<td>tarákso</td>
</tr>
</tbody>
</table>
(b) Under the analogical pull of the verbs in (a) above, a stem-final voiceless velar appears in the [+ Perf] paradigm, i.e. before $F_4$ ʌ or ə, of the following irregular verbs: PTAO (= I am to blame), PETAO (= I fly), KITAO (= I look), etc. which in {- Perf} forms have stem-final vowel:

<table>
<thead>
<tr>
<th>[- Past, - Pl, 1]</th>
<th>[+ Perf]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[- Perf, - Pass]</td>
<td>[-Pass]</td>
</tr>
<tr>
<td>fteo</td>
<td>ftekso</td>
</tr>
<tr>
<td>petao</td>
<td>petakso</td>
</tr>
<tr>
<td>kitá(z)o</td>
<td>kitákso</td>
</tr>
</tbody>
</table>

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 ə 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, ə alternates with ə in the case of the verbs VAZO (= I put) and VΓAZO (= I take out):
In the structure of the verbs PiGO (= I persuade), KLINO (= I shut), FΘANO (= I reach), PJANO (= I touch), GΕVOME (= I taste), AKÛO (= I hear) etc., s appears in stem-final position before θ:

<table>
<thead>
<tr>
<th>[- Past, - Pl, 1]</th>
<th>[-Perf]</th>
<th>[+Perf]</th>
<th>[+Pass, +Perf]</th>
</tr>
</thead>
<tbody>
<tr>
<td>plêo</td>
<td>pisko</td>
<td></td>
<td>plisθo</td>
</tr>
<tr>
<td>klino</td>
<td>klisgo</td>
<td></td>
<td>klisθo</td>
</tr>
<tr>
<td>pjano</td>
<td>pjaso</td>
<td></td>
<td>pjastô</td>
</tr>
</tbody>
</table>

It seems that, in the case of such verbs, after the normal deletion of stem-final θ or n before F₄, 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 PIGÊNO (= I go), STÊKOME (= I stand), KEÔ (= I burn), KΛO (= I weep),
FÉVGO (= I leave), PÆFTO (= I fall), ÉRXOME (= I come), ÉETO (= I put), ANALAMVANO (= I take over), etc.:  

<table>
<thead>
<tr>
<th>[-Pass]</th>
<th>- Pass, - Past, - Pl, 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-Perf]</td>
<td>pëyeno stëkoma këo klëo fëvgo pëfto</td>
</tr>
<tr>
<td>[+Perf]</td>
<td>pao staëo kapso klëapso fëlyo peso</td>
</tr>
</tbody>
</table>

6.5.5. **Total suppletion**

Total suppletion is exhibited episodically in the structure of the verbs VIEPO (= I see), and LÈ(G)O (= I say):

<table>
<thead>
<tr>
<th>[-Pass]</th>
<th>- Pass, - Past, - Pl, 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-Perf]</td>
<td>vlëpo leò</td>
</tr>
<tr>
<td>[+Perf]</td>
<td>ëdò pò</td>
</tr>
</tbody>
</table>

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): BÊNO (= I enter), ANÉVÉNO (= I ascend) SIMVÉNO (= I happen), VRÍSKO (= I find), LÈ(G)O (= I say), VLIPO (= I look), GÍNOME (= I become), KAÔOME (= I sit) and ÊRXOME (= I come). Compare the following examples to the regular paradigm provided by PAVO on Table One.

\[ [-\text{Past}, -\text{Pl}, 1] \]

\[
\begin{array}{ccc}
-\text{Perf} & +\text{Perf} \\
\hline
\text{bêno} & \text{bó} \\
\text{anevëno} & \text{anevo or anëvo} \\
\text{yinome} & \text{yino or yindo} \\
\text{kâëome} & \text{këëso} \\
\text{lëo} & \text{pë} \\
\text{vlëpo} & \text{ãë} \\
\end{array}
\]

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 ANEVÊNO (= I ascend),

<table>
<thead>
<tr>
<th></th>
<th>[-Perf]</th>
<th>[+Perf]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[- Past]</td>
<td>anevenete</td>
<td>anevite</td>
</tr>
<tr>
<td>[+ Past]</td>
<td>anevenate</td>
<td>anevikate</td>
</tr>
</tbody>
</table>

four cases of deviation are present simultaneously: the formatives $s$ and $g$ 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 ANEVENO would be followed by instructions in the lexicon such as the following:

(i) Rule 11 (generating g and z. See 3.4.3. above)
(ii) [+K] (blocking [+ K] elements from appearing in the structure of ANEVENO)
(iii) [- Perf] → en / anev

(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.


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" (kírís) and "spurious" (kataxristikís) 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. **ἐπὶ** τις τραπέζις (= on the table)
epitrapézios inos (= table wine)
**παρὰ** τιν θάλασσα (= near the sea)
para galasios (= coastal)

while the latter introduce prepositional phrases only, e.g.
me to plío (= by boat)

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 CICo 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 pāvis, pāvi, pānis, pāpsi, pāftis, pāfti, 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 (\(\sim\)) 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):

\[
\begin{array}{c}
\begin{bmatrix}
C \\
+\text{anterior} \\
+\text{coronal}
\end{bmatrix}
\end{bmatrix} + \begin{bmatrix}
C \\
+\text{anterior} \\
+\text{coronal}
\end{bmatrix}
\begin{bmatrix}
1 \\
1 \\
\end{bmatrix}
\begin{bmatrix}
1 \\
1 \\
\end{bmatrix} \quad \rightarrow \quad 2
\end{array}
\]

i.e. for the rule to apply, either both consonants must be \([ + \text{strident } ]\) or the first \([ -\text{strident } ]\) and the second \([ \pm\text{strident } ]\).
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.

\[ \text{ek} + \text{ka} \text{gar} \text{isis} \rightarrow \text{ek: a} \text{gar} \text{isis} \] (= 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:

\[
\begin{array}{c}
C \\
\text{-cont}
\end{array} + \begin{array}{c}
C \\
\text{-cont}
\end{array}
\]

rule (ii) would apply first to delete the first segment, and therefore rule (iv), which now could be given the simpler form

\[
\begin{array}{c}
C \\
\text{-cont}
\end{array} \rightarrow [+\text{cont}] / \begin{array}{c}
C \\
[-\text{cont}]
\end{array}
\]

would be blocked from applying in the case of such clusters.
19. Rule (ii) does not apply in the case of overt *ēkatsa* (= I sat down) deriving from alternative overt *ēkāēsisa* before the application of the stress rule through weak vowel syncope; cf. also *ēmētsa* (= I got drunk), occurring in parts of Lesbos, from *ēmē̄s̄isa* (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 F7 n and F8 t in [+ Pass, - Perf, + Pl, 3] forms, e.g. *pavontē* → *pavoc(n)de*, *pavontan* → *pavoc(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] (nk). 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, nk, ng. For instance, a compound stem such as *en + katalīpo* (= I desert) derives from *em + bēno* (= I enter) from *en + veno* → *em + veno* → *em + bēno* → *m + bēno* → *bēno* (initial unstressed vowel is often elided in MGK: (i)mēra (= day), (e)vādomāna (= week); *epagesalos*
(= brain) from en + kefali; tin paraskevi → ti(m) paraskevi
(= on Friday), etc. The two rules do not normally apply in the
case of such words of foreign origin as sampinja (= champagne) and
certain Katharevousa expressions, e.g. en ti vasilia su (= in your
kingdom), (or, rather, in the above cases, their application may
be evaluated by some educated speakers as stigmatized/vulgar:
sa(n)hinj (possibly expected of some newly-rich), o(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. robot, klâb, banana.

21. One of the examples in Triandafyllidis, 1964, (deleted in
the 1976 edition) in support of the HoD principle actually disproves
it: par ôlo pu (= in spite of the fact that) from parâ ôlo 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] ayapame, as opposed to [+K] ayapomen, 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. ayapāis → ayapis, or have reverted to a variable state, e.g. ayapai → ayapi/ayapai.

24. See Babiniotis, 1972a, p. 189 for the "dynamics of u", i.e. the tendency for F6 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 \{^+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 performance; consequently, it can be safely ignored along with other irrelevant features of linguistic behaviour 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:

\[ X \rightarrow (Y) / Z \]

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:

\[ x \rightarrow Y / \begin{cases} A_1 \\ A_2 \end{cases} \begin{cases} B_1 \\ B_2 \end{cases} \begin{cases} C_1 \\ C_2 \\ C_3 \end{cases} \]

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:

\[
\begin{align*}
1 & \geq p(A_1) > p(A_2) > p(0) \\
1 & \geq p(B_1) > p(B_2) > p(0) \\
1 & \geq p(C_1) > p(C_2) > p(C_3) > 0
\end{align*}
\]

The rule is also associated with an input probability \( p_0 \), 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:

\[ 1 > P(B_1) > P(A_1) > P(C_1) \geq 0 \]

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 not 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. The multiplicative model

To counter the above defects of the additive model, Cedergren and Sankoff, 1974, propose a multiplicative 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.

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 poliki arkus! (= 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 *arkus* (= bear) is an ad-hoc creation to add a clearly linguistic dimension to the joke. Compare *arkus* with the recognized vernacular synonym *arkida*, and learned *arctos*.

The (broken) regularities underlying the creation of *arkus* are as follows:

(a) Originally 1st declension nouns such as *Galasa* (= sea) may take (partly) different endings in MGK to express \{\pm K\} distinctions, while the stem remains the same:

\[
\begin{array}{ccc}
\text{Nom:} & \text{Gen:} & \text{Acc:} \\
\{\pm K\} & \{\pm K\} & \{\pm K\} \\
\text{Gá}lasa & \text{Gá}lasis & \text{Gálasan}
\end{array}
\]

(b) Originally 3rd declension nouns such as *akris* (= 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 \(\ddot{a}s \rightarrow s\)):...
(c) An originally 2nd declension noun such as ἄρκτος (= bear), on the other hand, (normally) follows in MGK the [+ K] side of the 2nd declension, in contrast to the vernacular synonym ἄρκτις 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} (arkt- + 1st declension)

| Nom:  | ἄρκτος          | ἄρκτις      |
| Gen:  | ἄρκτου          | ἄρκτιδα     |
| Acc:  | ἄρκτον          | ἄρκτις      |

etc.

It is clear now that the ad-hoc creation of ἄρκτις is the result of the mock-hypercorrective assumption that [- K] ἄρκτις (case (b)) and [- K] ἄρκτις (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\} akrija corresponds to \{+K\} akris, then \{-K\} arkida must correspond to \{+K\} arkis.

Do we ignore a form like arkis 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. Implicitational 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:

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Environments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$-X$</td>
</tr>
<tr>
<td>$V_1$</td>
<td>0</td>
</tr>
<tr>
<td>$V_2$</td>
<td>0</td>
</tr>
<tr>
<td>$V_3$</td>
<td>0</td>
</tr>
<tr>
<td>$V_4$</td>
<td>1</td>
</tr>
</tbody>
</table>

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) criterion 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.
<table>
<thead>
<tr>
<th>Varieties</th>
<th>Environments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-X</td>
</tr>
<tr>
<td>$V_1$</td>
<td>0</td>
</tr>
<tr>
<td>$V_2$</td>
<td>0</td>
</tr>
<tr>
<td>$V_3$</td>
<td>0</td>
</tr>
<tr>
<td>$V_4$</td>
<td>0</td>
</tr>
<tr>
<td>$V_5$</td>
<td>0</td>
</tr>
<tr>
<td>$V_6$</td>
<td>X</td>
</tr>
<tr>
<td>$V_7$</td>
<td>1</td>
</tr>
</tbody>
</table>

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.

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",

\[
\{ \text{tekno}(n) \} \mu, \{a\}^+ \text{mirtis} + \{e\}^c \text{s}.
\]

there is no non-arbitrary way of setting up an implicational scale for them (apart from the "pure" \( \{+ K\} \) \text{teknon} \mu, \text{imartises} and the "pure" \( \{- K\} \) \text{pedi} \mu, \text{amartises}) nor is it possible to predict that, in fact, \text{teknon} \mu, \text{imartises} appears in the data.

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 ἐκνοὸν μὲν, ἱμαρτίσεις 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) 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 contrast, 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
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. 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.\footnote{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

\[ X \rightarrow \langle Y \rangle / \langle A \rangle Z \langle C \rangle \]

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.

\[ 1 \geq p(A_1) > p(A_2) > 0 \]

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

2.1. Rule 1 (Ch. IV, 3.1.9.) reproduced below as (i)

\[
(i) \quad \# [C X]_{\text{PREF}} + \begin{bmatrix} \text{ROOT} \\ [-K] \end{bmatrix} \rightarrow \{1 \ 2 \ 4\}
\]

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.

\[e + \text{pro} + \text{t}ilm + s + a\ (= \text{I preferred})\]

rather than between the prefix and the root, e.g. \[\text{pro} + e + \text{t}ilm + i + s + a\].

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 \(^{33}\) 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 \(\langle K\rangle\) 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):

\[
\langle K\rangle : 0 = p\langle + K\rangle < p\langle - K\rangle < 1
\]

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 \(\langle IC\rangle\) 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. ENPODIZO (= I hinder), PROKITE (= going to), PRONO (=I provide), PROSTATEVO (= I protest), PROFANNO (= I am in time for somebody or something), etc., (see Vostantsoglou, 1967, pp.473-4) rule (i) above applies categorically
in the presence of the constraint \{+ K\} e.g.

\[ p \left( \{+ K\} \right) = 1 \]

\[ e + en + podiz + s + a \rightarrow impodisa \]

\[ e + pro + noi + s + a \rightarrow epronisa \]

\[ e + pro + statev + s + a \rightarrow eprostatiefsa \]

\[ \{ -Pass, +Perf, +Past, -Pl, l, +K\} \]

2/9/6 M.L. Ke eprókito na ipotimíei, ke ópos ipotimíeiike

\( (= \text{and it was going to be devalued, and indeed it was devalued}) \)

Other lexemes, e.g. PROTIMO \((= \text{I prefer})\), interact with the constraint \{+ K\} to cause rule (i) to apply variably

\[ 1: > p \left( \{+ K\} \right) > 0 \]

\[ \{ -Pass, +Perf, +Past, -Pl, l, +K\} \]

It appears, therefore, that the lexical class \(<_L C>\) 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 \(<_L C>\) comprising the following members:
\[\text{LC} - 1\] i.e. the majority of compound verbs
\[\text{LC} - 2\] i.e. PROTIMO
\[\text{LC} - 3\] i.e. EMPODIZO, PRONOO, PROSTATIVO, PROPEANO, 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:

<table>
<thead>
<tr>
<th></th>
<th>([+ K])</th>
<th>([- K])</th>
</tr>
</thead>
<tbody>
<tr>
<td>[\text{LC} - 1]</td>
<td>(p = 0)</td>
<td>(0 &lt; p &lt; 1)</td>
</tr>
<tr>
<td>[\text{LC} - 2]</td>
<td>(0 &lt; p &lt; 1)</td>
<td>(0 &lt; p &lt; 1)</td>
</tr>
<tr>
<td>[\text{LC} - 3]</td>
<td>(p = 1)</td>
<td>(0 &lt; p &lt; 1)</td>
</tr>
</tbody>
</table>

the probabilities contributed to the application of rule (i) by \([- K]\) remain unaffected by the presence of the various constraints of the \([\text{LC}]\) family, though the ones contributed by \([+ K]\) vary with the \([\text{LC}]\) variant present, i.e. \[\text{LC} - 1\]: zero application, \[\text{LC} - 2\]: variable application, and \[\text{LC} - 3\]: categorical application.

2.1.3. The \([\text{SYL}]\) 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 \( \langle \text{SYL} \rangle \), a mnemonic for prefix-initial \( [^+ \text{syllabic}] \), with two variants, \( \langle C \rangle \) i.e. a prefix-initial consonant, and \( \langle V \rangle \) i.e. a prefix-initial vowel. Furthermore we can show the relation between the members of \( \langle \{K\} \rangle \) and those of \( \langle \text{SYL} \rangle \) in terms of probabilities contributed to the application of rule (i) to be as follows:

<table>
<thead>
<tr>
<th></th>
<th>( {+ K} )</th>
<th>( {- K} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \langle C \rangle )</td>
<td>( 0 &lt; p &lt; 1 )</td>
<td>( 0 &lt; p &lt; 1 )</td>
</tr>
<tr>
<td>( \langle V \rangle )</td>
<td>( 0 &lt; p &lt; 1 )</td>
<td>( p = 0 )</td>
</tr>
</tbody>
</table>

i.e. \( \{+ K\} \) remains unaffected by the presence of the variants of \( \langle \text{SYL} \rangle \); on the other hand, \( \{- K\} \) interacts with \( \langle C \rangle \) to cause the rule to apply variably, and with \( \langle V \rangle \) to block the rule from applying.

For certain problems concerning the motivation for the inclusion of the constraints \( \langle \text{SYL} \rangle \) in rule (i) see 2.2.4. below.

2.1.4. The above observations concerning the interdependence of \( \{+ K\} \) and \( \langle LC \rangle \) on the one hand (see 2.1.2. above), and of \( \{- K\} \) and \( \langle \text{SYL} \rangle \) 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. $\langle \{K\} \rangle$, $\langle \text{IC} \rangle$ and $\langle \text{SYL} \rangle$ with respect to rule (i), though, because of the low probability of application of the rule we will assume only tentative value for our observations.

Rule (i) can now be given the following form

Rule 5.8

\[
\begin{align*}
\# & \quad \text{PREF}_o + \text{ROOT} \rightarrow \langle 1 & 2 & 4 \rangle \\
1 & 2 & 3 & 4
\end{align*}
\]

with the variant constraints of the families $\langle [K] \rangle$, $\langle \text{IC} \rangle$ and $\langle \text{SYL} \rangle$ interacting to affect its probability of application as follows:

<table>
<thead>
<tr>
<th></th>
<th>${+ K}$</th>
<th>${- K}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\langle \text{IC} - 1 \rangle$</td>
<td>$p = 0$</td>
<td>$0 &lt; p &lt; 1$</td>
</tr>
<tr>
<td>$\langle \text{IC} - 2 \rangle$</td>
<td>$0 &lt; p &lt; 1$</td>
<td>$\langle C \rangle$</td>
</tr>
<tr>
<td>$\langle \text{IC} - 3 \rangle$</td>
<td>$p = 1$</td>
<td>$p = 0$</td>
</tr>
</tbody>
</table>

where (apart from the familiar symbols $\{+ K\}$ and $\{- K\}$):
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 $V^{+\text{front}}$ i.e. e or i)

(ii) $[+\text{Past}] \rightarrow e / \text{PREF}_0 \rightarrow \text{ROOT} / \langle[-K]\rangle$

According to (ii) above, in the presence of the grammatical value $[+\text{Past}]$, 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. 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 ἐπρόκιτον na ipotimiei ke ὀπος ipotimiëike

(= and (the dollar) was going to be devalued as indeed it was devalued);

where the \(+ K\) F₆ formative appears.

1/22/2 V.L. meta aposirēikan?

(= did they retire to bed after [he had kissed him]?)

cf. \(- K\) aposirēikan

3/3/4 S.M. o plapūtas ton ipođëxtike, ἄτσι? kj ὄταν ton ipođëxēi ... ἀρξησε Ἰηε'λευε to piter imôn

(= Plapūtas 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. \(- K\) ipođëxtike, which is, in fact, produced
by the same speaker in the same utterance.

1/60/15 E.C. ... ke ipa ... ke vêvea morì Œa me îsî, opôte esî eksanêstis, 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 EKSANÎSTAME takes only {+ K} formatives, i.e. -is, instead of [- K] -ikes.

3/17/5 S.K. i skili edëgisan

(= the dogs have been fastened!)

cf. { -K } ëëgikane

(b): {- K} formatives imply the categorical absence of an augment.

1/22/8 V.L. i parâstasi Ëðimîuryïike me filjâ

(= the theatrical performance was created with the help of kisses)

cf. { + K } edimîuryîêî

2/20/7 J.L. ali ëe múes, esî ôtan îsuna spudastis endjaferosuna?

eyô prosopikal den endjaferömuna

(but tell me, when you were a student did you show any interest [in your studies]? Personally, I wasn't interested)

cf. { + K } endjaferôsos, endjaferômin
(c): Formatives neutral with respect to \([\pm K]\) distinctions, referred to henceforth as the set of constraints \(\langle N \rangle\), favour a small measure of augments \((0.19)\) (see also examples in 2.2.5.a):

2/6/20 J.L. aftos o tipos ine ekseretiká petiximénon típos, dhilaí o jánis ... pu ayórase metaxirizméno, éras filos mu, apo amerikanò, to xi tóra tría xhrónja

(= this model is an extremely successful model, that is Janis ... who bought a second hard one, a friend of mine, from an American, has had it now for three years)

c.f. \([+ K]\) iyórase

1/19/1 R. ke teliká katalikse na mu pi, akúśe ... opos ke naxi se pernão tésera pede xhrónja

(= and finally [little Dimitris] told me in conclusion, how about that, e, anyway, I am your elder by four or five years)

c.f. \([+ K]\) katalikse

(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" \(\langle Q-N \rangle\).

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, augmenta), apart from a certain point in structure where two formatives may alternate in correlation with \{\pm 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.: teknon mu, amartises

(= my child, you have sinned)

amartises (e + amart + i + s + e + s) occurs instead of the expected \{+ K\} form inartisas or the "correct" \{- K\} form amartises. In other words, \{- K\} \( F_0 \) co-occurs with a "temporal" augment (and with the \{+ K\} lexical item teknon (= child) as opposed to \{- K\} podi), whereas elsewhere in our data it consistently coincides with the absence of an augment.
2/6/16 M.L. prospañì na se pisi òti to ayòrasas ftiìi yjaftò sta léi tóra aßtò

(= he is trying to persuade you that you bought it cheaply, that's why he is now telling you these things)

c.f. [+K] iyòrasas

Other formatives qualifying for \( Q-N \) status might be \( F_{6} a \) which contrasts minimally with \( F_{6} e \) in the following forms:

\[-\text{Pass},-\text{Perf},+\text{Past},+\text{Pl},2\]  
\[\{+K\} e \text{ pav } [e] \text{ te} \]

and \( F_{10} \text{ u} \) contrasting with \( F_{10} \text{ i} \) in the forms

\[+\text{Pass},-\text{Perf},+\text{Past},-\text{Pl},1\]  
\[\{+K\} e \text{ pavàm } [i] \text{ n} \]

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 \( \langle Q-N \rangle \) formatives, or can more than one structural place harbour \( \langle Q-N \rangle \) 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 \( \langle Q-N \rangle \) as a variable constraint in the rule under
consideration (see below), where \( \langle Q-N \rangle \) stand for such \([-K] \) formatives in the examples above as \( F_6 e \) in imartises, \( F_6 a \) in navate and \( F_{10} u \) in pavomun (but see next paragraph). It should be mentioned, however, that an adequate formulation, rather than simple listing, concerning \( \langle Q-N \rangle \) 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 \( \langle Q-N \rangle \) 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 \( o \), 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 \(F_{10}\), which is maximally opposed, in Schane's terms, to its \([+K]\) alternant, i.e., \(\theta\) instead of either of the "expected" forms \([+K]\) \(\pi\) or \([-K]\) \(\pi\), 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.

<table>
<thead>
<tr>
<th>[+K]</th>
<th>&lt;N&gt;</th>
<th>&lt;Q-N&gt;</th>
<th>[-K]</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/7</td>
<td>4/21</td>
<td>1/13</td>
<td>0/219</td>
</tr>
<tr>
<td>(1)</td>
<td>(0.19)</td>
<td>(0.05)</td>
<td>(0)</td>
</tr>
</tbody>
</table>

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;
\[ \text{INF} : 1 \geq p \langle +K \rangle \geq p \langle N \rangle \geq p \langle Q-N \rangle \geq p \langle -K \rangle \geq 0 \]

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 \( N \) formatives is less than that of \( +K \) and greater than that of \( Q-N \) formatives, the latter, in their turn, favouring the application of the rule to a greater extent than \( -K \) formatives.

2.2.2. The effect of the presence or absence of a derivational prefix on the frequency of appearance of an augment

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. ... stalmeni ap tus türkus, ala mota epanastatisean kj afti

([the Albanians] were sent by the Turks, but then they too revolted)

C.f. \( -K \) epanastatisean

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 → ḫpava. 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**

<table>
<thead>
<tr>
<th># PREF — ROOT</th>
<th># — ROOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 27</td>
<td>3 232</td>
</tr>
<tr>
<td>(0.22)</td>
<td>(0.012)</td>
</tr>
</tbody>
</table>
Rule (iii) above will be recast now to reflect the findings in Table Seven. In it, the variable constraint $\langle \text{PREF} \rangle$ will comprise the variants $\langle \text{PREF} \rangle$ i.e. the presence of one or more prefixes in the stem, and $\langle \text{PREF}^0 \rangle$ i.e. absence of a prefix from the stem (simple stem):

(iv) $[+\text{Past}] \rightarrow e /\# <\text{PREF}> \rightarrow \text{ROOT} <\text{INF}>$

where $<\text{PREF}>: 1 \gg p <\text{PREF}^0> p <\text{PREF}^p> \gg 0$

2.2.3. The effect of a following vowel or consonant on the augment frequency level

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:

<table>
<thead>
<tr>
<th>$# \text{PREF}^0 \rightarrow \left[ \begin{array}{c} \text{C} \times \text{X} \ \text{ROOT} \end{array} \right]$</th>
<th>$# \text{PREF}^0 \rightarrow \left[ \begin{array}{c} \text{V} \times \text{X} \ \text{ROOT} \end{array} \right]$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{8}{234}$</td>
<td>$\frac{1}{25}$</td>
</tr>
<tr>
<td>$(0.034)$</td>
<td>$(0.04)$</td>
</tr>
</tbody>
</table>

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, 1972b, 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 + amartisa → imartisa) can be used for stylistic purposes more effectively than an augment appearing
before a consonant.

Thus, in the three extracts from our data below, imartises (e + amartises) is "funny" whereas epira and epíye are not. Note that the same speaker who uses ἐπιρά also uses the alternant πίρα (no augment) in practically the same breath without any appreciably different stylistic effect.

2/16/16ff M.L. re si, o sokrátis ἵνι [x]α [p]ías [devoiced plosives] αφ' to mína milon
 (= you know, Socratis is going to be a father this month, most probably)
J.L. ne? (= is that so?)
T. pjos? (= who?)
M.L. o sokrátis (= Socratis)
P.D. a! babas! (= ah! a father!)
M.L. óxi, mítéra (= no, a mother!)
P.D. pás akístike, étσι?
 (= it sounded like "a priest", didn't it?)
T. pás! (= a priest!)
J.L. [laughs]
P.D. prépi na prosexis tus íxus su, re.
 (= you must be careful with your sounds, you)
J.L. Κύριε ελέησον

(= [chanting] Kyrie eleison)

P.D. fantáze se to sokráti na díáskí me kalimáfki

pós ájdolo to lêne?

(= can you imagine Socratis preaching wearing a kalimáfki hat, how the devil do they call it?)

J.L. téknon mu, ímártises! ën ayripmúes enantion
tu pirazmë!

(= my child you have sinned! You were not vigilant against temptation!)

2/5/18ff M.L. ëne mu les, yráftikes s aftró to kláb, eki pera pu

pulai tís teníes ke tus diskus

(= by the way, have you joined this club, the one that sells tapes and records?)

T. xa! ëes na pas na psonísis?

(= hm! you want to go and shop?)

P.D. kseparádžástika, aftró to mínà píra kenúryjes teníes

(= I am broke. This month I bought new tapes)

J.L. íne yrámónos sto mosxitéo.

(= he has joined the Moschato branch)

P.D. épíra djióteníes ... tis píra timi nélus , as pûme,

ala íne akrivá, re, ekatón evdomínta draxmés i
teníules.

(= 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).
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
\( \langle \text{SYL} \rangle \) (see 2.1.3. above) comprising the variants \( \langle C \rangle \) and \( \langle V \rangle \).

Rule 59

\[ \text{[+Past]} \rightarrow e/\# \langle \text{PREF} \rangle \rightarrow \left[ \langle \text{SYL} \rangle X \right] \langle \text{INFF} \rangle \]

where \( \langle \text{PREF} \rangle : 1 > p \langle \text{PREF} \rangle > p \langle \text{PREF} \rangle \geq 0 \)

\( \langle \text{SYL} \rangle : 1 > p \langle C \rangle > p \langle V \rangle \geq 0 \)

\( \langle \text{INFF} \rangle : 1 > p \langle \text{H} \rangle > p \langle N \rangle > p \langle \text{Q-N} \rangle > p \langle \text{X} \rangle \geq 0 \)

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 \( \langle \text{IC - 3} \rangle \) verbs
if the value \( \{+K\} \) is present, e.g. \( \text{en} + \text{požiz} + o \rightarrow \text{en} + \text{požizo} \rightarrow \)
empodizo (= 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 \(\text{Syl}\) 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 $\langle IC - 3 \rangle$ group, e.g. ENPONIZO; 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. eyο apoxórisa ... ne, parádos a ti skítāli

(= 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 → apoxórisa (with augment)
para + dosa → parádos a (without augment)

3/14/18 S.M. katā tis dōrēka i óra skil to lástīxo tu takai

pu mas metáfer e ke kseni xā tisame yja ðen ixe yrilo.

(= 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. metáfer e

On the other hand, four or more syllables seem to inhibit the appearance of an augment, e.g.

1/58/13 E.C. dīlați eyo pu to dīmiyurisa ...

(= so I who have created it ...)

cf. edīmiyurisa
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1/15/16 R. e, ti, ðen èxo tipota na ðò, teliosa, ànde.
(= 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. ðe se proskalèsame sti sizitisi
(= we did not invite you to the conversation)

cf. pros + e + kalesame → proskalèsame (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 MCK 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 A.G, 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.I. ... ke epronívito na ipotimía
 (= and it was going to be devalued)

1/60/15 E.C. esí eksanístis, e!
 (= you were furious, weren't you?)

[-learned]

2/13/10 P.D. pu lísaste tósi óra ... lèo kj oyó, metanýsane ...
 ti yinete.
 (= where have you been all this time ... I thought, have they changed their mind, what's going on)

cf. [-learned] METANÝNO and [+learned] METANOJ

2/13/19 J.L. eyó den ímuna aptin arxi yjatí to xa keáfási, ki idás, kaёмuna spíti ke to koloýmara ke den piya
 (= 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)
Notice that in the case of such (+learned) lexemes as PRÓXIME 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.

$$1 > p(\{+ K\}) > p(\{\text{PREF}\}) > p(\{C\}) > 0$$
Again, due to lack of sufficient data it cannot be conclusively shown whether the above hierarchical ordering is geometric or not.

3. VARIATION IN SP₂

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] [Stv₂] verbs (e.g. DIMIURGO) have either F₃ e or i in stem-final position, e.g.

<table>
<thead>
<tr>
<th>[+Past, - Perf, Stv₂, - K]</th>
<th>[-Past, + Pl]</th>
<th>[+ Past, 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dimiury[ₑᵣ]ₜmastes → dimiury'[ᵣᵣ].mastes</td>
<td>dimiury[ₑᵣ]ₜmastes → dimiury'[ᵣᵣ].mastes</td>
</tr>
<tr>
<td></td>
<td>dimiury[ₑᵣ]ₜmastes → dimiury'[ᵣᵣ].mastes</td>
<td>dimiury[ₑᵣ]ₜmastes → dimiury'[ᵣᵣ].mastes</td>
</tr>
</tbody>
</table>

In our conversations we find that e is more frequently encountered than i, though, due to the small number of [+ Pass, - Perf, Stv₂, - K] forms, the evidence is to be considered as inconclusive, e.g.

1/91/1  V.I. rubi, pes ta dikas su, pu sinenomastes

(= Rubi, tell me your news, seeing that you and I can communicate [i.e. have a lot in common])

where sineno + e +mastes → sineno'mastes
It should be noted that the appearance of \( F_3 \) in the structure of \( \{STv_2\} \) verbs in the presence of the cluster \( \{+\text{Pass}, -\text{Perf}, -K\} \) 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 \( \{+\text{Pass}, -\text{Perf}\} \) 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 \( \{-K\} \) distinctions or i in the presence of the value \( \{-K\} \), e.g.

<table>
<thead>
<tr>
<th>( {+\text{Pass}, -\text{Perf}, +\text{Pl}, 1} )</th>
<th>( {+K} )</th>
<th>( {-K} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( {STv_1} )</td>
<td>( {STv_2} )</td>
<td></td>
</tr>
<tr>
<td>( \text{ayap} + a + \beta\text{me}a )</td>
<td>( \text{dimiury} + e + \beta\text{me}a )</td>
<td>( \text{dimiury} + e + \beta\text{me}a )</td>
</tr>
<tr>
<td>( \text{ayap} + i + \beta\text{maste} )</td>
<td>( \text{dimiury} )</td>
<td>( \text{dimiury} + [i] + \beta\text{maste} )</td>
</tr>
<tr>
<td>( \text{ayap} + i + \beta\text{maste} )</td>
<td>( \text{dimiury} + e )</td>
<td>( \text{dimiury} + [i] + \beta\text{maste} )</td>
</tr>
<tr>
<td>( \text{dimiury} )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 F₃ in their structure at the same degree of readiness; cf. \arnime/\arnjeme (= I refuse), \sinkinime/sinkinjeme (= I am moved), \sinenome/sinenojeme (= I communicate), \eksomoloyime/eksomoloyjeme (= I confess), but \asxolime/(?)asxoljeme (= I occupy myself), \georime/\georjeme (= I am considered), \enoime/\еноjeme (= I am meant), \minoime/\minojeme (= I imitate) etc. We will refer to \{STv\}_2 verbs not yet reached by the restructuring process in question as \{STv\}_2 verbs (e.g. \georō, ENOō, MINōME, etc.).

Most \{STv\}_2 verbs (e.g. D̃IMIURGō, SINKINō, EKSMOLOUGō, 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 F₃ 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, F₃ 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 sínxoríte (= forgive me [i.e. sorry]!)
K. se sínxorío (= I forgive you!)

cf. standard sínxorío from "underlying" sínxorí; notice too nx → x in K.'s speech.

(b) P.D. efzaríto (= thanks!)
K. tì efzarístas, kalé (= why do you thank me, dear!)

cf. standard efzarítas from "underlying" efzarítas; notice too the elision of the unstressed word-initial vowel in K.'s speech: efzarítas → xfarístas.

Again, a small number of verbs, which we will here call \{STv_{20}\}^16 e.g. KRATÍO (= I hold), PATÍO (= I step), SIZITÍO (= I talk), KTIPÍO (= I hit), etc., accept F_3 i much more readily than other \{STv_{20}\} verbs in the presence of the cluster {+ Pass, - Perf, - K}:

kratíte → kratíte, patíte → ratíte, sizitéte → sizitéte, xtipíte → xtipíte, rather than kratíte → kratíte, patíte → patíte, sizitéte → sizitéte, xtipíte → xtipíte. Furthermore, the paradigmatic pull of \{STv_{1}\} on \{STv_{20}\} 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. ipo\textgreek{\delta}to oti \textgreek{\varepsilon}xete ye\textgreek{s}o\TEXTGREEK{\i} ke sizo\textgreek{t}a\TEXTGREEK{o} mazi sas

(= I assume that you have had a taste [of sex]
and [that's why] I talk with you)

cf. sizi + e + o $\rightarrow$ sizo\textgreek{t}$\bar{o}$

1/35/16ff

E.C. ine Griskeftik\textgreek{id} i yjay\textgreek{id}, e?

(= she is religious, your grandma, isn't she?)

R. poli! krat\textgreek{a}i sarakost\textgreek{e}s, pr\textgreek{a}mata!

(= Very much! She observes Lent and things)

cf. krat + e + i $\rightarrow$ krat$\bar{i}$

Finally, some verbs, e.g. POL$\textgreek{o}$ (= I sell), OMIL$\textgreek{o}$ (= I speak),
PERIPAT$\textgreek{o}$ (= I walk), FIL$\textgreek{o}$ (= I kiss), EKIIT$\textgreek{o}$ (= 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:
In others, a considerable difference in meaning, quite distinct from such shades of metaphorical meaning as normally associated with \( \pm K \) distinctions, may be in evidence, e.g.

<table>
<thead>
<tr>
<th>( \text{STv}_2 )</th>
<th>( \text{STv}_1 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>peripatēo → peripatō</td>
<td>( p_i )rpatāo</td>
</tr>
<tr>
<td>omilēo → omilō</td>
<td>milāo</td>
</tr>
<tr>
<td>ekinēō → ekinō</td>
<td>ksekinnō</td>
</tr>
<tr>
<td>ipiretēō → ipiretō</td>
<td>( i )peretāo</td>
</tr>
<tr>
<td>enoxlēō → enoxlō</td>
<td>( e )noxlāo</td>
</tr>
</tbody>
</table>

\( \text{filēo} \rightarrow \text{filō} \) (= I love) \( \text{filāo} \) (= I kiss)
\( \text{kalēo} \rightarrow \text{kalō} \) (= I invite) \( \text{kalāo} \) (= I challenge
(meaning [in youngster's slang])
\( \text{sinxorō} \rightarrow \text{sinxorō} \) (= I forgive) \( \text{sixordo} \) (= I pray for somebody's soul)

Finally, both a phonological and a semantic change can be associated with the appearance of \( F_3 \) (characteristic of \( \text{STv}_2 \)) or \( F_3 \) (or \( \tilde{a} \)) (characteristic of \( \text{STv}_1 \)) in the structure of some, originally \( \text{STv}_2 \) verbs, e.g.

<table>
<thead>
<tr>
<th>( \text{STv}_2 )</th>
<th>( \text{STv}_1 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>eksiyēōmo → eksiyūme</td>
<td>ksiyjēme (= I treat somebody)</td>
</tr>
</tbody>
</table>

\( (= I explain myself) \)
It is perhaps more appropriate to regard such forms as *peripatēs*/
*peripatēs*, *filō/filō*, or *eksiyōme/ksiyjēme* as belonging not to
"the same" lexeme but to different lexemes which form, in Setatos' 
terms, (1969a), *doublets*. In each doublet, an {STV₂} verb (e.g.
*PERIPATŌ, FILŌ, EKSIYŌ*) contrasts with an {STV₁} "descendant",
i.e. no longer a member of the {STV₂} group (*PERPATĀO,FILAO,KSIGAO*),
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 F₃ a or i instead of e in the structure of {STV₂}
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 {STV₁} verbs (*AGAPĀO*).

In conclusion, there is a tendency (STV - UP) among all subgroups
of {STV} verbs to behave according to the model of the {STV₁}
paradigm (*AGAPĀO*). The above tendency has some important correlates.
To begin with, in the case of {STV₂} verbs, it is categorically
blocked in the presence of the feature [+K] (i.e. it is associated
with the feature [-K]); secondly, originally {STV₂} 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\}_1 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 F₃ 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 {STV₁} verbs (STV - UP), we will retain, first of all, rule 8 above, reproduced below for the convenience of the reader.

Rule 8

\[ \text{[STV]} \rightarrow [V \text{- back}] / X \rightarrow \text{STEM} \]

The rule states that all {STV} verbs have a [ -back ] vowel (i, e or a) in stem-final position, i.e. in SP₃, e.g. ayap + a + o, dimiury + i + s + o, dimiury + o + ome \rightarrow dimiuryume, ayap + i + ome.
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}\} (GEORG, ENOÓ, MIMÓNÉ, etc.)

Rule 60

\[
\begin{align*}
\text{V} & \quad \text{[+low]} \\
\text{[-low]} & \quad \text{[-high]} \\
\text{[a low]} & \quad \text{[-high]} \\
\text{[+high]} & \\
\text{x} & \quad \text{STEM} \\
\end{align*}
\]

where \(\langle\text{STV}_2\rangle: 1 > p\langle\text{STV}_2c\rangle > p\langle\text{STV}_2b\rangle > p\langle\text{STV}_2a\rangle > 0\)

and \(\langle\text{Pass}\rangle: 1 > p\langle\text{Pass}\rangle > p\langle\text{Pass}\rangle > 0\)
Rule 60 states that the [ -back ] vowel appearing in stem-final position in the structure of \{STv\} verbs is either [ +low ] (a) or \[ -low \] (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\ \_Pass, \_Perf\} e.g. \( \text{avap} + \acute{a} + \circ \) (see \( a' \))

\[ \text{STv} + K - Pass - Perf \] e.g. \( \text{avap} + \acute{a} + \text{ome} \)

\( \text{avapome} \) (see \( b' \))

(ii) \[ -low \] (e):

\[ \text{STv} \_K - Pass - Perf \] e.g. \( \text{dimiury} + \acute{e} + \circ \)

\( \text{dimiury} + \acute{e} + \text{ome} \) (see \( a'' \) but notice variable \( a \) too)

\( \text{dimiuryeme} \) (see \( b'' \) but notice variable \( d \) too)

(iii) \[ + high \] (i):

\[ \text{STv} \_K - Pass - Perf \] e.g. \( \text{avap} + \acute{i} + \circ \text{em} \)

\( \text{avapjeme} \) (see \( b' \))

\[ \text{STv, + Perf} \] e.g. \( \text{avap} + \acute{i} + \text{s} + \circ \text{, avap} + \acute{i} + \emptyset + \circ \text{.} \)

\( \text{dimiury} + \acute{i} + \text{so} \text{, dimiury} + \acute{i} + \emptyset + \circ \)

The variable section of the rule, on the other hand, (section (d)) refers to the appearance of the alternatives \[ +low \] (a) or \[ -low \] (e) in the presence of the cluster \{STv\ \_K, -Pass, -Perf\}
e.g. krat + a + i + s → kratas or krat + e + i + s → kratis,
and of [+high] (i) or [low] (e) in the presence of the
cluster {STv, -K, +Pass, -Perf}, e.g. sineno + i + ūntusan →
sinenoūntusan or sineno + e + ūntusan → sinenoūntusan. 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. 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 [α low

-α high] (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 [low

-high] (e). Conversely, 0 refers to 0% appearance of a
or i and, consequently, 100% appearance of o. The expression \text{CSTv}_2\) in the environment of the rule summarizes, as indicated at the bottom
of the rule, the relative effect of the three [STv] subgroups on
the variable application of the rule: the appearance of [+low ]
(a) or [+high ] (i), rather than [-low

-high] (e), is favoured by the
presence of the feature \text{STv}_2a more than by \text{STv}_2b and least by
\text{STv}_2a. Likewise, the expression \text{C-α Pass}\) 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 F3 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 F₃ formatives i, e and a with clusters of grammatical and stylistic values.

<table>
<thead>
<tr>
<th>{+ Perf}</th>
<th>[- Perf]</th>
</tr>
</thead>
<tbody>
<tr>
<td>{- K}</td>
<td>[+ K]</td>
</tr>
<tr>
<td>[+ Pass]</td>
<td>[- Pass]</td>
</tr>
<tr>
<td>[+ Pass]</td>
<td>[- Pass]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STV₁</th>
<th>STV₂</th>
<th>STV₂c</th>
<th>STV₂b</th>
<th>STV₂a</th>
<th>STV₂c</th>
<th>STV₂b</th>
<th>STV₂a</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>b</td>
<td>c</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F₃ i : STV₂b
F₃ a : STV₂a
F₃ e : STV₂c
According to Diagram 1, the STv - UP process is affected, as regards the distribution of F₃ 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 F₃ i (but see Ch.IV, 3.3.4. above for some exceptions), e.g. avap + i s + o, avap + i + θ + o, jimiury + i s + o, jimiury + i + θ + o, 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:

\[ 1 = p \left( \begin{array}{c} + \text{Perf} \end{array} \right) > p \left( \begin{array}{c} - \text{Perf} \end{array} \right) > 0 \]

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]:

\[ 1 > p \left( \begin{array}{c} - K \end{array} \right) > p \left( \begin{array}{c} + K \end{array} \right) = 0 \]
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 [STv₁] subgroup (which of course spreads on to the [STv₂] subgroup via the STv - UP process): it involves the spread of F₃ i, originally associated with the feature [+Perf], into the structure of [-Perf, +Pass, -K] forms too:

<table>
<thead>
<tr>
<th>[-Past,STv₁]</th>
<th>[-Pass]</th>
<th>[+Perf]</th>
<th>[-Perf]</th>
<th>[+Perf]</th>
<th>[+K]</th>
<th>[-K]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ayap + i + s + o</td>
<td>ayap + a + o → ayapó</td>
<td>ayap + a + o → ayapó</td>
<td>ayap + i + s + o</td>
<td>ayap + i + s + o</td>
<td>ayap + i + s + o</td>
</tr>
<tr>
<td></td>
<td>ayap + a + o → ayapó</td>
<td>ayap + i + ome → ayapó</td>
<td>ayap + i + ome → ayapó</td>
<td>ayap + i + ome → ayapó</td>
<td>ayap + i + ome → ayapó</td>
<td>ayap + i + ome → ayapó</td>
</tr>
</tbody>
</table>
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: F3, 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, F3 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

\[
\left< [+\text{Pass}] \right> : \; 1 \geq p<+\text{Pass}> > p<-[\text{Pass}] > 0
\]

(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_2 formatives \( i \) or \( e \), 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 \[\frac{\alpha \text{ low}}{\alpha \text{ high}}\] (\( a \), \( i \)), 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 \[\frac{\text{-high}}{\text{-low}}\] (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 (KRATU), less by \{STv_2b\} (DIHURGO), and least by \{STv_2a\} (GEORO), 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) 
\[-\text{Pass}, -\text{Perf}, +\text{Past}, -K\] \rightarrow \left[ \begin{array}{c} \{Y\} \\ \text{us} \end{array} \right] / \text{STEM} \quad \left[ \begin{array}{c} \{STV_1\} \\ \{STV_2\} \end{array} \right] \quad \text{(a)} \quad \text{(b)}

The rule states that, in the presence of the cluster \[-\text{Pass}, -\text{Perf}, +\text{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.

\begin{align*}
\{STV_1\}: & \quad \text{ayap} + a + \left[ \begin{array}{c} Y \\ \text{us} \end{array} \right] a \quad \rightarrow \quad \left[ \begin{array}{c} \text{ayapaya} \\ \text{ayapusa} \end{array} \right] \\
\{STV_2\}: & \quad \text{dimiury} + e + \text{us} + a \quad \rightarrow \quad \text{dimiuryusa}
\end{align*}

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. pantos éxume pi praymatiká skpliktiká polá pramata

 (= Really, we have indeed spoken surprisingly much)

E.C. nómiza oti Θa stamitayes sto skpliktiká

 (= I thought you were going to stop at "surprisingly")

cf. stamätises

1/33/3 R. leí, na ðoṣo, leí, ... efta ðraxės yja na paro -

pinisa, alá na ðoṣo efta ðraxės yia na paro mia

tir̄pita, leí

 (= 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. pinaya

As regards the former of the two problems mentioned above, i.e. the paradigmatic pull exercised on [STv₂] verbs by [STv₁] verbs, the differentiation of three [STv₂] subgroups introduced in rule (i) above to account for the distribution of F₃ formatives is relevant here too: indeed, the appearance of F₃ y in the structure of [STv₂] verbs is by no means blocked as suggested in rule 12. Rather, it alternates quite freely with us in the structure of [STv₂c] verbs, e.g.
2/22/5  P.D.  milayes poli liyetero, poli pjo xamila
(= you spoke much less, much more softly)
cf. miluses

2/13/15 J.L. milusan me ... me mia totja ... 0rasitita
(= they talked with ... with such cheek)
cf. milayan

1/73/12 V.L. Ga tis to zitusa fortika
(= I would have asked her pressingly)
cf. zitaya

2/17/13 P.D. kahe toso pai ke kani eksetasis, kj epidí pinaya tora
(= every so often she has medical check-ups, and as she has been in pain recently...)
cf. ponise

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. panta ti simpagusa
(= I have always liked her)
cf. uneducated simpagaya

1/21/1 R. eksiyuse aftos pós tó paše
(= he was explaining how he suffered [the burns])
cf. uneducated (e)ksiyaye
Finally, \( y \) is least likely to appear in the structure of \( \{STv_{2a}\} \) verbs:

\[ 2/11/4 \quad J.L. \ den \ bor\text{\textit{su}} ... \ na \ vri \ mja \ lix\text{\textit{n}}\text{\textit{ia}} \]

\( (= \text{he couldn'f find a bulb}) \)

\( \text{cf. uneducated } b\text{\textit{raye}} \)

\[ 1/94/8 \quad V.L. \ pu \ to \ kat\text{\textit{alaves \&\&} noun} \ es\text{\textit{em}} \]

\( (= \text{how do you know he meant you?}) \)

\( \text{cf. } *\text{\textit{e\text{\textit{n\text{\textit{a}}}}}} \text{\textit{aye}} \)

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:
The rule reads that in the presence of the cluster \{-Pass, -Perf, +Past, -K\} either us or \(y\) may be suffixed to the stem of \([STV]\) verbs; but whereas \([STV_1]\) 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 \([STV_1]\) verbs, the same is not the case as regards \([STV_2]\) verbs where the frequency levels of \(y\) and us vary according to which of the three \([STV_2]\) subgroups a particular verb belongs to; as indicated by the analysis of the expression \(\langle [STV_2]\rangle\) at the bottom of the rule, \([STV_{2c}]\) verbs appear to favour \(y\) more than \([STV_{2b}]\) verbs do, whereas \([STV_{2a}]\) verbs are the least likely to accept \(y\) in their structures. Note that \([STV_{2c}]\) verbs favour \(y\) more than us whereas the reverse is the case for \([STV_{2b}]\) verbs, and, as far as \([STV_{2a}]\) 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 subclassification 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_{2a}\}, \{STv_{2b}\} and \{STv_{2c}\}, 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 \( \text{SF}_6 \)

5.1. The \( \text{SF}_6 \) 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, l, -K] either F6 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.

\[
(i) \{-\text{Pass}, -\text{Past}, +\text{Pl}, 1, -\text{K}\} \rightarrow \begin{bmatrix} V \\ +\text{back} \end{bmatrix} / \text{STEM (s)}
\]

Rule (i) states that the cluster \{-\text{Pass}, -\text{Past}, +\text{Pl}, 1, -\text{K}\} is assigned a [+back] vowel (o or u) in the context following the string STEM (s), e.g. nivome, npmume, napsome, papume. 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 sexi.
To account for the difference in frequency levels between the two formatives we will revise rule (i) above as follows:

(ii) \([-\text{Pass}, -\text{Past}, +\text{Pl}, -\text{K}] \rightarrow \begin{bmatrix} \text{V} \\ +\text{back} \end{bmatrix} / \text{STEM} (s)\]

where \( \begin{bmatrix} \text{high} \end{bmatrix} \): \( 1 > p \begin{bmatrix} +\text{high} \end{bmatrix} > p \begin{bmatrix} -\text{high} \end{bmatrix} \geq 0 \)

5.1.2. In the presence of the cluster \( [+\text{Pass}, -\text{Perf}, +\text{Pl}, -\text{K}] \) (see Ch.IV, 3.6.1., rules 14, 15b and 15c) either \( F_6 \) o or u appear. Rule (iii) below is a collapsed version of the rules mentioned above as regards the cluster of values in question:

(iii) \( [+\text{Pass}, -\text{Perf}, +\text{Pl}, -\text{K}] \rightarrow \begin{bmatrix} \text{V} \\ +\text{back} \end{bmatrix} / \text{STEM} \)

The rule specifies that, in the presence of the cluster \( [+\text{Pass}, -\text{Perf}, +\text{Pl}, -\text{K}] \), a \( +\text{back} \) vowel (i.e. o or u) appears in the context after the stem.
As we mentioned in Ch. III, 7.4.5.b., \( \omega \) appears more frequently than \( \upsilon \). In our data, \( \omega \) occurs 24 times and \( \upsilon \) 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) \( \{+\text{Pass}, -\text{Perf}, +\text{Pl}, -K\} \rightarrow \begin{bmatrix} V \\ +\text{back} \\ \text{high} \end{bmatrix} / \text{STEM} \)

where \( \begin{bmatrix} \text{high} \end{bmatrix} : 1 > p \begin{bmatrix} -\text{high} \end{bmatrix} > p \begin{bmatrix} +\text{high} \end{bmatrix} \geq 0 \)

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, \( \omega \) and \( \upsilon \), but, whereas in the presence of the cluster \( \{-\text{Pass}, -\text{Past}, +\text{Pl}, 1, -K\} \) (rule (ii)), \( \upsilon \) appears more frequently than \( \omega \), the reverse is the case in the presence of the cluster \( \{+\text{Pass}, -\text{Perf}, +\text{Pl}, -K\} \). Table Nine below summarizes the above remarks:

Table Nine: Relative frequency levels of \( F_6 \) formatives \( \omega \) and \( \upsilon \) in the presence of two clusters of grammatical and stylistic values.

<table>
<thead>
<tr>
<th>Cluster</th>
<th>( \omega )</th>
<th>( \upsilon )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( {-\text{Pass}, -\text{Past}, +\text{Pl}, 1, -K} )</td>
<td>( \omega ) &lt; ( \upsilon )</td>
<td></td>
</tr>
<tr>
<td>( {+\text{Pass}, -\text{Perf}, +\text{Pl}, -K} )</td>
<td>( \omega ) &gt; ( \upsilon )</td>
<td></td>
</tr>
</tbody>
</table>
Diachronically speaking, o is the earlier F6 formative, 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, l, -K} the change is almost complete (i.e. pavume is the rule and pavome the exception) it has only just reached the cluster {+Pass, -Perf, +Pl, -K}. (i.e. pavomaste, pavosaste, pavonte, pavomastan, pavosastan, pavontan, pavontana, pavontusan, 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 F6 o, and the rest u:

1/24/10 P.D. kàGe ford pu bëni gol filjînte

(= every time the ball goes into the goal they [i.e. footballers] kiss each other)

cf. filjînte
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.

(v) \[
\begin{align*}
\{+\text{Pl}, -K, \{-\text{Pass}, -\text{Past}, 1\}\} & \rightarrow \begin{bmatrix}
\text{V} \\
\text{+back}\ \\
\text{-high}
\end{bmatrix} / \text{STEM (a)}
\end{align*}
\]

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:

(vi) \[
\begin{align*}
\begin{bmatrix}
\text{V} \\
\text{+back}\ \\
\text{-high}
\end{bmatrix} & \rightarrow \begin{bmatrix}
\text{+high}
\end{bmatrix} / \{+\text{Pl}, -K, \{-\text{Pass}, -\text{Past}, 1\}\}
\end{align*}
\]
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.

\[ 1 \geq p\langle \text{-Pass,-Past,1}\rangle > p\langle \text{+Pass,-Perf}\rangle > 0 \]

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

\[
\{+\text{Pl}, -\text{K}\} \rightarrow \left[ \begin{array}{c} \text{V} \\ \text{back} \\ \text{+high} \\ \text{-high} \end{array} \right] / \text{STEM} (s) \rightarrow / \left\{ \begin{array}{c} \text{-Pass,-Past,1} \\ \{\text{+Pass,-Perf}\} \end{array} \right\}
\]

where \[ 1 > p\langle \text{-Pass,-Past,1}\rangle > p\langle \text{+Pass,-Perf}\rangle > 0 \]

The rule reads that in the presence of the cluster \{+\text{Pl}, -\text{K}\} an \text{F}_6\text{ formative of the phonological form }\left[ \begin{array}{c} \text{V} \\ \text{back} \end{array} \right]\text{ and either }\left[ \text{+high} \right] (\text{u})\text{, or }\left[ \text{-high} \right] (\text{o})\text{ appears. The ordering of the features }\left[ \text{+high} \right]\text{ and }\left[ \text{-high} \right]\text{ 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 $^{+\text{back}, +\text{high}}$ formative (u) (and, consequently, 0% appearance of the $^{+\text{back}, -\text{high}}$ formative (o)) whereas 0% application of the rule corresponds to 0% u and consequently 100% o. The arrangement of the features $^{+\text{high}}$ and $^{-\text{high}}$ in the three-cornered brackets is not arbitrary; indeed, it reflects the diachronic change involved here: o, the "original" F6 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 $\{-\text{Pass, -Past, 1}\}$ e.g. pívume, pípsume (rather than, respectively, pívome, pípsome), and less likely in the presence of the cluster $\{+\text{Pass, -Perf}\}$, e.g. pívomaste, pavísaste, pívonte (rather than pívomaste, pavísaste, pavívonte).

5.2. In the presence of the cluster $\{+\text{Pass, -Perf, -Past, +Pl, 2, -K}\}$ three alternative configurations of inflectional formatives may follow the stem, i.e.

$\frac{2}{\text{pav} + \delta + s + \delta + e} \text{ or } \frac{2}{\text{pav} + \delta + s + \text{ast} + e}$

and

$\frac{2}{\text{pav} + \delta + s + \text{ast} + e}$

changing more often than not, to píveste)
section 5.1. above). As is clear from the examples above, the three alternative forms have, apart from the stem, two formatives in common, \( F_8 \) and \( F_{10} \), and contrast in two structural places, \( SP_6 \), where either \( F_6 \) or \( o \) or \( u \) appears, and \( SP_9 \), where either \( F_8 \) or \( ast \) appears, so that only three combinations of the five formatives are allowed by the grammar, \( F_6 \) and \( F_8 \) on the one hand and \( F_6 \) 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 \( o \).

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. \( F_9 \) \( o \) 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 MCK 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, $u$ (pavůsaste), $o$ (pavůsaste) or $e$ (pěveste). Rule (i) below is a collapsed version of those sections of rules 14, 15c, and 16 which are of relevance here:

\[(i) \{+ \text{Pass}, - \text{Perf}, - \text{Past}, + \text{Pl}, 2, - K\} \rightarrow \{\begin{cases} e \\ o \end{cases}\}/ \text{STEM} \]

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 \( V \), are further distinguished as either \([+\text{back}] \) \( (o \text{ or } u) \) or \([-\text{high}] \) \( (e) \).

(ii) \([+\text{Pass}, -\text{Perf}, -\text{Past}, +\text{Pl}, 2, -K] \rightarrow V \) low

\([+\text{back}] \)

\([-\text{back}] \)

\([-\text{high}] \)

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 \([+ \text{Pass}, -\text{Perf}, -\text{Past}, +\text{Pl}, 2, -K]\) 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 \([+ \text{Pass}, -\text{Perf}, +\text{Pl}, 2]\)

<table>
<thead>
<tr>
<th>[+Pass, -Perf, +Pl, 2]</th>
<th>[-Past]</th>
<th>[+Past]</th>
</tr>
</thead>
<tbody>
<tr>
<td>([+K])</td>
<td>[2 , \frac{6 , 8 , 9 , 10}{\text{pav} , e , s , \theta , e} ]</td>
<td>[1 , \frac{2 , \frac{6 , 8 , 9 , 10}{\text{pav} , e , s , \theta , e}}{\text{e} , \text{pav} , e , s , \theta , e} ]</td>
</tr>
<tr>
<td>([-K])</td>
<td>[2 , \frac{6 , 8 , 9 , 10}{\text{pav} , e , s , \theta , e} \rightarrow \text{paveste} ]</td>
<td>[1 , \frac{2 , \frac{6 , 8 , 9 , 10}{\text{pav} , o , s , \theta , e}}{\text{e} , \text{pav} , o , s , \theta , e} ]</td>
</tr>
<tr>
<td>[s , \text{ast} , e ]</td>
<td>[1 , \frac{2 , \frac{6 , 8 , 9 , 10}{s , \text{ast} , e}}{\text{e} , \text{pav} , o , s , \theta , e} ]</td>
<td>[\text{(e)} , \frac{2 , \frac{6 , 8 , 9 , 10}{s , \text{ast} , e}}{s , \text{ast} , e} ]</td>
</tr>
</tbody>
</table>
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 $[\pm K]$ and $[\pm \text{Past}]$: in the presence of the value $[+ K]$ only $F_6 e$ is possible, in the presence of the cluster $[- K, + \text{Past}]$ $F_6 o$ or $u$ (but not $e$) may appear, and, finally, in the presence of the cluster $[- K, - \text{Past}]$ 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 $[+ \text{Pass}, - \text{Perf}, + \text{Pl}, 2]$. 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 $[- \text{Past}]$ the change is still in progress (i.e. either $e$ or $o/u$ may appear), in the presence of the value $[+ \text{Past}]$ 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:

<table>
<thead>
<tr>
<th>[+Pass, -Perf, +Pl, 2]</th>
<th>[+K]</th>
<th>[-K]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-Past]</td>
<td></td>
<td>[+Past]</td>
</tr>
<tr>
<td>e</td>
<td></td>
<td></td>
</tr>
<tr>
<td>${e}$</td>
<td>${o/u}$</td>
<td>$o/u$</td>
</tr>
</tbody>
</table>


To put it in a nutshell, then, the substitution of $\circ \circ \circ$ or $u$
for $o$, is favoured by the feature $[-K]$; also, it is favoured
by the feature $[+\text{Past}]$, in whose presence it has reached
completion, in contrast to the feature $[-\text{Past}]$, 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 $[+\text{Pass}, -\text{Perf}, +\text{Pl}, 2]$ and whose variable
output is conditioned by the contrastive values $[\mp K]$ and $[\mp \text{Past}]$
as follows:

Rule 63

\[
[+\text{Pass}, -\text{Perf}, +\text{Pl}, 2] \rightarrow \begin{cases} 
V \text{ - low} \\
[+\text{back}] \\
[-\text{back}] \\
[-\text{high}] 
\end{cases} / \text{STEM} / \begin{cases} 
\{K\} \\
\{\text{Past}\} 
\end{cases}
\]

where $\langle [K] \rangle: 1 \geq p(-K) > p(+K) = 0$
$\langle \text{Past} \rangle: 1 = p(+\text{Past}) > p(+\text{Past}) > 0$

Rule 63 reads that in the presence of the cluster $[+\text{Pass}, -\text{Perf}, +\text{Pl}, 2]$ a $[\text{-low}]$ vowel, either $[+\text{back}]$ ($o$ or $u$) or
[[-back] [-high]] (e), is suffixed to the stem. The arrangement of the features [ +back ] and [ -back ] [-high] 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% [ -back ] [-high]) to 0 (0% [ +back ] and, consequently, 100% [ -back ] [-high]). Note that the precise ordering of the features in the three-cornered brackets; first [ +back ] followed by [ -back ] [-high], is not arbitrary but reflects the direction of the change accounted for by the rule: F6 e, the "earlier" formative, is replaced by F2 o or u, and not vice versa. The frequency of application of the rule is affected by two variable linguistic constraints in the environment: <f>{K}</f> and <f>{Past}</f>. <f>{K}</f> 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):

\[ l \succ k\{[- K]\} \]

and [+ K], which blocks the application of the rule (i.e. it only allows the appearance of e):

\[ p\{[+ K]\} = 0 \]

The variable constraint <f>{Past}</f>, on the other hand, has the variants [+ Past], which causes the rule to apply categorically.
(i.e. allows only the appearance of o or u but never e)

\[ l = p^{(+ \text{Past})} \]

and [- Past], which favours the application of the rule though it does not cause it to apply categorically (i.e. either e or o/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. \( \{K\} \), and, subsequently, to the constraint at the bottom of the brackets, i.e. \( \{\text{Past}\} \). 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 \( \{\text{Past}\} \) is irrelevant (i.e. only F6 e is possible, irrespective of \(+\text{Past}\) 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. o or u, but never e, in the presence of the value \(+\text{Past}\) , otherwise, that is, in the presence of the value \(-\text{Past}\) , 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 $F_6 \circ$ or $u$ in the presence of the cluster $[+\text{Pass}, -\text{Perf}, +\text{Pl}, 2]$ is marked as 1, the appearance of $F_6 \circ$ 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 $[+\text{Pass}, -\text{Perf}, +\text{Pl}, 2]$ of $F_6$ formatives $o$, $u$ or $e$ as conditioned by $[\underline{+}\text{Past}]$ and $[\underline{+}\text{K}]$ distinctions.

<table>
<thead>
<tr>
<th>Lects</th>
<th>$[+\text{Pass}, -\text{Perf}, +\text{Pl}, 2]$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$[-\text{Past}]$</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

$[\underline{-}\text{K}]$
In Table Ten is mapped the replacement of $F_6 \circ$ by $F_6 \circ / u$ 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

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 $u s$ appears "optionally":

(i) \( [+ \text{Pass}, - \text{Perf}, + \text{Past}, + \text{Pl}, 3, - K] \rightarrow \langle u s \rangle / + n + t \)

or, in a more economical version, since the string $+ n + t$ only appears and always appears in the presence of the cluster $[+ \text{Pass, - Perf, + Pl, 3}]$:

Rule 64

\( [+ \text{Past, - K}] \rightarrow \langle u s \rangle / + n + t \)
If the rule applies, we get forms such as the one underlined in the example below:

2/9/5 J.L. tòte pu ta xaladsamo mas xriasontusan
= when we spent it we had to

cf. xriasontan(e)

Notice that in the example above, F₁₂ o does not appear in the presence of F₉ us, 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), SP₉ remains empty (in which case F₁₂ o may or may not appear): xriasontan(e), sinencountan(e), endjaferontan(e). In spite of the fact that all [+ Pass, - Perf, + Past, + Pl₁, 3, - K] forms of regular verbs appearing in the data contain F₉ us 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 F₉ us: xriasontusan, xriasontan(e),
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 $F_9\;\text{us}$ in the appropriate environment):

$$1 \geq p(R64) > 0.$$

7. **VARIATION IN SP₁₀**

In the presence of the cluster $\{+\;\text{Pass}, -\;\text{Perf}, +\;\text{Past}, +\;\text{Pl}, -3, -K\}$ certain alternative verb forms may appear, e.g.

$$\begin{align*}
[1] & : \frac{2}{pav} \; \frac{6}{\delta} \; \frac{8}{n} \; \frac{9}{ast} \; \frac{10}{e} & \text{or} & \frac{2}{pav} \; \frac{6}{\delta} \; \frac{8}{n} \; \frac{9}{D11} \\
[2] & : \frac{2}{pav} \; \frac{6}{\delta} \; \frac{8}{s} \; \frac{9}{ast} \; \frac{10}{e} & \text{or} & \frac{2}{pav} \; \frac{6}{\delta} \; \frac{8}{s} \; \frac{9}{D11}
\end{align*}$$

It will be realized that the difference between the two [1] and [2] variants consists (a) in the alternation of $F₁₀$ formatives $a$ or $e$, coinciding with (b) the appearance or non-appearance of $F₁₁\;\bar{n}$.

The alternation of the two $F₁₀$ 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) \{+ \text{Pass}, - \text{Perf}, + \text{Past}, + \text{Pl}, - 3, - K\} \rightarrow \{^o_a\} / \{^o_s\} + \text{ast} ---

The appearance of F_{11} in is treated by rule 33 in Ch. IV, 3.11. above, whose relevant section is reproduced below as rule (ii)

(ii) \{+ \text{Pass}, - \text{Perf}, + \text{Past}, + \text{Pl}, - 3, - K\} \rightarrow n / \text{ast} + a ---

Since rule (ii) applies categorically to suffix F_{11} in to the string ast + a only (i.e. not to ast + 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, this is a matter of expediency and does not alter the fact that all formattives 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 formattives 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 (a and e occur twice each) e.g.

1/17/5  E.C.  tulixisto, léi, ḍe yínósastan ayó르ja na ḍme ke ḍisixi
(= at least, she says, couldn't you have been born boys so that I had peace of mind!)
cf. yínósaste

2/9/6  M.L.  ḍxi, ḍe ḍa xriazómaste ḍtan ta xalísame, ta
xalísame yjiati ḍxe ipotimie ⤠ to dolírio
(= 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 F₁₀ 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, F₁₀ 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. pavo'meēa. As for the F₁₀ 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 $\{+ \text{Pass}, -\text{Perf}, +\text{Past}, +\text{Pl}, 1, +K\}$ forms, e.g. $\text{epavómea}$, the remaining five combinations of values of Person and Number being shared, in $\text{SP}_{10}$, by an additional three $F_{10}$ formatives: $i$, $o$ and $e$ i.e. a total of four $F_{10}$ formatives appear in the $\{+ \text{Pass}, -\text{Perf}, +\text{Past}, +K\}$ paradigm, $a$ being one of them. Even in the case of the cluster $\{+ \text{Past}, -K\}$ 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 $\{-\text{Pl}, 3\}$ forms and it alternates with $e$ in $\{+\text{Pl}, -3\}$ verb forms.

<table>
<thead>
<tr>
<th>[+Pass, -Perf, +Past, -K]</th>
<th>[-Pl]</th>
<th>[+Pl]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\text{pavóm _ n(a)}$</td>
<td>$\text{pavóms _ a n}$</td>
</tr>
<tr>
<td></td>
<td>[2]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\text{pavós _ n(a)}$</td>
<td>$\text{pavósart _ a n}$</td>
</tr>
<tr>
<td></td>
<td>[3]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\text{pavót _ a n(e)}$</td>
<td>$\text{pavónt _ n(e)}$</td>
</tr>
</tbody>
</table>

$\text{SP}_{10}$
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.

$\{ + \text{Pass, - Perf, + Past, + Pl, - K} \}$

$\{1\}$: pavomaste

$\{2\}$: pavọsaste

unlike the appearance of F$_{10}$ a which maintains [+ Past] distinctions

\[
\begin{array}{|c|c|}
\hline
{[+ \text{Pass}] } & \{ + \text{Past} \} \\
\hline
{[+ \text{Pass, - Perf, + Pl, - K}]} & \{1\} \begin{array}{c}
\text{10} \\
\text{pavomaste}
\end{array} & \{1\} \begin{array}{c}
\text{10} \\
\text{pavomastan}
\end{array} \\
\hline
\{2\} \begin{array}{c}
\text{10} \\
\text{pavọsaste}
\end{array} & \{10\} \begin{array}{c}
\text{pavọsastan}
\end{array} \\
\hline
\end{array}
\]

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

\[ \{+\text{Pass}, -\text{Perf}, +\text{Past}, +\text{Pl.}, -3, -K\} \rightarrow \left( \frac{\tilde{a}}{e} \right) / \{^m_s\} + \text{ast} \]

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 Floa is more "regular" and, perhaps for this reason, "spreading", unlike Floa 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\textsubscript{12}

Rule 36 in Ch.IV, 3.12 above reproduced below as (i) states that 
\[ [\text{-back}, \text{-high}] \] 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):

(1) \([-K] \rightarrow \) \([-V\) \text{back} \rightarrow \)

\([-V\) \text{high} \rightarrow \)

\(/ \# \text{STEM} + C_0 V^1_o C_0 V_n \rightarrow \#\)

e.g. ūvun(e), ūvan(e), ūpsun(e), ūpsan(e), ūftūn(e), ūftikān(e), ūvōmūn(a), ūvōsūn(a), ūvōtān(e), ūvōntān(e).

As it stands, rule (1) 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 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. `lavum → `lavune. In other parts of the grammar the same effect is achieved through the elision of final n e.g. `lavone → `lavome (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 \( \langle \text{EUP} \rangle \) (a mnemonic for the "euphonic" character of the output of the rule), which comprises the set of constraints \( \langle \text{EUP} - 1 \rangle \) i.e. \(-\{\#\}\), \( \langle \text{EUP} - 2 \rangle \) i.e. \(-\#\#\ C\), and \( \langle \text{EUP} - 3 \rangle \) i.e. \(-\#\#\ V\).
Rule 66

\[
[-K] \longrightarrow \left\{ \begin{array}{c}
V \\
\text{-back} \\
\text{-high}
\end{array} \right\} / \# \text{STEM} + C_o V_o C_o V_n \longrightarrow \# \langle \text{EUP} \rangle
\]

where \( \langle \text{EUP} \rangle : 1 \geq R \langle \text{EUP} - 1 \rangle p \langle \text{EUP} - 2 \rangle p \langle \text{EUP} - 3 \rangle \geq 0 \)

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':

\[
V \longrightarrow \left\{ \begin{array}{c}
\text{+stress} \\
\text{V}
\end{array} \right\} \left\{ \# \langle X \rangle \text{STEM} \quad C_o \quad C_o \quad V \quad n \# / \{ + \text{Pass}, + \text{Pl}, 3, -K \} \right\} (d)
\]

\[
\quad \quad \quad \quad C_o \quad V \quad C_o \quad V \quad C_o \quad \# / \{ + \text{Past} \} (e)
\]

read that in the presence of the feature \{ + Past \} the stress normally falls on the antepenult (section (e)), e.g.

\[
\{- \text{Pass}, - \text{Perf}, + \text{Past} \} \{ - \text{Pl}, 1 \} : \text{epava}
\]

\[
\{- \text{Pass}, - \text{Perf}, + \text{Past} \} \{ + \text{Pl}, 2 \} : \text{pavate}
\]
though this is not always the case 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. 

\{+Perf\}: pavan but epavan, ravano
\{-Pass,+Past,+Pl,3,-K\}

whereas verb forms with more than two syllables are sometimes stressed on the penult (i.e. by section (d)) e.g. epavan, epavontan, and sometimes on the antepenult (i.e. by section (e)) e.g. épavan, pavontan. In other words, section (d) applies variably in the presence of the variable constraint \(\langle X/Y \rangle\), 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, konanisan, epavontan, paftikan, etc., first, variable section (d) is tried for application: if it applies, the stress
falls on the penult, nomizan, kopanisan, pavontan, paftikan; if it does not, section (e) applies to stress the antepenult: nomizan, kopanisan, pavontan, paftikan. 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 n' leyes ... pós ton leyán aftón pu leyo ... sa n' 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. öleyan, löyane

2/19/20ff T. a, ti jefte'ra arxizete ëjayonismus, e?

(= ah, on Monday exams are starting, aren't they?)

P.D. simera (= today)

J.L. ke yrapsan eglézika? (= and they took English)

cf. éyrapsan, yrapsane
(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. nomizan, nomizane.

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:

\[
1 > p(R_{38'd}) \geq 0
\]

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:

\[(i)\]

\[
\begin{array}{c}
\text{C} \\
\text{-voiced} \\
\text{+cont}
\end{array}
\rightarrow
\begin{array}{c}
\text{[-cont]} \\
\end{array}
\]

\[
\begin{array}{c}
\text{C} \\
\text{-voiced} \\
\text{+cont} \\
\text{+coron} \\
\text{+anter} \\
\text{+strident}
\end{array}
\]

(a)

\[
\begin{array}{c}
\text{C} \\
\text{-voiced} \\
\text{+cont} \\
\text{+strident}
\end{array}
\]

(b)

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, $x_s \rightarrow ks$, e.g. $sf^s \rightarrow sf^ks$, unless it is [ -coronal, +anterior ] (f), in which case it changes "optionally", $fs \rightarrow [f]s$, e.g. $paf^so \rightarrow pa^fso$

(b) if the second segment is [ -strident ] (g), then it becomes a plosive, irrespective of the specification for stridency of the first segment: $[s] \rightarrow [t]$, e.g. $xrias^t \rightarrow xrias^t$, $paf^t \rightarrow pa^t$, $pex^t \rightarrow pex^t$.

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 $[f, K]$ 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] : paf^so

[- K] : pa^fso$
whereas, in the case of the cluster $\text{xs}$, $\{^{+}K\}$ distinctions are irrelevant, since, as we said above, $\text{xs}$ always changes to $\text{ka}$.

(b) The above statement will have to be revised to take account of the following lexemes: $\text{GRAFO} (= \text{I write})$, $\text{ANTIGRAFO} (= \text{I copy})$, $\text{PERIGRAFO} (= \text{I describe})$ etc. (all of them having stems of the general structure (PREFIX) $\text{GRAFO}$) in that in their case $\text{fa}$ always changes to $\text{pa}$ irrespective of $\{^{+}K\}$ distinctions: $\text{yrapo, antiyrapo, perlyrapo}$, etc. Another irregularity of the above verbs consists in blocking the appearance of $F_{4} \theta$ 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 $\theta$ always changes to $t$ after $f$:

1/25/3 E.C.  
êla leye, efkeria, ûa katayrafîs

(= go on, speak, it's an opportunity, you'll be recorded)

cf. *katayraftís

1/12/15 R.  
yia na yraftî mjâ musiki yja ikosiêksi trayídja....

(= for music for 26 songs to be composed ...)

cf. yrafî

The effect on the dissimilation rule in question of the above group of verbs can be accounted for by introducing the following condition:

\[ ^{+}K \]
CONDITION: Apply rule (i) categorically in the case of the (PREFIX) GRAFO group of verbs.

It should not escape our attention, however, that the effect of the (PREFIX) GRAFO 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 \{+ K\} distinctions on the dissimilation process in question can be grasped if rule (i) above is revised as follows:
(ii)

\[
\begin{array}{c}
\text{C} \\
\text{+cont} \\
\text{-voiced} \\
\end{array}
\rightarrow
\left[ \begin{array}{c}
\text{C} \\
\text{+cont} \\
\text{-voiced} \\
\text{-coron} \\
\text{+anter} \\
\text{+strid} \\
\end{array} \right] \backslash \left\langle \text{K} \right\rangle
\]

(a)

\[
\begin{array}{c}
\text{C} \\
\text{-voiced} \\
\text{+cont} \\
\text{+coron} \\
\text{+anter} \\
\text{+strid} \\
\end{array}
\left[ \begin{array}{c}
\text{C} \\
\text{+voiced} \\
\text{+cont} \\
\text{-coron} \\
\text{+anter} \\
\text{-strid} \\
\end{array} \right] \backslash \left\langle \text{K} \right\rangle
\]

(b)

where \( \left\langle \text{K} \right\rangle : 1 > p \left\langle \text{-K} \right\rangle > p \left\langle \text{+K} \right\rangle = 0 \)

CONDITION: Apply rule categorically in the case of the (PREFIX)GRÁFO group of verbs.

The variable constraint \( \left\langle \text{K} \right\rangle \) 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 \( \frac{38}{43} \times 100 = 0.88 \). e.g.

1/29/12 V.L. e, na, yoilte Fees alon próta apó méra

(= there you are, you have charmed somebody else before me)

cf. yoiltopseas

1/20/7 R. éprepe fisioLOYika na itan étsi ... ana tu xane skotosi 

... étsi káti trayiko na xe simvistizó tu, ke teliká 

ixe 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. kápsi

2/2/26 J.L. ... tára exi ekselixéi

(= now [my dislike for you] has developed)

cf. ekselixi

2/25/14 M.L. ... borí na mas xriasí mjá vdomáda

(= we may need it for a week)

cf. xriasí

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, voitefsea has a Q-N F6 formative, e, and apolafsis, ekselixi and yefsi have neutral (N) inflectional formatives, whereas ipedexi has a [+ K] F6 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. ekapse, kapsi, nanop, xriastis, tiefkrinistin, nexti, xriasti, erotefi, sketof, apodixi, anixti, whereas in the case of [+ K] formatives it never applies: ipedexi; finally, in the presence of [- learned] stems and/or [- K] formatives, the rule always applies.
where [-learned] stem PSARÉVÓ (= I fish) is combined with {-K} F6 a, as opposed to ilíepsas, i.e. [+learned] ALIPÉVO plus [+K] F6 a.

2/13/9 J.L. áulepsa, i.e. [-learned] DULÉVO (= I work) plus N F6 a, as opposed to erwasít of the [+learned] lexeme ERGÁZOME.

3/3/4 S.M. ipodéxtike, (-{K}), as opposed to ipodéxtaí (+{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>
<thead>
<tr>
<th>VARIABLE CONSTRAINT</th>
<th>INFF</th>
<th>{-K}</th>
<th>Q-N</th>
<th>N</th>
<th>{+K}</th>
</tr>
</thead>
<tbody>
<tr>
<td>INF (1.)</td>
<td>16</td>
<td>4</td>
<td>22</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>LMB (1.)</td>
<td>10</td>
<td>0.81</td>
<td>0.89</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.
The relative order of the above variants in terms of probabilities contributed to the application of the rule is as follows:

\[
\begin{align*}
\text{INF}: & \quad 1 > p\{\text{K}\} > p\{\text{Q-N}\} > p\{\text{N}\} > p\{\text{+K}\} > 0 \\
\text{LND}: & \quad 1 > p\{\text{{-learned}}\} > p\{\text{+learned}\} > 0
\end{align*}
\]

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

<table>
<thead>
<tr>
<th>At juncture between stem and (F_4) formatives</th>
<th>In stem-medial position</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\frac{43}{47}) (0.91)</td>
<td>(\frac{14}{30}) (0.47)</td>
</tr>
</tbody>
</table>
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 F₄ formatives (ə or ɔ) 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 F₄ 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:

\[ (MC) : 1 \gg (STEM - F) \gg (STEM - M) \gg 0 \]

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 kataskevazo) never appears in the form fθjáno, e.g.
1/64/18  E.C.  esi sinisf os ftjxnis ti fasar/la

(= it's you who as a rule cause trouble)

(b) optionally, in the case of [+learned] stems, e.g.

1/48/16  S.  efxaristó (= thanks) cf. ?efkaristó

1/63/9  E.C.  eyo mja fora əa su efxi0 sti yjorti su

(= I, for one, will give you my best wishes on your birthday)

cf. ? efi00

2/11/6  J.L.  afto pu les isxi

(= what you're saying is valid)

cf. ? iskii

2/3/27  J.L.  ni nomizis oti epidi bikes sti zoi mu is ke se

ə'esi na ti ëjeftinis

(don't assume that because you've entered my life you are in a position to run it!)

cf. ? ëjeftinis

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<IND> present:
TABLE FOURTEEN: Observed frequencies for the change of one of two adjacent voiceless fricatives in stem-medial position to plosive in relation to \( \pm \) learned distinctions in the stem.

<table>
<thead>
<tr>
<th>-learned</th>
<th>+learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 6</td>
<td>39 59</td>
</tr>
<tr>
<td>(1.0)</td>
<td>(0.56)</td>
</tr>
</tbody>
</table>

To account for the above facts we will revise rule (1) above so that its variable application depends, not on the constraint \( \langle K \rangle \) (i.e. on \( \pm K \) 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 \( \langle \text{INFF} \rangle \), comprising the variants \( + K \), \( \langle N \rangle \), \( \langle Q-N \rangle \), and \( - K \) ), on \( \pm \) learned distinctions characteristic of the verbal stem (variable constraint \( \langle \text{LND} \rangle \)), and on the position, in the structure of the verb form, of the consonant cluster meeting the input conditions of rule (i) (Variable constraint \( \langle \text{MC} \rangle \), i.e. morphological context, comprising the variants \( \langle \text{STEM} - F \rangle \), i.e. juncture between stem and \( F_4 \) formatives, and \( \langle \text{STEM} - M \rangle \) i.e. stem-medial position).
Rule 67

\[
\begin{align*}
\text{(a)} & \quad \text{CONDITION: Apply the rule categorically in the case of the (PREFIX) GRAFO group of verbs.} \\
\text{(b)} & \quad \text{For the establishment of possible weight relations between constraints across families the following horizontal tree arrangement will be of help:}
\end{align*}
\]
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':

\[
\begin{array}{c}
C \\
-\text{voiced} \\
-\text{cont.}
\end{array}
\quad \rightarrow \quad
\begin{array}{c}
+\text{voiced} \\
+\text{nasal}
\end{array}
\]

e.g. īvonte \rightarrow īvonde

Rule 46':

\[
\begin{array}{c}
C \\
+\text{nasal}
\end{array}
\quad \rightarrow \quad \varnothing
\]

\[
\begin{array}{c}
C \\
-\text{contin} \\
+\text{voiced}
\end{array}
\]

e.g. īvonde \rightarrow īvo(n)de

account for the sandhi interaction between F₁, n and F₂, t in
{+\text{Pass}, -\text{Perf}, +\text{Pl}, 3} forms (see examples above). In our 
data, variable rule 46' applies on twenty out of twenty-two cases
meeting its input conditions:

1/21/9ff R. ... ton ēpjase ētsi ke ton filise

(= he got hold of him like this and kissed him)

V. motā apesirēisan?

(= did they retire afterwards?)

E. ētsi, ta piēi ekāiptode

(= that's that, passions do flare up!)

[where ekāiptonte \rightarrow ekāiptonde \rightarrow ekāiptode]
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 $nk$ (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 tsi:mburopule!

($=$ what are you talking about, $Tsi:mburopulos$, 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 \textit{Tsipurōpulos <sipura} (=turbot) + suffix
-opulos\textsuperscript{22}, and not \textit{Tsii(m)burōpulos <sai(m)būri} (=stick, 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 \textit{p} and \textit{b} in his surname to
extract even more "fun" out of it: \textit{tsipura} \rightarrow tsibūri; to crown it
all, she actually reverses the application of rule 46', in that,
although \textit{b} in tsibūri does not derive from "underlying" \textit{mb}, she
goes from \textit{b} to \textit{mb}, nay, to \textit{mb}: \textit{Tsipurōpule} \rightarrow tsiburōpule \rightarrow tsimburōpule
tsim burōpule, 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.

2/2/14ff M.L. [examining a pile of essays written by the students
in one of my English classes]

\textbf{We mu los, ūlo yinākcs ēxis sti dāksi su?}

(= I say, there are only women in your class, aren't
there?)
T. [leafing through another pile]

eido potra ine ollo andres

(= over here it's only men)

J.L. [at first mock-pious/biblical and all of a sudden rather crude]

ksexoriste ta prosvata apo ta erifia . . . a re ala a
petaxi kanas andras varvatos, vre si, ke a su

dikso eyo.

(= 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: stin taksi su — stin diksi su — sti
diksi su. Notice the "nice", learned cluster mir in andres
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"
mir in andras 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. andras and not adras, 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. mb 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: ñd 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 461 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 → ñd.
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 ng 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; contrariwise the probability of appearance 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 MGG 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:
\[1 > p (R 46') > 0\]
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 (AGAPoro) 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 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'**

\[
i \mapsto \langle \emptyset \rangle / a \rightarrow \# / \{ \text{STv}, \langle \{K\} \rangle \}
\]

**CONDITION:** Apply the rule instead of HoD.

The rule reads that word final preceded by \( a \) in the case of \{STv\} verbs (e.g. \{ -Pass, -Perf, -Past, -Pl, 3, STV\}) \( ayapai \) is elided "optionally", the particular frequency levels determined by the variant present (\( + K \) or \( - K \)) of the variable constraint \( \langle \{K\} \rangle \). The rule applies instead of, rather than simply before, HoD to ensure that forms such as \( ayapai \) do in fact appear overtly. In other words, since HoD applies categorically (\( a + i \rightarrow a \)) we must have a variable rule to deal with \( ayapai \rightarrow ayapa(i) \). 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, -P1, 3, STV₁, \langle K \rangle \}

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 \langle \{ K \} \rangle 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 ayana 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:

\[ 1 \geq \frac{\langle \{+K\} \rangle}{\langle -K \rangle} \geq 0 \]

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 ksekinai pu las ke su:leí ... ti rotái i mitera mu, pu əna pate mamá?

(= ... and she sots 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:

\[ \text{i pulja pu } \text{xi efta pe} \text{ijia} \]
\[ \text{mesa stus uranu} \text{s perna} \]
\[ \text{kapote liyo stamata} \]
\[ \text{sto ftoxiko mu ke kita} \]

(= 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 \(\text{perna} (= \text{she passes})\), \(\text{stamata} (= \text{she stops})\) and \(\text{kita} (= \text{she looks in})\) (as opposed to \([+K]\) respectively, \(\text{hierxete} \), \(\text{stagmevi} \) and \(\text{vlepi} \) ) so that they can rhyme with \(\text{peijia} (= \text{children})\) 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'.

\[
\text{Rule 50'}
\]
\[
a \rightarrow \begin{bmatrix} \phi \\ \phi \end{bmatrix} \quad \rightarrow \quad o \begin{bmatrix} \# \\ [+\text{segm}] \end{bmatrix} \quad / \quad \{ \text{STv}, \begin{bmatrix} \{K\} \\ [+K] \end{bmatrix} \} \quad (a) \]
\[
(b)
\]

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 \(\langle K \rangle\), i.e. \(+ K\) or \(- K\),
e.g. ayapio → 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. ayapomen → 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 de miléo me apírus ... me apírus nomízo eípe (= I do not converse with inexperienced [ápírus] people ... with apírus, I think, he must have said.
V.L. kalá ne (= that's right, yea)
E.C. eyó de miló me apírus (= I do not converse with inexperienced people)
V.L. mu édose éia lulúdi zuzunoidés pantos. Kitakse se roto,
exi mamúna i ëen 'exi

(= she has given me an insecty [insect-ridden] flower.
Have a look, I am asking you, 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:

\[1 \geq p^{+K} > p^{-K} \geq 0\]

12.3. Finally, rule 51 will be revised as follows:

**Rule 51'**

\[a \rightarrow \emptyset / - u / \{ STv, \langle k \rangle \}\]

**CONDITION:** 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 \([k]\),
\(F\) \(a\) is optionally deleted in the context before \(u\), e.g. ayapiume \(\rightarrow\)
ayapūme, ayapāun(e) → ayapūn(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 ayapūme and ayapāun(e); if it does, the result is, as we said above, respectively, ayapūme and ayapūn(e); if it does not, HoD applies now on "untreated" ayapūme and ayapāun(e) to yield, respectively, ayapāme and ayapāne.

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 {STv₁} verb forms where r₃ a precedes F₆ u only one exhibits deletion of a, e.g.

2/10/3 M.L. .. ta pūrnum ftinā as pūme ke metā ta metapulūn aftū

(= they buy them cheaply, you know, and then they resell them).

cf. {STv₁, - K} metapulūn to {STv₂, + K} metapolūn

or {STv₁, - K} ksanapulūn(e) (see following examples)

It may be suggested that the presence of the "learned" ( {+ K} ) prefix meta- as opposed to [- K] ksana- favours the application of rule 51' which reflects Ancient Greek regularities, e.g.

metapulāun → metapulūn rather than of the more "recent" HoD,
often uncharacteristic of the value \([-K]\) e.g. \textit{metapulun} \rightarrow \textit{metapulun}. However, the verb root employed, \textit{pula-}, is clearly \([-K]\) and, as such, more recent, compared to \textit{pole}- deriving from AG. The conservative effect of derivational prefixes (or "genuine" prepositions; see Ch.IV, 3.1.4.) such as \textit{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 \textit{metapulun} is an interesting case of breached co-occurrence expectations: the topic (buying and selling) often requires "learned" forms such as \textit{metapolun}, whereas the situation (informal conversation) and the demoticist linguistic ideology of the speaker demand their due too, which, in this case is the root \textit{pula-}; i.e. \textit{metapulun}. Other alternatives that might have appeared under the circumstances would be \textit{metapolne} ("euphonic" final vowel) and \textit{metapulan(e)} (rule 51' rather than HoD), combined with "optional" appearance of "euphonic" final \(e\), though the appearance of either of the "consistent" forms \{\(\dagger K\) \textit{metapolun} or \(-K\) \textit{kearapulane}\} 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. pandos ṭote pu 'xane pai mazi ye kino to filo tu jani na pari to ṭxer, to ti pulane re pedja

(= 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 $\frac{1}{16} \times 100 = 0.06$ which can be seen as contributed by the variant [-K] of the variable constraint $\langle[K]\rangle$ since metapula- 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:

$$1 > P(+K) > P(-K) > 0$$

12.4. It will be noticed that the relative effect of the variants [+K] and [-K] of the variable constraint $\langle[K]\rangle$ on the frequency of application of all three rules discussed above is the same:

$$1 > P(+K) > P(-K) > 0$$

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 "earlier-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 \{+ 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:** \( \frac{1}{r^{(K)}} \), \( r^{(K)} \approx x \)

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):

\[ \text{Rule 68} \quad \{ - K \} \rightarrow \{ + K \} \]

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 $[^{1+K}]$ 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:

\[
\begin{align*}
A_1 + B_1 + C_1 > \\
A_1 + B_1 + C_2 > \\
A_1 + B_2 + C_1 > \\
A_1 + B_2 + C_2 > \\
A_2 + B_1 + C_1 > \\
A_2 + B_1 + C_2 > \\
A_2 + B_2 + C_1 > \\
A_2 + B_2 + C_2 \\
\end{align*}
\]

then \( A_1 > A_2 > B_1 > B_2 > C_1 > C_2 \)

and \[
\{A_1\} > \{B_1\} + \{C_1\} + \{B_2\} + \{C_2\}
\]

The above relations are captured in the familiar horizontal tree diagram (Fasold, 1972, 1978; Wolfram, 1974):

![Tree Diagram](image)

where frequencies decrease as we move from top to bottom.
II. 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. \( e + \text{pros} + \text{fer} + a \) (= 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. \( \text{pros} + e + \text{fer} + a \), 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:

\[
A \rightarrow \left(\frac{B}{C}\right) / D
\]

where \( 1 \geq C > B > 0 \) would read that B is replacing C but C is still heavier (i.e. appears more frequently) than B.

19. With the exception of the \([+ Pl, 2]\) forms: \textit{paveste} or \textit{pavosaste} where \(\varnothing\) spread under the analogical pull of the rest of the \([+ Pl]\) forms: \textit{pavomaste} \textit{pavosaste} or \textit{paveste} \textit{pavonte}

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 \([+ \text{Past}]\) 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 \(F_4 \varnothing\) 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 \(F_4 \varnothing\) is present
it is changed to ò after ò categorically: \textit{vrafo} \rightarrow \textit{vrafo}.

If ō is not present, rule (i) is not activated: \textit{vrafo}.

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,
\textbf{Nom}: -ōpolos, \textbf{Voc}: -ōpule.
BIBLIOGRAPHY


### Table One: The Regular Paradigm of the Verb in MGK

#### Values of Grammatical and Stylistic Categories Implicated in the Inflectional Structure of the Verb in MGK

<table>
<thead>
<tr>
<th>Structure of Stem Verb Ἐνδο (= I Stop)</th>
<th>When All Inflectional Rules Have Applied</th>
<th>When Stress and Sandhi Rules Have Applied</th>
<th>When All Inflectional Rules Have Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP 1 SP 2 SP 3 SP 4 SP 5 SP 6 SP 7 SP 8 SP 9 SP 10 SP 11 SP 12</td>
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<td>SP 1 SP 2 SP 3 SP 4 SP 5 SP 6 SP 7 SP 8 SP 9 SP 10 SP 11 SP 12</td>
<td></td>
</tr>
<tr>
<td>(+k) pav o</td>
<td>pav o</td>
<td>pav o</td>
<td></td>
</tr>
<tr>
<td>(-k) pav i s</td>
<td>pav i s</td>
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<tr>
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</tr>
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<td>(+k) e pav s o u m e n (e)</td>
<td>e pav s o u m e n (e)</td>
<td>e pav s o u m e n (e)</td>
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</tr>
<tr>
<td>(-k) e pav s o u m e n (e)</td>
<td>e pav s o u m e n (e)</td>
<td>e pav s o u m e n (e)</td>
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</tr>
</tbody>
</table>

etc., as in ἐπιλαθα [+Past] ἐπιλαθα ([e])

#### extras

- etc., as in ἐπιλαθα (+Past) ἐπιλαθα ([e])